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NATIONAL GEOGRAPHIC

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IS IT TRUE, as scholars have remarked, that history is written by winners? The assumption is that a dominant state acquires the apparatus for describing its own past, just as some Roman emperors designed their own genealogies to include a god or two and thus render themselves immortal. But then one must think of old Herodotus diligently laboring away on an honest history of his times that has survived all the others.

We have come to think of a reverence for the past as a hallmark of Western culture, perhaps because we really believe that "What Is Past Is Prologue," as the legend on a statue at the National Archives states, or perhaps because of Santayana's famous dictum that those who forget the past are doomed to repeat it.

This springs to mind in the wake of comments we received on Priit Vesilind's evocative account of his return to the land of his birth, Estonia. We asked scholars of what is now the Estonian Soviet Socialist Republic to check facts. Most Western scholars (not to mention the thousands still living to whom history is family memory) agree that the Estonian people suffered greatly during the 1940s under the Stalinist regime, with many thousands being imprisoned or deported to Siberia, or fleeing to the West. But a historian of the Estonian S.S.R. called Mr. Vesilind's description of this period so incorrect as to be "beyond criticism," maintaining that Soviet power was established "by the local workers as a result of a socialist revolution" and that the Red Army played no part in it. Finally, he believes our author's view of history is "openly anti-Soviet."

We have done our best to ascertain facts without getting mired in ideology and, as always, stand behind what we print. What is most impressive about our story, however, is the endurance of the Estonian people. They have been ground between Teuton and Slav for 700 years, not to mention Swedish and Danish incursions. German knights, Russian princes, Hitler's Wehrmacht, Soviet troops all have marched across that low and fertile landscape, and somehow the Estonians manage to remain Estonian. There is something in that history truly to ponder.

Arthur H. Brown

Texas! 440

It's a state of mind, author Howard LaFay and photographer Gordon W. Gahan confirm of that boisterous, burgeoning, economically potent, wide-open expanse of modern America.

Return to Estonia 485

The homeland he fled as a child in World War II, a part of the Soviet Union since 1940, retains a spirit of individuality and accomplishment; staff writer Priit J. Vesilind finds. Photographs by Cotton Coulson.

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French photographer Carole E. Devillers visits a village in Africa's Sahel where farmers and herdsman share waters of a life-sustaining lake.

British Columbia's Cold Emerald Sea 526

David Doubilet takes his color cameras into the frigid, current-swept Strait of Georgia and brings back spectacular images of a teeming aquatic realm. Text by Larry Kohl.

"House of Prayer for All People" 552

For 73 years a Gothic masterpiece has risen stone by stone on the skyline of the Nation's Capital. Robert Paul Jordan and photographer Sisse Brimberg capture the majestic spirit of the Washington Cathedral.

Temple Monkeys of Nepal 575

Pampered and protected, rhesus monkeys living around two Kathmandu shrines display half-wild, half-tame behavior, anthropologist Jane Teas discovers.

COVER: Two vividly hued anemones cling to an undersea wall in the Strait of Georgia. Photograph by David Doubilet.

TEXAS!

By HOWARD LA FAY

Photographs by GORDON W. GAHAN

BOTH NATIONAL GEOGRAPHIC STAFF

ANYWHERE IN TEXAS, the best time is dawn. The sun flares above prairies and sere hills, caressing old Spanish missions, oil fields, remote ranches, the dew-kissed produce of early markets. It searches out the gaudy cities. Their neon signs, so bright with promise only a dusk ago, fade and expire as morning suffuses the sky. The honky-tonks—vivid enemies of the night—reeking now of stale beer and of love lost, sleep dumbstruck in the dawn.

Beside the Brazos River, the mesquites and cottonwoods take shape in the dim pewter light. A creamy fog clings to the bottomlands like a fallen cloud.

With an old man who had farmed and ranched in his time, I crouch beside a fire. Flames lick at a pot and the aroma of coffee enriches the clean, astringent air. Together, we watch the world emerge from the little death of night.

"It's a deceitful country," the old man says. "Hard. Mean. With floods and droughts and tornadoes. Trust it and I guarantee it'll destroy you. But look at it." He leveled a hand at the serene river, at the trees bent above it like lovers. "God Almighty, it's so beautiful!"

Dawn in Texas is a protracted moment. The sun comes up over Beaumont, and the first light requires nearly an hour to traverse the 773-mile breadth of the nation's second largest state. In my months of crisscrossing Texas, I learned it is

A grin wide as Texas lights the face of Chris Lacy, manager of the O-6 Ranch near Alpine. The state—tough but bighearted—feeds on the folklore of its rugged past while opportunity and optimism continue to bloom, spurring new frontiers of growth.





Here is a land of long horizons, alternately



drab and dazzling...

The end of the trail for about five million cattle each year is a feedlot like this one near Amarillo. 443



mammoth in every way—in size, in comedy, in tragedy, and in spirit. To me a glowing experience.

Texas, however, has inspired negative reactions. After journeying across the state in 1866, Gen. Philip H. Sheridan observed sourly: “If I owned Texas and all hell, I would rent out Texas and live in hell.”

A century’s progress might cause the general to relent. Texas, with more than 13 million people, ranks as the third most populous of the fifty states. In the space of two generations that population has transformed itself from 80 percent rural to 80 percent urban. Houston is America’s fastest growing major city. Dallas is burgeoning; so is El Paso. Texas leads the nation in production of petroleum, livestock, natural gas, magnesium, graphite, and sulfur.

*When I die, I may not go to heaven.
I don't know if they let cowboys in.
If they don't, just let me go to Texas.
Texas is as close as I've been.*

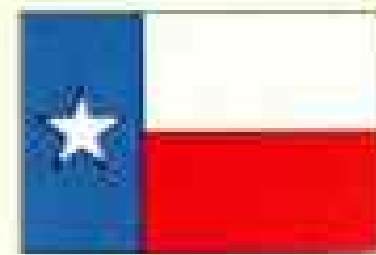
—COUNTRY AND WESTERN SONG

YOU CANNOT REDUCE TEXAS to words. At 267,338 square miles, it is an immensity too great, a variety too diverse. Who can hope to portray springtime in Corpus Christi, a symmetry of dusty pink oleanders, sea, and sky, possessing the clarity of a Dufy painting . . . honky-tonk angels and Coca-Cola cowboys on their nightly rounds . . . Waco, in the heart of the state, with dusk enfolding the paddle-wheeler *Brazos Queen* as she steams downriver . . . the autumnal hysteria of Friday-night high-school football throughout the state . . . the skies over the northern Panhandle, infinite and blue, with clouds surging so high, so high?

In Texas, speech has developed as independently and flamboyantly as the Texan character. Germans settled the hill country, and in Fredericksburg or New Braunfels you will still hear an occasional *Mein Gott!* In the Rio Grande Valley, with its large Mexican-American population, everybody understands “¿Qué pasa, Harry?” or “¿Cómo estás, Joe Bob?” Within the English language one finds certain constants. Almost everywhere in the state, barbed wire is

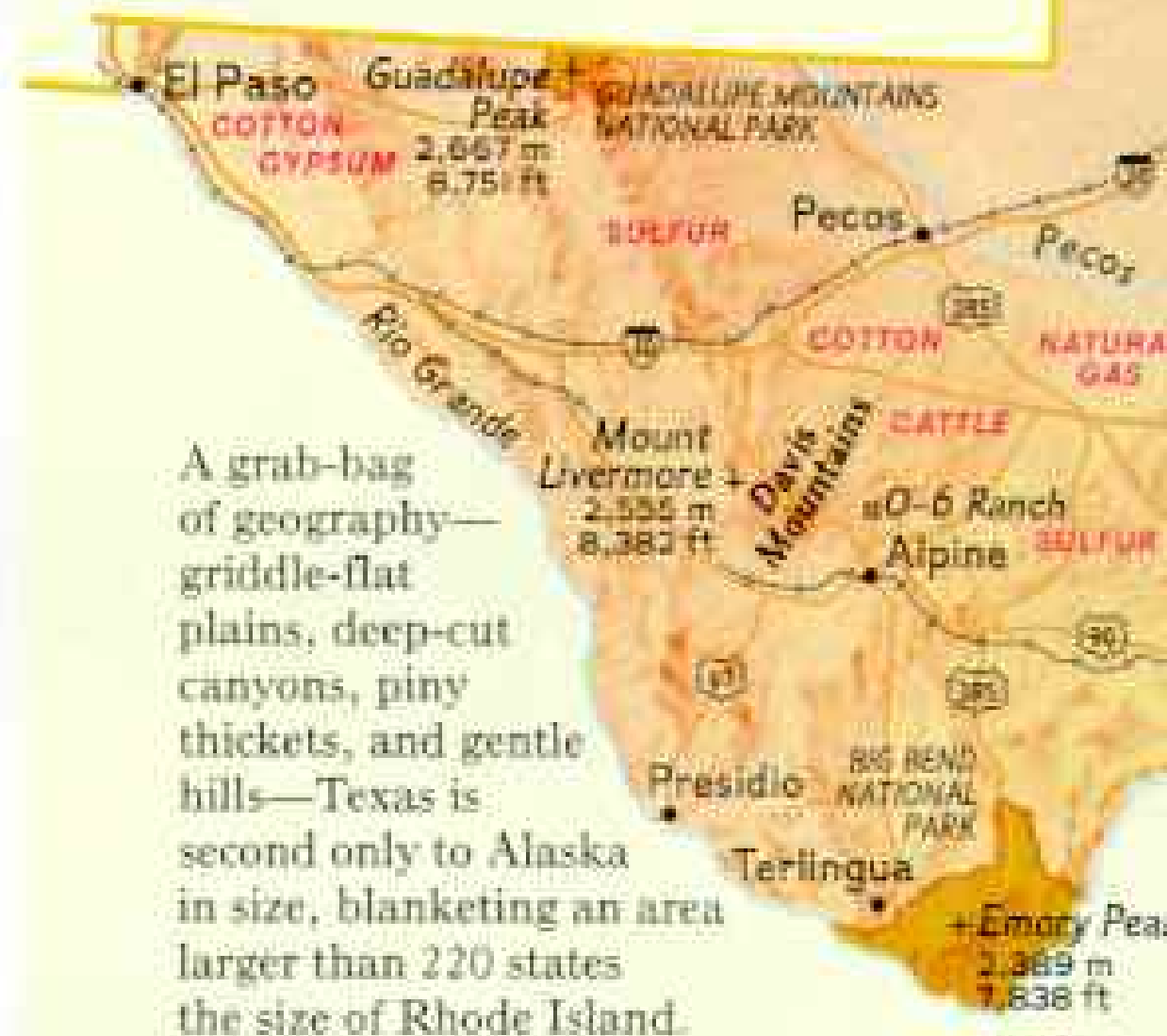
TEXAS

SPAIN RULED this territory from 1519 to 1821, except for five years of French dominion.



After the Mexican revolution, Texas suffered under years of unstable military rule.

Texas won its independence at the Battle of San Jacinto in 1836, and Sam Houston became president of the new republic. Ten years later the Lone Star State joined the constellation of the American Union as the 38th state.

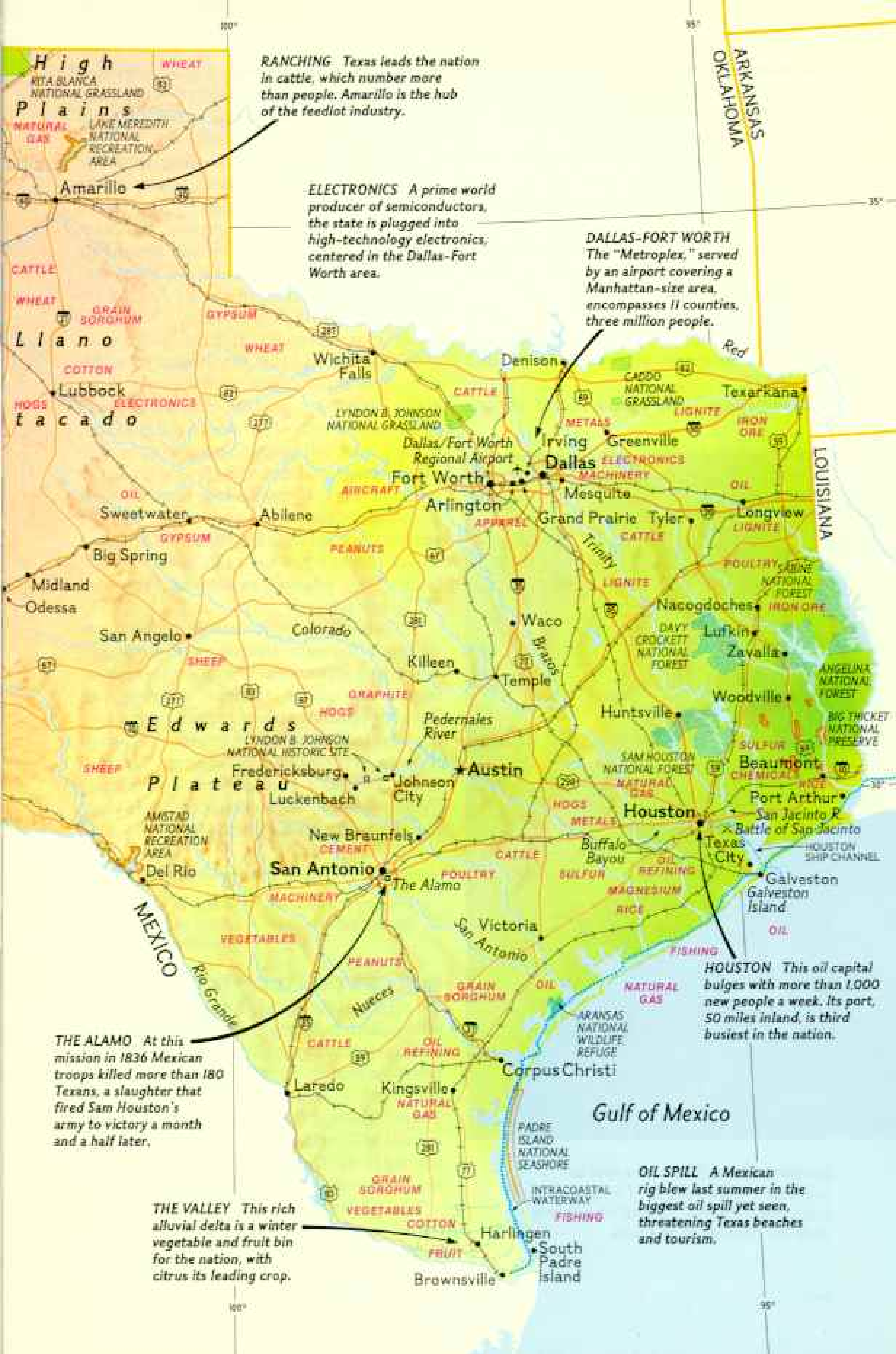


A grab-bag of geography—griddle-flat plains, deep-cut canyons, piny thickets, and gentle hills—Texas is second only to Alaska in size, blanketing an area larger than 220 states the size of Rhode Island.

AREA: 267,338 square miles.
POPULATION: 13,014,000, ranks 3rd.
ECONOMY: Cotton, cattle, rice, petroleum, natural gas, petrochemicals.
MAJOR CITIES: Houston (pop. 1,700,000); Dallas (pop. 898,000); Austin, capital (pop. 341,500).

0 KILOMETERS 100
0 STATUTE MILES 100

MAP BY JOHN S. WEBER
COMPILED BY MARTIN S. HANCOCK
NATIONAL GEOGRAPHIC ART DIVISION



RANCHING Texas leads the nation in cattle, which number more than people. Amarillo is the hub of the feedlot industry.

ELECTRONICS A prime world producer of semiconductors, the state is plugged into high-technology electronics, centered in the Dallas-Fort Worth area.

DALLAS-FORT WORTH The "Metroplex," served by an airport covering a Manhattan-size area, encompasses 11 counties, three million people.

ARKANSAS
OKLAHOMA

LOUISIANA

High Plains
RITA BLANCA NATIONAL GRASSLAND
LAKE MEREDITH NATIONAL RECREATION AREA
NATURAL GAS

Llano Estacado
GRAIN SORGHUM
WHEAT
COTTON
HOOPS

Edwards Plateau
LYNDON B. JOHNSON NATIONAL HISTORIC SITE
SHEEP
GRAPHITE
HOOPS

THE ALAMO At this mission in 1836 Mexican troops killed more than 180 Texans, a slaughter that fired Sam Houston's army to victory a month and a half later.

THE VALLEY This rich alluvial delta is a winter vegetable and fruit bin for the nation, with citrus its leading crop.

HOUSTON This oil capital bulges with more than 1,000 new people a week. Its port, 50 miles inland, is third busiest in the nation.

OIL SPILL A Mexican rig blew last summer in the biggest oil spill yet seen, threatening Texas beaches and tourism.

Wichita Falls
LYNDON B. JOHNSON NATIONAL GRASSLAND

Dallas/Fort Worth Regional Airport
Fort Worth
Arlington
AIRCRAFT
APPAREL

Texarkana
CADDO NATIONAL GRASSLAND
LIGNITE
IRON ORE

Irving
Greenville
Dallas
METALS
ELECTRONICS
MACHINERY
CATTLE
LIGNITE
POULTRY
SABINE NATIONAL FOREST
IRON ORE

Huntsville
Woodville
Lufkin
Zavalla
DAYV CROCKETT NATIONAL FOREST
ANGELINA NATIONAL FOREST
BIG TRICKET NATIONAL PRESERVE

Austin
Johnson City
Beaumont
SULFUR
CHEMICALS
RICE
WINE

Houston
Texas City
Galveston
Galveston Island
OIL
NATURAL GAS
FISHING

Corpus Christi
ARANSAS NATIONAL WILDLIFE REFUGE
NATURAL GAS

Harlingen
South Padre Island
BROWNSVILLE
FRUIT
FISHING

Padre Island National Seashore
INTRACOASTAL WATERWAY

Gulf of Mexico

MEXICO
Rio Grande
Del Rio
AMSTAD NATIONAL RECREATION AREA

San Antonio
The Alamo
New Braunfels
CEMENT
MACHINERY
VEGETABLES
PEANUTS

Laredo
Kingsville
NATURAL GAS
GRAIN SORGHUM
VEGETABLES
COTTON

Brownsville

Abilene
GYPSON
PEANUTS

San Angelo
SHEEP

Fredericksburg
Luckenbach

San Antonio
San Victoria

Nueces

Lafado

Harlingen

Brownsville

Waco
Temple

Killeen

Johnson City

San Antonio

San Antonio

Kingsville

Harlingen

Brownsville

Denison
CATTLE

Fort Worth
Arlington
AIRCRAFT
APPAREL

Waco
Temple

Johnson City

San Antonio

San Antonio

Kingsville

Harlingen

Brownsville

Texarkana
CADDO NATIONAL GRASSLAND
LIGNITE
IRON ORE

Irving
Greenville
Dallas
METALS
ELECTRONICS
MACHINERY
CATTLE
LIGNITE

Huntsville
Woodville
Lufkin
Zavalla
DAYV CROCKETT NATIONAL FOREST
ANGELINA NATIONAL FOREST
BIG TRICKET NATIONAL PRESERVE

Austin
Johnson City
Beaumont
SULFUR
CHEMICALS
RICE
WINE

Houston
Texas City
Galveston
Galveston Island
OIL
NATURAL GAS
FISHING

Corpus Christi
ARANSAS NATIONAL WILDLIFE REFUGE
NATURAL GAS

Harlingen
South Padre Island
BROWNSVILLE
FRUIT
FISHING

Padre Island National Seashore
INTRACOASTAL WATERWAY

Gulf of Mexico

bob wahr; everything is *evvathang*; business is *bidnis*; *tan pannies* equal a *dahm*; and if you're called, you better come *rat cheer*.

Damfino Street in San Antonio—now, alas, defunct—stood as a monument to Texas pronunciation. Once long ago someone inquired about the name of the obscure thoroughfare alongside St. Joseph's Church. The answer—"Damned if I know"—became the official designation in its Texas form: *Damf-I-no*.

The ubiquitous greeting, "Ha yew?" derives from "How are you?" And one soon learns the obligatory response: "Ah'm fahn. Ha yew?"

So arcane is Texas speech that Houston's

Rice—or, more properly, *Ras*—University offers a course in Texas dialects. A companion program explores two other regional mysteries, barbecue and chili.

As befits the nation's leading producer of petroleum, Texas runs by grace of the internal-combustion engine. The entire population shares an obsession with cars and tends to drive them flat out. Without a Cadillac or a Lincoln no one can claim status; without a pickup truck, no one can aspire to be the complete cowboy.

Sometimes you can catch the intoxication of this automotive cult. On a Saturday afternoon, perhaps, coursing the April highways. On either side of the road wild flowers explode and retreat in masses of gold and scarlet, pink and purple. Sun glaring out of a platinum sky and the swift air sweet with the scent of mown grass. The season's first sweat springing above your upper lip, the exaltation of speed, a six-pack of Pearl in the cooler. And on the car radio Willie Nelson belting out another exuberant chorus of "Whiskey River."

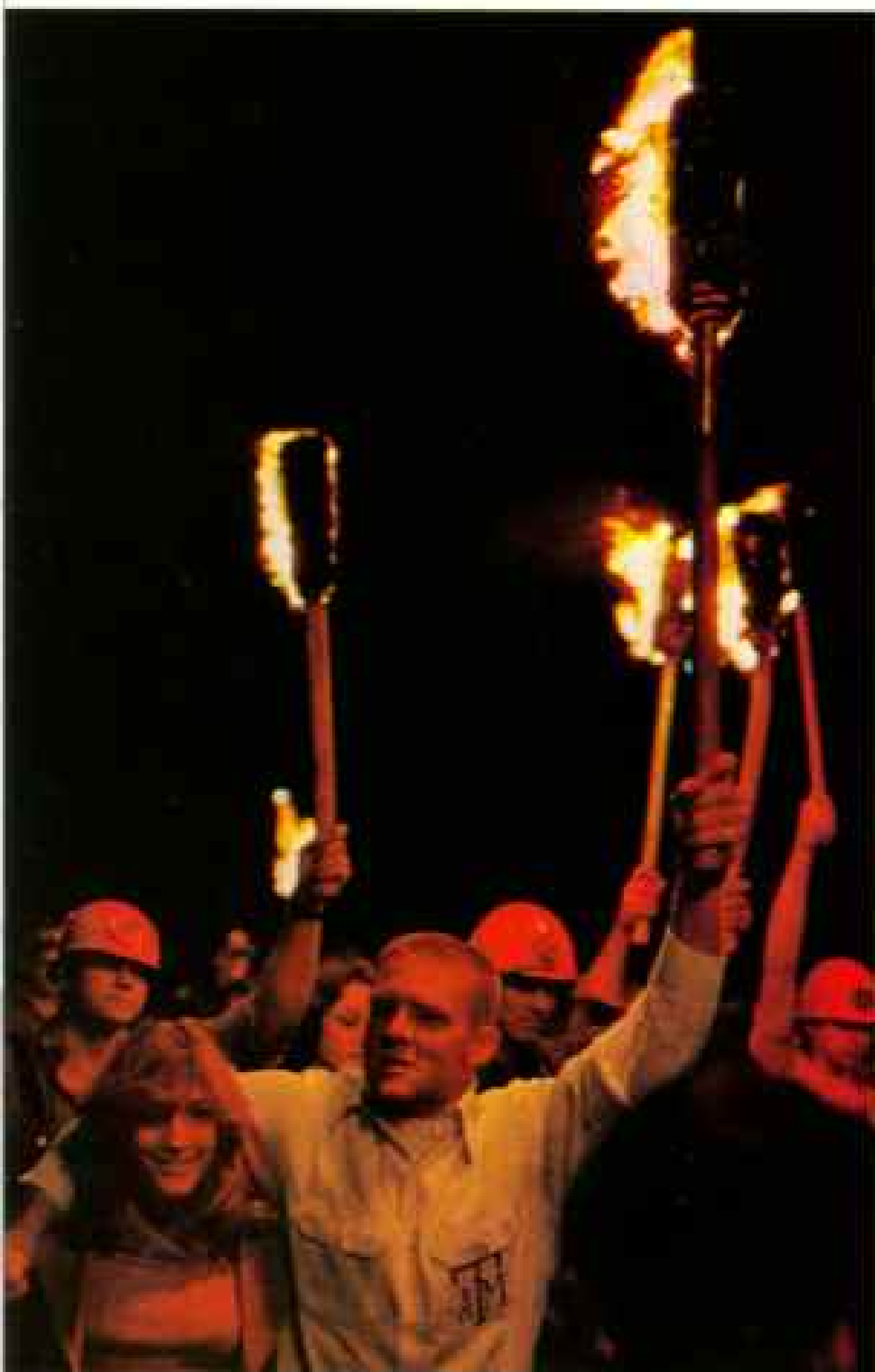
To live in Texas is to dare the jagged, cutting edge of nature. Each solstice, each equinox brings its own catastrophes: tornadoes, floods, oil slicks. Winter temperatures freeze range and cattle alike; summers parch the prairies and bake city streets. The softer seasons are swift and transient. "Springtime?" echoed a Panhandle wheat farmer. "Yeah, we have a beautiful springtime here. Usually comes on a Thursday."

*My love is a cowboy, wild horses he rides,
Away down in Texas my lover resides.*

—COWBOY SONG

IN CERTAIN RESPECTS the rodeo stands as the American equivalent of the Spanish bullfight. Like the matador, the rodeo cowboy is pitted against an untamed beast—a bronco, a bull, a suspicious steer—and must dominate him. In Spain, unlike Texas, death is a foregone conclusion; the animal will certainly die, the man perhaps. But we in the United States do not yet share the Iberian affinity for doom.

The professional rodeo cowboys—a diminishing breed—labor beneath a shadowed star. Entry fees are high, prize money



Burning desire for victory sparks supporters of Texas A & M at a parade before their annual football showdown with the University of Texas.

scant. In pickups and vans, and sometimes in buses, they follow the trail from Calgary to Cheyenne to El Paso to Pecos and Fort Worth. For the dollars, which are few; for the glory, which is all.

In Texas I attended the weekend rodeos that feature journeymen competitors who live or die on the meager prize money. You will find few champions in Grand Prairie or Mesquite; there cowboys do it, essentially, for love.

Saturday night at Mesquite. The announcer, intoxicated with himself, drones endlessly through the public-address system as the weekend cowboys struggle through the varied hazards of bull riding and calf roping, bronco riding and steer wrestling.

I stand beside the chute with the glaring lights, the steamy smell of cattle and horses, and the piercing wafts of human sweat, waiting for the bulldogging to begin. With slaps and kicks, handlers force stubborn steers into position.

The riders jam their horses to the rear of the chutes. Tension unites man and mount and steer. I wait through a long moment of charged silence. The rider nods. In a blurred explosion the steer and the cowboy erupt into the arena. Arrowheads of earth fly from the horse's hooves and sting me like small-caliber bullets. The rider miscalculates and misses the steer.

Announcer: Your applause is the only consolation prize for this hard-luck cowboy.

The next steer is recalcitrant. A boy with a cane attempts to snare him into the chute and narrowly misses disembowelment when the animal hooks viciously. "Damn!" the boy shouts, caning the steer into the chute. "You wanna' bet ten dollars I don't stand in front of him again?"

The cowboy, already jammed in place, is vigilant. The steer, in his narrow cell, struggles mightily. "Push 'im up a little," says the rider. The animal is pushed. Again the explosion of steer and horseflesh and the salvo of clods.

Announcer: You can pay him off in applause. How much bad luck can a man have?

And in the bareback bronc riding, Keith Hagan—out of Baker, Louisiana—bursts from the gate on the insanely bucking Medicine Lodge. Well before the required eight seconds, Medicine Lodge dumps Hagan.

Announcer: The cowboy from Baker is deaf. Now, come on. Even though he can't hear it, he'll know you're applauding.

Into what equation can you calculate the cheers . . . the lights . . . the groupies, as nubile and numerous as follow any rock band . . . the 19th-century attire . . . the 19th-century skills?

In our increasingly computerized society these are the last romantics. They preserve the magic of the lariat, the flash of the spur. Like knights-errant they journey from city to city, arena to arena, tourney to tourney. Avatars of an older, braver time, they display—each weekend in their season—what the rest of us have lost forever.



The ahs of Texas are upon Dallas Cowboy cheerleaders, who help inspire the two-time Superbowl winning professional football team.

The chute bursts open; a wild-eyed bronc erupts



into leather-slapping, bone-cracking fury.

A convict cowboy rides in the annual Texas Prison Rodeo at Huntsville. 449



*Deep within my heart lies a melody,
A song of old San Antone,
Where in dreams I live with a memory,
Beneath the stars all alone.*

—COUNTRY AND WESTERN SONG

OLDEST OF TEXAS CITIES, San Antonio possesses the grace of history. Spanish friars built a mission on this southern edge of the hill country in 1718. The settlement has become the tenth largest metropolis in the United States, but the cachet of old Mexico lingers still.*

On a summer night a stroll along El Paseo del Rio, which skirts the pale emerald flow of the San Antonio River as it winds through downtown, brings you past dramatically arched bridges, the multicolored lanterns of cafés and restaurants. Here the smell of grilled steak . . . there the pop of a champagne cork . . . overall, the hot, oily aroma of "Tex-Mex" tacos. And from Jim Cullum's Landing, the brassy, bluesy crescendos of dixieland jazz played by a combo that cares.

Music everywhere in San Antone. On a Sunday morning I went to St. Patrick's

Church, a drab edifice of yellow brick in a Spanish-speaking, working-class area.

Inside, all is transformed. Banks of flowers decorate the sanctuary; a cloth of red, white, and green—the colors of Mexico—veils the tabernacle; a brilliantly striped serape serves as an altar cloth; the acolytes wear ponchos instead of surplices.

The timeless ritual of the Mass unfolds to mariachi rhythms. Guitars sob for a crucified God; trumpets blare for the miracle of the Eucharist. Worshipers raise their voices loud and strong for the redemption of us all.

But all song stops at the Alamo. The carefully restored mission in downtown San Antonio—the Cradle of Texas Liberty—stands like a tragedy in stone.

To understand the Alamo, one must understand the history of Texas. Save for a brief five years under the French flag, the vast and virtually unsettled area was ruled by Spain from 1519 to 1821. With Mexican independence, Texas became part of a new nation beset by chronic political chaos. One Mexican military strong man succeeded another in the name of an illusory republic.

Despite the turbulence, various empresarios—chief among them being Stephen F. Austin—were empowered to bring U. S. colonists into remote Texas. Although wary of America's blatant expansionism, the Mexicans sought, through an influx of settlers, to check the Indians who dominated the huge province.

To land-greedy Americans, Mexico's terms were irresistible. Each family received 4,428 acres of rich farmland for a few pennies per acre. Colonists were immune from custom duties for seven years, from other taxes for ten.

By 1835, 30,000 Americans had settled in Texas, outnumbering native Mexicans by ten to one. Conflict became inevitable: The Mexican distrust of U. S. expansionism matched the colonists' contempt for brown-skinned people who could not produce an effective government.

When it came in all its violence in 1836, the revolution surprised no one. The Texans, as they called themselves, struck first and drove Mexico's scant garrisons south of the Rio Grande. Enthusiasm for the

*Fred Kline portrayed the "San Antone" he knew since boyhood in the April 1976 GEOGRAPHIC.



STEVE WILSON

With long strokes of laboring wings, a little blue heron launches from the surf of Padre Island National Seashore, on a 113-mile-long Gulf Coast strand.

revolution swept America; living legends like Jim Bowie and Davy Crockett joined the cause. Sam Houston, a Tennessean, assumed command of the Texian army. Volunteers poured across the border

Then the Mexican regulars counter-attacked, swiftly and brutally. Gen. Antonio López de Santa Anna y Perez de Lebron, the reigning dictator, rode hard and fast, appearing suddenly at San Antonio with some 4,000 troops.

Seldom has history matched two more unlikely antagonists than Santa Anna and Houston. The Mexican general, skilled in the labyrinthine politics of his nation, rose thrice to the presidency and was thrice overthrown. On campaign he lived well in carpeted tents generously stocked with champagne and rarely lacking a comely companion. Addicted to opium, which he chewed mixed with chicle, he managed to lose a third of Mexico's territory, yet rejoiced in the title Napoleon of the West.

At the age of 17, Houston had become, in effect, a Cherokee. He lived with the Indians for three years, "wandering," he wrote, "along the banks of streams, side by side with some Indian maiden . . . chasing game, living in the forests, making love and reading Homer's *Iliad*."

Houston won a commission in the U. S. Army. But his career faltered when, in 1818, he led a Cherokee delegation to Washington. Lieutenant Houston appeared before an outraged secretary of war in breechclout and blanket. His career collapsed after he was falsely accused of involvement in the slave trade. Subsequently Houston read law, was elected to Congress, and became governor of Tennessee. A tangled marital tragedy drove him back to the Cherokee, where he stayed drunk for more than a year. Then he moved west to Texas.

Santa Anna's arrival in San Antonio stunned the rebels. Col. William B. Travis, with a force that would finally total more than 180, fortified himself in the old mission called the Alamo, despite Houston's orders to blow it up and join the main, pitifully undermanned, Texian army to the east.

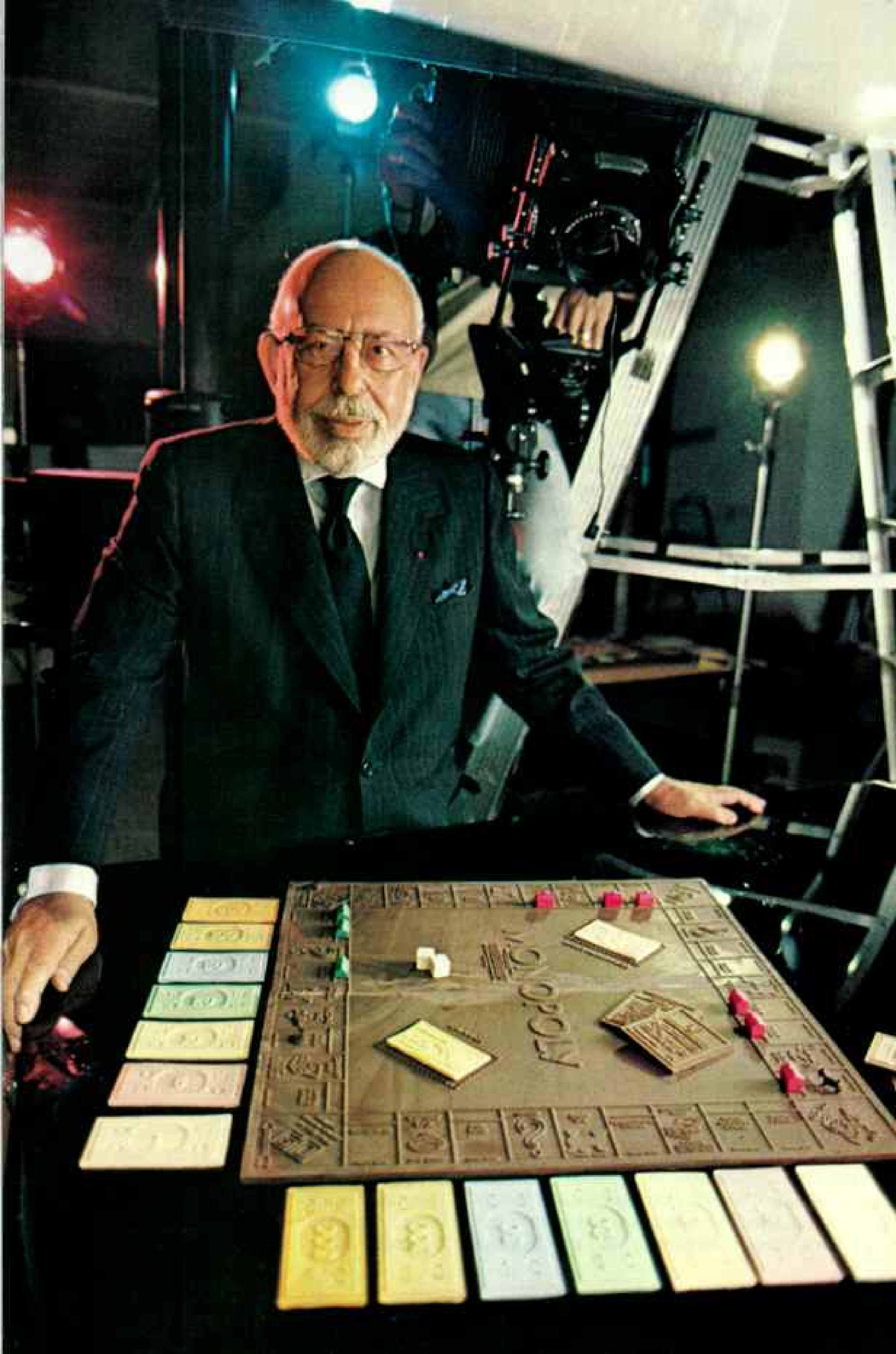
The reputation of Colonel Travis—valiant, dashing, charismatic, and totally incompetent—has been saved by Santa Anna's vengeful stupidity. Had the Mexican



Turtle loving care saved Geraldine, a green sea turtle, from spilled oil. "I spoil my turtles," says Ila Loetscher of South Padre Island, who has rescued and released countless others.

general bypassed the Alamo, he would almost certainly have crushed the rebellion. His decision to fight gave Houston invaluable time to organize his troops.

The Alamo, with both Bowie and Crockett looming large, held for 13 days. Tradition says that all the Texian defenders died in action. But Lt. Col. José Enrique de la Peña of Santa Anna's staff recorded that seven survived the carnage, including "David Crockett, well known in North America for his unusual adventures." Santa Anna ordered their execution. Wrote de la Peña: "Though tortured before they were killed, these unfortunates died without complaining and . . . humiliating themselves. . . ."





MARTIN BULLOCKS



Dallas, Inc.: Merchant prince Stanley Marcus (facing page) calls his hometown a "can-do city—people here think positive." Chairman emeritus of Neiman-Marcus, he stands with a chocolate Monopoly set offered in the store's 1978 Christmas catalog. Operating on a real-life game board, art patron and scholar-developer Raymond Nasher (left) anticipated the Sunbelt boom, bought Dallas land, and built the award-winning NorthPark mall. In the aristocracy of Texas money, multi-millionaire Nelson Bunker Hunt (above, center) probably reigns as richest. He owns oil, sugar interests, and perhaps as much silver as the Bank of England.

Such foresight and drive built Dallas and turned a trading post at a kink in the Trinity River into a major banking and insurance center and one of the nation's biggest convention centers.

*Will you come to the bower
I have shaded for you?
Our bed shall be roses
All spangled with dew.*

—19TH-CENTURY LOVE SONG

WITH HIS DEPLETED TROOPS Santa Anna drove east until he confronted Houston's army of 783 Texans beside the San Jacinto River. Houston, playing for time and opportunity, avoided combat. Santa Anna pitched camp and retired to his luxurious canvas pavilion to sample his customary comforts.

On the afternoon of April 21, Houston knew that the moment had come. The Mexicans, drugged by overconfidence and the siesta hour, had neglected their security. At half past three he unleashed the last hope of Texas. The army's fifers played what was probably the only tune they collectively knew, a love song: "Will You Come to the Bower?" The Texans advanced on the sleep-heavy enemy in a single implacable line. At point-blank range they fired a devastating volley. Then, as they overran the confused encampment, a terrible cry arose, "Remember the Alamo!"

Later, Pvt. Bob Hunter recalled the moment in radiant orthography: "Gen'r'l Houston giv orders not to kill any more but to take prisners. Capt. Easlin said Boys take prisners, you now how to take prisners, take them with the but of yor guns . . . remember the Alamo . . . & club guns, right & left, & nock there God damn brains out."

The sun set over a totally destroyed Mexican army: according to Houston's official report, 630 dead, 208 wounded, another 730 taken prisoner. The Texian losses: two dead, 23 wounded.

The Napoleon of the West offered Texas its independence in exchange for his freedom. The new republic, as almost everyone realized, was merely a political transition.

The gush of culture in Fort Worth spills over into the architectural excellence of Philip Johnson's public "Water Garden." The onetime cow town now supports three major art museums, a symphony orchestra, and an opera company.







Cowboy chic rides high at the Cattle Baron's Ball in Dallas, where Texans like Baxter Brinkmann (above) kick up their heels for charity. "To dress this way is part of the romance of Texas," Brinkmann says. Another romance that endures: the girl of the golden West (right).

The frontier spirit also pervades the business climate and allows enterprise free rein, but with mixed blessings. Texas state corporate income taxes are nil, unions rare, and in Houston—where mansions rub shoulders with taco stands—zoning laws minimal. Although the state's unemployment rate is lower than the national average, one Texan in six lives below the poverty line.





Ten years later, in December 1845, Texas entered the Union.

Eventually a settlement—called, appropriately enough, Houston—rose by Buffalo Bayou not far from the site of the famous victory. Today, with 1,700,000 people, it ranks as the nation's fifth largest city in population and—by a wide margin—the fastest growing. At least a thousand new citizens flock into Baghdad on the Bayou every week, and a thousand jobs open up to accommodate them.

The Houston Ship Channel, which links the city with the Gulf of Mexico fifty miles to the east, has made Houston our third busiest seaport, after New York and New Orleans. Skyscrapers soar, suburbia sprawls, and a nightmare network of badly paved freeways knits it all together.

Laissez-faire prevails in this Klondike of the Sunbelt, even to the virtual absence of zoning laws. Churches and nude bars vie for space. Taxes are minimal, as are municipal services. A benign neglect confers near immortality on potholes throughout the city.

Violence flickers on the Houston horizon like heat lightning. Murders averaged more than 12 a week in 1979. A judge ascribed this rise in crime to the segment of the city population that's "rootless, lonely, short of money, and on the make." The weekends are worst, and an occasional Saturday night in the honky-tonks can resemble the Tet offensive in Vietnam.

Nonetheless, business thrives in Houston's boomtown environment. A steady stream of relocating northern corporations swells the industrial rolls. Banks flourish and expand in the heady climate of endless growth, most of the major oil companies operate there, and the flared-off natural gas of adjoining refineries streaks the night skies like stationary comets.

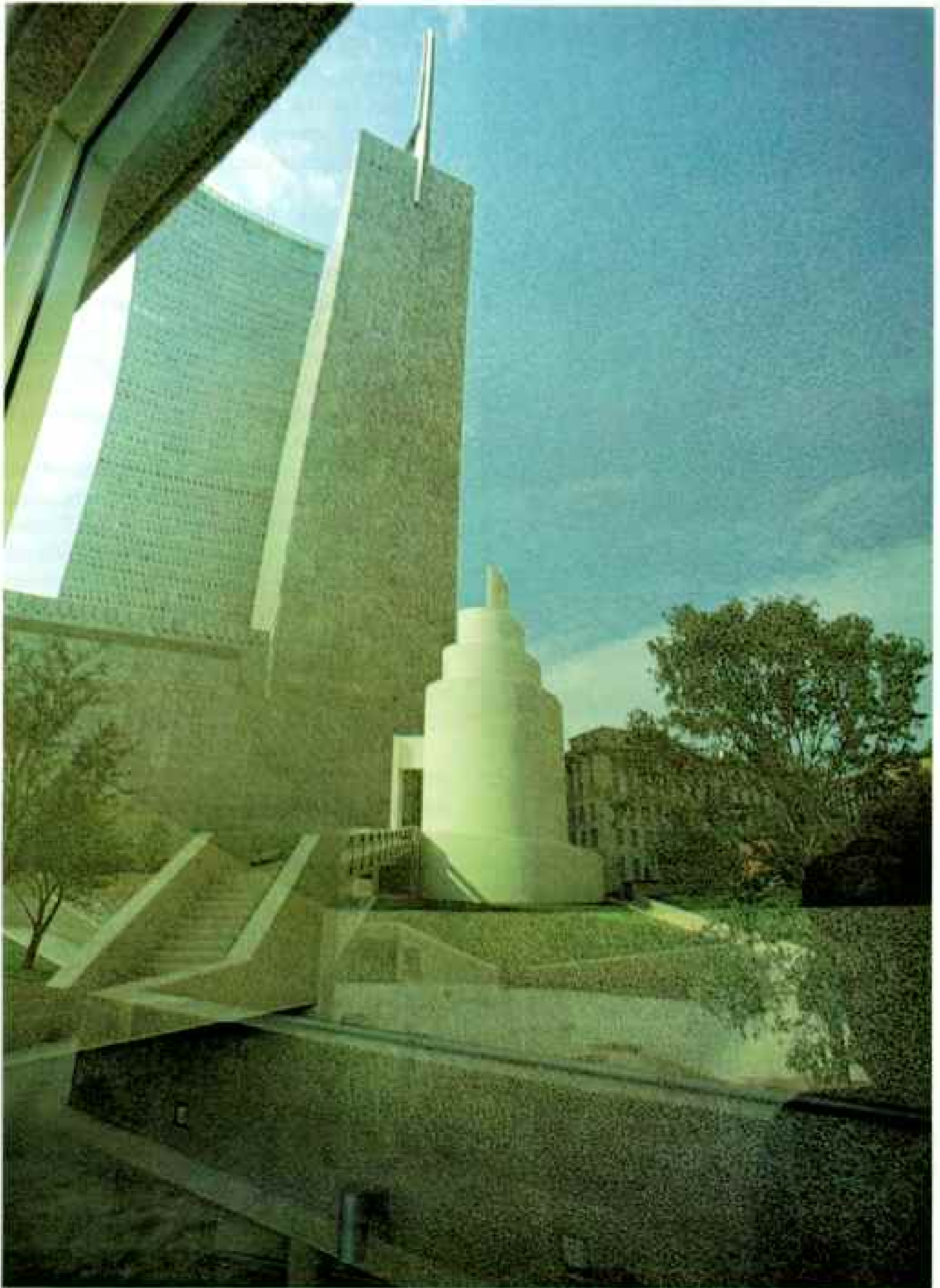
Because oil is an international commodity, Houston has become an international city. Airlines link it directly to the Persian Gulf, and many a roughneck knows Riyadh and Bahrain as well as he knows downtown Houston. Nor does China—so recently opened to American trade—lie beyond the pale: Houston companies are already servicing more than 200 million dollars' worth of Chinese contracts.

In this commercial ambience of upward mobility, off-loading freighters, and multinational corporations, one discovers with surprise that one of the city's leading industries is medicine.

On 223 acres in south Houston, the 23 institutions of the Texas Medical Center form a craggy skyline. Interspersed among them are two medical schools, two nursing schools, a dental school, and a school of public health. Probably the largest and most sophisticated such establishment in the U. S., the medical center employs 26,000 people to treat more than 1,500,000 patients a year.

Dr. Michael E. DeBakey works his open-heart magic here at Methodist Hospital; Dr. Denton Cooley does the same at St. Luke's Episcopal and at Texas Children's. In any problem that requires brilliant physicians and state-of-the-art technology, the

In a city with little time for reflection, the spiraled chapel of Dallas's Thanksgiving Square—mirrored in an adjoining building (below)—provides a place for meditation. A new hotel with its restaurant-topped fifty-story Reunion Tower (right, foreground) joins the upthrust of 500 million dollars in new construction. Wide-open spaces notwithstanding, four out of five Texans live in cities.





medical center excels. Patients flock to it from every continent.

The core of the medical center, the pioneer hospital around which the rest were built, is one of the world's great cancer centers—the M. D. Anderson Hospital and Tumor Institute. "The genius of this hospital," Dr. Richard G. Martin, Head of Surgery, told me, "is that it combines an extensive research program with all three of the principal treatments for cancer. Originally there was only surgery; then radiation broadened our possibilities; the advent of chemotherapy provided three modalities. Many patients at Anderson will receive all three; this interplay gives us a tremendous weapon."

So tremendous that Anderson Hospital, receiving 25,000 new patients a year, sends more than half of them home in a state of remission.

Dr. Emil J Freireich, Head of the Department of Developmental Therapeutics, spends his days on a far frontier of the intellect, translating the results of advanced research into new means of treating cancer. "This disease," he says, "is, and will continue to be, the most immediate threat to life in civilized societies."

Some 15 years ago, Dr. Freireich helped develop the concept of combination chemotherapy—the use of multiple drugs rather than a single agent—to attack systemic cancer, that which has spread throughout the body. In his office he asked, "Why perform a mastectomy, when a breast cancer is already systemic? At that point the breast isn't the problem. We should attack the systemic cancer first and get rid of the lumps and bumps later.

"Now, myeloid leukemia is a form of cancer that is systemic from the outset. In 1965, 90 percent of those who contracted it died within a year. Today we can extend their lives significantly, and 15 percent appear to be cured. If you take all systemic cancers, we can probably cure about 10 percent.

"Am I optimistic? No, I'm realistic. I see the treatment of cancer improving at an exponential rate. The record so far is one of achievement, progress has been accelerating every year."

It was late on a wintry afternoon when I left the Anderson research labs by way of a clinic lobby. In rows of cheery orange

chairs, outpatients were still waiting quietly and attentively. Many hundreds throng the hospital every day. All bear their peculiar stigmata: Surgery has left livid scars; radiation has converted heads and necks into mosaics of indelible ink to guide the probing, lethal beams; chemotherapy has created hairless aliens, lost in their cyclic numbness and nausea. All of them waiting in the failing light for the treatment that might, just might, transport them into the magic circle of the saved.

I made my way toward the door and the December dusk, passing an adolescent girl on crutches with only a memory of the lissome, tanned leg lost to melanoma . . . a west Texas farmwife with her weathered, enduring face and eyes that had surrendered long ago . . . a fragile Mexican schoolboy dutifully reviewing his sums—"seis más cinco, once"—while a tumor silently subtracted the minutes of his life.

A poignant unity binds them all. For they are the walking wounded in the long, darkling war between science and cancer.

Oh, give me a home where the buffalo roam
—COWBOY SONG

OUT OF SEASON, I lingered on the deserted beaches of Galveston Island. On the horizon of the Gulf of Mexico, rigs tirelessly pumped oil. At night, lights glittering, they seemed like a blockading fleet. For most of the 19th century Galveston controlled the maritime trade of Texas and seemed destined to become its premier city. But in 1900 a hurricane devastated the city, and killed some 6,000 people. Galveston never regained its economic vigor.

The low-lying terrain inland from the Gulf has proved ideal for rice and, among the states, Texas ranks third after Arkansas and California in production. But you will look in vain for coolies wading in paddies here. Airplanes sow a solid rain of seeds in the spring; giant combines harvest the crop in late summer (page 465).

In Beaumont I couldn't find the site on Spindletop where the world's most famous oil well, the Lucas Gusher, exploded black crude in 1901 and ushered in the age of liquid

fuel. Actually, it lies within a forbiddingly fenced industrial plant.

Driving north from Beaumont on U. S. 69 through pleasantly rolling country, I entered Angelina National Forest. Between Woodville and Zavalla the road knifed through tall, cool trees. The fugitive scent of pine perfumed the air, and overhead the sky stretched as big and endless as Texas.

East of Lufkin I slammed to a stop and pulled off the road alongside a fenced field. Within, a herd of buffalo, the first I had ever seen, grazed contentedly. Brown, shaggy beasts with massive bodies tapering into hindquarters that were almost delicate. I stayed there a long time, watching them drift across the field—lost for that long time in a dreamy contemplation of the American past. Of braves and buffalo robes and

mountain men. Of a West that was open and new, where all the streams were swift crystal. The cars speeding past on the highway meant no more to me than they did to the placid buffalo.

Second only to their devotion to motherhood and the flag, Texans nurture a fierce loyalty to particular purveyors of the state's two great culinary achievements; barbecue and chili. In the northeastern town of Greenville I found an outstanding practitioner of the art of pit barbecue.

Dewey Fitzpatrick, a tall, strapping black man of middle age, presides over a restaurant called The Spare Rib on the outskirts of Greenville. Originally, Mr. Fitzpatrick told me, you dug a pit in the earth, filled it with wood, and covered it with heavy wire. Then you burned the wood



STEPHANIE MAZE

Affection cuts across the generations as San Juana de los Reyes trims her grandson's hair in Houston's "Little Mexico" barrio. Family ties provide strength as Texas' 2.3 million Mexican Americans gain political power.

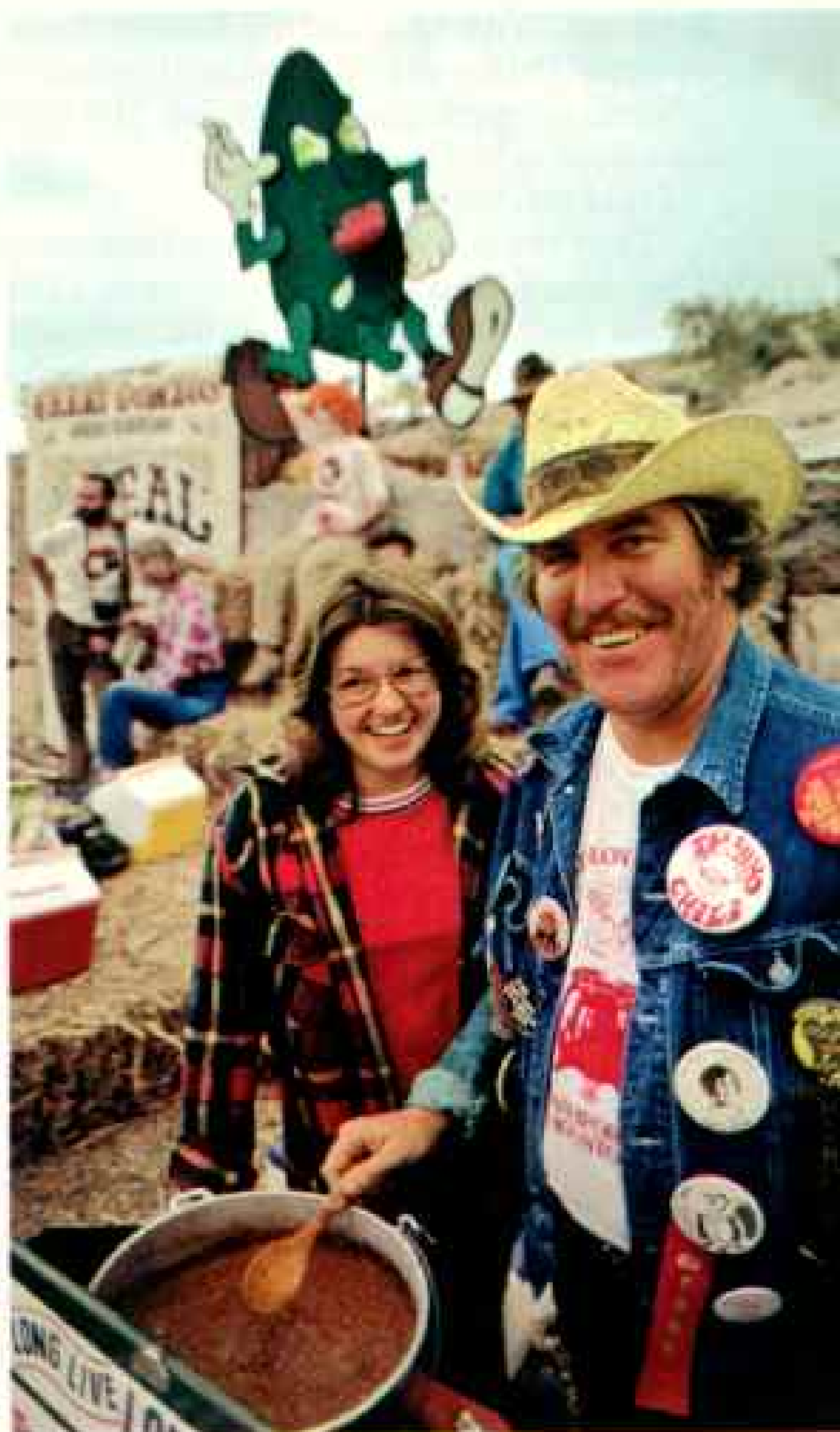
BLACK HAT AND SHINE PAR





Headgear, cold beer, and chili by the gallon mix in happy Texas-style hodgepodge. Manny Gammage (left), master cowboy-hat maker, attends a customer in his Austin shop. Gammage, who once filled an order for a hat that would "scare women and children, and start fights in Wyoming bars," ships his handcrafted headgear nationwide.

Hats are off to the Sometimes Annual Luckenbach World's Fair (above), named for a crossroads slowdown near Austin with a population of three, but actually held in nearby Fredericksburg. In 1978 more than 37,000 celebrators enjoyed such events as rattlesnake races, husband- and wife-calling contests, and a chicken-flying race, all accompanied



by prodigious consumption of beer.

Things get hotter than a jalapeño pepper at the Wick Fowler Memorial World Championship Chili Cook-off at Terlingua, when chiliheads cross spoons over the Texas State Dish (above), a title conferred by the state legislature. Though the merits of tomatoes versus onions always ignite scorching debate, these Texans agree on one thing: no beans.

down to coals and smoked the meat on the grill. Nowadays, though, the pits are built of a double thickness of bricks topped with heavy steel hoods. The pits lined one wall of Mr. Fitzpatrick's large kitchen, and aromatic hickory smoke wisped from the fireboxes. With a resounding clang he threw up one of the hoods and displayed blackened briskets simmering over a low fire. "Do they look done to you?"

I said yes, they did.

"They're not. I started them this morning. They won't be done until tomorrow. The grease from the meat drips down, interacts with the hickory ash, and produces a smoke that imparts a very subtle flavor."

The heat of the kitchen brought sweat to our faces. "You know," he said evangelically, "I believe barbecue is exceptionally nutritious; if any special diet permits meat, barbecue is best. I can provide it salt free, or crisp, or rare—any way that's demanded. And this method of cookery extracts as much fat from meat as any other."

"Mr. Fitzpatrick," I said, "I suspect that you're happy in your work."

"I confess I get gratification out of it. And then there's a certain friendliness. People keep coming in—faces I know, new faces. I guess you could say I'm happy."

As I left The Spare Rib, an elderly woman was saying to him, "I haven't tasted barbecue like this since I was a little girl. It's got that wonderful taste that I remember."

"Maybe that's because I've been making it for 28 years. But," Mr. Fitzpatrick added with Texas gallantry, "that's long before you were a girl."

The last thing I heard was their mutual burst of laughter.

*They've plowed and fenced my cattle range,
And the people there are all so strange.*

—TRADITIONAL BALLAD

SOME 30 MILES APART, Dallas and Fort Worth stand at the east-west extremes of a vast urban parallelogram called—with the same unfortunate Texan

penchant for catchwords that gave Houston an Astrodome as well as an Astrodomain—Metroplex. It encompasses eleven counties with three million citizens. The Dallas Cowboys of the National Football League win their championships in Metroplex's Irving; in baseball the Texas Rangers of the American League strive in vain for the pennant in Arlington.

In the center sprawls the monstrous maze of the Dallas/Fort Worth Regional Airport, where baffled travelers, according to rumor, have suffered nervous breakdowns trying to reach one terminal from another.

Of the two cities Fort Worth is smaller and less brash than the ever expanding Big D. Cattlemen built Fort Worth, and the Victorian elegance of their 19th-century mansions still dominates the city. In its prime Fort Worth was a railroad mecca. Nine trunk lines once converged here and carried fattened beefs to the far-flung markets of America. But the discovery of oil drove cattle from the hinterland, and after World War II railroads declined disastrously. Now a goodly number of the 420,000 inhabitants work in two gigantic aircraft assembly plants, and Fort Worth leads the nation in the production of helicopters.

What makes the city unique among those of its size are the four major museums that rise on a height overlooking the downtown skyscrapers: the Fort Worth Museum of Science and History, the Fort Worth Art Museum, the Kimbell Art Museum, and the Amon Carter Museum of Western Art.

I spent a transcendent afternoon in the Kimbell, surely one of America's most magnificent edifices. The walls smolder with the splendor of Rembrandt, Goya, El Greco, Tintoretto, and Matisse.

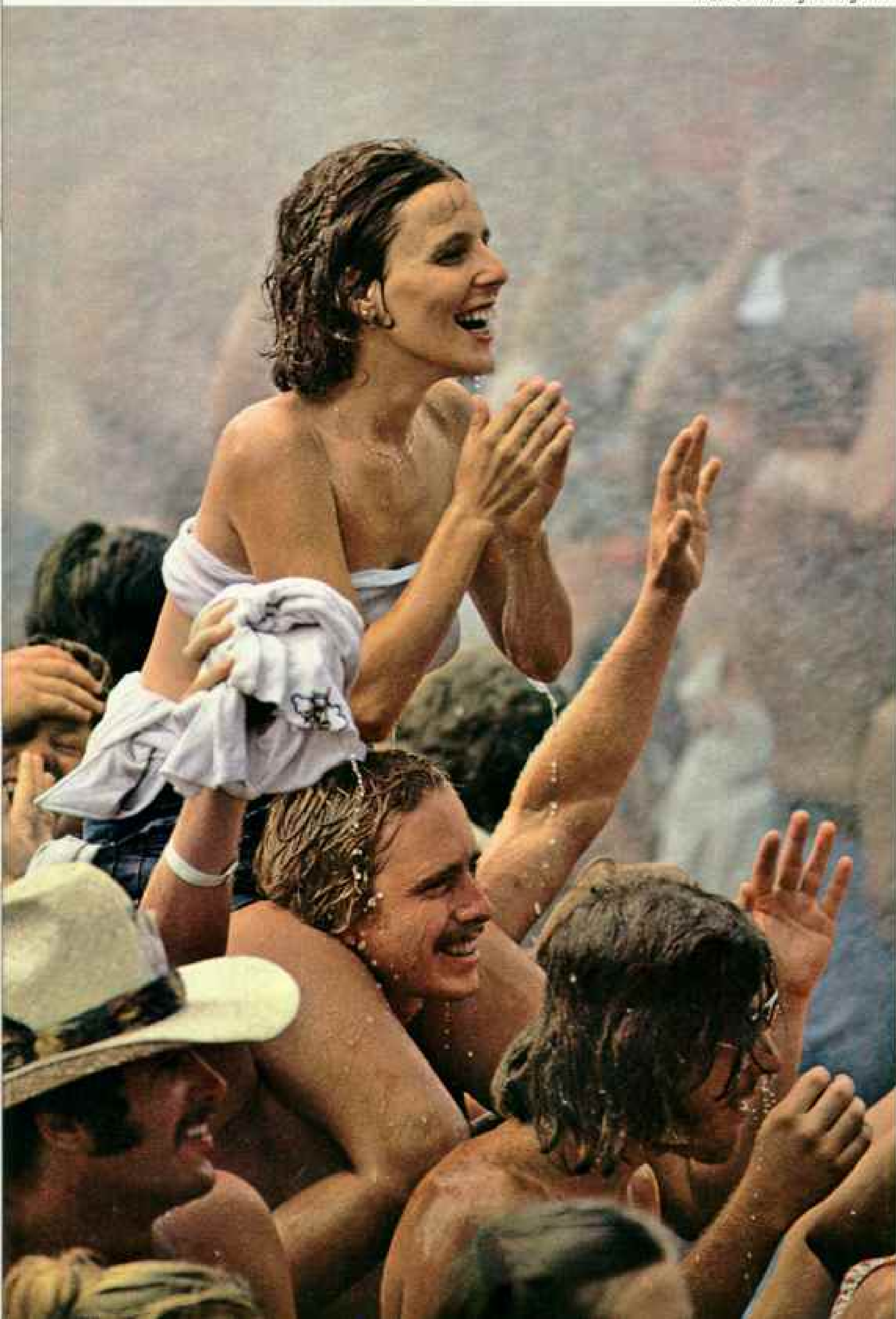
In Fort Worth, a city that rose with the railroads, I stayed in a hotel overlooking the Santa Fe switching yards. Locomotive whistles punctuated the night—a sound like a poem of the American past, a sound compounded of loneliness and the lure of distant places. Beyond midnight, in the desolation of deep darkness, it swelled and faded like the remote sweetness of a dream.

Combines flay fields of rice, leaving wheel tracks in their wake. The muggy Gulf Coast lowlands yielded 1.1 million tons of the grain last year.



A troubadour born of the honky-tonks gifts his

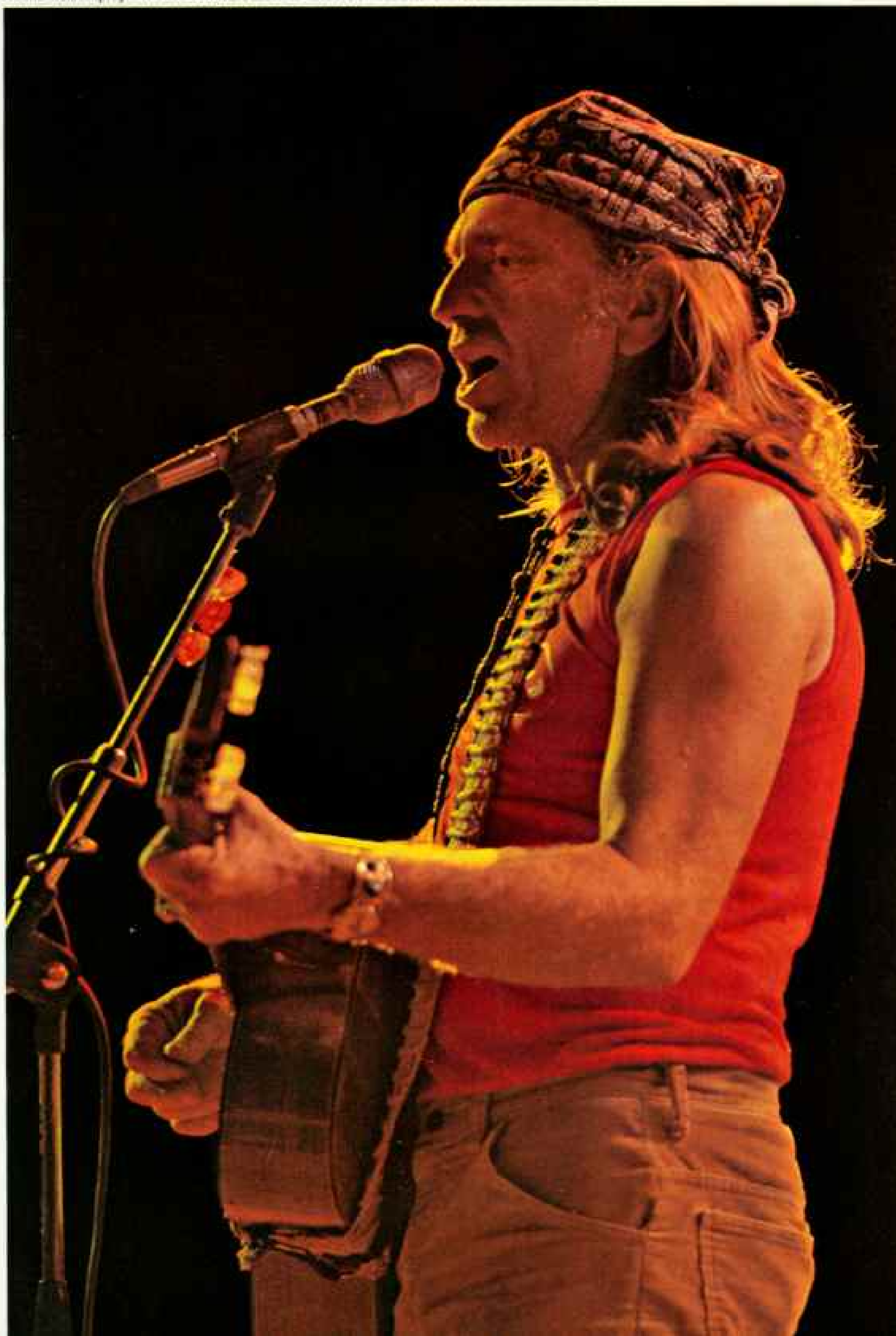
Native son, singer-songwriter



listeners with songs of hard days and harder nights.

Willie Nelson plays at the Cotton Bowl for an exuberant crowd that cools down with a water hose.

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On the far side of Metroplex, I came to the Big D. More insurance companies have their headquarters in Dallas than in any other city in the nation; it is host, like Houston, to corporations emigrating from hostile climates; a kind of Protestant Vatican, it is home to the largest Baptist and Presbyterian churches in the land.

For more than a generation Dallas has been a developer's delight. One developer, Raymond Nasher—actually that unique combination, a scholar-builder—received me in his architectural-award-winning shopping mall, NorthPark. Thirty years ago, as he studied economics in Boston, Mr. Nasher's projections showed a shift of industry to the Sunbelt. "So," he said, "in 1950 I came to Dallas."

Now, many successful ventures later, Raymond Nasher is a patron of the arts and visiting fellow at Harvard. "The unfortunate aspect of our system," he told me, "is that it ignores quality. Whether you do something well or on the cheap is immaterial. Only the bottom line matters."

But not to Mr. Nasher. We strolled through NorthPark. Fresh flowers were everywhere. "We have our own landscaping department," he told me. The Dallas Symphony Orchestra has played in the mall's broad corridors; to the strains of Tchaikovsky, ballet dancers have swirled in chaste pas de deux. "We have a duty," he said, "to make public places as attractive as possible."

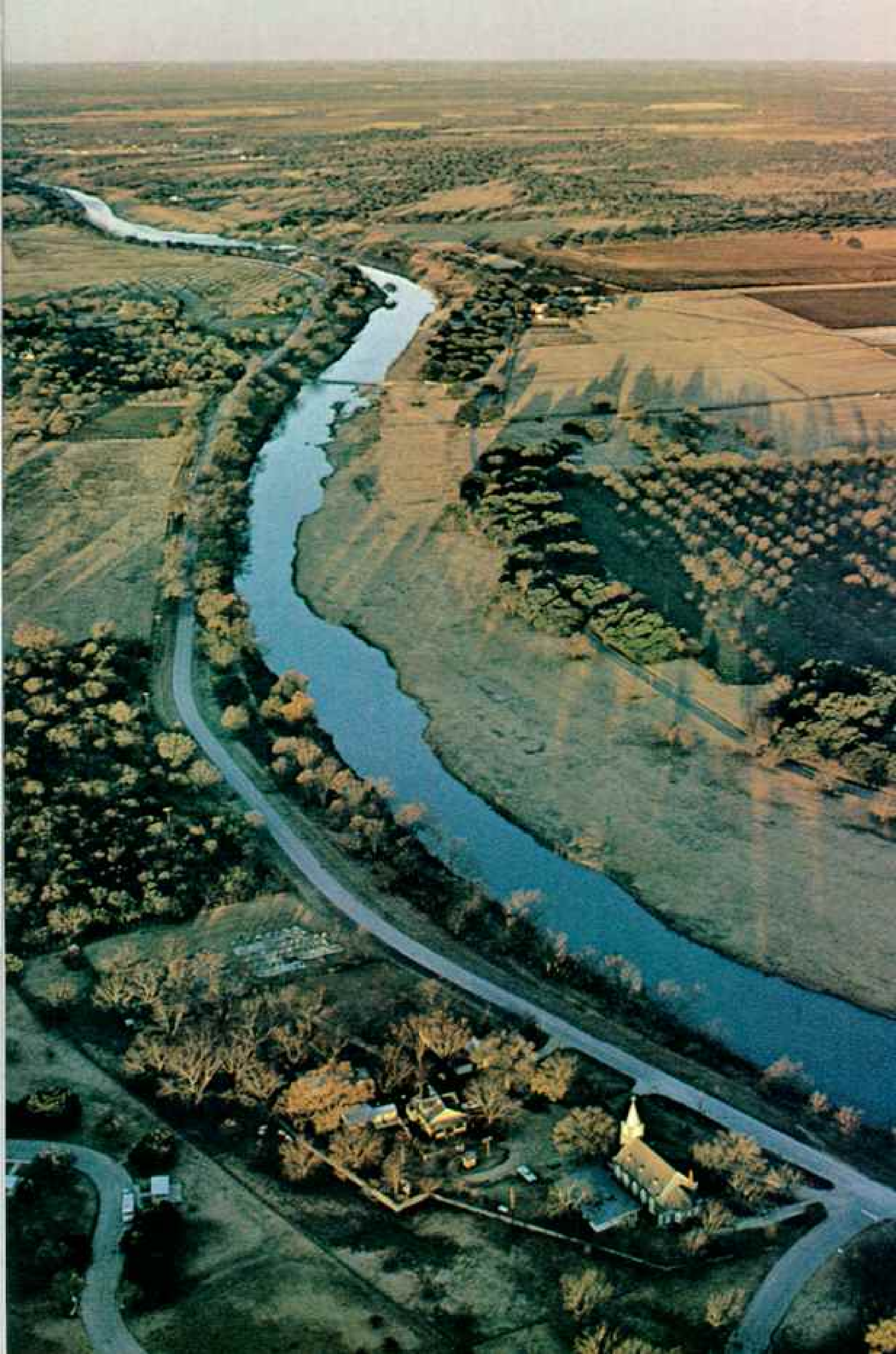
In Ray Nasher's opinion, Dallas's precipitous growth has created problems. "We have not yet made public transportation and the mass movement of people a priority. The downtown area, which is enjoying tremendous office-building growth, has no housing or major recreational facilities. By night it's a vacuum. But we're aware of these deficiencies, and we're going to right them by injecting new cultural buildings, including the museum and the symphony hall."

He is sanguine about the Sunbelt: "It has a

The soft-flowing Pedernales threads the hill country settled by German immigrants. "This is a very special corner of God's real estate," said Lyndon Johnson, who was born and is buried on his ranch to the right of the river.

MARTIN SCOTT





great deal to offer. There's a sense of romance here, a flavor of boom times. In the Sunbelt things are wide open. A newcomer can participate in the system, while in older, more stratified areas he might be excluded."

Like most visitors to Dallas, I made my way to that dread segment of Elm Street, commanded by the windows of the Texas School Book Depository, where President John F. Kennedy was assassinated on an autumn day in 1963. A Dallas friend had said, not without justification: "Why do you all

continue to punish us for the death of Kennedy? Even though he died here, Dallas didn't murder him."

On the site I found that you could buy panoramic postcards where X marks the spot of the murder. Just across from the book depository, you can visit a museum—admission \$1.75—that memorializes the tragedy through the sale of tacky souvenirs.

But the final, cruel truth is that even the death of kings leaves no lasting impact. Not on Dallas, not on the world. Remembrance dies early. I paid my silent respects to the dead President. Then I walked a few blocks to a restaurant with an extravagant name: Tolbert's Native Texas Foods and Museum of the Chili Culture. I ordered a bowl of "Texas red" and a "long neck"—a bottle of Lone Star beer. Happily, it was Drunk Monday at Tolbert's—draft beer was free with lunch. On the jukebox, blaring just below the threshold of agony, Willie Nelson was singing "Sweet Memories": *My world is like a river, as dark as it is deep. . . .*

*Ev'ry night I've been huggin' my pillow.
Dreamin' dreams of Amarillo. . . .*

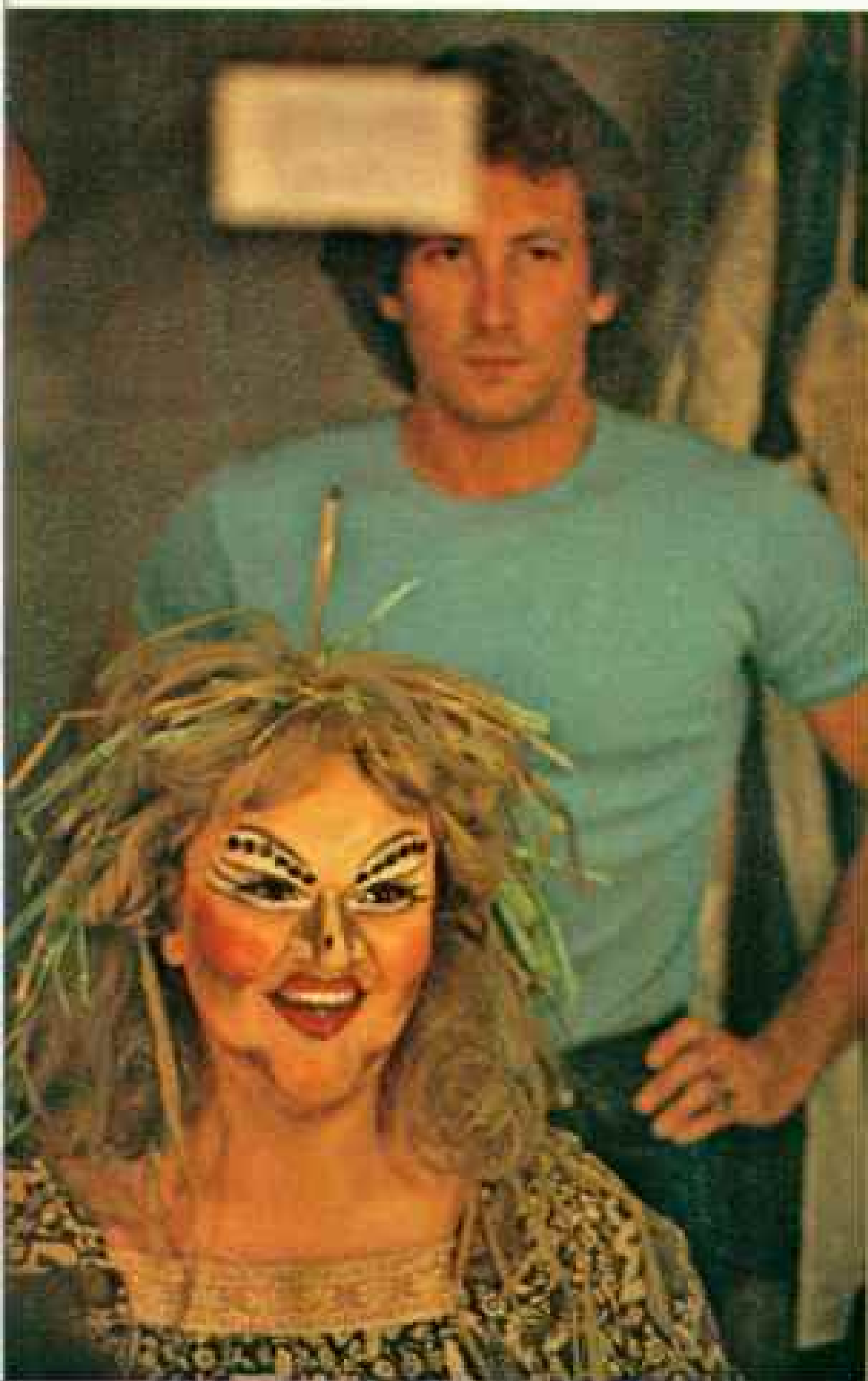
—COUNTRY AND WESTERN SONG

A QUITE DIFFERENT MEMORY colors Amarillo, where dogies continue to come down the trail, some four million each year, to fatten in the feedlots until implacable destiny converts them into sirloin and short ribs.

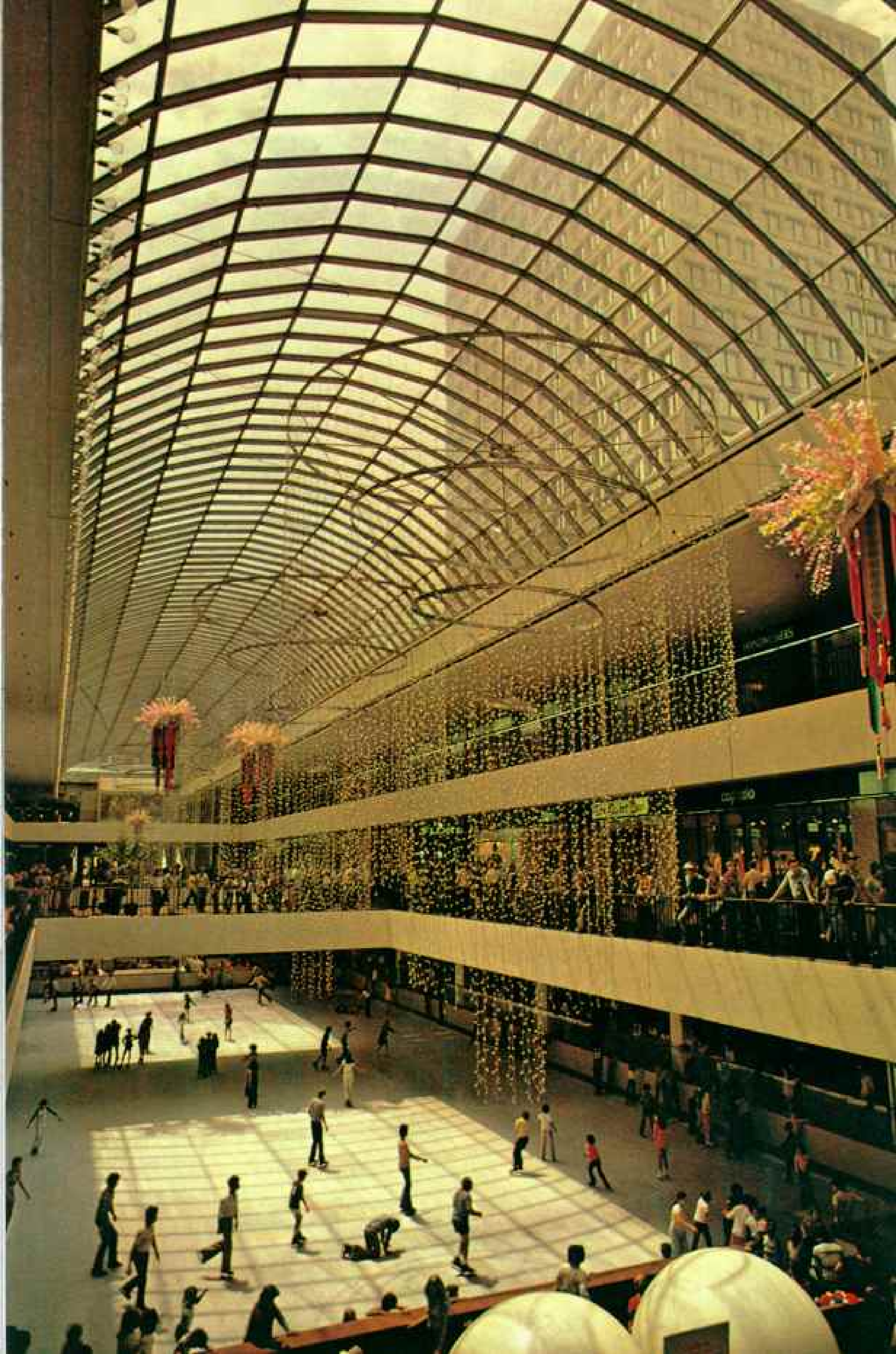
The city, crisp and pleasant in the High Plains of the Panhandle, also boasts one of the world's largest copper refineries. The metal comes to Amarillo 98 percent pure; technicians extract the "impurities," which include significant amounts of gold and silver. Noted an admiring engineer: "The gold and silver alone are probably paying for the refinery."

Just outside the city limits stands a bizarre monument. In an otherwise empty field, the carcasses of ten Cadillacs, their front ends buried, jut above the ground like some automotive Stonehenge.

"That's something Stan Marsh commissioned," a citizen told me. "He had the cars buried at the exact slant of the Great Pyramid in Egypt. Stan thinks he's created a



Culture and commerce display style in Houston. A fright at the opera (above) is part of the Houston Grand Opera's Hansel and Gretel. The company played Broadway and toured the nation with the hits Porgy and Bess and Treemonisha. At the Galleria (right) skaters glide around a shopping mall.



Dreams of the longhorn steer on endless prairies



evaporate and yield to a subdivision.

Newly minted homes spring up in Greater Houston, an area with more housing starts than any other in the U.S.

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modern sculpture. If he wasn't so rich, I guess you could call him eccentric. He's got 10,000 acres on the north side of town where he keeps yaks and llamas and a pet zebra named Spot. Calls his house Toad Hall."

As I strolled among the eerie cars, I noted that the monument was, at the very least, a magnet for spray painters. Among other interesting tidbits, I learned that Carla Loves Nathan, and that Wild Bill And Big Ron Was Here. One visitor, obviously outraged by the graffiti, had schizophrenically gouged a rebuke into the metal of a blue Cadillac: This Is A National Monument! Preserve It!

As I walked away, the gutted hulks loomed against the horizon—exquisite machines overtaken by obsolescence and neglect. Symbolic, in so many ways, of our era. Perhaps, after all, Stan Marsh of Toad Hall has contrived a homily in steel.

From Amarillo I drove south to Lubbock. Cotton fields surround the city, and in October the bursting plants resemble a tentative snowfall. Despite its bucolic setting, Lubbock specializes in advanced technology. More than 3,500 students pursue engineering skills at Texas Tech, and upon graduation a good number of the brightest shift to a nearby Texas Instruments plant.

Electronics rates as one of the state's largest industries; Texas Instruments Incorporated is, by a long chalk, the world's leading manufacturer of semiconductors. Sam K. Smith, a vice president, says: "Long after Texas' supplies of oil and gas, sulfur and lignite have dwindled, we'll still have one inexhaustible resource—high technology."

A relentlessly Texan enterprise, TI—as it is known afar—employs 80,000 people at 49 plants in 19 countries. Few wear ties and jackets, democracy reigns on parking lots and in cafeterias, everyone calls everyone else—even the president—by his first name. Except for the company's highest officers, executives and engineers labor in cubicles with no semblance of privacy. "Around here," one TIter said wistfully, "a door is the highest status symbol."

But the system works. TI, which has two plants in Japan, has challenged the Japanese on their own electronic turf and has prevailed. In Lubbock I saw marvels that I will never understand. Semiconductors the size

Emblems of an oil-fired economy, tireless pumps backdrop sunbathers on Padre Island (below). At Houston's Petroleum Club (right) members do business between courses. Texas, the nation's leading oil producer, pumped nearly a billion barrels last year.



of a speck of dust; thirty of them could fit on the cross section of a human hair. A chip measuring one square centimeter—smaller than a gnawed fingernail—that can store one million bits of information.

In a nation where productivity generally stagnates, it increases 13 percent a year at TI. "The work ethic in Texas is very much alive," one executive told me. The company defines productivity as "working smarter, not harder. Applied to a work force, it means not only welcoming new equipment and methods, but also conceiving them."





New hope in the struggle to cure cancer, a supersterile laminar air flow room at Houston's M. D. Anderson Hospital and Tumor Institute—part of the 223-acre Texas Medical Center—allows chemotherapy to proceed with less risk of infection.

One result of working smarter is a chip that synthesizes human speech. A new TI hand-held translator not only spells out a foreign phrase for you but also pronounces it. An educational toy—or, more aptly, a learning aid—called Speak & Spell enunciates a word; the student punches it out on the keyboard. If the answer is correct, the machine responds, "You are right." If not, it commands, "Try again." The company also hews to a policy of continual price decreases. A TI calculator that sold for \$149.95 when it was introduced ten years ago sells today for less than ten dollars.

As I left the Lubbock plant—still dazed by the interaction of acids, solvents, rare gases, and yellow light used in production—the instruments using the speech synthesizer haunted me most. To paraphrase Lincoln Steffens, I had seen the future and it speaks.

*"I see by your outfit that you are a cowboy,"
These words he did say as I boldly stepped by.*

—TRADITIONAL BALLAD

BY COMMON CONSENT Austin ranks as the most attractive city in Texas. Wide boulevards, hilly streets canopied by ancient oaks, the elegant University of Texas campus, the state capitol on its gentle prominence, all charm the visitor.

Largely through the efforts of Lady Bird Johnson, widow of the late President, the shores of the Colorado River that meander through the capital have been transformed from trashy eyesores into green parkland.

Austin has contributed much to the Texas revival. Tex-Mex cuisine thrives here and now even has an outpost in Paris. One of Texas' finest bootmakers, Charlie Dunn, practices his craft in Austin, as does the

premier maker of cowboy headgear, Manny Gammage of Texas Hatters (page 462). Manny bills himself as a Doctor of Mad Hattery. In a few visits there, I perceived that a genial madness did prevail. A stuffed rattlesnake coils in the show window. Inside, one sign announces: "I Fight Poverty. I Work." Another says simply: "Secede."

Customers vied for Manny's attention; hearty cries of "Ha yew?" pierced the air. One man who proclaimed himself to be ugly—and he erred only on the side of understatement—passed a tormented half hour choosing a hatband to set off his profile. Steam billowed from the spout of a kettle as Manny lovingly shaped moistened felt into his specialty, a Hi-Roller, based upon the headgear of the card sharks of the Old West.

"Ma wahf tol' me to get a dressy hat," declared one arrival, "only Ah don' know what the hell dressy looks lahk."

Manny said that he would take care of it. He whipped out a silvery beaver and placed it on the man's head. "You sure that's dressy?" the client asked suspiciously. "Ma wahf don' lahk to be disappointed." A pretty blond adolescent passed a leisurely hour buying a straw sombrero for her boyfriend, having it shaped, and reshaped, and reshaped again as his noble countenance rippled in her memory. With men and machines at length exhausted, she daintily paid \$14 and departed.

Another such sale, I observed, might spell ruin for Texas Hatters.

"Naw," said Manny. "The fun of this job is people. Somebody comes in and says, 'No hat looks good on me.' So I make one and put it on his head, and when he looks in the mirror and smiles, it's a great moment for me."

"Why are people buying all these cowboy clothes? I suspect they're reaching out for simplicity. Maybe trying to re-create a past that seems better than the present."

"When Vice President Nelson Rockefeller visited Texas, the local Black Republican Congress commissioned a hat for him. It was run by Lionel Rollins, a big old teddy bear of a man and an old friend. Well, when Lionel presented the hat, the congressman from this district jumped up and said, 'Mr. Vice President, this is the only country in the world where a black man can give a white man a hat made by a redneck!'"

Texas!

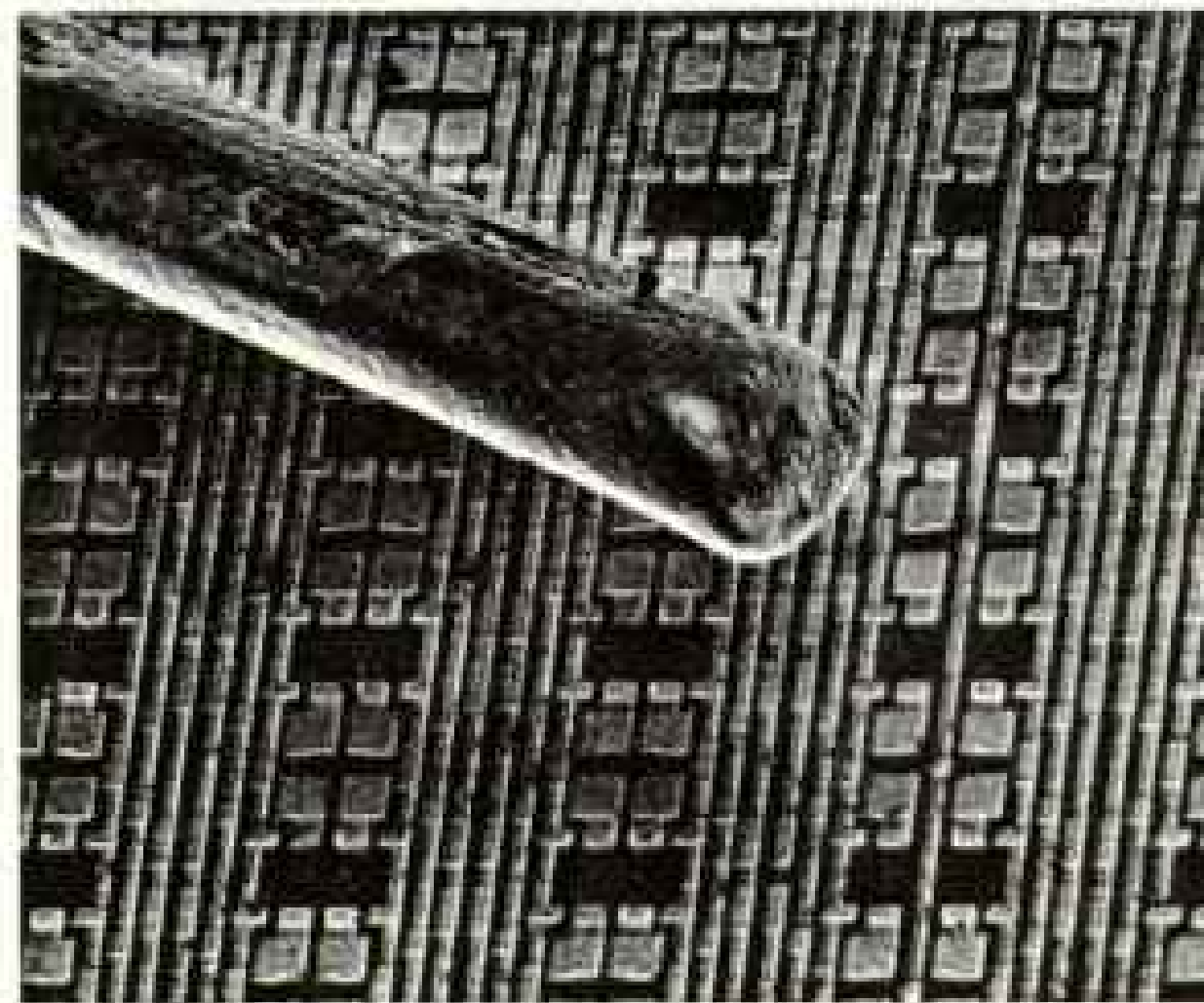
*Spanish is the lovin' tongue,
Soft as music, light as spray. . . .*

—BORDER SONG

WITH a few aberrations the Rio Grande separates Texas and Mexico for 1,240 miles, from El Paso to Brownsville. The casual visitor finds the valley a region where English and Spanish languages mingle easily and amity prevails.

Appearances are deceptive; tension crackles along the Rio Grande. Each day thousands of Mexicans make their way illegally across the river and disappear into the lowest levels of the U. S. economy. Mike Williams of the U. S. Border Patrol's El Paso Station said, "In the past year, 149,722 illegal aliens were apprehended in the 340-mile-long stretch of the El Paso sector. We used to figure we caught one out of four; now it's one of six. We're sympathetic to these people. We know what drives them. They have families to support, and the Mexican unemployment rate is somewhere between 30 and 40 percent. But it's still unfair to those who observe the proper immigration procedures. We've tried to stem the flood a little by building a wire fence across downtown El Paso."

Al Velarde, regional director of the U. S.



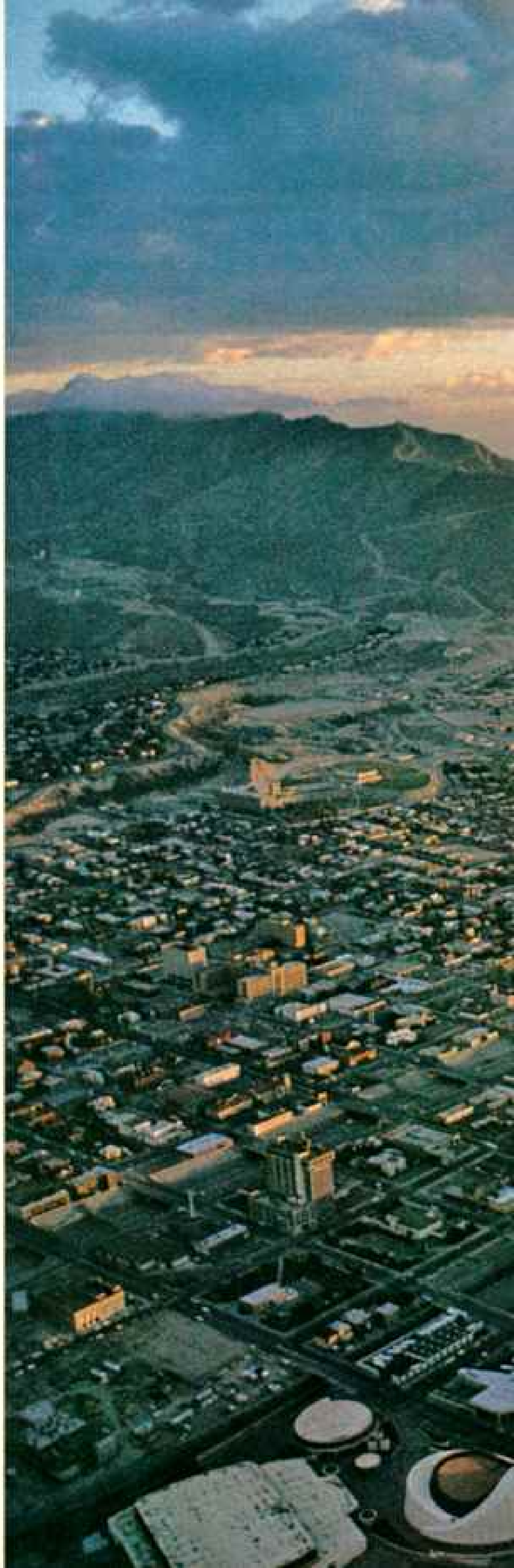
DAVID SCHARF

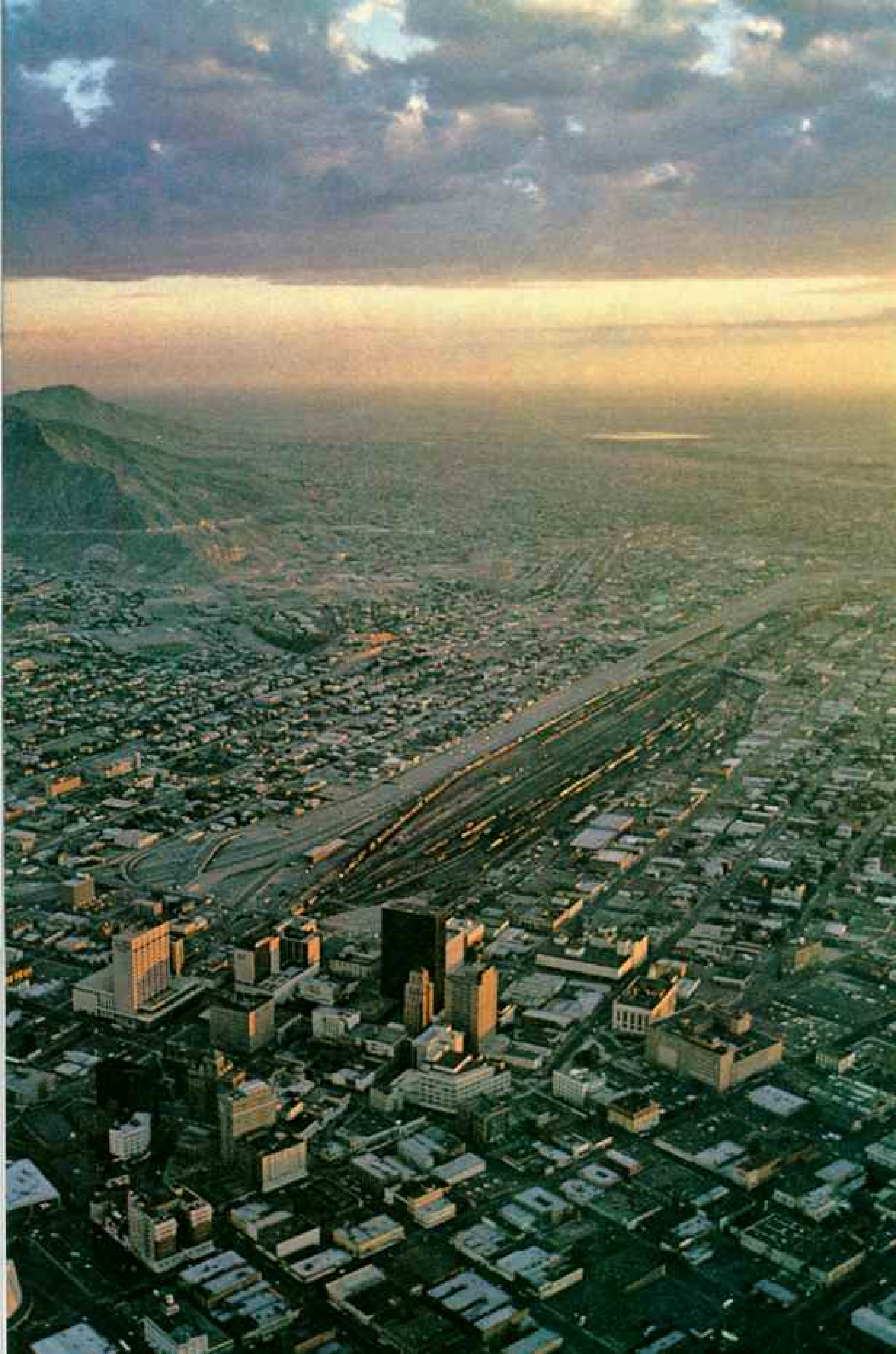
Texas thinks small too. Memory cells, magnified 380 times alongside a human hair, form part of a fingernail-size microcomputer made by Dallas-based Texas Instruments.



STEPHANIE MAZZI LABOYE

Just north of the border, and Tex-Mex in style, El Paso (right) drapes the state's western shoulder. At this second busiest crossing point from Mexico, after San Ysidro-Tijuana, U. S. border patrolmen last year caught 105,078 illegal aliens. As many as six times that number slip through. The "Tortilla Curtain," a thin, flexible fence, under construction (above), can only deter. "If a man comes all the way from the Mexican interior, he's not going to go home when he sees a little fence," says border patrolman Mike Williams.







Bunked out on the range in trucked-in beds during roundup, cowhands at the

Catholic Conference and a specialist on immigration problems, told me, "I christened that fence. I called it the Tortilla Curtain because it's thin and flexible like a tortilla, and the Mexicans are going to eat it up."

"Look, if a Mexican goes through the proper procedures, he may wait ten years to get into the country, ten years to get a job. But he sees his kids starving *now*."

I asked Mr. Velarde about relations between what south Texans call Anglos and the Hispanic community.

"I think we've come a long way," he said. "When I was in high school, we went up to Amarillo for a game, and no hotel would take us because most of the team were Hispanic. That kind of thing has ended. While there's still a certain subtle discrimination, having brown skin won't hurt you in places like El Paso, San Antonio, and Houston."

"The next census will probably reveal that Texas has a potential Hispanic majority. And the individual Hispanic is awakening to the fact that he can exert political



O-6 Ranch write their sweethearts.

clout. It should be an interesting future."

A transplanted Californian told me, "I married a Mexican-American girl here in El Paso, and it's really great. I've acquired her family as well, and anytime we need help, a brother or a cousin is there to give it.

"But if this had happened lower down the valley, in places like Laredo or Del Rio, we'd both be dead. The Mexicans would have ostracized her, the Anglos would have disowned me. That's how strong the hostility can be."

*We'll ride the range from sun to sun,
For a cowboy's work is never done;
He's up and gone at the break of day,
Drivin' the dogies on their weary way.*

—COWBOY SONG

ON AN AUTUMN MORNING I came to the O-6 Ranch in the indigo darkness of 6 a.m. to join the roundup. North from the town of Alpine, then east through a meandering valley toward a solitary electric light. Beneath its glare some two dozen cowboys were gobbling down a breakfast of bacon, eggs, hotcakes, and coffee beside a roaring fire.

Herbert Kokernot welcomed me to his 200-square-mile O-6, one of the largest individually owned and operated ranches in Texas. Mr. Kokernot, 79 years old, is the fourth generation of his family to raise cattle in the state. As we stood beside the leaping flames with steaming cups of coffee, he told me that the O-6 still functioned in traditional style—with cowboys rather than helicopters—"because the mountainous terrain demands it, and because frankly we just prefer to operate this way."

Dawn rose slowly and incompletely. Just before first light, a norther roared across the land. The temperature dropped dramatically, the stiff, steady wind obscured the sky with driven dust, and cow punching lost much of its romance.

Ranch manager Chris Lacy (page 441), Mr. Kokernot's grandson, told me that the O-6 maintains the largest remuda, or herd of working horses, in the West. As the hearty breakfast ended, a corps of riders muffled in warm coats drove the horses into a corral. Then each cowboy roped and saddled his mount for the day.

Chris Lacy's schedule called for the cowhands to drive two herds to loading pens. Once there, they would cut, or separate, bulls, cows, and calves. The calves and yearling steers, already contracted for sale at an unprecedentedly high price, would be shipped to feeding pens in Oklahoma.

The O-6 sprawls across a singularly beautiful landscape. The ranch itself is a mile high, and the Davis Mountains—foothills of the expiring Rockies—provide it with a backdrop of green-clad slopes. Formations



of igneous rock crown the crests with gargantuan battlements.

Herding cows, I learned, is a demanding and subtle profession. One rider told me, "You've got to kind of flow with the cattle. Any sudden movement spooks them. And you concentrate, every single second. These animals are wild and scared, and they're not stupid. They know you're not there to do them any good. Let your mind wander once, and they're gone."

I watched the cowboys carefully steer the herds to the loading pens. Against the verdant mountains the cows moved placidly. The cowboys sat erect in their saddles, the horses alert. The scene, a combination of easy rhythm and dynamic tension between the cattle and mounted men, possessed a quality that was almost lyrical.

Later I spoke to Chris Lacy's wife, Diane,



JIM BRANDENBURG (ABOVE)

Brands of Texas pride: A boot made for swimming (left) is owned by "Aggie" Clayton Williams of Midland; the Lone Star smile (above) belongs to Dorothy Menton of Lubbock. In the imagination, this colossus of a state denies borders. "Texas is a state of mind," wrote John Steinbeck. "Texas is an obsession."

about life on a traditional ranch. Diane—like her husband a graduate of Texas Christian University—rides and brands along with the cowhands. "You develop a totally different set of values," she told me. "Here, you and your work and your life are almost part of nature. I grew up in San Antonio, and so many of the things that I thought were important then have become meaningless. Cities are all movement, and you have to hustle, hustle all the time.

"Now I live with the seasons. Nature quickens in spring, so does our work—sorting cattle, branding newborn calves. The heat of summer imposes a kind of lassitude, and we just let the cattle run free.

"Fall, I guess, brings our greatest excitement: roundup. From all the far pastures—and on this ranch some are very far—we drive in the stock. Winter brings a kind of hibernation, and that's when we take our vacations. Then the cycle starts again.

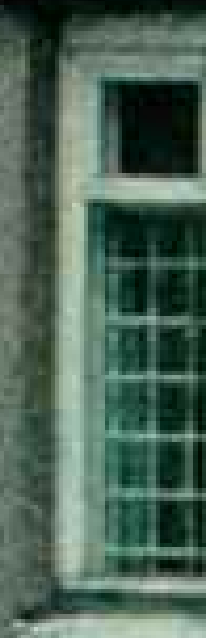
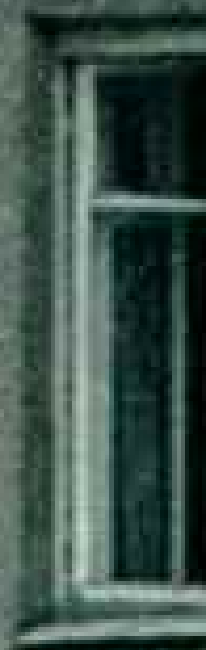
"The finest thing of all, though, is actually herding cattle. Here on the O-6, you're riding through the world's loveliest landscape. Sun and dust, rich grass, hawks planing overhead, plunging canyons. And the almost mystical relationship that links you and your horse and the cattle."

At the loading pens an orchestrated chaos prevails. The cowboys, dismounted, separate calves from yearling steers from heifers from cows. Dust diffuses the light and clogs the nostrils. Calves low plaintively for their mothers; cows low for their offspring.

Beside the chuck wagon that evening, as supper cooked over a mesquite fire, I asked one of the hands if he liked his job. "You call this a job?" he snorted. "It's the sorriest damn line of work I ever heard of. Long hours, low pay. You want to know why I punch cows? Because I love every mortal minute of it!"

I left Texas with a mosaic of memories. Of rodeos and roundups and technology beyond comprehension. Of Willie Nelson singing "Blue Eyes Crying in the Rain." Of all the acquired tastes—Texas red with an ice-cold long neck, barbecue with beans, chicken-fried steak with white cream gravy. Of instantaneous and unstinting hospitality, the echoes of countless friendly "Ha yews?"

Well, Ah'm jes fahn. And, in my very bi-ased opinion, so is the state of Texas. □



Return to Estonia

By PRIIT J. VESILIND

NATIONAL GEOGRAPHIC SENIOR STAFF

Photographs by COTTON COULSON

FREEDOM. The sea gulls have it. Soaring in the wake of the ferry that connects Finland and the Estonian Soviet Socialist Republic, they travel in unfettered anonymity. They need no visas. They ask no one's permission.

The affairs of man are not that simple, or that harmonious. I was going home to Estonia, the land I had left in the middle of the European nightmare 36 years ago, and I could only grip the rail and peer into the fog that smelled of spring and melting ice.

The gulls make this three-hour trip every day but Wednesday. They perch on any medieval tower or revolutionary monument they please, and return to Helsinki at their leisure. I envied them, those scavengers of potato peels dumped from the ship's galley. They do not carry the weight of the past.

This nation called Estonia, today one of the 15 constituent republics of the Soviet Union, is a land tormented by its geography—glacier-scraped into flatness and vulnerability, a battleground for rival powers of the Slavic East and the Germanic West, a pawn in the callous and grandiose sweeps of European history. For 700 years it lay under the boot of conquerors—Germans, Danes, Poles, Swedes, and the tsars of Russia. It has been bled and healed again and again.

But through it all a bacillus of culture stubbornly survived, a tribal memory that strengthened and erupted into nationalism. In 1918, with Russia in the turmoil of revolution, Estonia declared and fought for its independence. Finally, in 1920, the nation was free.

My father, Paul Eduard Vesilind, was a 10-year-old Tallinn schoolboy in the intoxicating spring of this new Estonian republic. In the town of Pirita, near Tallinn, he grew into manhood together with his country.

It was a time of exuberance, confusion, and achievement, and an intense, personal patriotism rooted in smallness and newness. In a land crippled by invasion, men unaccustomed to power hammered at nationhood, building the structures of democracy in a language that had never developed the vocabulary of government.

But the Republic of Estonia lasted only 22 years. In March 1939 Germany occupied Czechoslovakia. On August 23, in a secret protocol between Molotov of the U.S.S.R. and Ribbentrop of Germany's Third Reich, eastern Europe was carved into "spheres of influence"; Estonia fell to the Soviet Union. Hitler's invasion of Poland on September 1 ignited World War II, and on September 28 Stalin forced Konstantin Päts, Estonia's

Billboard Lenin salutes a parade of one in Tallinn, capital of Estonia, a land that in the past seven centuries has enjoyed independence for only 22 years and a springtime. As it has for generations, a strong spirit of nationhood persists, even though Estonia is now incorporated into the Soviet Union.



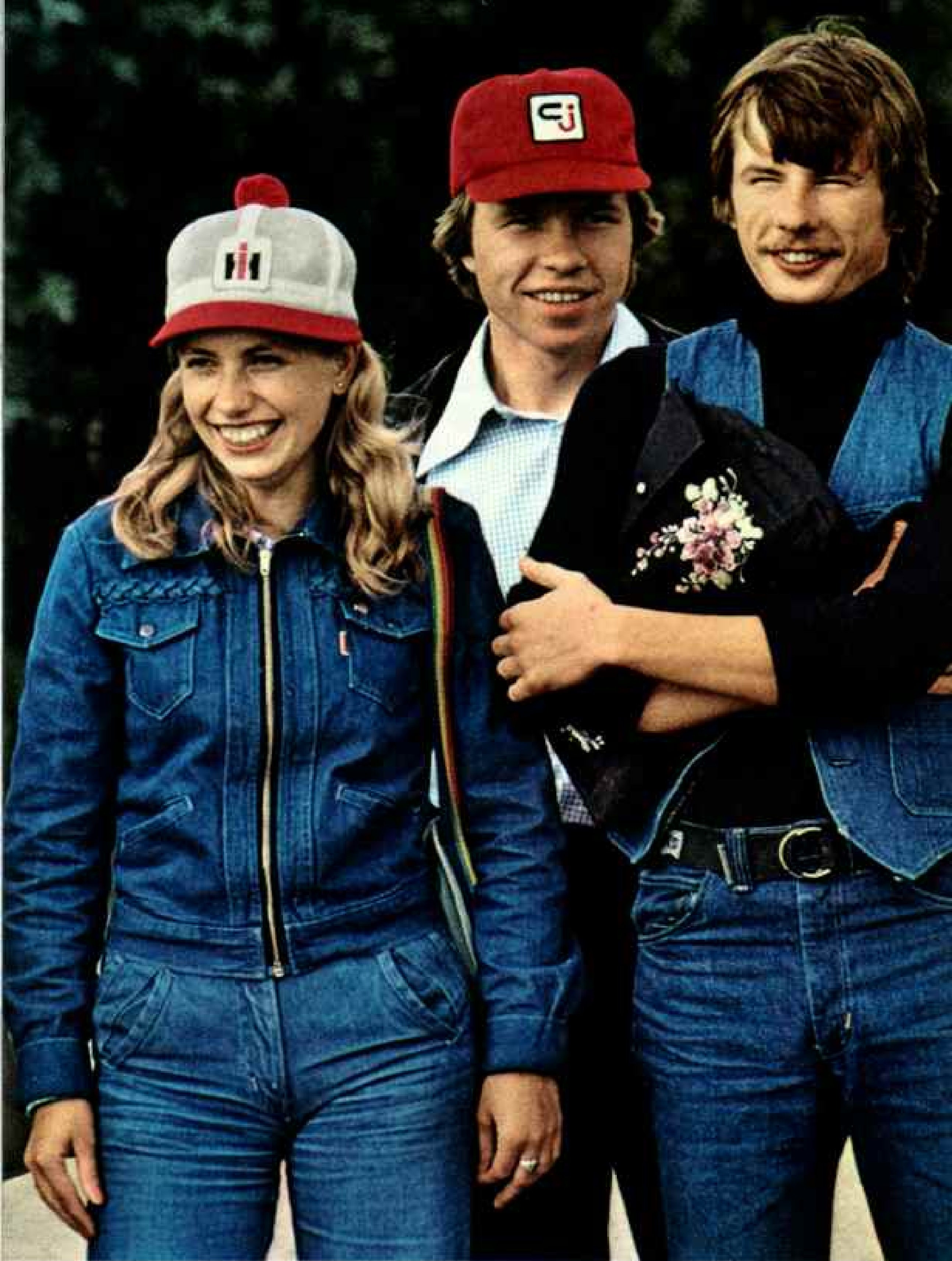
Line up and wait has long been routine for Estonians seeking automobiles and housing. Russian-built cars (above), parked outside old Tallinn's Viru Gate, sell for about \$15,000 each to workers with seniority and proper permits.

Cooperatives such as the Mustamäe complex (above right)—modern slabs in sight of Tallinn's medieval towers—house more than 100,000 people, a fourth of the city. An apartment costs from about 2,000 to 5,000 rubles (\$3,000 to \$7,500), with 40 percent down and 15 years to pay.

In a cash-rich but supply-poor economy, queuing up for a newspaper (right) is but a minor annoyance.







Dressed a la Western mode, denim-clad rural teenagers in the town of Viljandi gather to cheer their team at a sports competition between purchasing cooperatives, which



offer popular social programs as well as a means of pooling buying power.

Return to Estonia

president, to accept a mutual-aid pact that established Soviet military bases in Estonia. On June 16, 1940, charging Estonia's non-compliance with the pact, Stalin demanded a new government in Tallinn. There was little choice. More Soviet troops were massed at the border.

My father was only 30, an engineer with a wife and baby, my older brother, Aarne.

The Soviets moved quickly to consolidate power. Elections in which only candidates of the Communist Party could appear on the ballots produced a government whose delegation traveled to Moscow and asked for admittance into the U.S.S.R.

The purge that followed climaxed on June 13, 1941, when 10,000 people—teachers, intellectuals, the wealthy, anyone who might lead public opinion—were rounded up in a single night, dragged from houses and farms to railway stations. Fathers were separated from their families, and all were shipped in freight cars to labor camps east of the Urals. Young men fled home to join resistance groups called the “forest brothers.”

On June 22, 1941, Germany invaded the Soviet Union, driving north toward Leningrad and overrunning Estonia and the other Baltic States. I was born into this occupation, in January 1943. The next year some 45,000 Estonians were conscripted into the German army. And by the river near our house in Pirita, Jews were murdered.

“The Germans were brutal,” remembers my father, now a retired engineer in Beaver, Pennsylvania, “but the Russians had been worse. People disappeared, and if you asked ‘Why?’ you would be taken yourself.”

The Red Army pushed back toward Estonia in the spring of 1944. Soviet bombers tore into Tallinn. We huddled in the basement, my mother still nursing me. As Soviet troops broke through, people began streaming for the borders and the coast.

Father put the three of us on a train to Czechoslovakia, promising to join us later if he could. Grandfather Eduard held me until the last moment, lifting me up through the window. On September 20 father jumped onto a ship headed for Danzig. Two days later Soviet troops reached Tallinn. And then the gate slammed shut with finality.

The Soviets called it “liberation,” and later erected monuments to glorify the

Estonia



event, but 100,000 Estonian citizens, 10 percent of the population, had reached the West—a diaspora with a collective memory their children are not allowed to forget.

Father reached us in Czechoslovakia, and we fled again, by foot and pushcart, meeting advancing U. S. troops in May 1945. For four years we lived in a displaced persons' camp in Germany, with 5,000 other Estonians, before coming to the United States.

In Estonia the cycle of arrests, executions, and deportations resumed. There were no trials. My great-uncle Ado, charged with being a merchant and owning a big house, was sent to Siberia with his wife, Friida, and their daughter, Malle.

In all, a stunning total of 350,000 people were lost between 1939 and 1949, about a third of Estonia's population. Gone.

Many nations have never recognized the annexation. Speaking before members of the U. S. House of Representatives Foreign Affairs Committee in June 1979, State Department official Robert Barry testified that "the United States has consistently refused to recognize the forcible and unlawful incorporation of Estonia, Latvia, and Lithuania into the Soviet Union. . . ." And a fully accredited Estonian diplomatic mission still operates in New York City.

In his Rockefeller Center office Consul General Ernst Jaakson told me, "My countrymen continue to fight for their basic rights: freedom and independence."

Says another friend: "Now the Estonian people are as on a ship crossing an ocean. It matters little what flag they fly; what matters is that they reach the other side safely."

Smallest of the Soviet Socialist Republics in population—1.4 million—Estonia is about the size of Switzerland but wholly lacks that country's natural defenses.

The crusading Teutonic Knights invaded in the 13th century. Their countrymen held sway as feudal overlords until the mid-19th century, even as Russia and, for a time, Sweden exercised sovereignty. Independent between the World Wars and devastated in the last one, Estonia rebuilt to become one of the most industrialized Soviet republics.

The sailing races of the 1980 Olympic Games will be held in the Bay of Tallinn. Some future Olympians may be among skippers (right) holding the bitter ends of painters that secure their International Optimist dinghies.



I LEANED into the wind, chilled, and thought of the sea gulls as the spires of Tallinn emerged faintly from the gray flatness of the horizon.

It snowed that long, warm spring evening in Tallinn, a storm of white poplar seeds that floated in the sunlight over Gothic gables and red-slate roofs and settled among the cobblestones of narrow alleyways. And in Kadriorg Park, chestnuts and lindens still shaded the gravel paths where mothers rock prams and old women feed pigeons.

Tallinn, or Danish Castle, was the Estonian name for Reval, the 13th-century citadel of Danish King Waldemar II. German merchants transformed the stronghold into a port for the Hanseatic League, and today Tallinn stands as one of the best-preserved medieval cities of northern Europe.

On the spire of the city hall the brass weather vane of the sentinel Vana Toomas—Old Thomas—stands guard. There is a legend that a wizened old man emerges each autumn from Ülemiste Lake, which lies on a plain above Tallinn. He descends the hill and asks the sentinel: "Is the town finished yet?" And Vana Toomas replies, "No, the town is by no means ready; it will take another year." So the old man mutters angrily and returns to the lake. If the sentinel's answer is ever yes, the old man will send the waters to destroy Tallinn.

In 1979 the city was still not finished, but was preparing for the yachting competition of the 1980 Olympic Games, scheduled to be held in the Bay of Tallinn. Plasterers and painters renewed the halls of the Hanseatic merchants, and the spire of St. Olav's



VESILIND FAMILY ALBUM



PAUL EDUARD VESILIND

Memories of home and youth remain tied to the Vesilind family house on the Pirita River near Tallinn (top, at right). In the 1930s the author's parents and their friends enjoyed a spring outing (above). Father, Paul, sits at the bow of the nearer boat, tripping the camera shutter with a string, and mother, Aino, stands alone in center of far boat. Gustav Ernesaks, now a director of Estonian music festivals,



PRIIT VESILIND



strikes a pose (second from right). Today the house (top) is state owned and subdivided. Only one male Vesilind remains in Estonia: 2-year-old Andres (above), enjoying a family album with the author.

(Oleviste) Church, dominant landmark in a dramatic, enduring skyline, was patched with bright new copper plates.

Built in the 15th century in the lower town of peasants, craftsmen, and merchants, Oleviste's magnificent spire was intended to snub the German aristocracy, the barons, who for 700 years dominated the country from their feudal manors. The spire rose slightly higher than the towers of the upper town, or Toompea, where the barons virtually barricaded themselves in winter.

In 1930 my grandfather Eduard, fire chief of Tallinn, helped save the spire after it was hit by lightning. He drowned in 1947 while fishing illegally and in the dark of night in the Pirita River, for food.

The family house he built was still there when I reached Pirita, though subdivided into seven apartments. A woman in a babushka hung clothes in the front yard.

"Tere—Hello," I ventured in Estonian, "Have you lived here long?"

"*Ne ponimainu*—I don't understand," she replied in Russian, and hastened toward the doorway that I had recognized from old photograph albums.

Of my relatives, only my great-aunt Friida, a widow, remains in Pirita. I had told no one I was coming and surprised her as she pulled potatoes in the garden of an old frame apartment house.

"Friida Vesilind?"

"What of it?"

"I'm Priit."

"Oh my, oh, oh, oh my!"

Her face flushed, her hands flew up to tear the scarf from her gray head, flew down to dig frantically at more potatoes, and up again to fix her hair.

Together we visited the graves of the grandparents I had never known, raking the leaves away, and in Aunt Friida's tiny two-room apartment we lunched on black bread and cheese, and bowls of red raspberries, currants, and gooseberries from her garden.

"Your uncle Ado and I were very lucky to get this apartment when we returned from Siberia," Aunt Friida said. "My pension is 50 rubles [about \$75] a month and rent is only 13 rubles, just right for me."

Much of old Pirita has been sacrificed to the construction of the Olympic yacht complex. Workers, in chronically short supply,

Two rooms with cold-water tap are home for a Russian woman who has lived in Estonia since her youth. Many people scorn newer government housing. Said one woman: "I wouldn't go to Mustamäe. The streets are too wide; everything looks alike. It's just a place to sleep."

were recruited from Finland to complete the job. Finnish labor had already built Tallinn's 22-story Viru Hotel in 1972, and now, despite a housing shortage, another hotel, the Olympia, will be ready this summer.

MORE THAN A MILLION tourists, most packaged into prepaid groups, visited Tallinn in 1979. Russians came for the ambience of "Soviet Scandinavia," Scandinavians came on tours advertised as "vodka cruises." Most stayed at the Viru, a crowded, self-conscious combination of Western luxury and Soviet discipline.

I sat one evening with an Estonian friend in the hotel's nightclub and sipped Armenian cognac mixed with Estonian-bottled Pepsi-Cola (slyly dubbed *Peipsi-Cola* after the lake on Estonia's eastern border). On stage a flurry of show girls wriggled in sleek black tights (pages 506-7). The band blared, "I've Gotta Be Me." My host looked across the table at me in amusement.

"Clearly," he said, deadpan, "this number deals with the advantages of chemical fertilizers in collectivized agriculture."

Such bits of dry humor drop unexpectedly from the Estonians, whose reserve is matched only by that of the Finns. Individuality quarrels with gregariousness in the Estonian personality so that "wherever you have three Estonians, you find a social club—but wherever you have at least four Estonians you find two clubs." Manners are stylized; expectations are heaped high on the children. And under it all there flows a melancholy sense of fatalism drawn from the dark centuries of their history.

The ancestors of Estonians, nomads from the valleys of the upper Volga, reached the Baltic in the third millennium B.C. One of the tribes that included forefathers of Finns and Hungarians, they spoke a language separate from the Indo-European tongues. Seafarers, hunters, beekeepers, fishermen,



farmers, they lived in peace with the spirits of the land, asking permission of the forest to hew its trees, and praying for forgiveness to the spirit of the bear when they slew him.

And then, in the early 13th century, came the fury of the Christians—Danish kings, Teutonic monks, Crusaders, the Knights of the Sword—offering either conversion or decapitation. The "Land of the Blessed Virgin" became a fiefdom of German land barons that remained intact for centuries through a succession of other occupiers. Russia's Peter the Great, wresting the Baltic from the Swedes in the early 1700s, raped



the countryside in a misery of fire, war, and famine so that, as Field Marshal Sheremetev reportedly boasted: "Not a cock is left crowing or a dog barking across the land."

Russia ruled for 200 years, but the culture had become unalterably Germanic, Lutheran, and Western. Not until the late 19th century did a cultural renaissance stir Estonian nationalism, catalyzed by the 1857-61 serialized publication of Estonia's own epic poem of an ancient and powerful hero—*Kalevipoeg*—by F. R. Kreutzwald.

American pop culture seems incongruent here, but it is earnestly followed. Finnish

television, viewed openly in northern Estonia, offers socialist families the confusions of "Charlie's Angels." Blue jeans, costing as much as \$200 on the black market, are standard dress. And one cannot forget rock singer Tõnis Mägi, in platform shoes and a white jump suit open to the waist, flailing the microphone cord and boogeying to his own tune of "Beautiful Is My Homeland." Patriotic rock.

But the trappings of the West are cosmetic. There is no truly free exchange of goods or information with Scandinavia or America. Most Western publications are confiscated

at customs. Mail is routinely censored.

Today the economic and political systems of Estonia are fully integrated into the U.S.S.R. Least populous of the 15 republics, Estonia has parlayed her educated work force and strong prewar economic base of oil-shale and phosphate mining, textiles, and metal products to become, along with Latvia, the most industrially advanced in the Soviet Union. They are also the republics with the highest standards of living, surpassing much of Mediterranean Europe.

"The problem is," a college professor told me, "Estonians don't compare themselves with the other Soviet republics—they compare themselves to the West. They want to know why they're not equal with the Danes, rather than with the Uzbeks."

But the years of terror, the midnight knock at the door, have passed, as have the years of violent resistance, and Estonia's collective will to survive has been channeled into achievement despite the occupation. "We are not intimidated," is the prevailing mood. "We exist."

Although the war virtually emptied the nation of its ablest and brightest, a new generation has risen to build Estonia from the inside. Its cultural tenacity and economic achievements under difficult circumstances are remarkable for a nation of 1.4 million people who share a language with no one.

Well informed and savvy about world affairs and arts (I was questioned in detail about Americans from Thelonious Monk to John Cheever), Estonians increasingly provide a cultural link between Western avant-gardism and socialist realism.

In my two months of travel I heard an eloquent and forceful Estonian-language *Hamlet*. I found an enthusiasm for literature and a reverence for learning that has culminated in an impressive eight-volume Estonian encyclopedia. I saw sophisticated skill with graphics and design, a deep feeling for traditional arts and crafts, and I heard a rich diversity of music, from medieval wind consorts to bluegrass to the modern Estonian

composers Arvo Pärt and Eino Tamberg.

I also visited a fishing cooperative's gleaming new hospital, built with its own labor and funds, an experimental six-story pig-raising complex, and a collective farm that has used its profits to set up a hand calculator industry, buying circuitry from Texas Instruments. And everywhere I saw a people adapting, innovating, and simply excelling in what has been required—be it mechanization of industry or collectivization of agriculture.

NOTHING HAS BEEN EASY. Soviet capital poured in for industry after the war, but housing and services were left to wither. Living standards plummeted, and industrialization created a demand for labor that could not be met by local people. Russian and other Slavic immigrants came in waves.

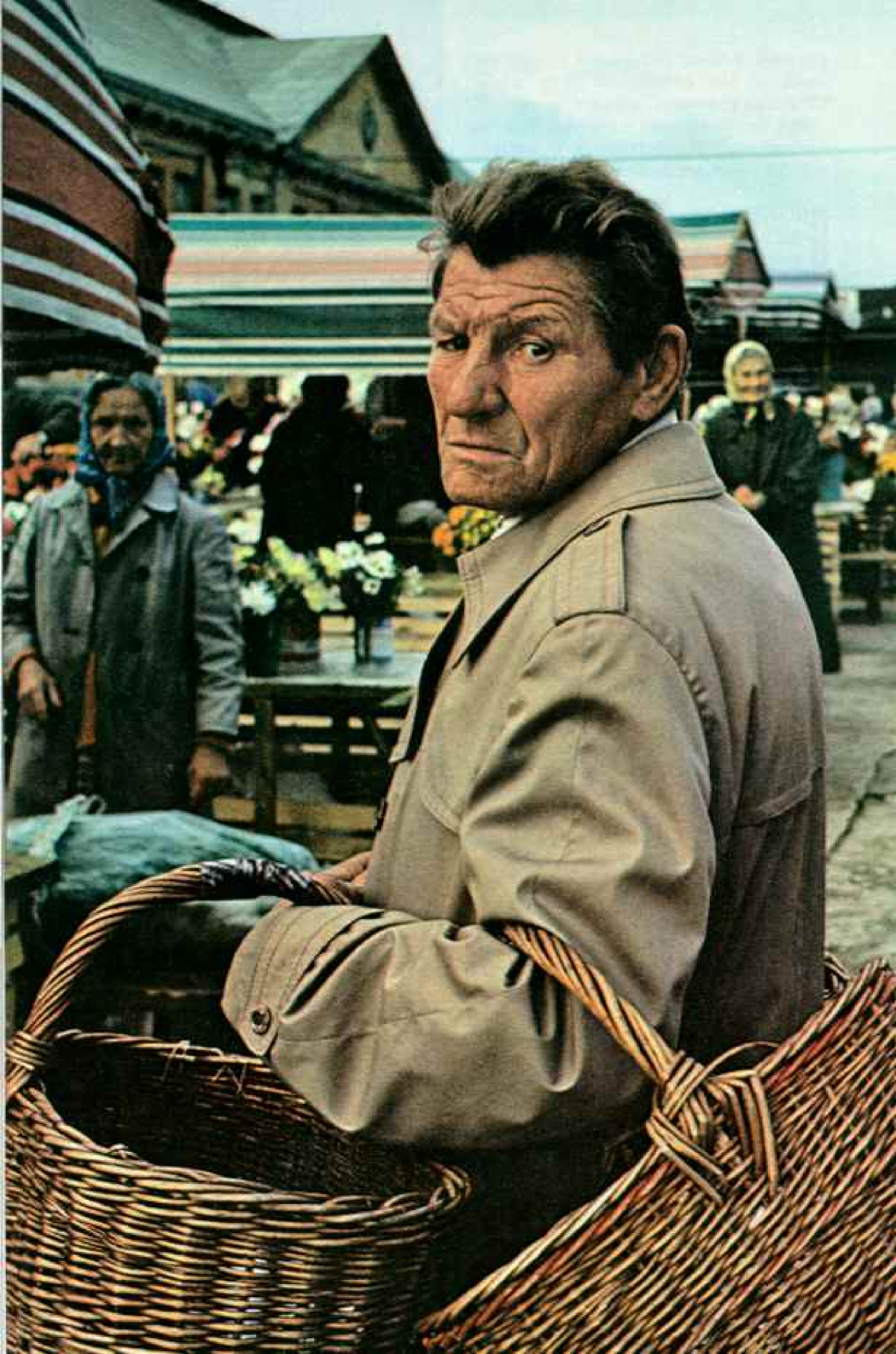
Today almost 40 percent of the republic's population is non-Estonian, and in Tallinn the number is rapidly approaching half. Relations are strained. There is little social mixing, and the immigrants become ready scapegoats. "*Vene värk!*—Russian stuff!" is a common expletive heard around flat tires and broken-down refrigerators.

Many of the immigrants are content with laboring jobs that Estonians avoid, even though wages are higher for the ditchdigger (about 300 rubles monthly—\$450) than for the physician (150 to 200 rubles). The majority of Estonians are left to form a new faceless middle class, a nation of state workers and collective farmers. They live quiet lives, in begrudging but passive collaboration with the party.

"But I think we are more secure in life than you are," a young woman told me. "We never worry about having a job, or whether we'll have enough to eat."

Marxism is taught with a confidence usually reserved for the multiplication tables, but seems to have lost its revolutionary intensity. During a flag-raising ceremony at Kose-Lükati summer camp for Young

A two-basket buyer heads for gooseberries, grapes, onions, and other fresh produce at a Tallinn market for privately grown foods. Farmers from as far away as the Black Sea bring crops to sell at the market here, since warm-weather fruits not available at state stores will bring high prices.



Pioneers, I heard red-scarfed 10-year-olds shout to the cadence of their leader, "Through the storm, onward to victory!"

But the 7-year-olds responded with the equivalent of "Higgledy-piggledy, rattledy-rell, All we do, we do well!"

GROWING UP in modern Estonia is a concern of Mikk Titma, head of the sociology department at the Estonian Academy of Sciences.

"We have problems," he said. "First of all, we no longer have the private property that once stabilized our society, that gave it roots. Self-initiative is also a problem; just a little effort brings the same material gain as a lot of effort spent getting an education."

"College? It doesn't pay," said 24-year-old Tiit Laas, who works in an electric shop. "They demand a lot of college graduates. Lots of people would rather remain inconspicuous and get better pay anyway."

Tiit and Katrin Laas were married on July 20 at Tallinn's wedding room, where three couples an hour take the vows as a string quintet plays "Ave Maria." "Church weddings are too expensive," said Tiit. "Besides, our churches have become other things—even discotheques. Our generation hasn't much use for religion."

The couple live in his parents' apartment but plan to get their own in about two years. Apartments, like automobiles, are allocated to workers by state-controlled labor unions.

"We don't have any worries," Katrin said contentedly. "Let the *mesinädalad*—the honeymoon—go by, then we'll see."

"The new generation doesn't know anything," complained an Estonian writer as we sat in a Tallinn café and savored sweet rolls and coffee. "There is no fear, no tension, no interest in the past. Only the vaguest notion of what went on in 1940."

There is truth to that. Among older Estonians you sense a faraway sadness when you ask about the past. "But those of us who knew nothing else don't think about the things that are closed to us," a 35-year-old tourist guide told me. "We have to live the best we can—raise our children, work hard for success. What every man hopes for."

Wages seem adequate, but things—bricks, can openers, bananas, even fish—are often in short supply.



Dancing into history: A Russian tourist, pulled from amid his friends, matches

"I've got a wallet full of money and nothing to buy," lamented a taxi driver who earns as much as 600 rubles a month. "I'm a young man. If I sign up to buy a car, it might take ten years to even get on the list."

"Why do you earn so much more money than, say, an engineer or a doctor?" I asked.

"You see," he said, "the overriding rule of our system is *leti alt*—under the counter. The best jobs are bartender, taxi driver,



steps with a professional folk dancer at an open-air museum near Tallinn. Here restored farm buildings and traditional costumes re-create 18th- and 19th-century rural Estonia.

waiter, and doorman—jobs where you deal with foreigners and get hard currency. There is a joke of a girl whose father complains after her wedding: ‘You lied to me, told me your man was a waiter. Why, he’s nothing but an engineer!’ ”

I asked about the ubiquitous posters urging Estonians to be good socialist workers.

“*Kurat*—The Devil!” he said. “Empty words. They stick those up only to make the

city more colorful. What do I care about the party when I can’t get enough meat?”

FROM A LAND once divided into 600 feudal manors, Estonia has become a land divided into 150 *kolkhozy* (collective farms) and 160 *sovkhosy* (state farms). Collectives are under state control but organized and run by local farmers; state farms are strictly enterprises of the government.

Up to his elbows in hay, Juhan Lints farms with his mother near Põltsamaa. Private plots such as theirs, representing only 4 percent of Estonia's farmland, grow 20 percent of all farm products. State farms and collectives, raising mostly field crops and livestock, account for the rest.

About 80,000 rural Estonians, the so-called kulaks, were deported to Siberia in 1949, breaking the strong resistance to collectivization. Production did not hit 1939 levels until the 1960s, but today agriculture has recovered to become the most efficient in the Soviet Union. Estonia's output of dairy products, bacon, eggs, and beef nearly doubled the U.S.S.R. average in 1978. State farms were placed on the self-management system in 1967 and have been operating at a profit, which can be used for bonuses or capital investments.

Getting the food to Estonian markets is another matter. Meat, for example, was hard to find outside restaurants, and accusing fingers pointed at the government. The government could only point to two years of bad, wet weather that damaged fodder.

"It won't get any better," one farmer told me. "We were expecting a lot more meat from the private sector, but young people don't want to keep animals anymore—they live in five-story apartment houses on the collectives and want the eight-hour day just like city workers."

AT TALLINN'S open market, backyard entrepreneurs offered their private onions, cucumbers, raspberries, currants, and flowers at prices 30 to 50 percent higher than at state stores. Certainly no one was starving. These stubborn Estonians just refuse to accept any kind of food shortage. They wanted to know if the Danes ever ran out of ham.

A red-faced woman beamed from behind an edifice of vegetables when I told her I was an émigré. She held out her finest bouquet of scarlet radishes and quoted from an Estonian poem: "All roses I would offer to you, and with garlands adorn your head."

Imbued with a sense of who they are, Estonians have resolutely remained Estonians. The central government, discovering it



could no more suppress a culture than could the tsars, gives relatively loose rein.

Heinrich Valk, an earthy, gifted craftsman and cartoonist, works in a medieval tower decorated with a *Playboy* centerfold and a picture of Nikita Khrushchev with Richard Nixon inspecting corn in Iowa.

"Estonia is compact," Mr. Valk told me. "We all know one another, and an artist has security. But we work hard, because we want people to recognize us, to respect us, to say that Estonians are a people of high culture. And that doesn't come easily.

"Our biggest problem is nationality—



how to hold and keep the language. Our chance to assimilate—to become Germans or Russians—has been great. But the psychology of a small people includes fear, and fear is an instinct for survival. We don't have to think of it. It's built into us."

For now the melodic Finnic tongue is a constantly growing literary language. In fiction alone, more than eighty Estonian-language books are published each year.

On Saaremaa, the largest of Estonia's galaxy of 1,521 coastal islands, the collective fishery gives newlyweds a stack of forty to fifty books rather than crystal or silver.

They include ABC's for children to come, marriage manuals, and cookbooks, as well as novels by Hemingway and local writers.

But artistic freedom has its boundaries. Publications, for example, are controlled by a committee to guard "state secrets."

There is a singular event in Estonian life that transcends culture, and has come to embody nationhood itself—the massive and powerful festival of song, the *Laulupidu*. In 1869 nationalist leaders in Tartu organized a mass song festival to demonstrate that the culture had survived its conquerors. Today's festivals, held every five years, uphold



Disco fever hits an Estonian street with a picture on the shopping bag of a Russian couple (above). Soviet shoppers come by trainloads to taste such bits of the West, to stock up on local goods, and to sample luxury items like radios (above right) from other Communist-bloc nations.

Estonians and Russians have a long-standing historical relationship. Tsar Peter I made the Baltic province part of the Russian Empire in 1721, which it remained for 200 years. After World War II a new wave of non-Estonians poured in, and now constitute some 40 percent of the population. But even today, after being Soviet citizens for forty years, Estonians rarely fraternize with Russians.

that spirit. Men, women, and children from the corners of Estonia—the hamlets of Hiiumaa Island, the Latvian-border town of Valga, Pärnu and Haapsalu, Võru and Viljandi—gather 30,000 strong, filling the stage of a concert shell near Pirita. Two hundred thousand come to see and hear.

“The first number is dedicated to Lenin,” one friend told me, “and the last song to the friendship of the Soviet peoples, but what is in between belongs to us.”

One man has come to symbolize the spirit of Estonia—Gustav Ernesaks, 71, a director of the mass music festival for thirty years and composer of “My Fatherland Is My Love,” the unofficial national anthem.

After the 1975 festival program had officially ended, the people rose spontaneously and began to sing their anthem again, with tears streaming down their faces.



THIS BEAUTIFUL LAND of which everyone sings is at peace with itself. There are no mountains to climb, no racing rivers to conquer, no wilderness to penetrate. But travel is restricted. Few outsiders can leave Tallinn without a guide and driver from Intourist, the state travel agency.

We traveled by car east from Tallinn along the northern coast of pine barrens, bog, and marsh, past grainfields constantly swept by the sea wind, past hamlets huddled against aging churches of ageless stone, a land scarred and sacred with history.

In the church cemetery in the village of Viru-Jaagupi I found a brass Germanic cross, dated 1645, that speaks for the spirit of the Estonian peasant. It eulogizes one "Sitta-kotti [Manure-bag]" Mats.

"Mats was a man who took pride in cleaning his horse's droppings from the street as

they occurred," explained the church rector, who had hurried across the street buttoning a threadbare coat.

"He put the manure onto his fields, which then prospered. He thought Manure-bag was an honorable nickname, and asked that it be put on his grave."

Between Tallinn and the oil-shale fields of the east, Estonia has established Lahemaa Park, the Soviet Union's first national park, a 650-square-kilometer buffer zone between man and his industry. Near Käsmu, on the rock-strewn north coast, we celebrated Midsummer Night, that half-pagan, half-forgotten festival of the midnight sun.

In an old Estonian farmhouse we supped on pea soup and coarse brown bread, pork and fried mashed potatoes, with pancakes and currant jam for dessert. And in the bright evening we watched the lighting of

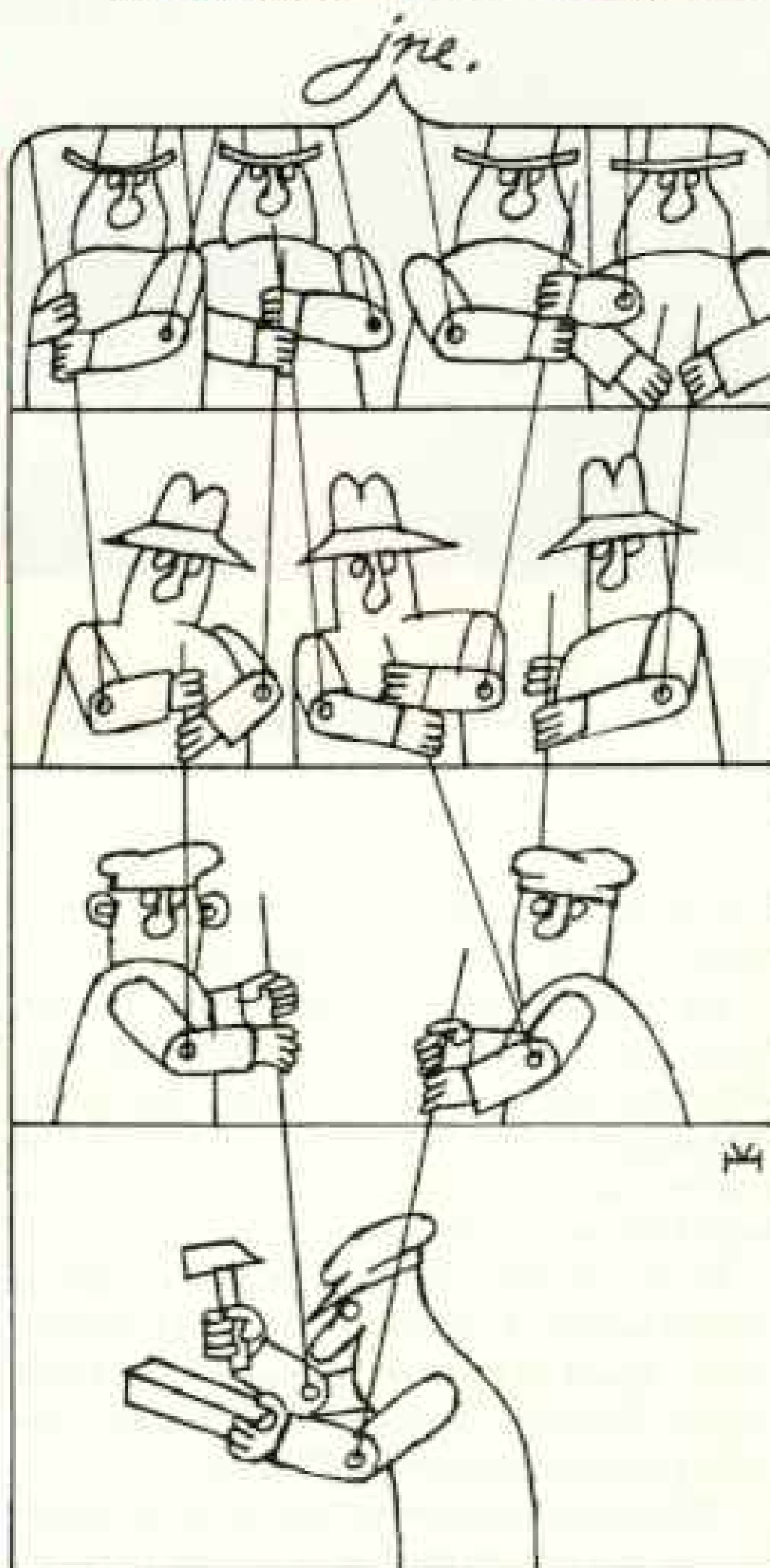


FRIT VEEDLING (ABOVE); CARTOON BY HEINRICH VALK, GEZÖH © 1976

Prolific pens of writers Jaan Kross and his wife, Ellen Niit (above), among others, have reinvigorated recent Estonian literature. A poet and novelist, Kross tells stories from Estonian history that sometimes raise questions about society today. Niit writes books for children as well as poetry.

Cartoonist Heinrich Valk (above right) has earned a reputation for barbed wit. This drawing (right) pokes fun at the system by calling attention to the number of bosses it takes to direct a single worker. Jne. means "etc."

Intellectuals want to sharpen an Estonian sense of identity—as enduring as the crowded byways that thread through old Tallinn (facing page) from Viru Gate, below, to the Toompea, stronghold of the 13th-century Danish King Waldemar II.







"I've gotta be me," blares the cabaret band as daringly clad dancers (above) wow tourists at a high-rise hotel for foreigners in Tallinn. Backstage at another cabaret (right), performers apply their stage makeup before a show.

A drama-loving people, Estonians support nine professional theaters and ten semiprofessional companies. More than a million theatergoers a year see performances of local absurdist allegories as well as Estonian-language productions of Shakespeare, Chekhov, and Beckett.





the bonfire that flickered over a merriment of singers and dancers, zithers and fiddles.

LUNARLIKE MOUNTAINS of ash, residue from 55 years of oil-shale mining, loomed on the horizon for miles as we drove toward Kohtla-Järve, a new city born of postwar industrialization. The air was heavy, the Queen Anne's lace by the roadside hung brown and wilted. Ninety thousand people, mostly Russian immigrants, now live in Estonia's third largest town, a warren of box-shaped apartments and brilliantly colored billboards extolling the glory of work.

The two imposing oil-shale-burning power plants in this area supply enough electricity to share with Leningrad and much of the northwestern Soviet Union. Miners extract 30 million tons of shale a year, and reserves should last for the next 200 years at the present rate.

Increasingly sensitive to the environment, the industry has been successfully reclaiming strip-mined land, planting fir forests where once there was only bog.

THE LAND seemed broad and open on the drive south to Tartu, with a sawtooth horizon of pine tops dark over the gold of barley. No billboards or service stations marred the landscape of cornflowers and black-eyed Susans, stands of white birch, and mustard-colored farmhouses settled into nests of fruit trees.

As we drove down the road, a horse-drawn wagonload of Gypsies clattered past.

Tartu, with more than 100,000 people Estonia's second city, lies in the valley of the broad Emajõgi (Mother River), an area embraced by Estonians as the soul of their nation. Tartu has been a university town since Swedish King Gustavus II founded a school in 1632. In the Germanic era, it was a center of academic life in northeastern Europe.

Today Tartu State University is one of six institutes of higher learning in Estonia, and the most prestigious; only half the applicants pass its stiff entrance exams. But education is free, and 70 percent of the 3,600 full-time students receive forty-ruble-a-month stipends, about half their living expenses.

The road south to Võru wound through the least pampered part of Estonia. A sign



Getting the kinks out, truck drivers with spinal problems are suspended in salt water at one of five sanatoriums in Pärnu. Workers from throughout the Soviet Union, more than twenty thousand a year, come here to take the mud and other



therapeutic baths. Vacationists flocking to this popular resort on the Gulf of Riga also soak up the sun on its broad beaches.

cautioned: Wild Boar Crossing. Over meadows of yellow alfalfa we sighted Suur Munamägi (Big Egg Mountain), Estonia's highest elevation at 318 meters (1,043 feet), just a bump on a hazy horizon. On Tamula Lake, fishermen sat silently, bamboo poles arching into the calm, dark water.

Võru's guesthouse charged one ruble, ten kopeks for a single, 70 kopeks to share a room with three unknowns. In the morning we breakfasted on potato-and-barley porridge, then drove through the sweet southern pastures to the town of Viljandi, where Russian is seldom heard, where life seems far from the tense formality of Tallinn, and where the legendary boatman still sings to his sweetheart: "Ah, those eyes, those eyes, that I can ne'er forget. Those lovely eyes of blue that capture my heart yet."

To the west, in the resort town of Pärnu, citizens from practically every Soviet republic strolled along the broad, shaded avenues, tingling from the therapeutic mud and other baths available in the town's five sanatoriums (left).

In a Pärnu beachfront night spot, alive and hopping on a Wednesday evening, a credible rock group sang in English: "Oh, it's a heartache, nossing but a heartache!" And we drank of a sulfurous local beer that will probably and deservedly remain local.

AS WE HEADED back north, the valleys and hillocks of the south tightened into plains. Sometimes we could see the site of a small farmstead, now only a silent clump of trees and decaying fence posts.

At the Eduard Vilde Collective Farm near Rakvere, named for the beloved turn-of-the-century Estonian writer, chairman Erich Erilt manages 800 workers on 20,000 acres, agriculture of today's dimension.

"I have deep respect for those people who worked hard for their own farms and built them up in Estonia," said Mr. Erilt, a strong, warm, big-boned man in his early 50s. "We never talk about it, but they made things ready for us. The fields were cleared, ready for plowing. We just stuck our cows into their barns and called it a cooperative.

"The process of small farms being abandoned for bigger concerns is going on all over the world. Our change, though, came abruptly, too heavy-handedly. But it's



Singing is the soul of Estonia, often an outpouring of cultural pride. Here the

much easier today for the Estonian farmer—he has his weekends and holidays off.”

The Vilde farm has begun to reverse a trend gone sour: Instead of multistory apartments, fifty new individual houses, with stables, are being built.

“They’ll be Estonian farm style,” said Mr. Erilt with satisfaction. “People need homes, after all. It’s love of every tree, every piece of ground, that they never lose. They want a yard, a garden—children playing. Perhaps a few animals. Maybe even some bees.”

His newest project is to turn the elegant old mansion on the collective grounds, empty since the war, into a meeting place and guest quarters—expensive and time-consuming work. I asked him why.

“For thirty years I’ve been raising pigs,” Mr. Erilt answered. “I suppose it’s time to restore a manor house.”

So the time of healing is here, the cycle of destruction and restoration once more completing its course. Tallinn is draped in scaffolding, and manor houses of a dim, feudal



PHOTO BY VEELING

State Academic Male Choir, directed by Olev Oja, performs by Tallinn's city hall.

past are being revived and turned into schools, clubs, retirement homes. Perhaps the healing of the spirit will come too.

We dined on nut-sweet trout from the collective pond that night, drank the collective wine, and gathered our collective thoughts about this Estonia we love.

"My mother and father tilled the land, and I've tried to do that too," said Mr. Erit, his words heavy with unspoken memories. "And I'm happy with my life. Estonia is a beautiful country—even though life has

sent our children throughout the world."

PLAYFULLY, skillfully, the sea gulls circled in the wind as the ferry slowly pivoted amid the forest of cranes in Tallinn harbor. On the pier only two soldiers, one with the face of Central Asia, watched with indifferent eyes. But through the heavy windows of the terminal I saw the silent wave of hands, and the line of faces pressed against the glass, fading and blurring as we powered into the open sea. □

Oursi, Magnet in the Desert

ARTICLE AND PHOTOGRAPHS BY
CAROLE E. DEVILLERS



Flame red cotton in her ears and decorative tribal scars on her face mark a young woman as a member of the Jelgobe Fulani. The tribe is one of several in Upper Volta's arid Sahel region drawn to Oursi village by the profit of its weekly market and the promise of its life-giving lake.

STOOPING, I ENTER the doorway of the tiny mud-brick hut to peer around. In the weeks to come, this little dwelling will be my home.

Yes, I decide, there will be enough room for my camp cot and cooking gear, though little space will remain. In one corner I discover a dozen eggs. Perhaps the eggs are a welcoming gift—or am I going to have a hen for a roommate during my stay?

This is the Upper Volta village of Oursi, in the heart of the Sahel, the Sahara's southern rim.* I've come here by Land-Rover from Upper Volta's capital, Ouagadougou (pronounced Wog-a-DU-gu), 280 kilometers to the south. It was a grueling eight-hour ride over a road that frequently becomes impassable during the late summer rainy season.

For years my major interest has been Africa—its people, history, arts, and music. As a free-lance photographer in Ouagadougou, I travel whenever I can to places such as Oursi to immerse myself in village life.

Earlier I had met Oursi's chief, Issoufi Alimonzo, and told him of my desire to spend some time with the 600 villagers. He promptly invited me to return as his guest, and upon my arrival offered me the hut adjacent to his.

Privacy is not a way of life here, and my hut is soon jammed with people. But Chief Alimonzo understands my predicament and in the end shoos them outside.

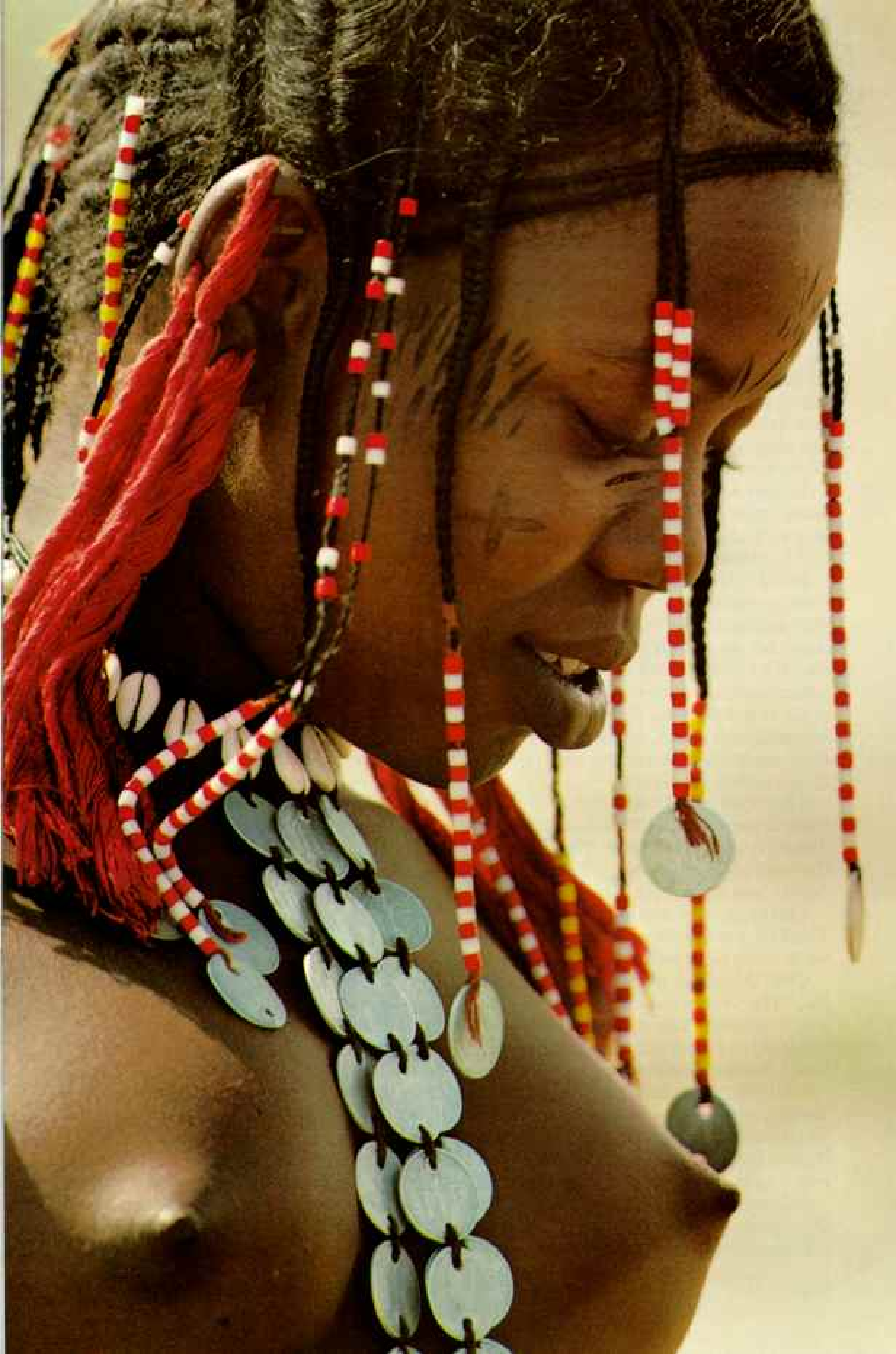
Even then, a young man walks inside and sits silently against the wall. I do not speak Songhai, and he speaks no French, but we finally communicate more or less in Fulfulde, the Fulani language, of which I understand a little. The young man's foot hurts, and he wants me to treat it. Here, as in many remote regions of Africa, there is a tendency to think that any white-skinned person has the ability to cure ailments.

I examine the foot and see that he has a bad case of dracunculosis, or Guinea worm disease. I can do nothing more.

Still, I find the door of my hut ringed with inquisitive women and children. I resign myself to being the object of their curiosity.

As I fan myself, I think back to an interview I had some months before with noted anthropologist Margaret Mead. Her words

*Rick Gore traveled to Oursi for his article on the world's deserts in the November 1979 *GEOGRAPHIC*.



echo in my memory. "Certainly, it won't be easy every day," she said of my plan to explore Africa. "But I can only encourage you. You remind me of myself."

I look out at the friendly, interested faces in my doorway and remember the warmth and kindness that illuminated the late Dr. Mead's face as we parted.

No, it won't be easy every day.

Songhai Prince Settled Region

Oursi has attracted me because of its unusual setting and its mixed population. It lies on a sandy hillside, between a string of golden dunes to the north and a greenish lake to the south. Songhai share the village with Fulani of the Mallebe tribe. Here both are farmers, although traditionally Fulani have been herdsmen. Both are of Muslim faith.

In the evening, over glasses of green tea, I learn Oursi's history from Chief Alimonzo. It is a vivid and colorful epic poem, passed down orally through the ages.

In the 17th century, Hamarou, a Songhai chief, ruled in Gao, which now is in Mali, to the north of Upper Volta. After Hamarou's death his two sons traveled south, for warlike Maure had invaded the kingdom. One prince settled in Oursi with his people. In the years that followed, Tuareg came to live, bringing their slaves, the Bella, and the Fulani, who tended their cattle. By 1700 the region was well populated.

They were not all peaceful years, for other tribes invaded this area; the Songhai and the Tuareg fought side by side to repel them. In the waning years of the 19th century they faced a new enemy: the French army.

Finally, in 1916, the French triumphed at Yomboli, a few kilometers from Oursi, in a battle often recounted by African bards.

Chief Alimonzo made it come to life for me. "The warriors assembled in Oursi," he said. "Songhai, Tuareg, Bella, and Fulani. Mounted on horses and camels, they rode to Yomboli to face the French.

"But the tribesmen had only spears and swords, and the French weapons spat fire. It was a massacre. Men fell like dried leaves. Bullets flowed like water from the Frenchmen's guns. Only the immortals survived!"

Staring out at the sunbaked, barren land in silence, I thought of Oursi's peaceful villagers, living day to day on the edge of

survival. It was hard to see them as the descendants of those fierce warriors who had fought at Yomboli.

The day begins early at Oursi. By five o'clock I hear the muffled knock of pestles grinding millet. And the mooing, bleating, braying, crowing sounds of animals. Transistor radios blare, and the muezzin calls the men to morning prayer. My day, too, begins early. Three women have pushed my hut door open and are peering in. With a suppressed sigh, I get up to explore the village.

It is Friday, a day of rest for Muslim men, but not for village women. At one of the pounding sites small groups of them gather to crush millet in wooden mortars. It is winnowed to remove the husks, then pounded and pounded again. After two hours or so the millet has turned to a fine flour.

I watch three women gathered around a common mortar. Rhythmically their heavy pestles fly up and down while tongues click and hiss in cadence. The movement speeds, then slows, as the pestles pass from woman to woman. It speeds again, and the pestles move like live spirits to the beat of the clicking sounds. The dance of the pestles.

Other women have formed a line at a village well, where stagnant water lies five meters down. The water is contaminated by Guinea worms. A medical team has warned the villagers to filter it, but few understand the link between water and the long, thin worms that break through the skin of their feet and legs. I have a filter, and I have seen a similar one in the chief's house, but evidently it is little used. Sad—for the parasite can cause serious debilitation.

Cattle Are Watered in Dry Lake Bed

As the dry season progresses, the water level falls in the muddy lake outside Oursi. Finally holes must be dug in the bed of the lake to find water.

When the dry season is at its peak, from March to June, herdsmen must draw water from the wells. Thousands of cattle are watered this way; broad drinking troughs are dug in the mud and filled by hand.

Unfortunately the lake water, like the village wells, contains a parasite, carried by a snail, that causes crippling schistosomiasis, or bilharziasis. But it is a cruel fact that men and animals alike need water, and the

villagers make use of the sources at hand.

A day goes by slowly in Oursi. Crushed by the scorching heat of a July sun, the village lies silent in the peak hours of the day. Anxious villagers await the rains. They are late this year, and delay can bring disaster.

I watch as emaciated cows drag their bony carcasses toward patches of green grass growing in the bed of the waning lake. Most of these herds belong to wandering Fulani, and the trip to the lake may be as long as thirty kilometers.

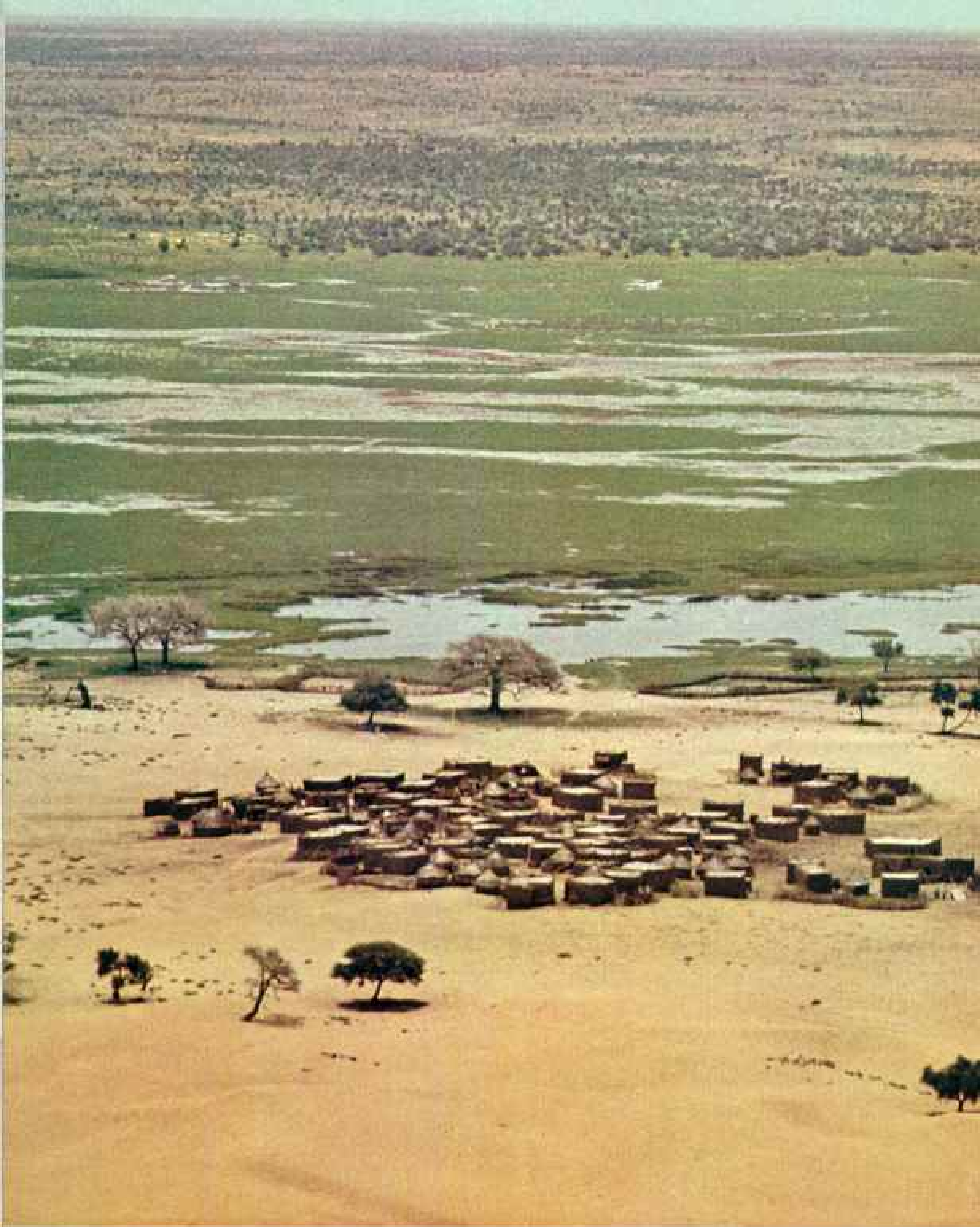
Raucous shouts draw my attention. Two men are trying to put a fallen cow back on its feet. A third villager comes to help, and with desperate efforts they raise the animal to a standing position. It struggles forward and falls again, strengthless.

Even the sun wears out in this harsh land. Concentrating its last rays into an incandescent ball, it seems to die behind the dunes, streaking the sky with glowing marks.

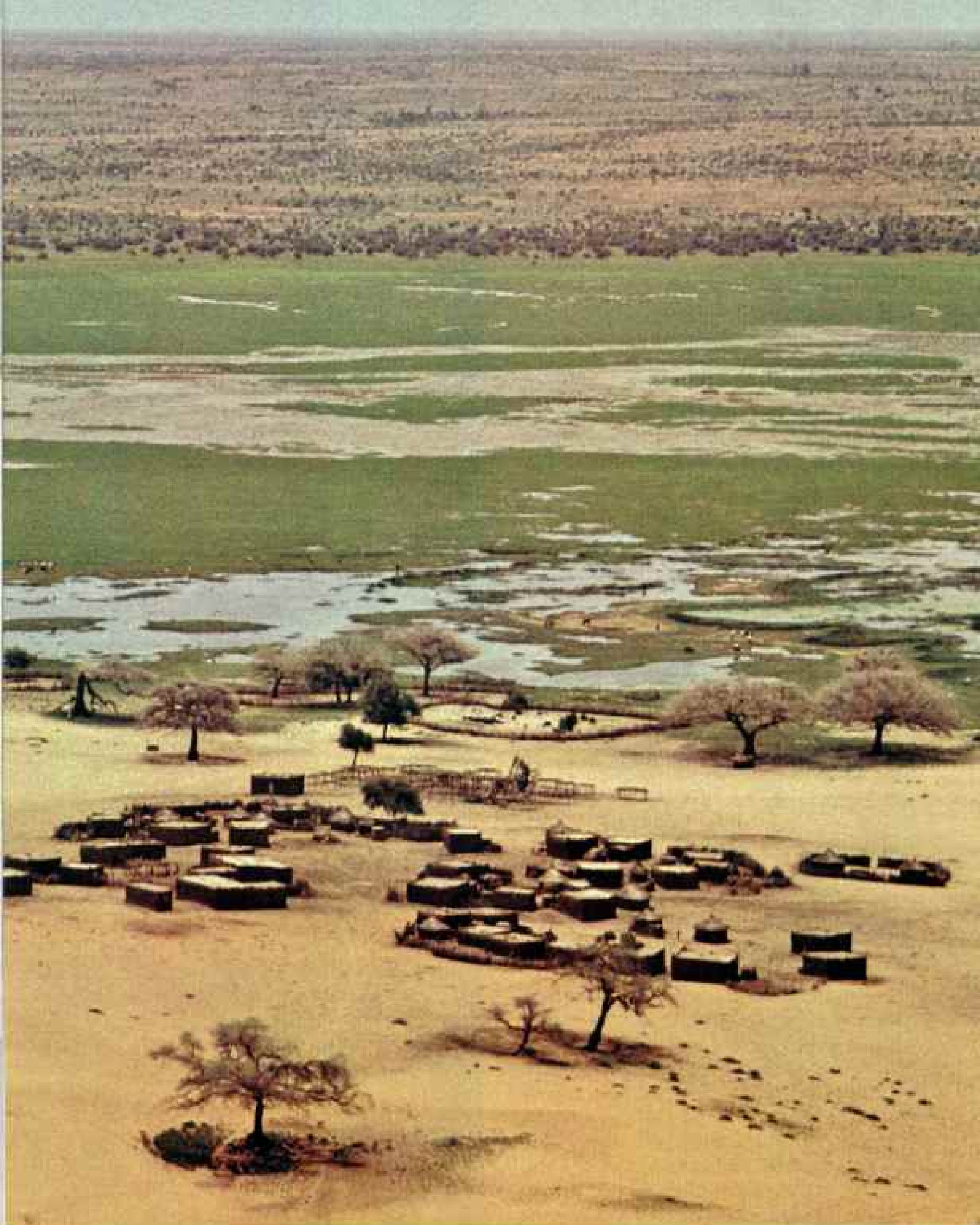
But back in the village, as evening cools, there is warmth and togetherness. Oursi



Leaves shed by the legendary baobab tree, whose capacity to store water has made it a symbol of resourcefulness in the savanna, will be ground for use in a sauce served with thick red sorghum porridge. Meat from livestock is rarely eaten here, since villagers prize large herds as a measure of their wealth.



On the edge of survival, Oursi's boxy huts stretch between encroaching dunes and a broad muddy lake. Most of the village's 600 residents are Songhai, descendants of 16th-century empire builders from the north. Others are Fulani settlers of the



Mallebe tribe. Never much more than a large water hole, even during the wet season from July to September, the lake still yields enough insects to feed a host of birds, from ducks to crowned cranes and marabous. Beyond it, the savanna spreads south.

resounds to the mooing and bleating of cows and goats crowding the small open square, waiting to be milked. Children play together among the huts under the tolerant, affectionate gaze of parents. They are loved dearly by all the adult villagers, and it is not unusual to see boys in their late teens cradling babies in their arms.

Every night I find a basin of *to*—a paste of red sorghum or millet—and a bowl of baobab leaf sauce waiting for me in my hut. Oursi hospitality: I am expected to eat my share, then return the dish to the chief. The leftover portion is for him and his family.

Chief Alimonzo is intrigued by Western marriage customs. The fact that a man does not give a bride-price to obtain a wife astonishes him.

“We Songhai used to marry only among ourselves,” he says. “Times have changed, and a Songhai may marry someone from another group. But always, gifts are exchanged. The man will give a cow, or something equal to it, to the bride’s father.”

Mud Fishing Nets Food and Fun

One morning I gladly accept an invitation to join a fishing party. I accompany a group of boisterous village boys hurrying to the lake. Each carries a small net and a spear. Now, at the end of the dry season, is the best time to catch the catfish, for the water is low and the fish burrow into the mud to hide.

I watch as the boys wade through a small puddle, throwing their spears into the water at random. When one happens to spear a fish, he brandishes it high, cheering, then runs to the bank to stun it.

In one of the larger water holes in the lake bed, they work together, moving forward in a line. They probe the mud with their bare feet. When one boy yells, they all dip their nets into the mud, and spears rummage in the slime. Several large fish are caught, bringing laughter and joy, for fish—skinned, cleaned, and sun dried—are a valued food in these times of shortage.

I take my time returning to the village, for there are gems of beauty in this aquatic grassland. The water glistens, lacquered by the sun’s artistic hand. Crowned cranes rustle aloft as I approach, but a family of bald-headed marabouts, resembling peaceful old wise men, pay little attention to my passage.





Splashing across the lake with spears and small nets, a group of Oursi teenagers (above) flush catfish from hiding places in the mud. The few fish they take will be dried, to be sold at the market or to be set aside for lean times.

Nearby, a young Bella mother, baby aboard (right), searches for water lily roots (left). At her village, a few kilometers away, the women boil these bulbs, which taste something like artichokes, or pound them into flour. But Oursi women, who associate them with poverty, avoid them out of pride.





A flock of four-legged commuters, these goats and sheep leave Oursi daily for

Startled spur-winged geese burst from the high grass. Cattle egrets conscientiously follow the oxen that flush insects from the grass. Yes, this lake, teeming with insects, is paradise for innumerable species of bird-life. Richly colored teal skirt the waterside. Blue-checked storks and herons in their gray suits roam here, wild and free.

I am touched when I see children picking bouquets of water lilies from the lake. The appreciation of beauty has no age limit, I tell myself. But before the children reach dry ground, those white petals are in young stomachs and the children are happily crunching the stems. So much for poetry!

Abruptly a storm is upon us. Under

threatening clouds, the lake grasses bow in gusty winds. To the east a yellow wall of sand rushes toward the village. But women continue to pound millet under an acacia tree, and the wind swirling around a lone figure bearing a load of firewood makes her quicken her pace only slightly.

Then the sandstorm envelops me, pricking my legs with a thousand tiny needles. The first raindrops sting my face. A vagrant whirlwind swoops by, coating me with golden dust, and I see the whole world through an orange filter. An incredible sight! I take a last picture before the light fails.

Only now do the villagers run for shelter. The sandy wall passes overhead, and the



a desert grazing camp, then return to the lake they share with some 12,000 cattle.

sky lightens slightly. Violent rainsqualls suddenly lash down. This, too, has beauty; the driving raindrops hitting the arid ground give the appearance of snow.

Finally the turmoil ends, and a fine cooling rain falls. Children run outside to turn their happy faces upward, toward the life that comes from the heavens.

Village Children Have Winsome Way

It is not difficult to see why Oursi children generate such affection in their elders. There is 6-year-old Hamidou, who follows me everywhere and insists on carrying my equipment. And Barkissa, a coy little girl who loves to hold my hand as I walk. And

Awa, an extrovert of 5 who has a brand-new sister and can't wait to tell everybody.

"*Bonjour, ça va?*" Little Ousseini says it a thousand times a day, offering his grimy hand. The greeting is the only French he knows, and he is very proud of it.

When I give one of the children some tidbit, he is always quick to share it with his little friends—a small piece of candy will be divided and subdivided and divided again, so each can get a taste.

Toddlers have only dirt, balls of dung, and empty tin cans to play with, but as they grow, imagination and enterprise come into use. A pestle balanced across a mortar becomes a seesaw. Mats of woven plant stems

become playhouses. Boys make slingshots from pieces of inner tubes and use them to bring down birds.

Little girls mimic their mothers' activities. They play with child-size pestles, "milling" sand in the mortars.

I stare curiously one night as a procession approaches the chief's house. A cow with a broken leg is being borne by two donkeys. The unfortunate animal has fallen into a hole in the lake bed and is near death. Rather than let it die and rot, the villagers decide to eat it. The hide will be saved for the animal's unknown owner. Ordinarily meat is not part of the village diet, for livestock on the hoof is too precious—too much a measure of wealth—to be eaten casually.

Camels and Motorbikes Share Parking

Each major settlement in the region has a different market day; in Oursi that day is Sunday. The scene is almost biblical.

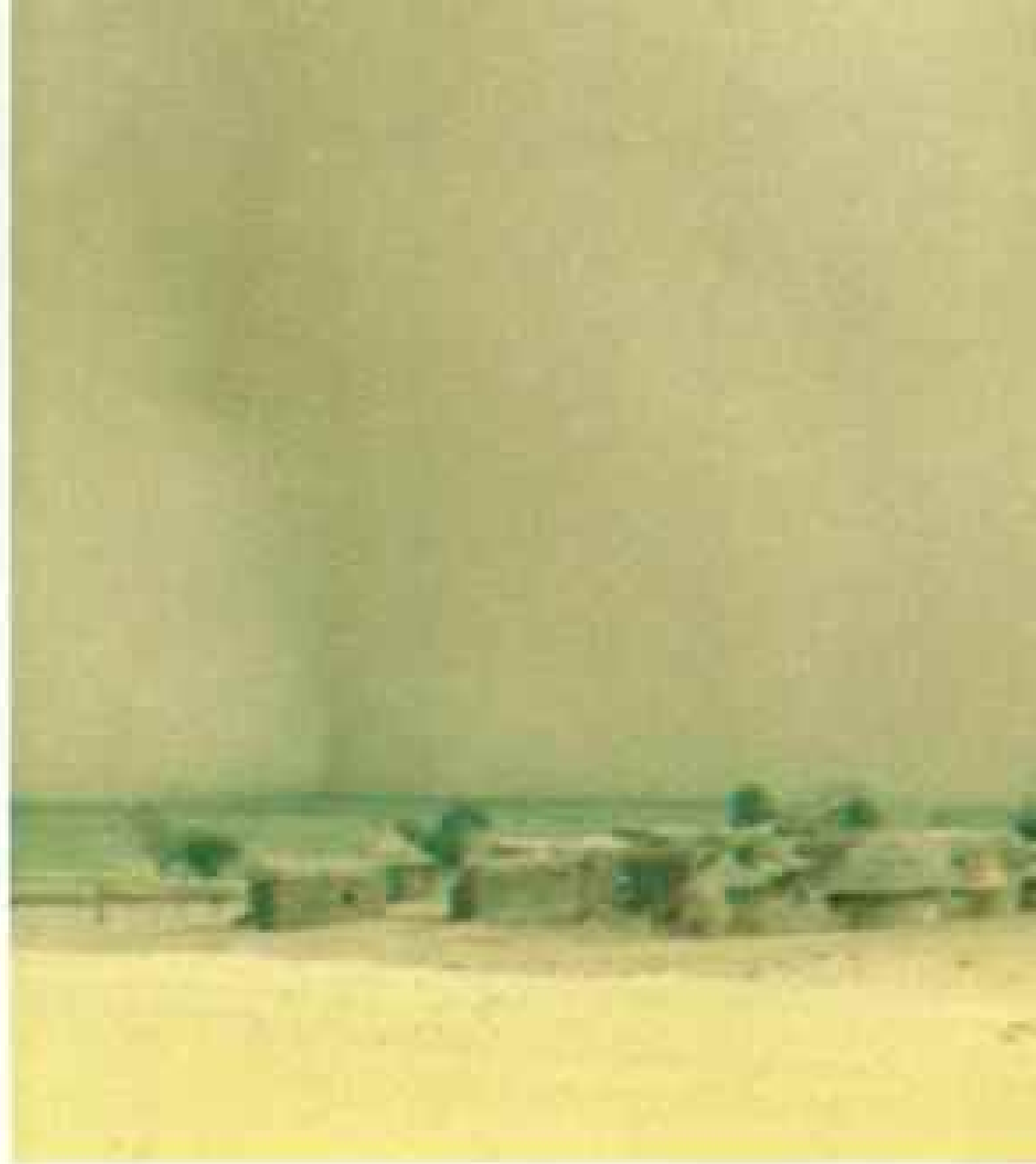
Lines of pack animals come bearing grain, baskets, and straw mats. Tribespeople cross the dunes carrying stacks of firewood or herding flocks of sheep. Fulani bring milk and butter balls, and children come towing recalcitrant goats.

Truly it is a rainbow of colors. Fulani women of the Jelgobe tribe in their red wrap-arounds sport brass anklets and bracelets and necklaces of coins, plus strands of red cotton through their earlobes. Fulani herdsmen wear long, ochre-dyed cotton tunics decorated with white buttons—and often that colorful garb is topped by a felt derby.

Turbaned Tuareg, riding camels, come to the Oursi market. I smile at the incongruity of motorbikes parked in the shade of an acacia tree beside donkeys and camels.

Strolling through the hubbub, I examine plastic shoes, beads and bracelets, straw mats, and myriad foodstuffs. Inquisitive women come up to me to touch my hair and giggle. To them, my loose locks are unfashionable—they suggest I use butter to hold them in place.

Twice each month Oursi women attend a sewing class. A government health-service team arrives from Gorom Gorom, the nearest subprefecture, to give sewing lessons. Enthusiastically the women work on children's clothing, using material furnished by their teachers. When they are finished, they



A wall of sand blowing their way (above), Oursi women pounding millet seek shelter only after the squall surrounds them





(below). Village farmers, who scratch their crops from dry, eroding soil, welcome the rains that accompany the sand. But

should the rains come too early or too late, the yields of millet and sorghum might not last through the year.



Bath time comes from a bowl for two Bella children at Pétoye, a village near Oursi. Parents in this harsh region treasure their youngsters. But only six in ten survive malnutrition, malaria, dysentery, and measles to reach age 5. Villagers take for granted such hardships as disease and famine. "This is Allah's wish," they philosophize. "We'll wait and see."

may buy the clothes; otherwise, the garments are sold in Gorom Gorom.

Outside the village one day I pass a Fulani crouched before a dead cow, and his silent tears express better than words the distress that is in his heart. Yes, even those eagerly anticipated rains bring a share of despair—for cattle weakened by drought sometimes succumb to pneumonia caused by the cold and dampness that follow the rain.



Oursi's economy is mainly agricultural, and each year the fields extend farther out from the village. This expansion causes the same type of quarrel common in the early American West—cattlemen versus farmers. Fulani herdsmen argue that the fields make it hard for their cows to reach the salt lick rimming the lake. Songhai and Mallebe farmers claim cattle damage their crops. Serious disputes are judged at Gorom Gorom.



Millet and sorghum are the main crops. The farmers sow after each big rain, until the millet is well started. Methodically they move along each row, hoeing a planting hole every two steps. Women and children follow, dropping a pinch of seeds into the hole, then scraping the earth over the seeds with their bare feet. Sometimes beans and sorrel may be grown between the millet stalks. In October the millet will be harvested and stored in the thatch-roofed granaries that stand in the middle of each field.

This year a few farmers are using oxen instead of manpower for the plowing—the animals are rented for a small fee from a rural-development center in nearby Gorom Gorom. When I photograph two men plowing, the Oursi sense of humor comes to the surface: "Bring us four copies of your pictures," one of the farmers demands. "Two for us, and two for the oxen."

Oursi villagers also harvest a wild grain called fonio, which resembles mustard seed. Among the Songhai, only women gather it. They leave the village for several days, camping near the bottomlands where the plant abounds. Using special baskets woven by the Bella, they begin early in the morning, before the hot sun has burned the dew away. The baskets are swung at arm's length, and the dew-weighted grain falls in. It will be dried on heated stones.

As the season advances and the fonio ripens, its harvesting becomes simpler. By then the grain has fallen from its stalk and can be swept into piles with straw brooms.

But there is an even easier method of gathering the grain—simply opening anthills and stealing the stockpiles of fonio that the insects have gathered.

Return to Oursi Reunites Friends

My stay at Oursi ended in late summer, but the links with my friends there remain. Whenever I can, I make the rigorous trip from Ouagadougou. Each time I am greeted joyfully by children and adults. Issoufi Alimonzo offers me a cane chair and we chat over tea. While I get the latest village gossip, the children cling to me.

And each time I leave, it is with more regret. My memories of those kind and thoughtful people will always remain. Oursi has become a part of me. □

British Columbia's Cold Emerald Sea

EXUBERANCE OF LIFE greets photographer David Doubilet as he plumbs the remarkably fertile waters of the Strait of Georgia. An inland sea separating mainland Canada from Vancouver Island, the strait has long been a paradise for sport and commercial fishermen. Through the eye of Doubilet's camera we now discover that a fantasia of strange and colorful sea life exists below the surface.

In the shallows off one of the strait's countless islands, an eel-like penpoint gunnel (*right*) seeks shelter by threading its ten-inch body around the spines of a crimson sea urchin.

GUNNEL, *APODICTHYS FLAVIDUS*; URCHIN, *STRONGYLOCENTROTUS FRANCOISIANUS*

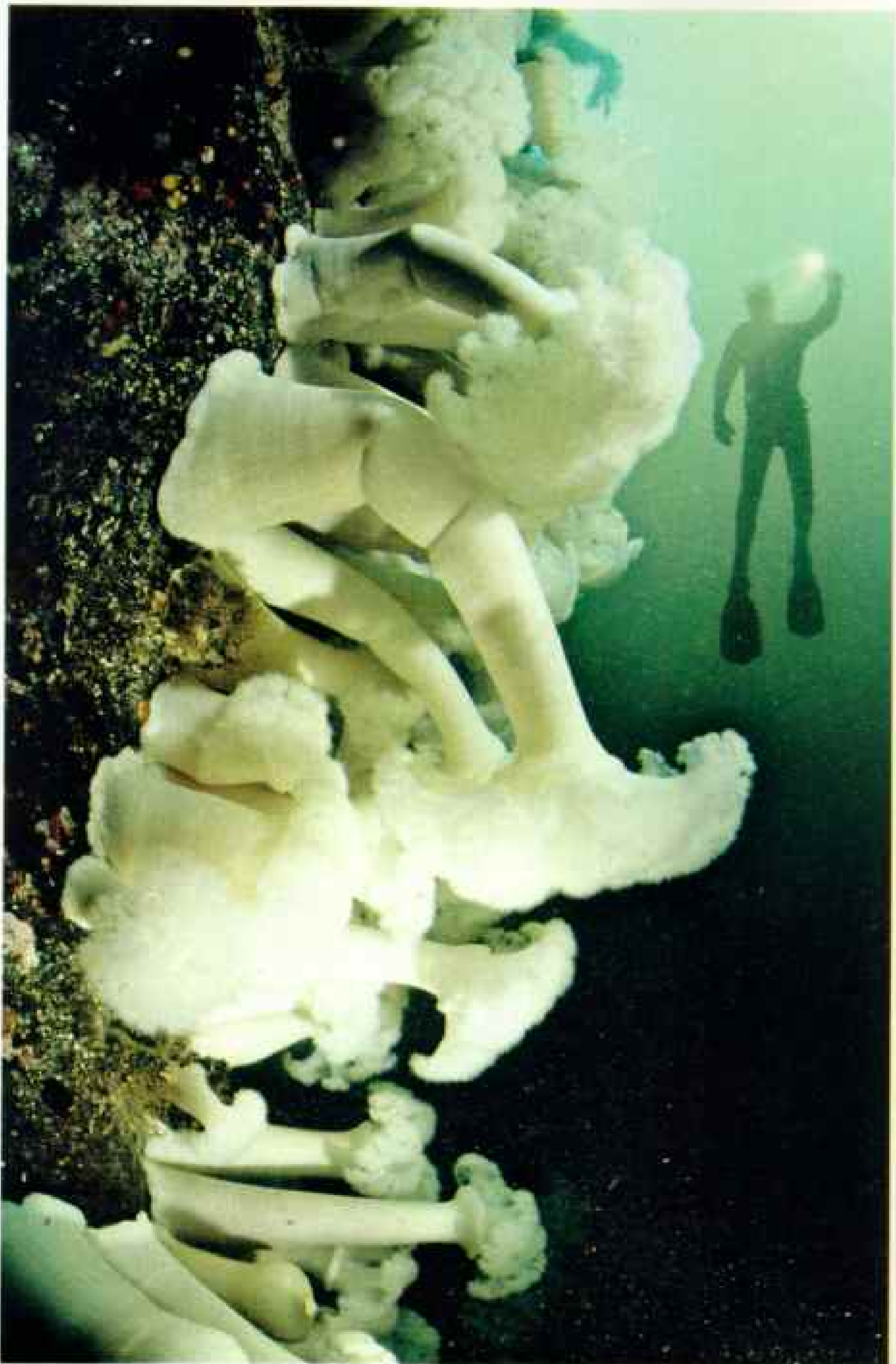
Photographs by
DAVID DOUBILET

Text by **LARRY KOHL**

NATIONAL GEOGRAPHIC STAFF







METRIDIDIUM SENILE (RIGHT)

BRAINLESS BEAUTIES, sea anemones such as these two-foot-long *Metridium senile* (above) are among the most primitive of multicellular animals. Thriving in areas of swift current,

they poison small animals by extending microscopic "harpoons" from flowery tentacles. About half the size of dandelion blossoms, strawberry anemones (right) carpet large bottom areas of the strait.







NATIONAL GEOGRAPHIC ART DIVISION



PLAYGROUND and workplace for British Columbia's people—most of whom live near its shores—the Strait of Georgia is fringed with hundreds of fjords, bays, and estuaries (map). In summer a quarter of a million local pleasure craft fleck its surface, competing for space with fishing boats, log barges, and Alaska-bound ferries.

National Geographic, April 1980



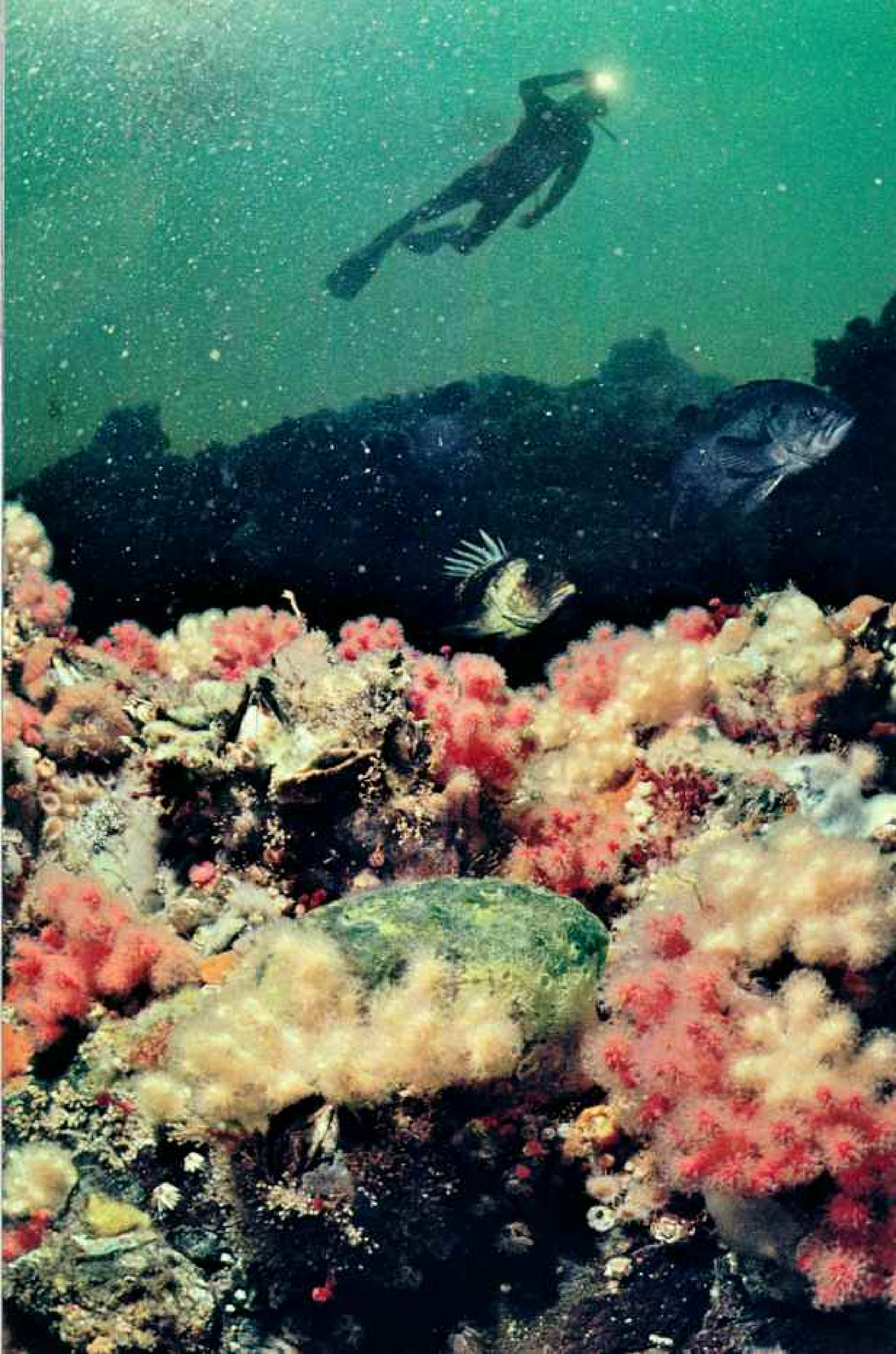
But when winter casts its pall across the waters (above, looking west from Egmont), the province's growing number of scuba divers enjoy the best season for their sport.

During the warm months, a superabundance of plankton is whipped to a broth by tidal currents—as swift as 14 knots—that flood and ebb through the strait twice a day. Visibility then

may be limited to a foot or less.

When winter storms arrive, however, and the great synthesizer, the sun, stays hidden behind cloud cover for much of its brief presence, the strait's dense forests of kelp begin to die.

By winter's end the curtains of plankton have disappeared, and visibility may extend to a hundred feet in places.



Plankton eaters



GERBERIA RUBIFORMIS (LEFT); SCALLOP, *DIBRATIS HASTATA*; HERICIA; SPONGE, *MYCALE ADHAERENS*

HUNGRY FINGERS plucking food from the cold nutrient-laden current, thousands of extended polyps impart a blurred image to a colony of soft corals (left). Overhead, in the north end of the strait, diver Warran Buck withstands the 50°F (10°C) temperature in one of the multi-layered outfits required in these waters.

A three-inch scallop (above) eats as easily as it breathes by filtering plankton from the water it draws through its gills. Tiny beadlike eyes spangle the edges of a brightly colored mantle that folds out like lips from within the mollusk's two valves. Covering them, like a second skin, is a layer of living sponge. Resembling larger eyes, exhaust holes, seen here only on the bottom shell, allow the sponges themselves to breathe and feed.

NO RAVING BEAUTY by human standards, a six-foot-long male wolf eel pokes his lumpy face (right, seen in profile) out from his den. Nearby, blindly unaware of any threat, spiny sea urchins graze on algae and bits of kelp torn loose from the streamers blowing in the background. Suddenly, with a great splintering of shell and spine, one of the thorny creatures becomes a most unlikely lunch (lower right).

Wolf eels—not eels at all but elongated fish—are among the largest of a suborder composed mostly of pint-size gunnels and blennies. Females, distinguished by more tapered heads and a brown color, often live with males for many years in the same den. They are one of the few fish that prey on sea urchins. Powerful jaws and massive grinding teeth in a mouth with very little soft tissue enable wolf eels to make mincemeat of spines that are sharp enough to skewer a diver's suit right through to the skin. But their diet does have its hazards, according to biologist James Cosgrove, who served as adviser to photographer Doubilet. "Now and then you will see one with a spine shoved through one of its thick lips," he says.

Man too finds sustenance from these living pincushions. Large numbers of sea urchins are harvested from the strait for export to Japan, where their sex organs are sold as gourmet delicacies.



*Iron-jawed
predator*



WOLF ZEL, ANARRHICHTHYS SCOLLATUS; URCHIN, STRONGYLOCENTROTUS FRANCISCANUS





MELIBE LEONINA, 10 IN (ABOVE AND BELOW)



Crystal drifters

ON SUBMARINE WINDS, a nudibranch (*left*), one of nature's most beautiful and bizarre creations, glides along using its paddlelike gills to help provide balance. One of a large group, also known as sea slugs, this creature is a marine—some might say Cinderella—cousin of the common garden slug. Anchored to the seafloor, three nudibranchs of the same species (*left, bottom*) trap plankton in oral hoods that resemble tiny radar screens.

Whereas most of the matter visible within the transparent body of the nudibranch is digestive tract, the bulk of substance seen in an orange jellyfish (*below*) constitutes the animal's reproductive system. Jellyfish emit astronomical numbers of eggs and sperm into the sea, leaving fertilization to chance.

DONIONEMUS VERTENS, © THE CHARLES B. NICKLIN, JR.



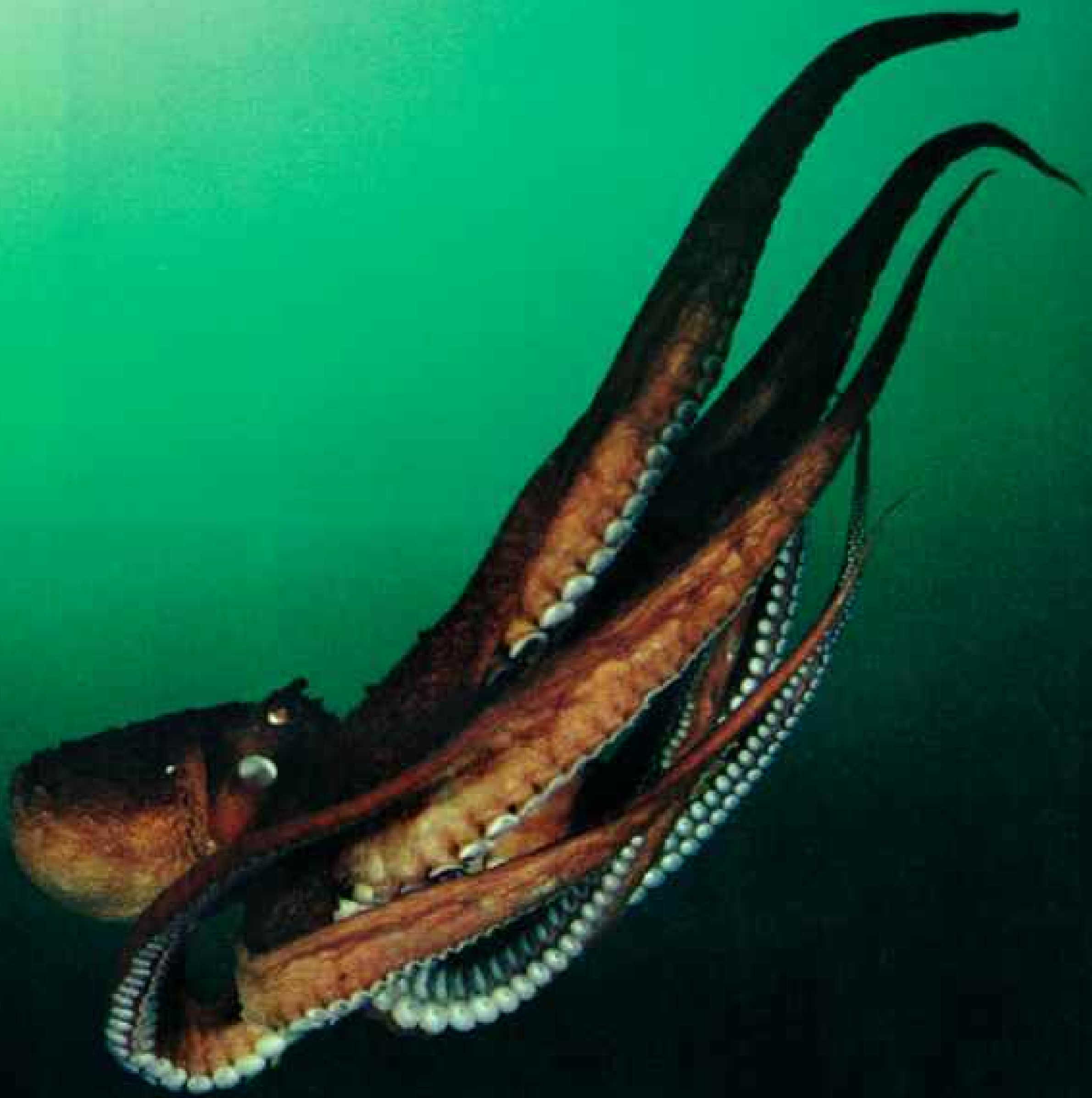


PTILOSARCUS BURRELLI, 24 IN.; OCTOPUS DOFFLEINI, 8 FEET LONG (FACING PAGE)

Arms of the sea

FINEST FLOWER of the filter feeders, according to many observers, the sea pen (left) can, if attacked, disappear quickly into the sand by expelling water from its normally inflated body. Among the strait's most impressive creatures, sea pens are frequently displayed in public aquariums. When stroked, they luminesce a soft green due to a chemical reaction in their cells.

Against a backdrop of sea anemones, a giant octopus (right) propels itself by jetting water past its eight sucker-covered arms. At home in cold water and warm, octopuses thrive in the strait and throughout the North Pacific, where they have been known to grow to 150 pounds. Along with squids, which can reach half a ton, octopuses are the most highly developed of the thousands of mollusk species. Evidence indicates they have well-developed brains, and their eyesight rivals that of man. Long considered a delicacy by many of the world's people, octopus has been slowly gaining popularity in British Columbia fish markets.





SEMILEPIDOTUS HEMILEPIDOTUS, 18 IN LABYRINTH; HYDROLANGUS COLLIERI, 30 IN (BELOW LEFT); OPHIODON ELONGATUS



*Divers'
and diners'
delights*

"I AM A ROCK." Only to the well-peeled eye are many of the strait's bottom dwellers visible. An extravagantly camouflaged red Irish lord (**left**) seemed so sure of its subterfuge that it allowed the photographer to pick it up before moving a fin.

Hard to miss, especially by night divers whose lights catch the gleam from its huge opalescent eyes, a ratfish (**lower left**) cruises by on winglike pectoral fins. Living fossils,

these scavengers share physical characteristics common to both sharks and true bony fish.

A favorite of fishermen, lingcod are prized for their succulent white meat. Here a yard-long male (**below**) guards eggs left permanently in his care by his much larger mate.

An inch-long clown shrimp (**overleaf**) finds a good friend in a textured anemone. By coating itself with mucus from the anemone's body, it escapes being devoured by its host. 543

ANEMONE, CRIBRIDOPSIS FERRALDI; SHRIMP, LEBBEUS GRANDIMANAS (OVERLEAF)







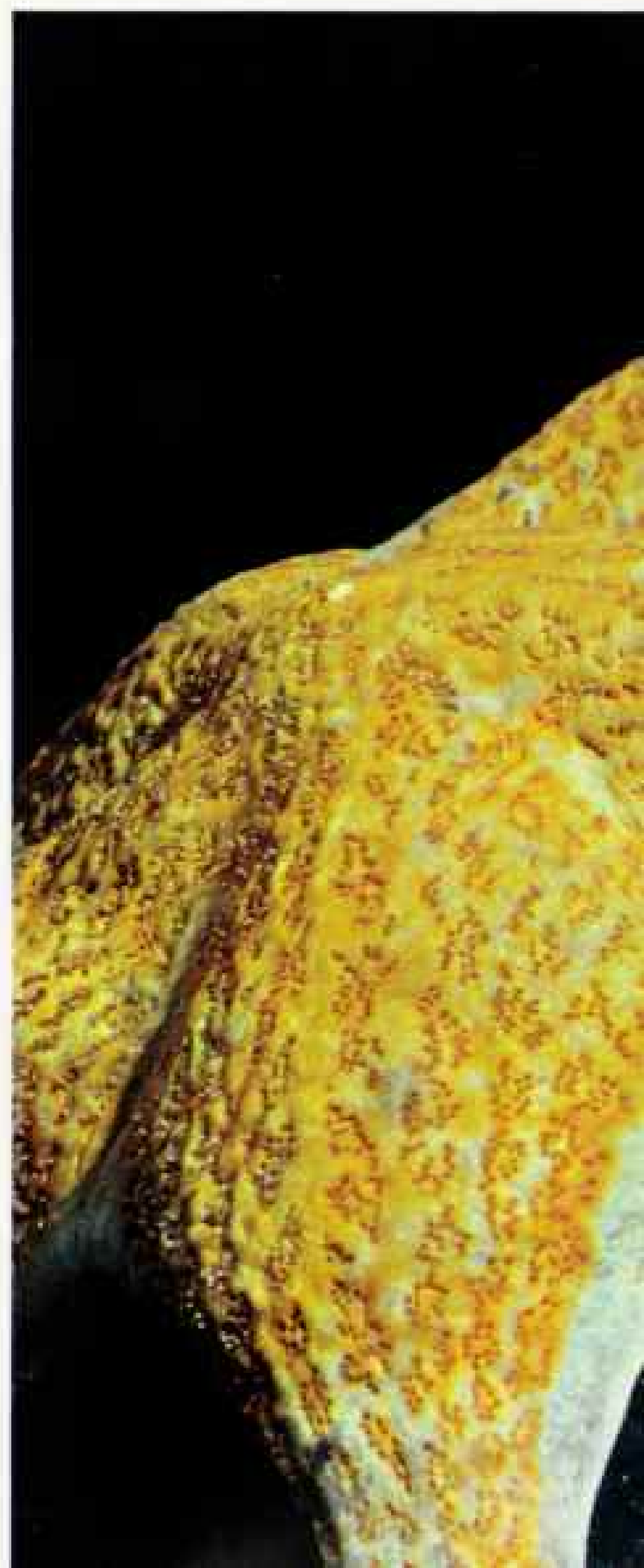
FIERCE COMPETITORS with the shellfish industry, sea stars—nearly a hundred species—thrive in the Strait of Georgia region. With thousands of tiny suction cups under its rays, a sunflower star, one of the world's largest species, investigates a potential clam dinner (**below**). Sheer persistence eventually tires the two powerful muscles that keep the mollusk locked. When an opening is finally forced, the sunflower star inserts a portion of its own extruded stomach and begins to digest the victim.

Nearby, a more gaudily colored sunflower star invades a bed of scallops (**right**), two of which clap away from danger by snapping their valves. Since their flight is uncontrolled, they may fall humpty-dumpty back into the predator's clutches.

Much more unusual is the flight of *Stomphia didemon*, a sea anemone that exhibits a rare capacity for swimming when threatened by certain starfish. After sparring with a leather star, this spunky specimen (**lower right**) breaks from its moorings and wriggles away.



Slow- stalking predators





PYRENOPODA HELIANTHOIDES, 36 IN (ABOVE AND FAR LEFT); SEA STAR, DERMASTERIAS IMBRICATA, 16 IN (BELOW)





CRYPTOLITHODES TYPICUS, 1 IN (ABOVE); CANCER PRODUCTUS, 4 IN (BELOW LEFT); PAGURUS ARMATUS, 4 IN (BELOW RIGHT)

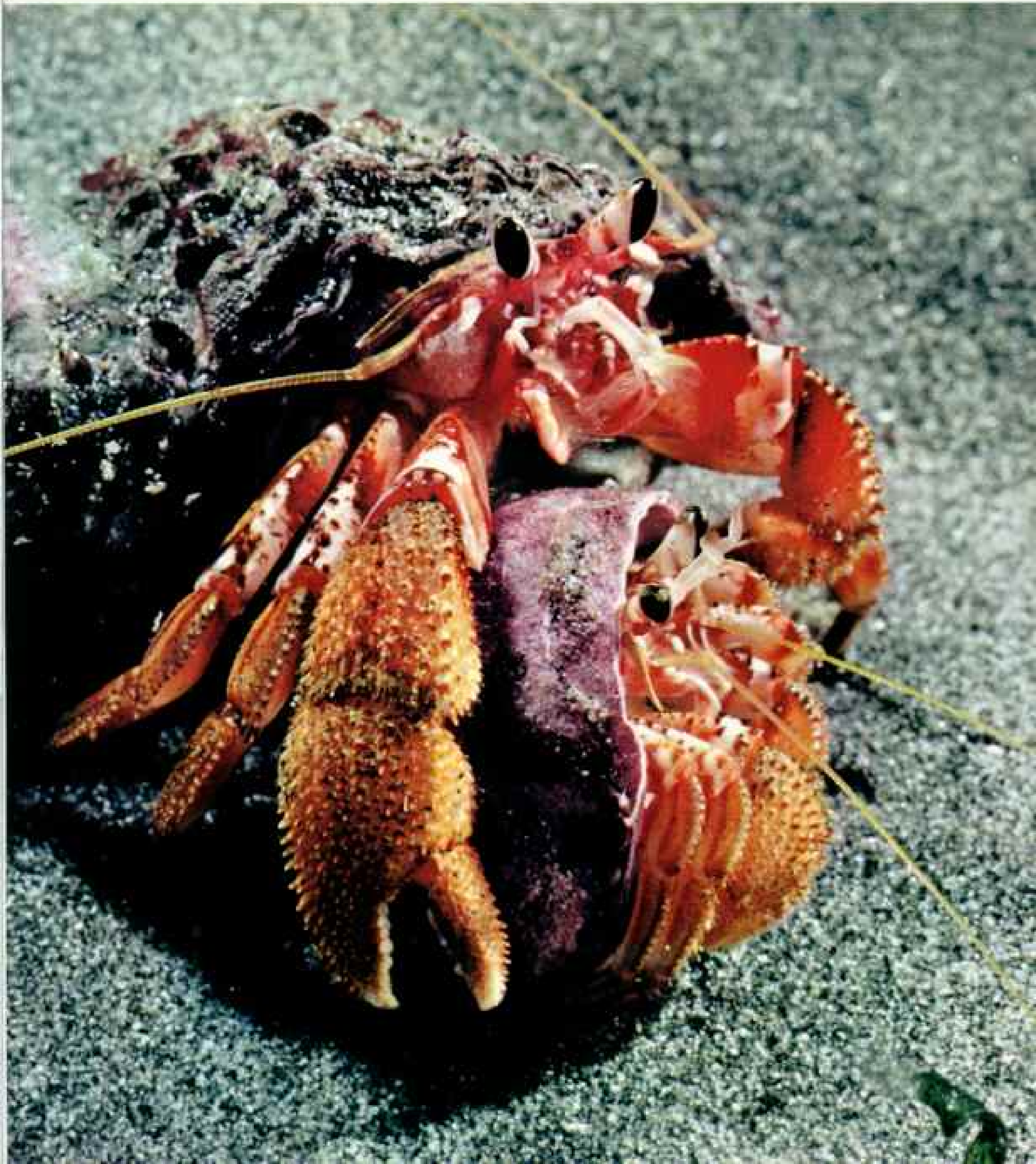


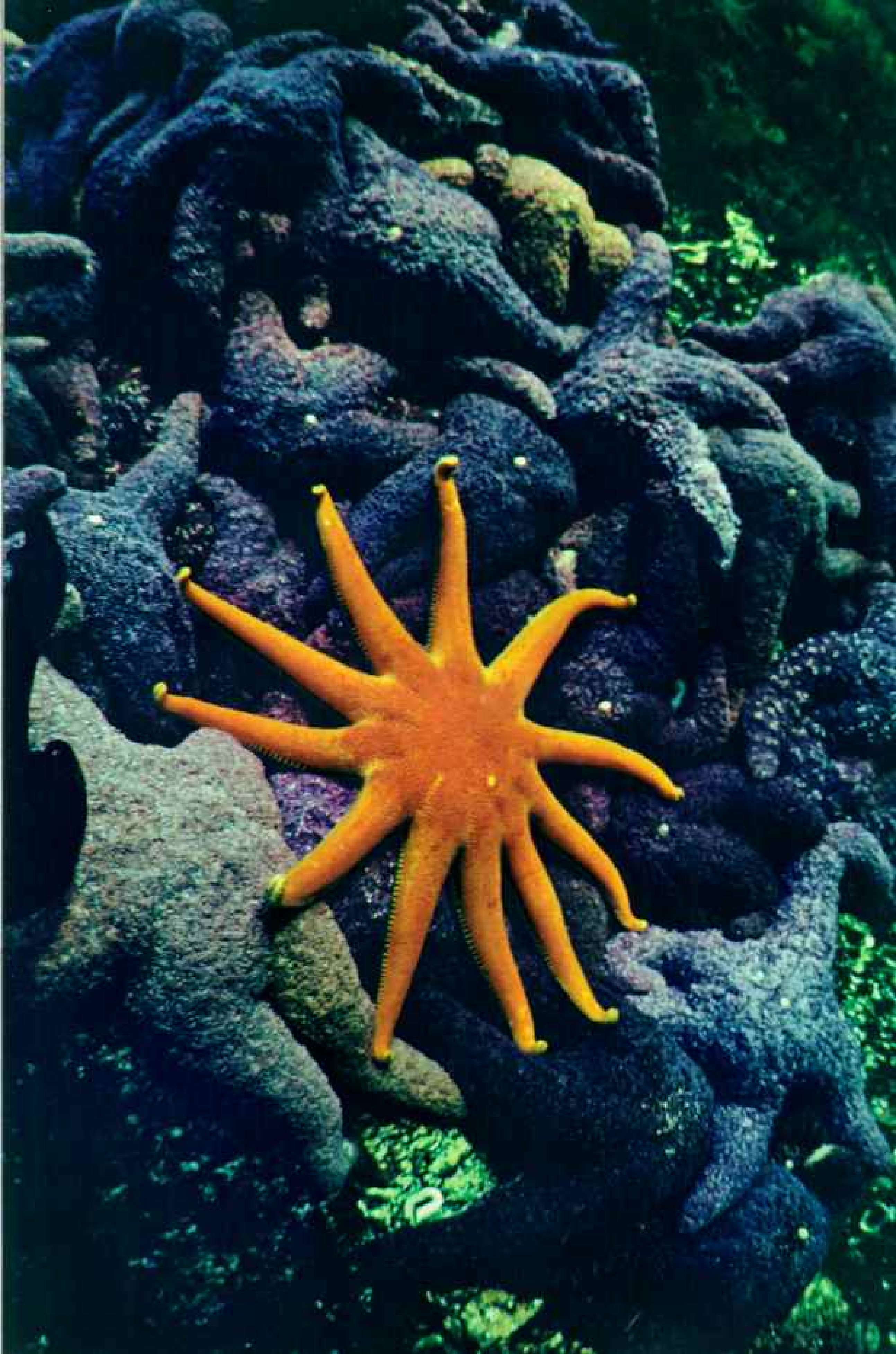
*The old
shell game*

SHORTCHANGED by nature, hermit crabs live their lives in hand-me-downs. From birth their survival depends on other creatures' shells. As a crab grows, it continually seeks a larger lodging, and to get it will often tear a living mollusk from its shell. Already housed, these two crabs (**below**) have mating in mind.

Elsewhere, two red rock crabs are well past the courtship stage as they rub their belly plates together (**lower left**). For seven days or more, love seems to satisfy hunger while the two mate.

Strolling across an anemone, a diminutive butterfly crab (**left**) wears a shell that offers excellent camouflage against stony seabeds.





Stars in a new firmament



SEA STAR, *PISAETER OCHRACEUS*, 20 IN (LEFT); *CORYPHOPTERUS NICHOLSII*, 3 1/2 IN

LIVING WALL in the living sea, a congregation of purple sea stars could easily lose a member if an orange cousin should decide to stay for dinner. One of few stars that prey on their own kind, *Solaster dawsoni* can easily turn its stomach inside out and digest relatives of its own size—though the meal may take several days.

On the harmless side of a purple *Solaster*, a blackeye goby (*above*) faces no danger, since the sea star can eat only what it can crawl over.

Inhabitants of the strait's intertidal zones, great colonies of sea stars are regularly seen exposed on inshore rocks at low tide. To visitors along the coast of British Columbia's inland sea, such encounters can give the impression—not far from wrong—of a marine life so rich it has spilled over into our own world. □

WASHINGTON CATHEDRAL

"HOUSE OF PRAYER FOR ALL PEOPLE"

By ROBERT PAUL JORDAN

SENIOR ASSISTANT EDITOR

Photographs by SISSE BRIMBERG

FOURSQUARE atop a ridge high above Washington, looking out toward the Capitol dome and the Pentagon, dominating the skyline, towers a majestic but comparatively unknown national treasure. Though belonging to all of us and offering warm welcome, it awaits wide discovery. This Eastertide is an especially appropriate time to tell the story of the Cathedral Church of Saint Peter and Saint Paul, for the massive stone house of prayer at last is coming into its own.

In the quickening of spring, Americans flock to the Federal City. Tour buses rule the broad avenues then, and a cross section of the country stands patiently at the White House gates. You and I make slow passage along the Potomac when cherry blossoms lead to the marble monuments along its banks. It is a kind of rebirth, to walk among the symbols of the noblest political system humanity has devised.

*Stone by stone
a cathedral is built.
And one by one her
servants are gathered
And bound to the varied
ministry of this place.*

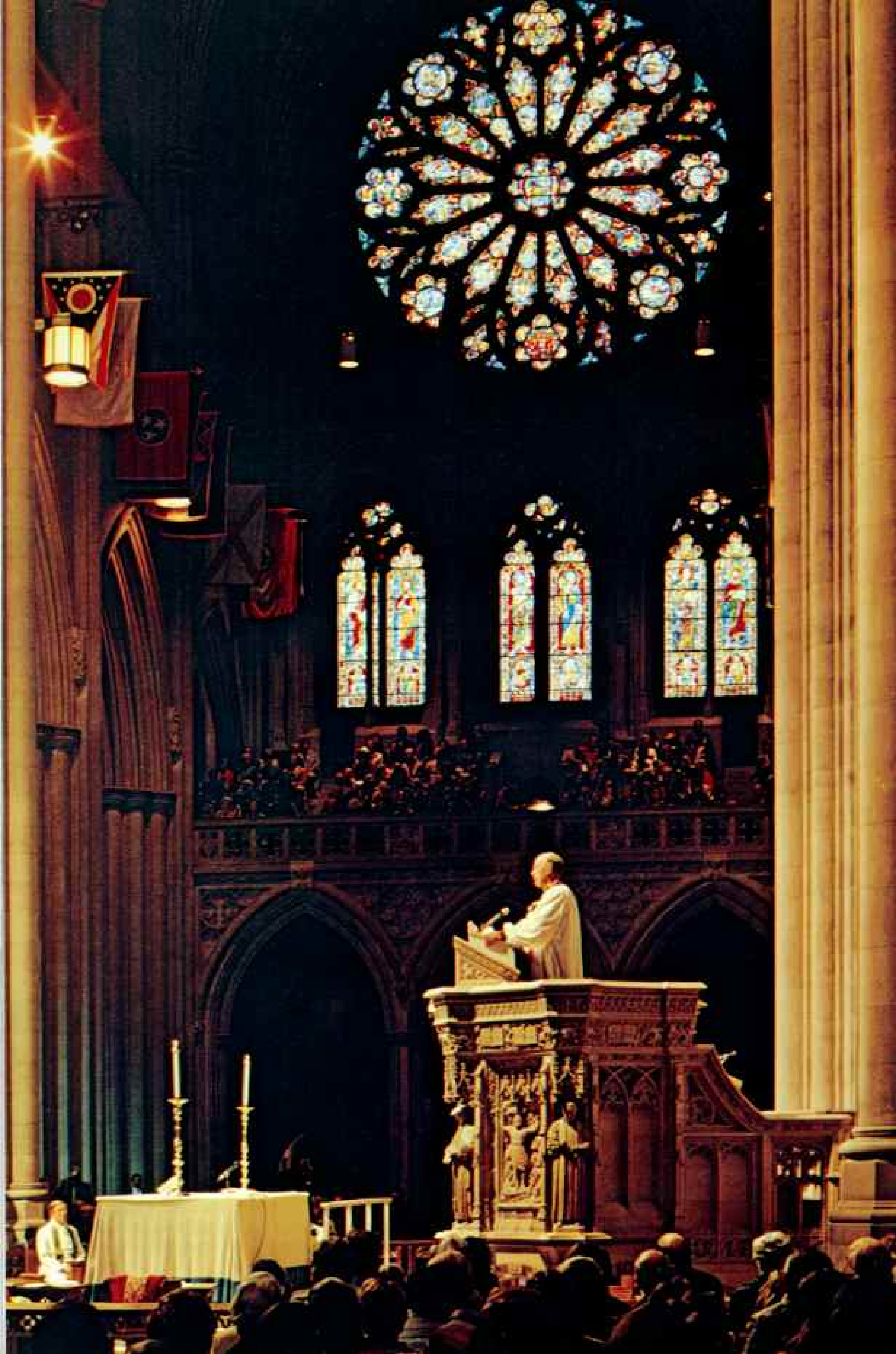
—THE VERY REVEREND
FRANCIS B. SAYRE, JR.
DEAN EMERITUS,
WASHINGTON CATHEDRAL

Beloved monuments to man and his concepts, these. When, nearly 200 years ago, George Washington set the cornerstone for the Capitol Building, he may have envisioned the need for another temple, one that would symbolize the new Republic's deep spiritual roots, the religious heritage whence it sprang.

The tale goes that President Washington and his city planner, Maj. Pierre Charles L'Enfant, rode one day to that high ridge, and there talked of a great church. It would be, L'Enfant later wrote, "for national purposes, such as public prayer, thanksgiving, funeral orations; and be equally open to all."

It came to naught, but the dream persisted. A century went by. In 1891 a prominent banker and civic leader, Charles Carroll Glover, a man of vision and determination, held a fateful meeting at his Washington home to press for a cathedral. Just two years

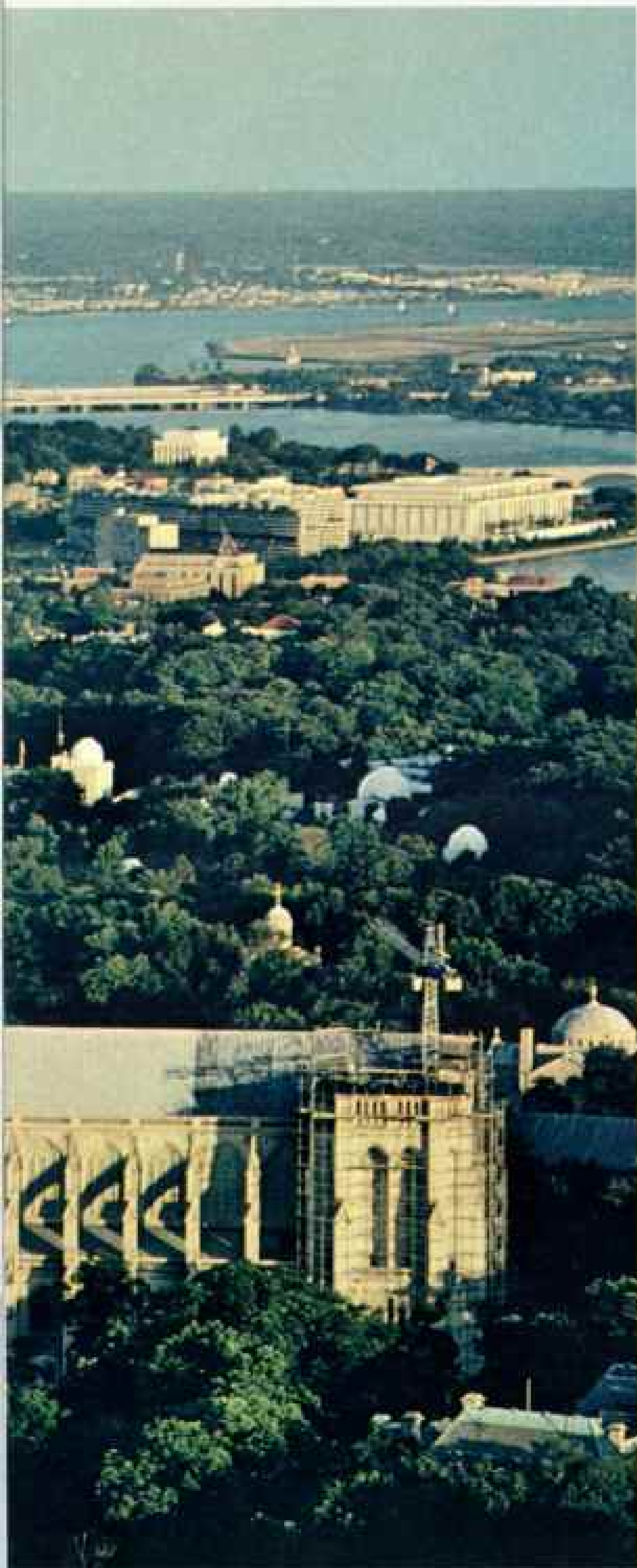
Sunlight sparks the bloom of the North Rose Window as the 101st Archbishop of Canterbury, Frederick Donald Coggan, delivers a sermon in the Washington Cathedral. The Gothic cathedral, fifth largest in the world, has risen since 1907 as a "house of prayer for all people" (Isaiah 56:7), so proclaimed by its Congressional charter.





"A great church for national purposes," envisioned by Pierre L'Enfant, today crowns the Capital City on Mount Saint Alban. Presidential monuments mark the

southern view toward the Potomac River. Known officially as the Cathedral Church of Saint Peter and Saint Paul, and sometimes called the National Cathedral,



it ministers to all faiths under the aegis of the Protestant Episcopal Church in the U. S. Private donations alone support construction of the still unfinished cathedral.

Washington Cathedral

later Congress granted a charter to the Protestant Episcopal Cathedral Foundation.

In one way or another Washington Cathedral, as it is called (National Cathedral is another name), has been taking shape on Mount Saint Alban ever since. In 1907 a company of 10,000, President Theodore Roosevelt included, saw the foundation stone laid. Bishop Henry Yates Satterlee, the moving force with Mr. Glover, set the stone with the same gavel that Washington had used at the Capitol.

Cathedral 90 Percent Finished

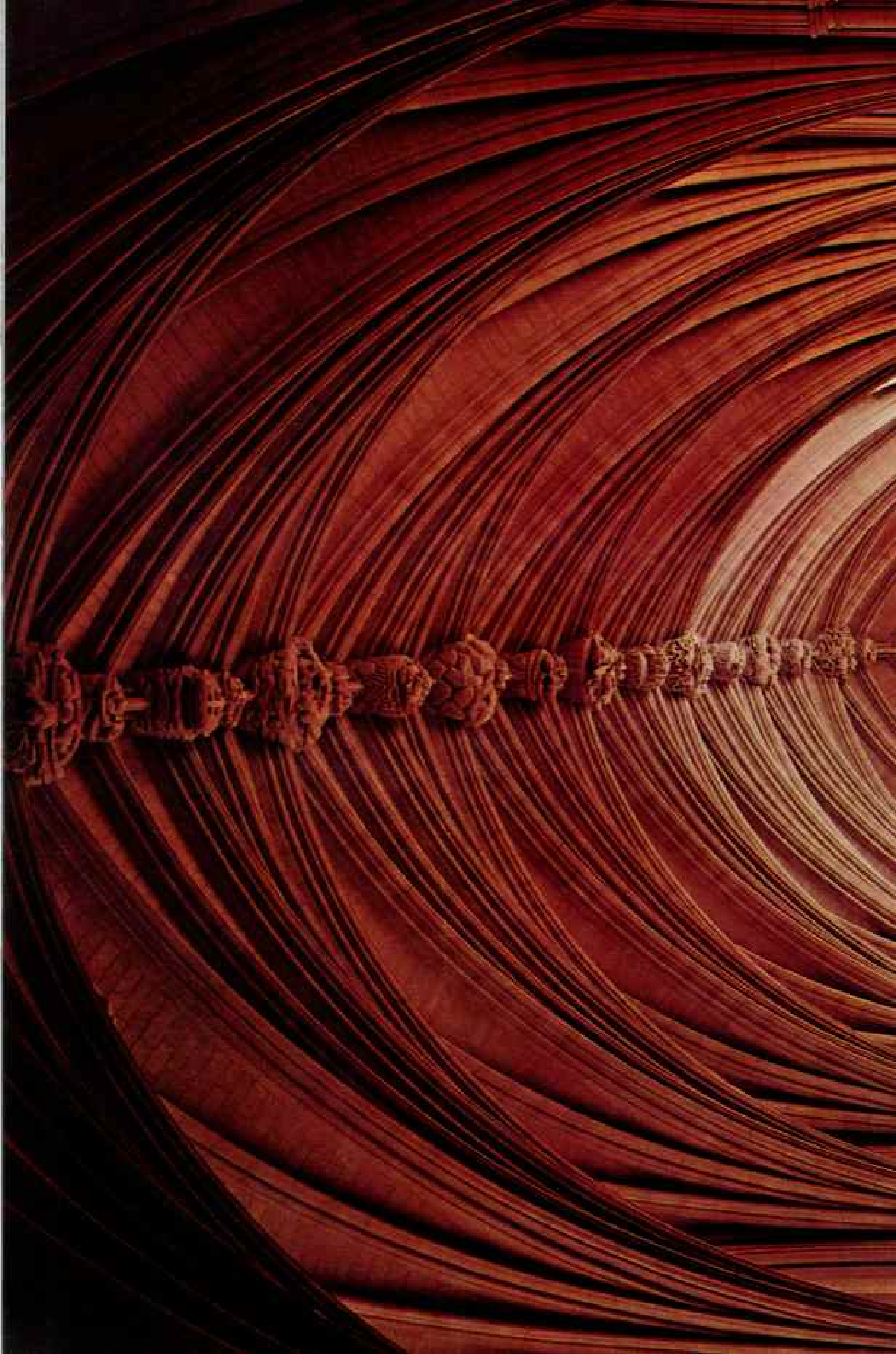
I have been privileged to come to know, in small and personal degree, something of Washington Cathedral, both past and present. My good friend and colleague, Dr. Thomas W. McKnew, vividly recalls the foundation-stone ceremonies of almost 75 years ago—he took part as a choirboy. Since then, in several ways, he has helped the cathedral grow. So have countless others.

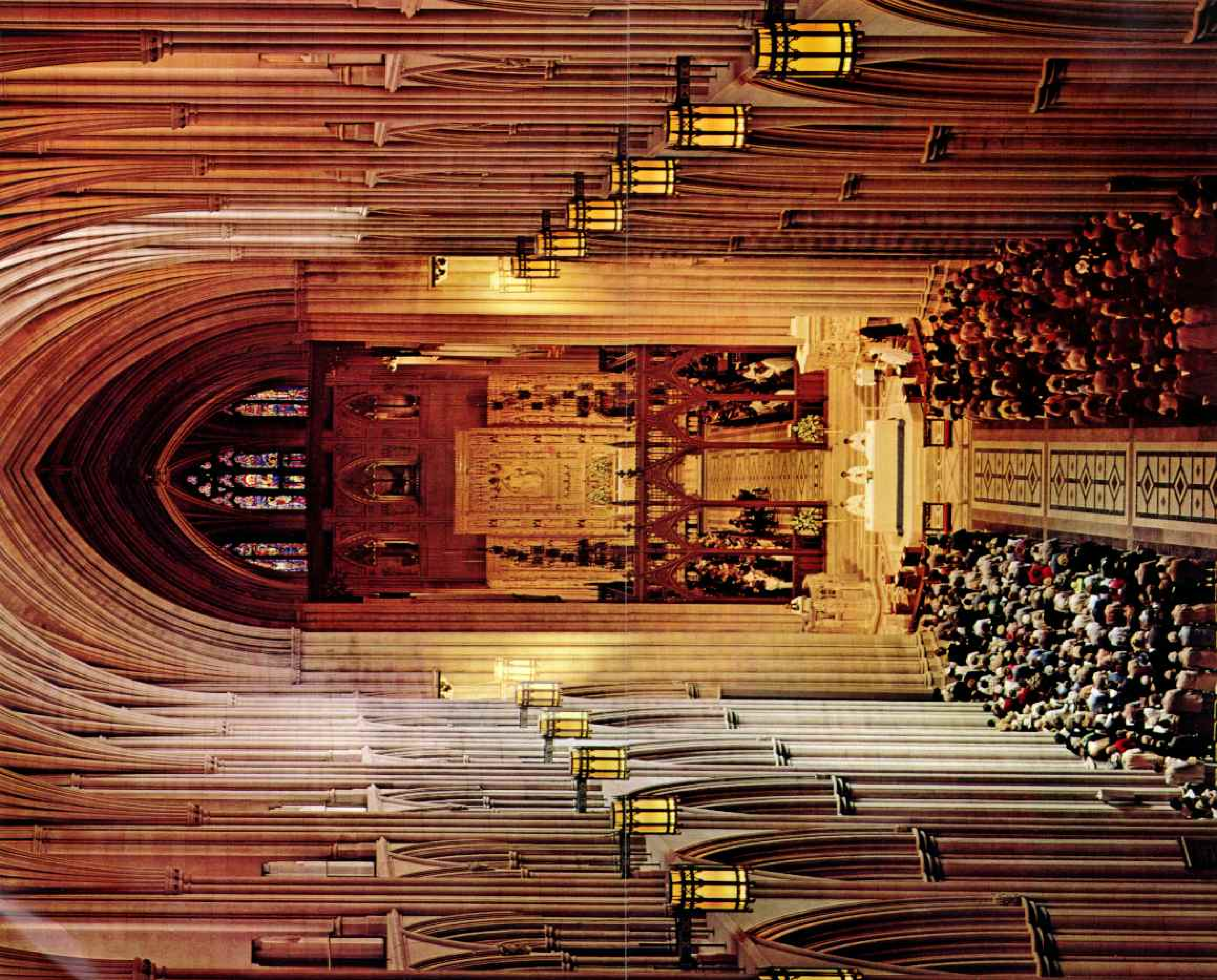
Today the structure is 90 percent complete. This immense Gothic house of God, fifth largest cathedral in the world, masterpiece of humankind and testimonial to the eternal hope of heaven, awaits completion only of its Pilgrim Observation Gallery and twin west towers.

Heavy indebtedness has been incurred in reaching this stage. A ten-year campaign for 36.5 million dollars is under way to pay off the debt, finish the gallery and towers, and provide additional endowment. That this will come about I have heard no doubts, though some do say, "Not in my lifetime."

Cathedrals are not measured in lifetimes. The dedicated architect who gave half a century to—in his words—"the most important structure being built in America, and possibly in the entire world" knew he would not see its completion. Philip Hubert Frohman revised and enhanced the preliminary plans drawn by the English architect George Bodley and carried out by Bodley's American associate Henry Vaughan. Mr. Frohman made the cathedral (*Continued on page 561*)

Fluted boughs of stone branch through the nave toward the high altar (overleaf). Medieval Gothicists sought an image of heaven.



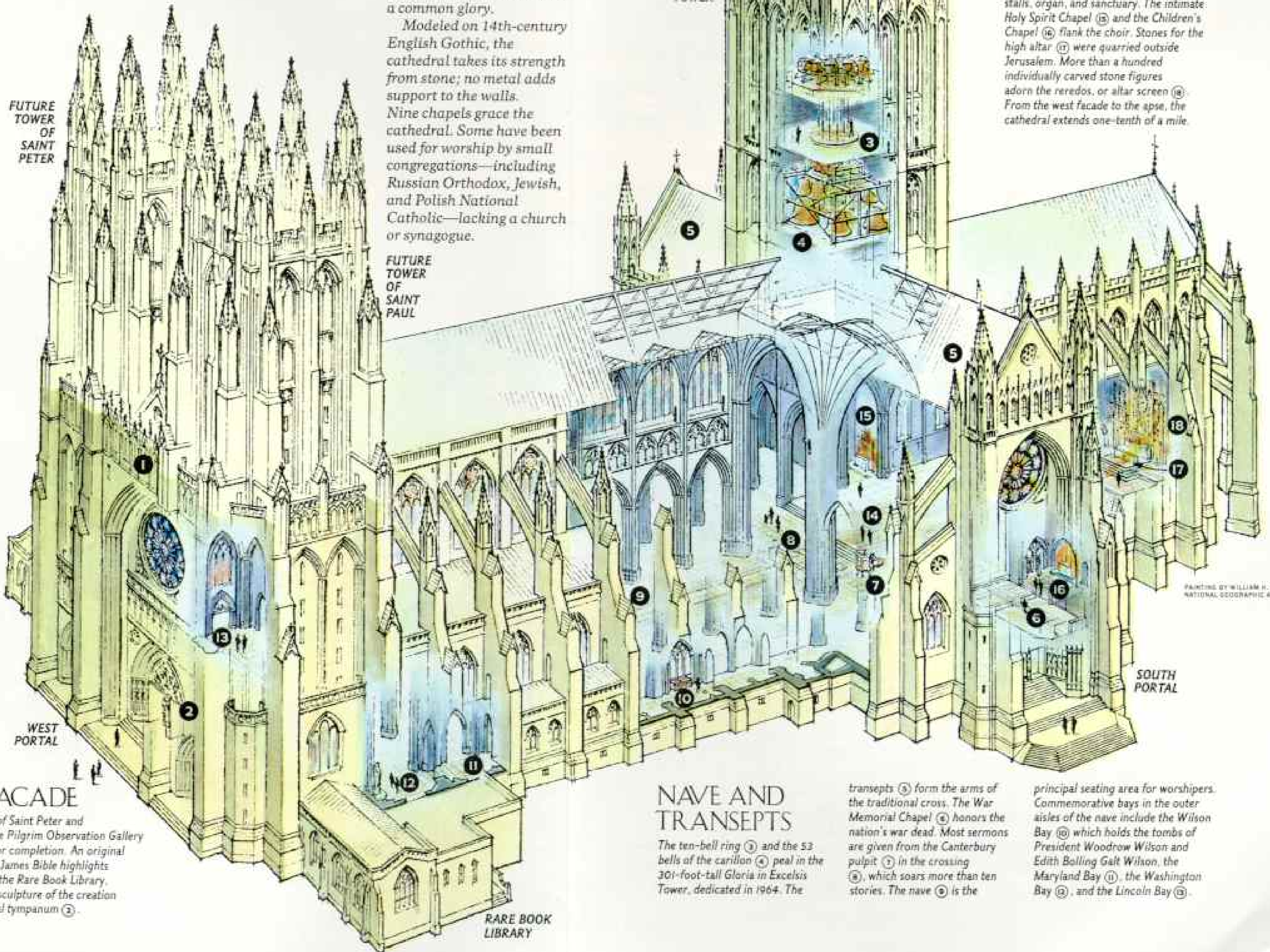


WASHINGTON CATHEDRAL

THE HANDS of many lifetimes have shaped a cathedral to stand for millennia. Masons, metalsmiths, sculptors, carvers, needlepoint workers, and stained-glass artists have aspired toward a common glory.

Modeled on 14th-century English Gothic, the cathedral takes its strength from stone; no metal adds support to the walls. Nine chapels grace the cathedral. Some have been used for worship by small congregations—including Russian Orthodox, Jewish, and Polish National Catholic—lacking a church or synagogue.

FUTURE TOWER OF SAINT PAUL



CHANCEL AND APSE

The chancel (14) contains carved choir stalls, organ, and sanctuary. The intimate Holy Spirit Chapel (15) and the Children's Chapel (16) flank the choir. Stones for the high altar (17) were quarried outside Jerusalem. More than a hundred individually carved stone figures adorn the reredos, or altar screen (18). From the west facade to the apse, the cathedral extends one-tenth of a mile.

PAINTING BY WILLIAM H. BOWE; NATIONAL GEOGRAPHIC ART DIVISION

WEST FACADE

The twin towers of Saint Peter and Saint Paul and the Pilgrim Observation Gallery (1) await funds for completion. An original copy of the King James Bible highlights the collection of the Rare Book Library. Frederick Hart's sculpture of the creation will fill the central tympanum (2).

NAVE AND TRANSEPTS

The ten-bell ring (3) and the 53 bells of the carillon (4) peal in the 301-foot-tall Gloria in Excelsis Tower, dedicated in 1964. The

transepts (5) form the arms of the traditional cross. The War Memorial Chapel (8) honors the nation's war dead. Most sermons are given from the Canterbury pulpit (7) in the crossing (6), which soars more than ten stories. The nave (9) is the

principal seating area for worshipers. Commemorative bays in the outer aisles of the nave include the Wilson Bay (10) which holds the tombs of President Woodrow Wilson and Edith Bolling Galt Wilson, the Maryland Bay (11), the Washington Bay (12), and the Lincoln Bay (13).

RARE BOOK LIBRARY

(Continued from page 555) his own creation, and his was a work of genius. He died in 1972, at age 84.

A great cathedral, however, can only be a collective achievement. It builds on people, for God's sake. And the underlying truth is that it goes on building forever, because its work is never done.

How various that work is! Washington Cathedral's ministry is national. It ministers to the whole fabric of society. Yet it speaks to each visitor, each worshiper: 400,000 a year, and their number increases.

They are greeted in many tongues. The cathedral speaks in the quietude of holy sanctuaries, in the golden shout of the mighty organ raining down, in the stories of Christian history captured in stained glass and carving. It educates and uplifts, using schools and conferences, pageantry and drama, choral music and concerts, dance and sounding bells. Everywhere it provides beauty, not least in the loving detail of needlepoint and the joyous grace of flowers. Amid all this, it holds 1,600 services a year.

Majesty to Eye and Heart

Washington Cathedral is, in fine, awesome. "Most families feel insecure, uncertain, at first sight," Mrs. Frank H. Hammond, head of visitor services, told me one morning. "It seems overwhelming. They wonder if they are free to walk wherever they like. Of course they are. Soon they feel completely at home."

I watched enchanted as chattering 3- and 4-year-olds trooped in, a noisy gang of happiness. Immediately they fell silent, grew wide eyed, looked about, looked up, began whispering. They had seen no place like this, with its vast hall, huge columns, and bejeweled windows.

What were they whispering? Virginia Hammond smiled. "They think that they are inside a castle. And so they are asking, 'Well, where's the king? Where's God?'"

In a Gothic cathedral, one must look up, by design, to seek that answer. Early in this century, when the style of Washington Cathedral's architecture was debated, Gothic won out over Classical Revival. People ask why. During one of my visits Richard T. Feller, the cathedral's Clerk of the Works and historian, showed me around. A trained

Whimsy pounces unexpectedly among the cathedral carvings, still years from completion. A famed mouser, architect Philip Hubert Frohman's cat, meets his quarry on a corbel.



engineer, he is friendly, widely knowledgeable, and direct.

"The relationship between God and man is vertical," he said. "Gothic expresses this best. It is vertical. It *aspires*. It compels the eye, the mind, the heart to move upward." I followed his gaze to the upsweeping arches far overhead, ten stories overhead, and read them from one end of the building to the other. They curved away for a tenth of a mile and finally blended together, a triumph of precision and power.

"There isn't an eighth-inch error in those arches," Mr. Feller told me. "Philip Frohman was not only a true Gothicist but also a perfectionist. In the Middle Ages, cathedrals grew stone on stone; so did this one, exactly the same way, and he spared no detail as it concerned God's house.

"Medieval churches weren't built with comfort in mind, nor was this. To make Washington Cathedral more usable for people, we have added some touches that you didn't find in the old cathedrals—lighting, heating, plumbing, sound and television facilities."

Mr. Feller works tirelessly to maintain the cathedral and help it evolve, not only in daily matters but also in his role as chairman of the building committee. He keeps uppermost in mind its use as a house of prayer. "Someone once asked Mr. Frohman," he

recalled, "what the cathedral would be used for a thousand years from now. He had been sitting quietly in the nave, watching the effect of light and shadow. He was startled," Mr. Feller frowned, "and then appalled. Finally he said, 'They'll come to pray. This is what it must be.'"

A cathedral contains the cathedra—chair of a bishop; in this instance, the official seats both of the Episcopal Bishop of Washington and the Presiding Bishop of the Episcopal Church in the United States. It has no membership roll. No one belongs to Washington Cathedral in the sense of belonging to a local church. St. Alban's Church, nearby, ministers to local parishioners.

The charter granted by Congress specified the promotion of education as well as religion and charity. Thus visitors see youngsters in school uniform on the 57-acre grounds, and occasional clusters of Episcopal clergy. Young children enter Beauvoir School and attend through the third grade. Girls move on to National Cathedral School, boys to St. Albans. As for the clergy, about 15,000 men and women have received postgraduate training since the College of Preachers opened in 1929.

Symbol for Many Faiths

But the quintessence of Washington Cathedral is that it cuts across all religious traditions. Its 900 volunteers represent many denominations, says Canon Charles A. Perry, the provost. He adds that a Jewish synagogue, a Russian Orthodox congregation, a Polish National Catholic church have held regular worship services here. Many Roman Catholic prelates have spoken from the pulpit. Under this roof have assembled a national Lutheran convention, a Baptist convention. Canon Perry sums up: "The cathedral is a uniting symbol for all churches."

It is more. The name National Cathedral derives from its national witness. Sometimes people ask if conflicts arise with the constitutionally ordained separation of church and state. The answer is no.

The National Cathedral acts as a voice of conscience in matters of public concern. In conferences and seminars, experts with varying viewpoints lay out the pros and cons of vital issues such as nuclear energy, pollution, and arms control and disarmament.

The pulpit may serve to emphasize a moral crisis common to all Americans. On the last Sunday of his life, Martin Luther King, Jr., gave the sermon here. The following Wednesday he was killed. Next day the cathedral mounted a national service of mourning. At its conclusion people emerged onto Mount Saint Alban, the President of the United States among them, and looked down at a Washington in flames.

Cathedral Grows With the City

When Bishop Satterlee and Charles Glover were striving in the early 1900s to realize their dream, you could ride a buggy from the White House to Mount Saint Alban in about twenty minutes, or take one of the newfangled electric trolleys. More and more motorcars were appearing.

The high hill and beyond were still country, wooded, and the well-to-do retreated there from the Federal City's humid summers. It is changed now, built up, and in rush hour the trip from downtown can take half an hour or more. But to this day trees cloister the cathedral: You best view it as a whole from a distance, from far and away.

Tom McKnew, who sang as that choirboy when the first stone was laid, remembers helping build the cathedral's first above-ground structure, the sanctuary and apse, shelter of the high altar. He was a timekeeper and clerk for the construction company. In 1917, as he went off to World War I, the beginning cathedral on Mount Saint Alban looked a strangeness, a rude man-made extrusion rising abruptly above a noble hill. Work halted presently, as it would in later times. Cathedrals go up in fits and starts; Canterbury needed five centuries.

He returned as construction superintendent in 1922, along with many of the company's artisans, master stonemasons and carvers who had just completed the Lincoln Memorial. His assignment was to direct the next extension, the choir.

In the course of this, the emerging cathedral was put to a national use that L'Enfant had foreseen. Woodrow Wilson was interred here in 1924, the only President buried in the Nation's Capital, though Presidents Taft and Kennedy lie nearby in Arlington National Cemetery. When the funeral was held, the young superintendent

and the head stonemason spent three hours in a vault beneath Bethlehem Chapel, receiving the casket as it was lowered and remaining there until the mourners departed. In 1956 President Wilson's remains were moved to the Wilson Bay in the nave.

Dr. McKnew left construction work in 1931 to join the National Geographic Society as assistant secretary, and rose to its highest office. He is now the Society's Advisory Chairman of the Board of Trustees. He returned to serve Washington Cathedral on its building committee for 14 years, stepping down only last October. No one has a longer association with the cathedral than Dr. McKnew, who is 83.

A Quarter Century of Leadership

What the cathedral has become in the past quarter of a century, however, is there for all to see. It is in considerable degree the result of one man's ministry, though he would never make such an assertion. The Very Reverend Francis B. Sayre, Jr., came as dean in 1951 and retired in 1978. During those years most of the cathedral as we appreciate it

today developed under his direction, especially the physical structure and its iconography. He also profoundly affected its ecumenical outreach and its concern for present-day issues.

I met Dean Sayre one morning and listened spellbound while the cathedral welcomed pilgrims all about us. He is tall and spare, the very picture of a dean, gentle but firm. His manner is modest, his delivery eloquent: "A marvelous instrument both as an emblem and for use—that's what a cathedral is," he said. "It embodies all kinds of associations and precious things that lie in a nation's soul."

Would he give me an example?

"Every cathedral reflects the light of its era, the people and great events of its time. In ours, we stepped off the planet and landed on the moon." He halted before a stained-glass window unlike any I had ever seen, not only in design but also in color and mood.

"Our Space Window commemorates that deed. It contains a slice of the first stone picked up on the moon. When we dedicated this window, Apollo 11's astronauts carried



In Communion vestments John T. Walker, Episcopal Bishop of Washington, greets Easter worshipers. The cathedral has no congregation, but 400,000 people come each year to admire, rejoice, and pray. "The cathedral must have a life people can participate in," says Bishop Walker, "while it upholds the highest ideals."



BROOKS PHOTOGRAPHERS



DOUGLAS CHEVALIER, WASHINGTON POST



WASHINGTON POST

STAUNCH SPIRITS defied a drizzle on the September Sunday in 1907 when more than 10,000 Washingtonians and world guests gathered on Mount Saint Alban (far right) for the setting of the cathedral foundation stone. President Theodore Roosevelt spoke, and the stone was struck with the marble gavel used by George Washington to set the cornerstone of the United States Capitol.

Bethlehem Chapel, the first cathedral structure, opened in 1912, and the apse rose above it before the end of the decade.

Two World Wars interrupted building, which then progressed as the coffers allowed. By 1952 the cathedral had passed the halfway point (top left).

The first stone of the Gloria in Excelsis Tower was set in 1961. Francis B. Sayre, Jr., dean of the cathedral for 27 years, performed the honor (above left), with guidance from mason James Blanch. Behind them, left to right, stand B. W. Thoron and John H. Bayless of the building committee; Richard T. Feller, Clerk of the Works; and Philip Hubert Frohman,



NATIONAL CATHEDRAL ARCHIVES

cathedral architect for half a century.

Frohman was the guiding genius of the design. His revision and extension of the original plan garnered praise for "an incomparable master [who] kept the faith and built on hope." The national character of the structure has grown with the stonework. President Woodrow Wilson and humanitarian Helen Keller are among notable Americans buried here. Through television the country joined 3,300 mourners at the state funeral of President Dwight D. Eisenhower in March 1969.

The completion of the nave and lower half of the west facade through the West Rose Window coincided with the U. S. Bicentennial. Five services celebrated the event in the spring and summer of 1976. Queen Elizabeth II of England, who attended the dedication of the nave "for the reconciliation of the peoples of the earth," leaves the cathedral (center) with William F. Creighton, the fifth Bishop of Washington, and President Gerald R. Ford. Bishop John Walker, successor to Bishop Creighton, and Mrs. Ford follow.

that fragment of another world—another world, but God's universe—to the altar and presented it."

A fleeting smile. "A marriage of science and faith, you might say. It was a commemoration of high moral order, as well. We have many occasions to dramatize man's dedication. Every year, on separate occasions, the choirs of all our military services come here to sing and to pray with us. Can you feel the peace of this place? People sometimes forget those who may be called upon to give their lives in the cause of peace."

What a stage, this. A proscenium for history and for today. On July 4, 1976, the newly completed cathedral nave was dedicated for the service of the nation. On July 8 President and Mrs. Gerald R. Ford and Queen Elizabeth II and Prince Philip attended a dedication "for the reconciliation of the peoples of the earth." Dean Sayre spoke to me of that bicentennial pomp and pageantry, and concluded this way:

"The documents of our democracy, the Declaration of Independence and the Constitution, are enshrined down there among the halls of government. Here, across the Nation's Capital, is enshrined the root document that underlies those instruments of democracy: namely, the Word of God."

He took me to see the Word. In the Rare Book Library I saw one of the cathedral's finest gifts, an original copy of the King James Bible—indeed, it had been that monarch's gift to his son Henry.

Offerings for God to See

A gift beyond compare, and like the rest of the cathedral, handmade. I know of another offering, as sublime in its own way, that you and I can never see. It is simply a detail of a stone carving far above us as we stand in the nave: leaves in a biblical tableau, completely hidden from view. They are as painstakingly and beautifully rendered as the visible tableau.

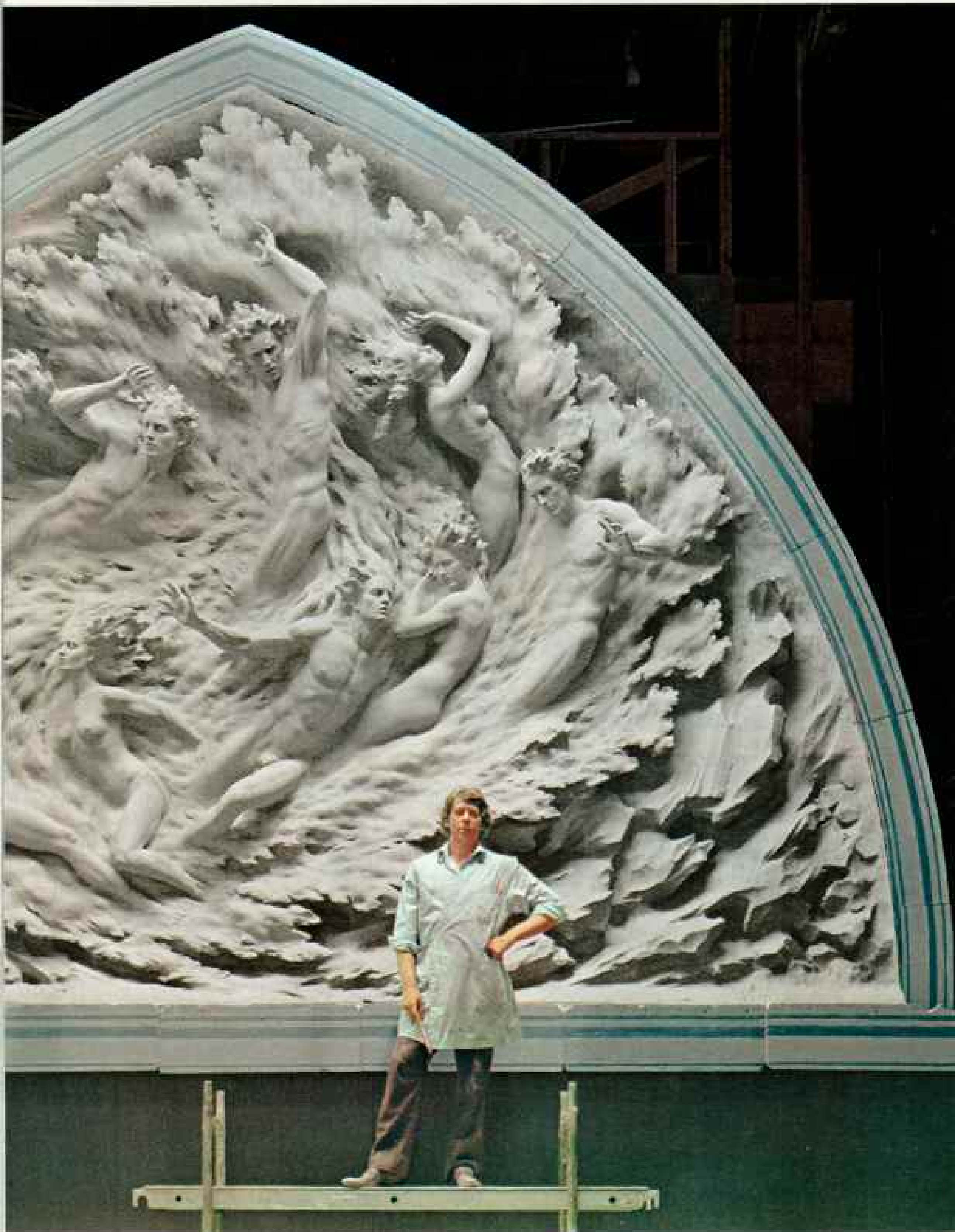
Master stone carver Roger Morigi spent many days chiseling those leaves. "Why is it taking you so long?" asked a friend who had crawled up on the scaffold. "The leaves are excellent, but who will ever see them?"

"God will."

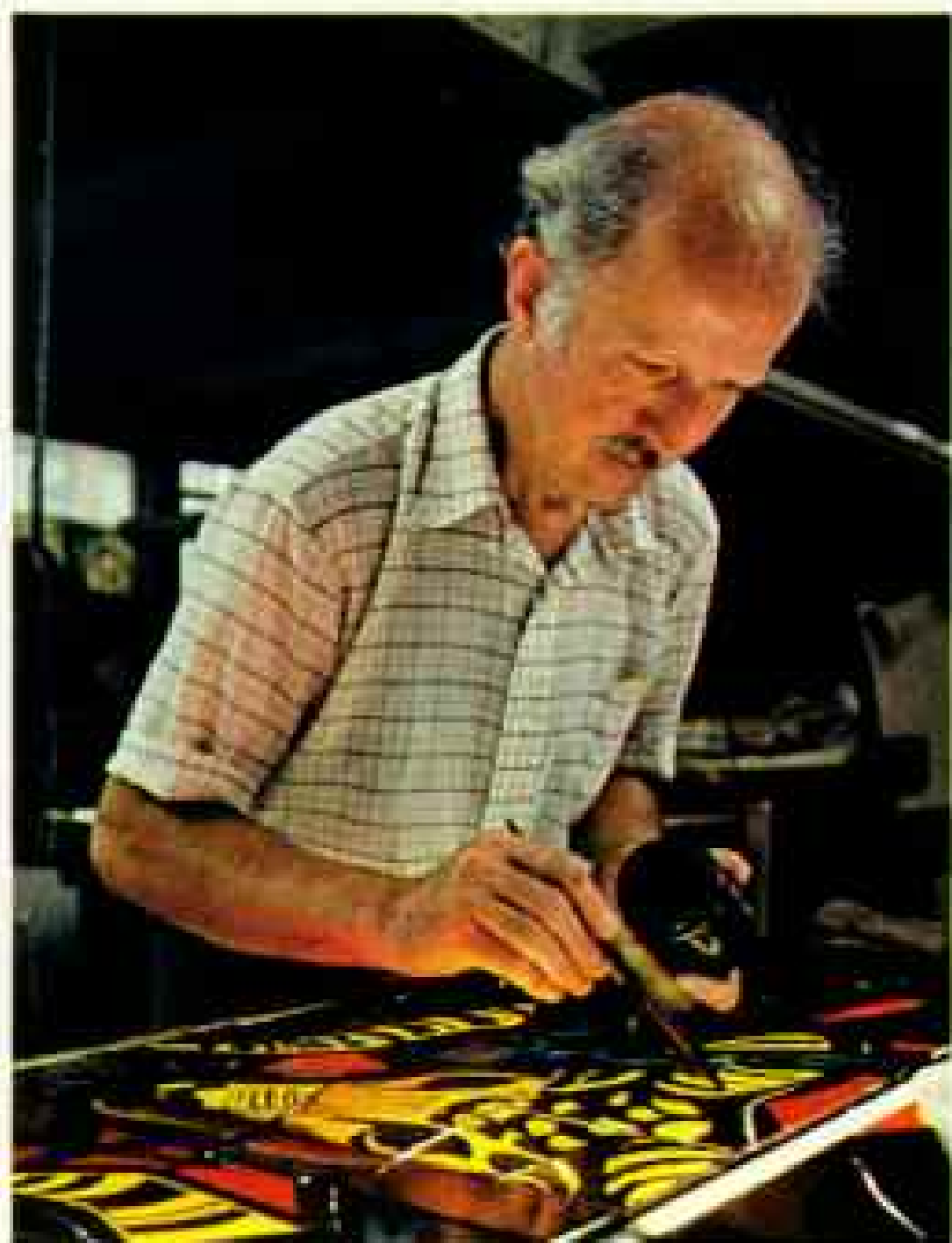
Bethlehem Chapel, the first cathedral section to be completed, one of the loveliest sanctuaries, (Continued on page 573)



Humankind emerges from the void in "Ex Nihilo," a sculpture by Frederick



Hart, above. Stone carvers, following a plaster cast of this clay work of art, will reproduce it in stone over the central west portal of the cathedral.

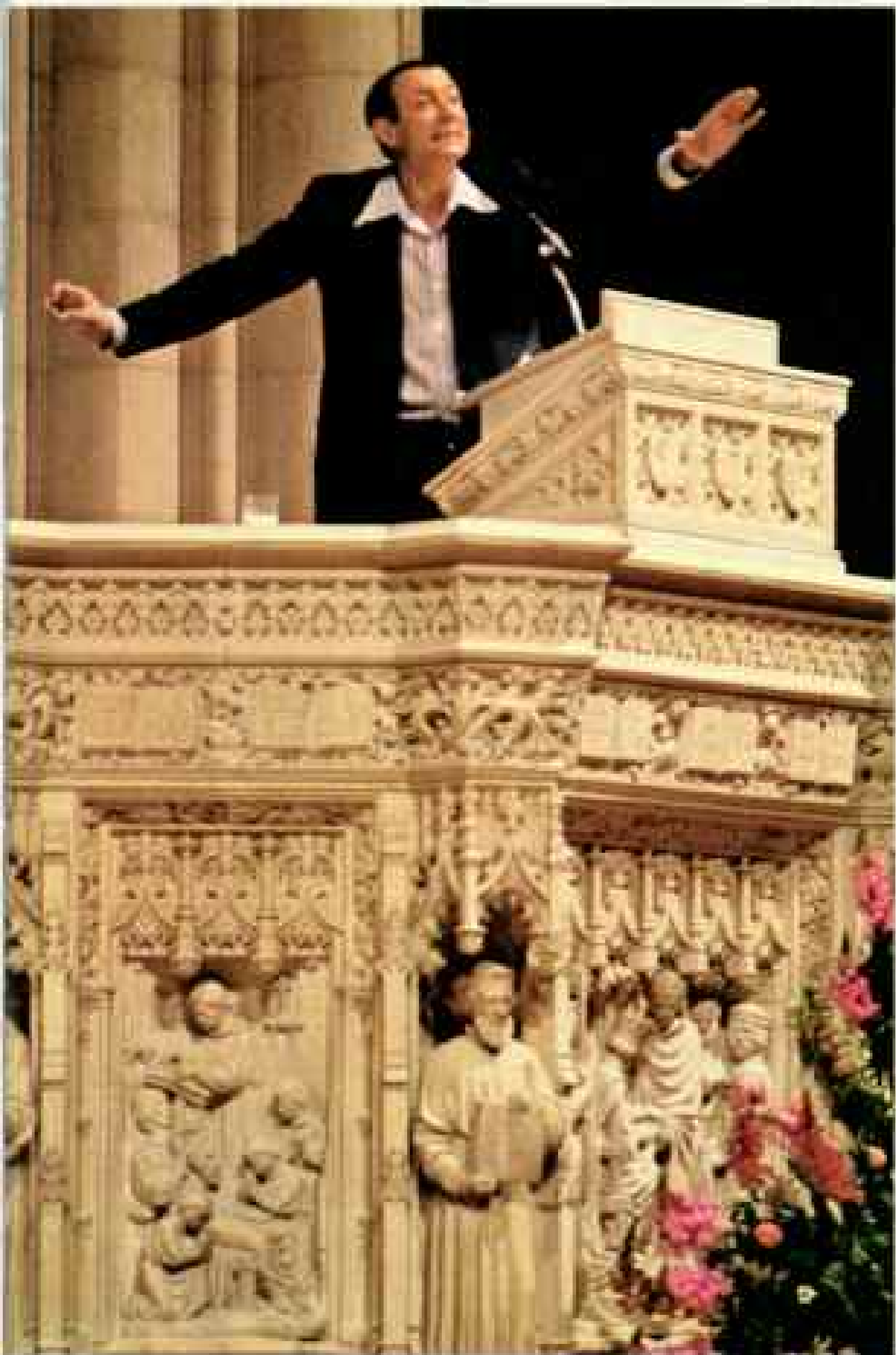


“THOUSANDS OF NOTES of color glowing and interacting,” says stained-glass artist Rowan LeCompte of the windows that fill the cathedral with multihued songs of light. In a New York studio LeCompte (left) retouches the black glaze on a segment of the Abraham Window (right), the 27th he has created for the cathedral.

Whispering starlight and the trajectory of space travel beckon the eye into Rodney Winfield's Scientists and Technicians Window (above left), also known as the Space Window. An encapsulated sliver of moon rock presented to the cathedral by Apollo 11's crew is centered in the red orb.

The Air Force Academy Chapel tops the window designed by Patrick Reyntiens honoring Gen. Thomas Dresser White and the U. S. Air Force (above).





DIANA WALKER, GAMMA-LIAISON





In time of trial, the leaders of the nation gather to pray (left): President Jimmy Carter, Vice President Walter Mondale, and Secretary of State Cyrus Vance. They worshiped in the cathedral last November 15 at a special interfaith service for the United States Embassy staff held hostage in Tehran, Iran. Deeply moved by the gathering of 2,000, cathedral Canon Charles Martin wrote: "This is what a cathedral is for, and in what place could our nation, in all its diversity, gather in prayer as in the National Cathedral."

In seasons of joy the cathedral celebrates in many ways. Renowned Soviet poet Yevgeny Yevtushenko (above left) recites from the Canterbury pulpit, carved from stones from the English cathedral. Weekly folk services in the Chapel of St. Joseph of Arimathea attract local voices. Singer Esther Mae Scott (above), known as Mother Scott, joined in an Easter Eucharist before her death last year at 86. Members of the cathedral staff and choirboys posed for the painting behind the altar by muralist Jan Henrik de Rosen.



used to remain open 24 hours a day for prayer. Now it and the rest of the cathedral must close at night, a cost-saving measure. One place alone does not close, a simple, spare bay whose pews hold only five people. The tiny Chapel of the Good Shepherd keeps no hours, only the faith.

Washington Cathedral mirrors its time and looks to a better one. When I called on the Right Reverend John T. Walker, Episcopal Bishop of Washington, he told me of a new vision for the cathedral, an extended use. He is a warm and engaging man, quiet in speech, forceful in outlook.

"The church dared to build a majestic, beautiful structure," he said, "a living symbol and sermon in stone, a gathering place for the nation. Now we live in a new age, and the cathedral must speak with new voices. The need has never been greater.

"In every generation this nation has faced and overcome major crises. The major crisis of this generation involves ethics and morality. Our challenge is to send far and wide a reaffirmation of religious principles. Many have abandoned the belief that decent, unselfish behavior is important. We sometimes seem to be a people uncertain of who we are."

Bishop Walker grew silent. I asked him what key approach the cathedral might take toward the moral issues of this day.

"I see a university of ministry reaching out from here," he replied, "a ministry both of clergy and laity. They would come here to study, and return to the world as trained leaders committed to the religious heritage upon which this nation was built."

He also suggested sermons and publications on the question of public morality. Better use of TV and radio could be made. To meet the challenge, Bishop Walker said, contributions to the Cathedral Campaign were urgently needed.

"In whatever ways we can," he summed up, "we must confront, address, and find solutions to the problems of our times."

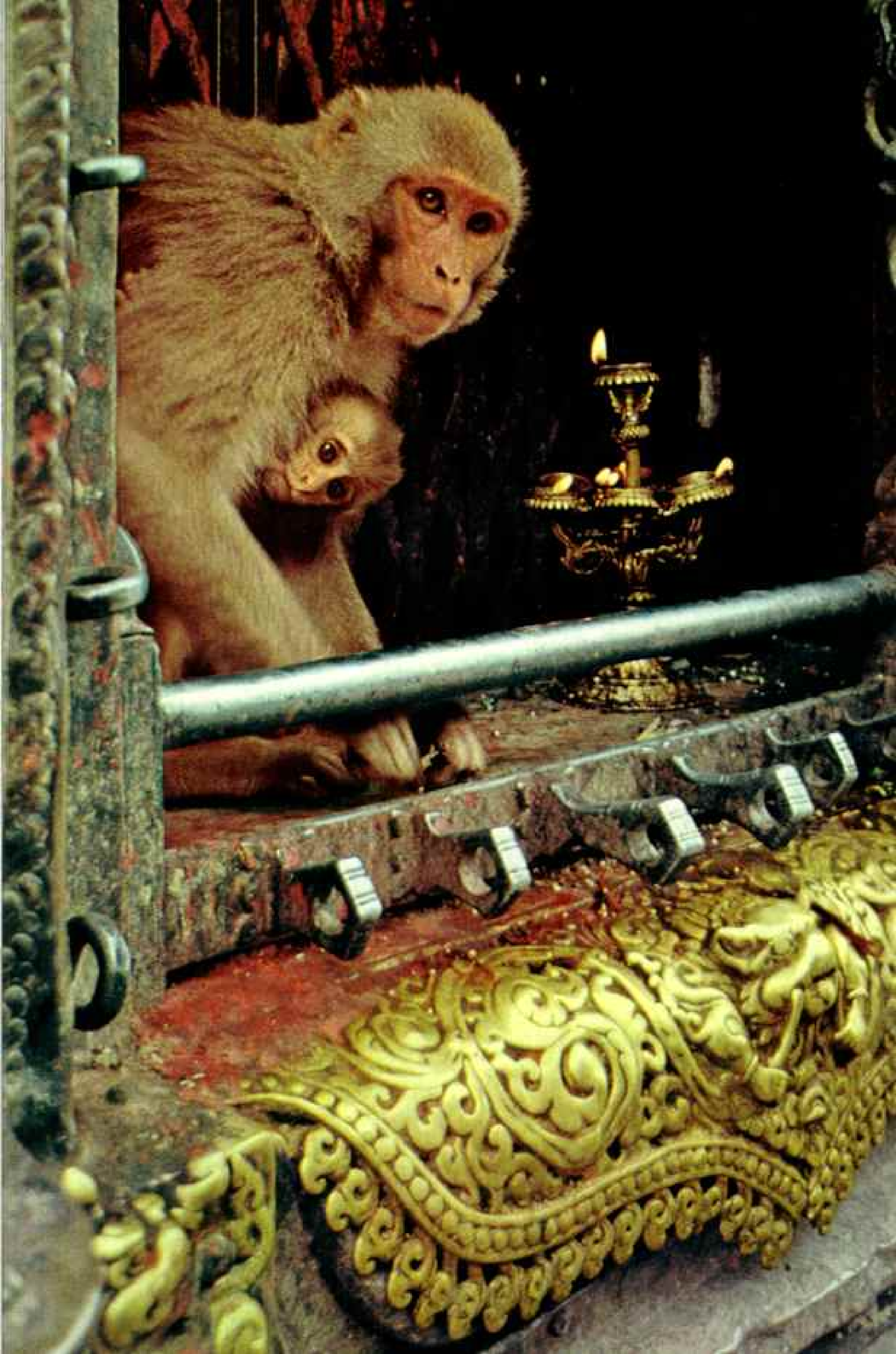
I said good-bye to Bishop Walker and departed, to walk briefly in the nave. Gems of light were playing through stained glass on the statue of George Washington. Someone, I recalled, had said that if a cathedral doesn't know its role in society it is just a museum. Washington Cathedral, I thought, knows its role in the nation. □




Measuring up, acolytes match heights of processional candles before a Sunday service. The young men and the choirboys attend St. Albans School, one of the cathedral's four educational institutions.

Graduation weekend toasts the 1979 class of the National Cathedral School (left). Senior Esther Brimmer (below) speaks with pride, "That's my cathedral!"







Temple Monkeys of Nepal

By JANE TEAS

EARLY MORNING SUN pinked the valley rim, and haze softened the snowy contours of the distant Himalayas. It would be another hot spring day in Kathmandu, the capital of Nepal.

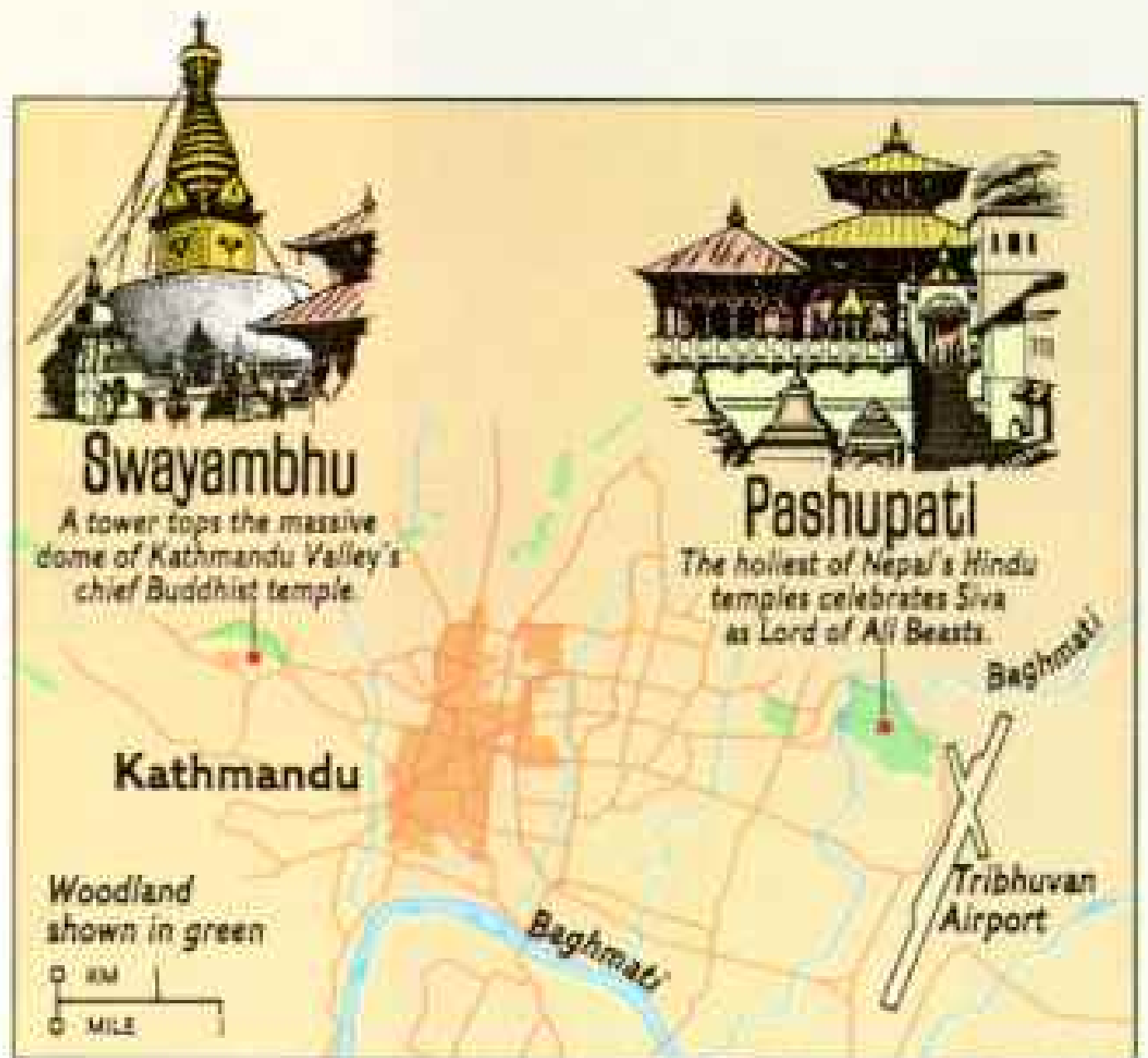
Sitting on the steps of the Buddhist temple at Swayambhu, I watched Agamemnon and his troop of rhesus monkeys as they awakened and moved from tree to temple to ground. As mother monkeys gathered around me, clutching their new babies, a small pressure came against my foot. I looked down to see Kamala, a month-old infant, gazing up at me. Weighing less than two pounds, she was smaller than my shoe.

Padma, the baby's mother, watched fixedly and walked toward me. The compulsion to retrieve Kamala, and the possible need to attack me if harm threatened her baby, tested her normal shyness in approaching a human. I looked away to indicate my peaceful intent. I felt the mother tug gently at Kamala, who was fascinated by my shoelaces. Finally Padma walked away, Kamala riding securely under her mother's belly. I let out a breath of relief.

I was in Nepal doing fieldwork on the behavioral

Sacred and secure, a rhesus monkey and her infant peer out from a temple in Kathmandu's Swayambhu area. Protected by law, the monkeys have had free rein in the temples of Nepal's capital city for perhaps 2,000 years.

JANE TEAS



MAPS BY JANE WOLFE, JOHN LOYERS, AND OLIVER PAYNE NATIONAL GEOGRAPHIC ART DIVISION

Offerings of food left for the gods probably first lured the monkeys to the two principal temples of Kathmandu Valley. With this steady supply—mainly rice, peanuts, and pumpkin—the animals stopped living purely off the land. Today some 300 monkeys, divided into several troops, live in and around the Buddhist temple at Swayambhu; a similar number occupy the grounds of the Hindu temple at Pashupati. Dwelling four miles apart on opposite sides of town, the groups do not mix. To learn about the behavior of these urbanized animals, the National Geographic Society and Earthwatch of Belmont, Massachusetts, helped fund a four-year study.

Researchers agreed not to touch an animal intentionally. Sometimes, however, the monkeys themselves reach out. At Swayambhu, corn in the pocket of a tourist (right) attracts an entourage headed by Rex, a dominant male and troop leader. He and other individuals were named by the researchers.



THOMAS L. RICHIE

ecology of rhesus monkeys for my doctorate at the Johns Hopkins University. American colleagues Henry Taylor and Tom Richie were working with me, and my brother, George Turner, collaborated as cinematographer. Rakesh Shrestha and Ram Shrestha, university students in Kathmandu, were our Nepalese assistants. Our specific project: to learn what changes in the monkeys' behavior are associated with environmental factors of season and habitat.

We chose separate populations of rhesus monkeys that live in and around two temples on the outskirts of Kathmandu. Under the supervision of Charles H. Southwick, a primate specialist then at Johns Hopkins, our four-year program was generously supported by the National Geographic Society and Earthwatch.

Although the rhesus is the monkey most widely used in biomedical research, we had little understanding of this species in its natural habitat. In Kathmandu, Dr. Southwick reminded us, we would be observing free-ranging monkeys in a country where they are held sacred, and where there has been no trapping for commercial export to disturb their behavior or population structure.

About 300 monkeys in five social groups roamed our primary study site at Swayambhu, the area surrounding a large Buddhist temple just west of the city. Our second study site, Pashupati, supported a like population in seven troops. Pashupati's temple, the most important Hindu shrine of Nepal, stands four miles from Swayambhu and is separated from it by the buildings, the tangle of alleys, and the busy traffic of Kathmandu. We assumed that the monkeys came from nearby forests to the temples when people began leaving food offerings to the gods, possibly as long as 2,000 years ago. Eventually cultivation cut off troops from the forests. Now these monkeys rarely stray more than half a mile from the temples.

With nearly 600 subject monkeys, we recorded exactly what adults and juveniles were doing every ten minutes for a total of 1,506 observation hours. We divided our time among all four seasons and among four habitats, a temple and parkland at Swayambhu, and a parkland and garden forest at Pashupati. Normally we watched the monkeys in four-hour shifts.

Well are they called temple monkeys, for they endlessly animate the elaborate stonework, spires, and prayer flags of the two shrines with their nimble movements and piercing glances.

Both Buddhist and Hindu religious motifs adorn Nepalese temples. Hanuman, the Hindu monkey god, is a popular deity, his likeness usually identifiable by his conspicuous tail and simian mouth (next page). By association, all monkeys are protected in Nepal and are fed in certain sanctuaries and places of worship.

Men and women on their way to worship, and people who just like the monkeys, come to Swayambhu to offer the animals rice, cut-up pumpkins, or peanuts. Once, Tom watched Rex, the leader of the largest troop, approach a small boy putting a piece of candy to his mouth. Rex stood up, grabbed both hands of the startled child, plucked the candy from his grasp, and ran off.

Additionally, the monkeys eat insects, leaves from the trees and shrubs, and the grasses growing around the temples. During times when few people come by, the monkeys sleep or groom, while the young play in the trees of the temple yards.

The usual troop comprises thirty to a hundred monkeys. Each social group normally ranges a specific area. When two troops chance to be in the same area, the smaller troop usually makes way.

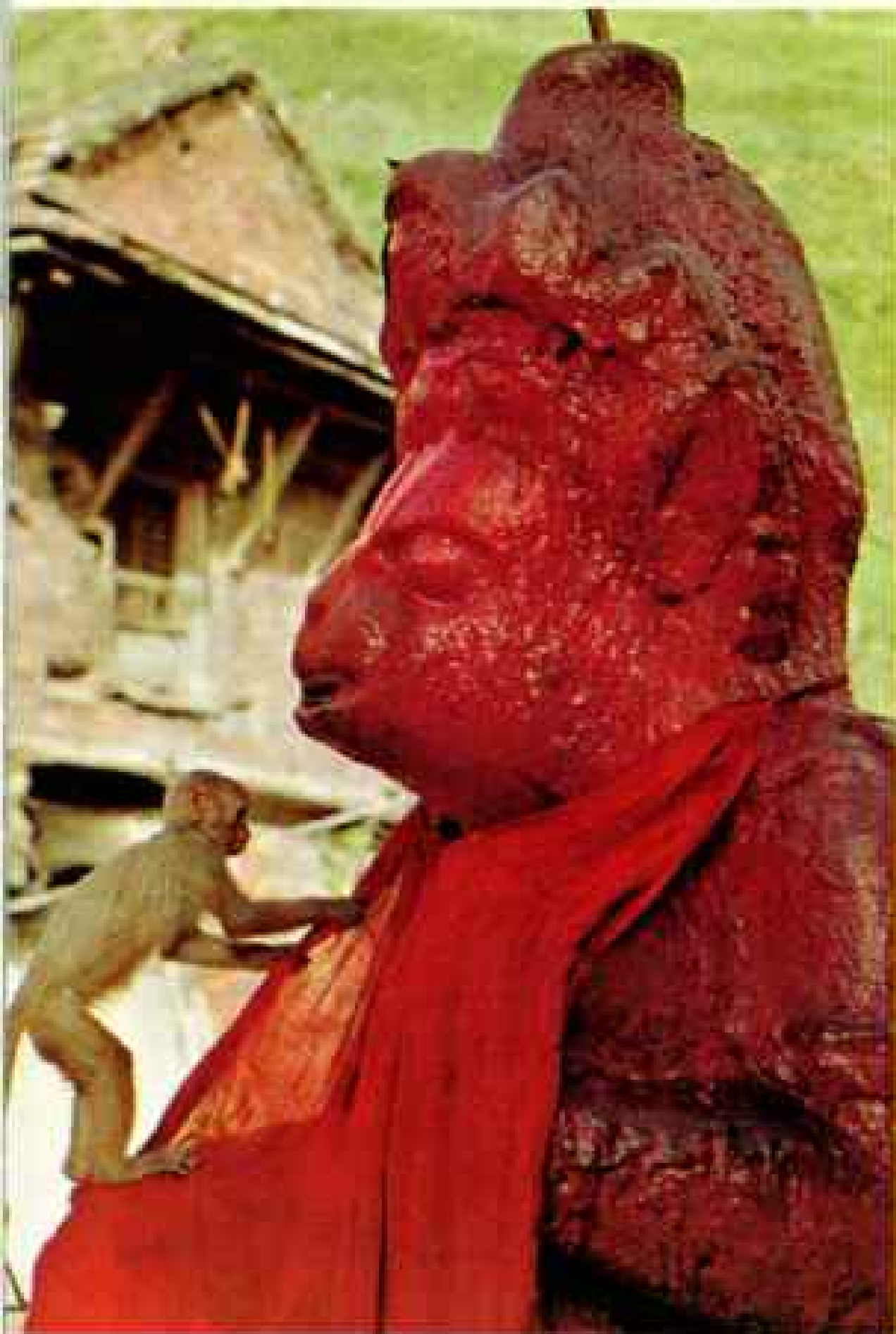
Mating Raises Ire and Appetites

During the first year we discovered a certain predictability in the monkeys' behavior. Adult males were especially aggressive during the fall mating season. Concurrently, we observed more consumption of food left over from the temple harvest festivals and a decrease in resting.

Our records showed the Kathmandu rhesus to be much more aggressive than the same species in India. As reported in other studies, however, physical contact added up to only 5 percent of all aggression. Threats or chases comprised the rest.

The fall mating season drew to a close. Winter set in, with heavy mist obscuring the Himalayas. Although no snow fell in Kathmandu, the dampness and chill seemed to have a quieting effect. The monkeys' winter fur grew thicker. Mating occurred but

Watching the humans, middle-aged Vanessa sits across from the temple at Pashupati while worshipers bathe in the sacred Baghmata River (right). After a festival a young rhesus (below) gleans rice tossed onto a cape draped over a statue of the Hindu monkey deity, Hanuman.



rarely, and conflict declined. Three-fourths of the females 4 years old or older were in the early stages of pregnancy.

Stone steps lead up a hill to the temple at Swayambhu. Of the five troops that occupied the 75-acre grounds, Rex's troop held the main steps as its exclusive realm. Rex was an aging monarch, although probably less than 20 years old (page 576).

In early winter Rex began to fail, and during his last month of life he held an ambiguous position. He still had free access to food, an accepted privilege of dominance, but other males threatened him, apparently sensing his declining authority.

For an entire day Tom followed Rex and

Gimp, a female equally frail and aging. They limped together to the temple, then Tom followed the pair to a woodpile behind a building. There in the sun, Rex and Gimp kept company, occasionally grooming, often just leaning against each other. "What a fond old couple," thought Tom (as he told me later). "All they needed was a park bench."

Rex died in the spring, probably of old age. With his passing, dominance struggles tore his troop. Spock, most active of the males, tried to gain a following by periodically threatening the other two senior males. The troop gradually broke up, each of the three contending males taking charge of a



JANE TEAS (LEFT) AND THOMAS L. RICHIE

subgroup and its own area of activity on the temple hill. However, all the monkeys continued to sleep and feed together.

With spring, fields ripened into a patchwork of brilliant greens. Rice-planting songs and laughing voices drifted up the slopes. In rhythm with the balminess of the season, female monkeys took on the graceful proportions of advanced pregnancy.

The first baby was born on April 2. Earlier we noted that three-quarters of the adult females were pregnant; about three-quarters of *those* delivered live babies, of which 75 percent were likely to survive the first year of life.

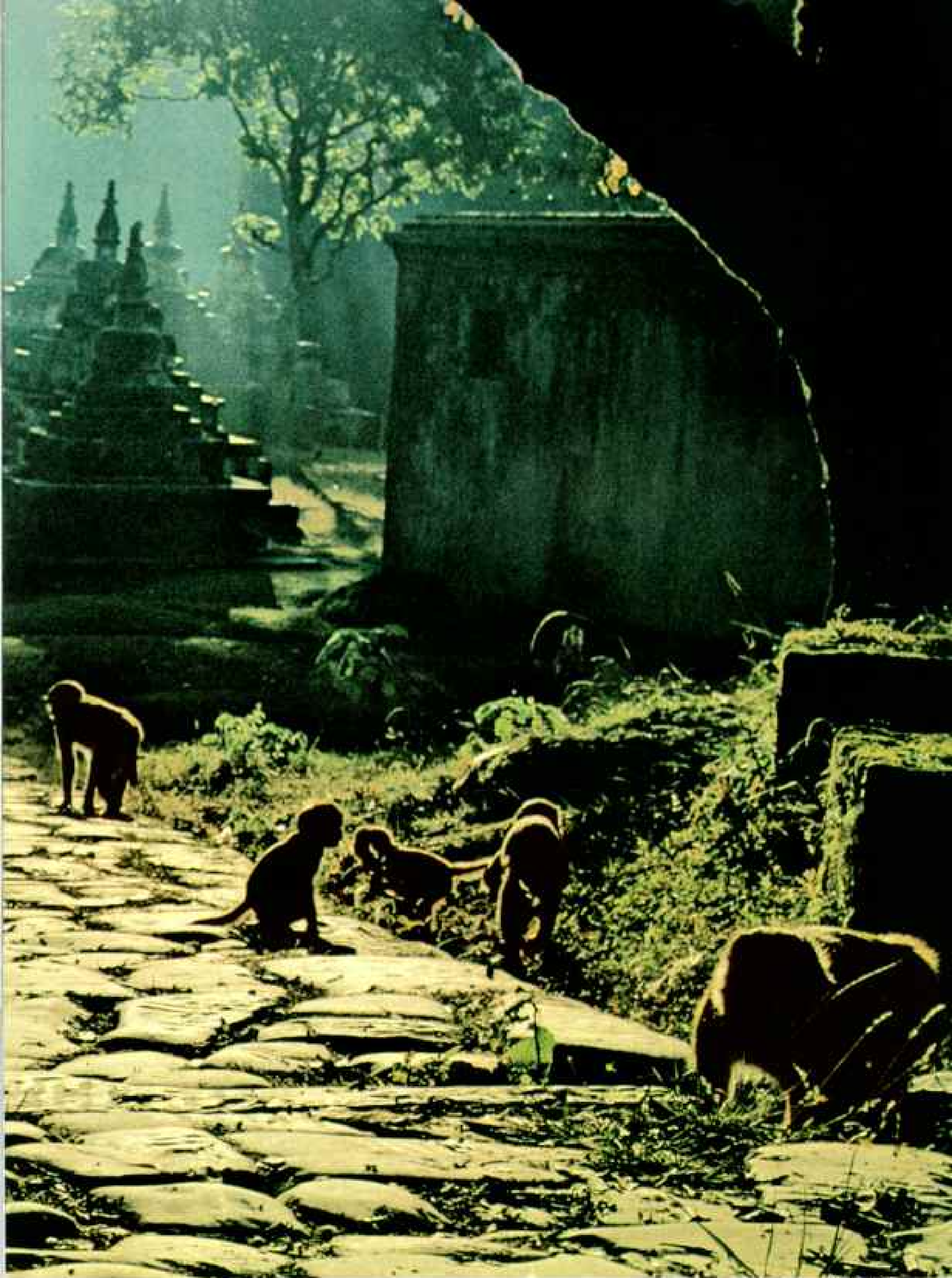
Among rhesus monkeys in India, 75 to 90

percent of adult females give birth to live babies each year; more than four-fifths of these survive their first year. We wondered why the birthrate among Nepalese rhesus was lower and the perinatal and infant mortality higher than in India.

We came to the conclusion that some mechanism of reproductive regulation existed among the rhesus monkeys of Swayambhu and Pashupati. Rhesus populations normally increase by 5 to 15 percent a year, if space and resources permit. In Kathmandu Valley, those factors apparently are limiting, resulting in reduced birthrates, slightly increased infant and adult mortality, and, according to our censuses over a



A warm sun on a December day draws a crowd to a Swayambhu walkway



KENNY TAYLOR

for a typical morning of basking, playing, and nosing around for food.



four-year period, essentially stable numbers of monkeys.

We were reluctant to examine dead animals because, as one monk pointed out, "How would people know you didn't kill the monkey?" We certainly did not want to be thought guilty of killing the living representative of a god. Evidence indicates, however, that respiratory and diarrheal diseases were principal causes of death. Not all infant mortality, of course, was due to disease. The death of a mother, in every instance we saw, led inevitably to the subsequent death of the highly dependent offspring.

Good Intentions Lead to Tragedy

Spring brought an unusual example of adoption. One day four of us came on Arthur, a 3-year-old juvenile male, carrying a newborn infant. The baby's face was still crinkled and red, the umbilical cord dragging below. Where was Guinevere, his mother? We found her body in a nearby hollow; probably she had died in childbirth.

Later that day we were making a head count of the troop. Throwing handfuls of corn, we called the monkeys to the road. Arthur, still carrying the infant we called Merlin, hesitantly drew near. Spock, as dominant male, came over to investigate the

baby. Arthur, who probably was Merlin's older brother, dropped his charge and Spock took possession of the infant (page 584).

We watched Spock clasp Merlin to his belly. When other monkeys curiously approached, Spock threatened them.

Rhesus males, especially dominant males, normally have very little to do with infants. Henry observed the surrogate mother over the next two days.

"It was as if a football player, divorced, got the kid," Henry jokingly described Spock's behavior. "Whenever there was a fight, Spock picked up Merlin like a football and ran to the quarreling monkeys."

Acting in a mother's role, Spock was inherently handicapped. He seemed unaware that his tiny charge required more than tender cuddling. Spock held Merlin down with one foot while he reached for food nearby. Only after he finished eating would his attention return to Merlin, gently grooming the infant to quiet his hungry cries.

On the third day Merlin died, probably of starvation. As the people put it who came to worship at the temple, "He died of love." No other male rhesus has ever been seen to adopt an orphan.

The scientific literature contains no eyewitness account of a birth in the field. Were



Challenge and retreat: Jude, a young male of the Pashupati group (above, right), lunges at Ruth—perhaps to find a home and a mate. A male leaves his mother's troop at puberty and may demonstrate his worthiness to join another troop by

displaying aggression, even toward females. The monkeys, though pugnacious, seldom draw blood. In quieter moments they use their dexterous fingers to groom one another for health and as a way of socializing (below).

BOTH BY THOMAS L. RICHIE





THOMAS L. RICHIE

babies born at night? In a tree where no potential predators could reach them? On the ground surrounded by other monkeys?

In June I enlisted the aid of Rakesh Shrestha for a mother-infant study. We were working with Agamemnon's troop when we noticed Bina, a very pregnant female, suddenly tighten her arms across her body. We watched her body contract. Bina, with her 2-year-old, Sandy, sat on a sunny, open hillside above a village. It was hardly the secluded harborage we had imagined.

Ajax, the second ranking male, came up to Bina, causing her to move away. Then he, Sandy, and the rest of the troop moved off. We could see Bina's contractions becoming more frequent. All at once, Agamemnon reappeared and sat down about a hundred feet above Bina. Gauri, the third male in the pecking order, moved much closer.

In the last stages of labor, Bina edged toward a tree. Sarita, a young mother monkey, walked up to Bina, looked, and departed. An hour after the onset of labor, Bina

The spirit was willing, but Spock could not save Merlin, an orphaned baby. Only females nurture the young, and Spock, a troop leader, apparently didn't realize the infant needed mother's milk. Merlin died, presumably of starvation.

Westerners view rhesus monkeys only as zoo animals or subjects for biomedical research. The Nepalese see them as time-honored residents of their capital city.

delivered Binda, a female. Within a minute, the baby was snug against her mother's belly. Agamemnon moved closer. Slowly he and Bina rejoined the troop. Sandy came over and groomed the new mother.

It surprised us that the males, rather than the females, showed the greater protective interest during the delivery. To be sure, either of the adult males could have been the father, but we had expected the females to be more attentive during this experience that was common to them all.

Habitats Affect Behavior

Another year drew to a close. Tom, Henry, and I began to see behavioral patterns emerge. Consistently, the monkeys were more active in the afternoon; resting and grooming filled their mornings.

How could we answer the primary question: Will monkeys modify their behavior in adapting to a given habitat?

In the two parkland settings, the monkeys behaved in a very similar way—they engaged more in grooming, resting, and playing than did their counterparts in other habitats. The temple, it seemed, served the monkeys somewhat as a cafeteria; in that environment, they primarily sought food from people. The wilder forest garden, most natural of the life settings, was the place where no particular behavior seemed predominant. In summary, the monkeys' behavior showed important differences in their various habitats.

When it was time to leave, I had the sense of receiving a wonderful gift from the people of Nepal in being able to share some of the life of a temple monkey. I gave thanks to their god Hanuman, on whose behalf the monkeys are protected, preserving a remarkable cultural and ecological heritage. □

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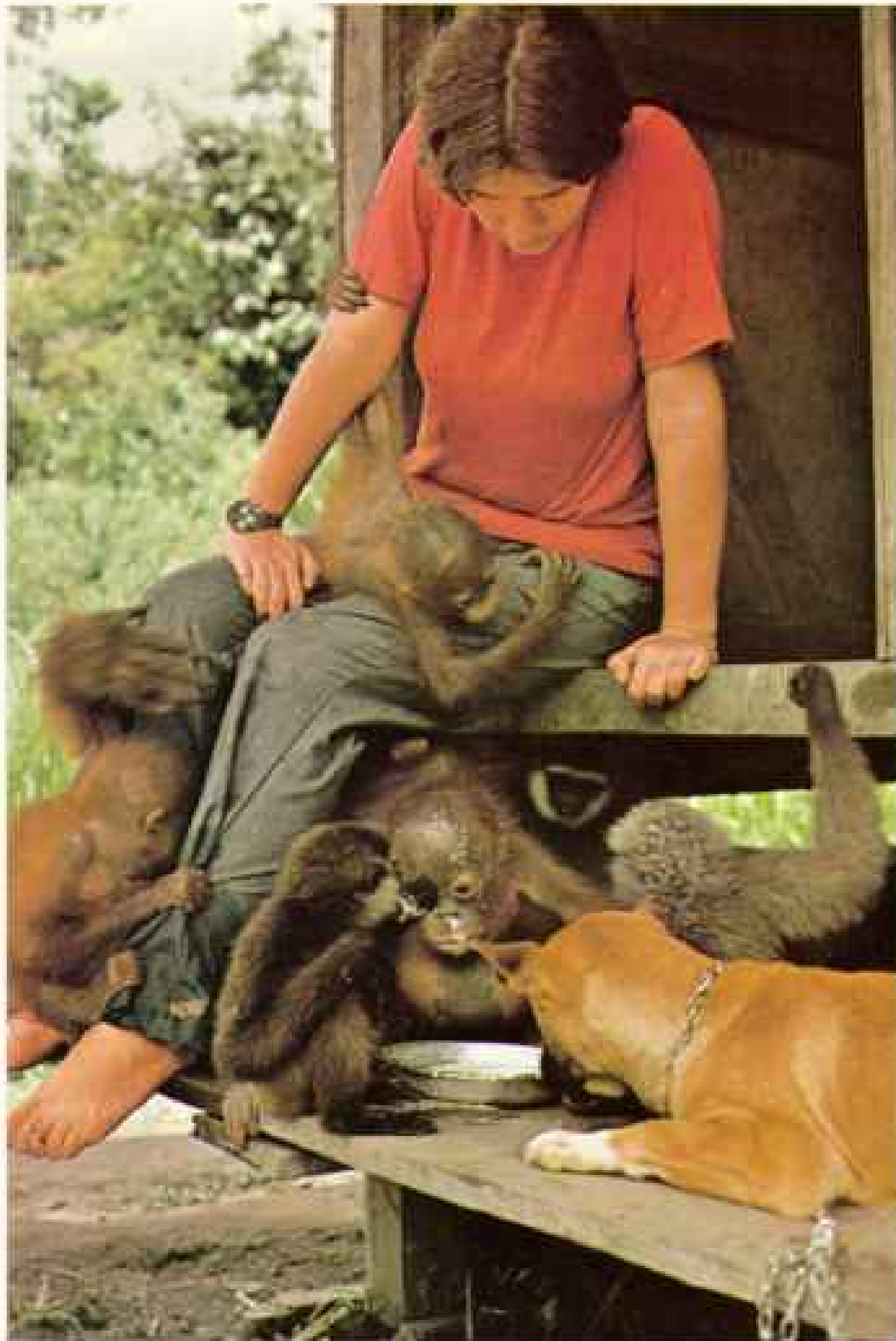
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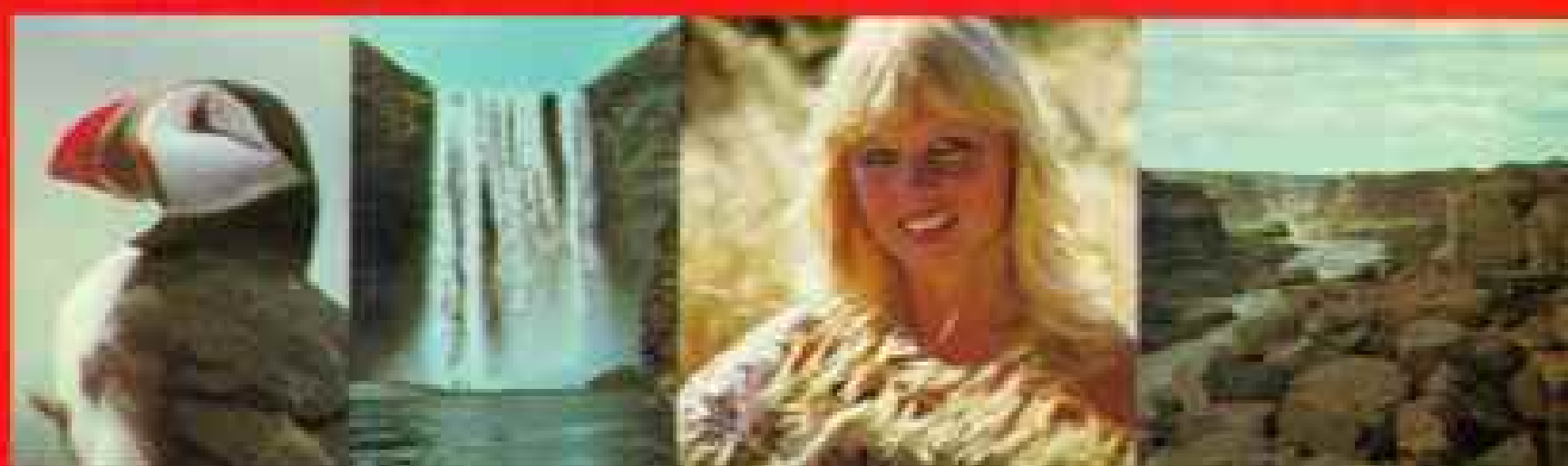
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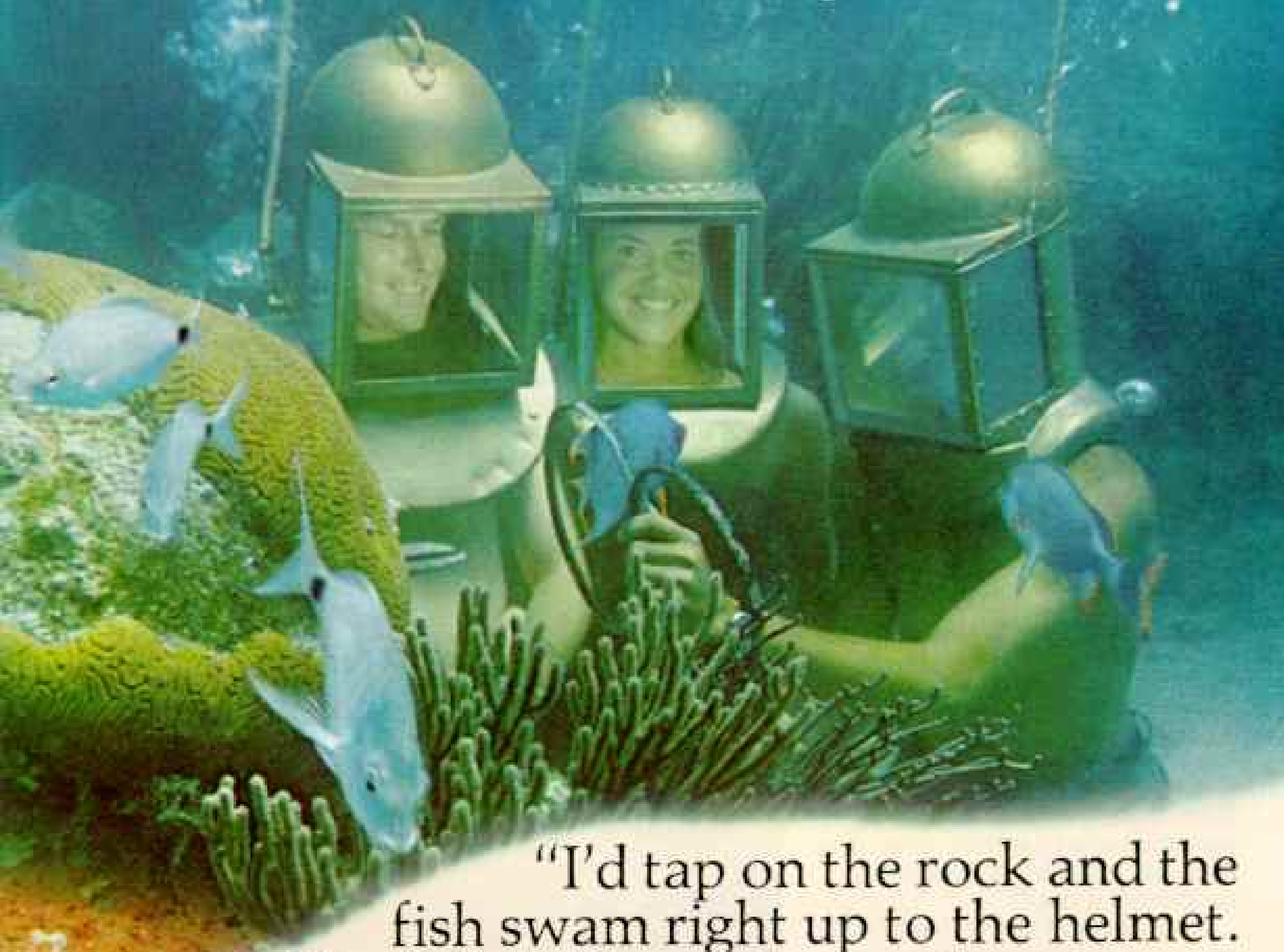
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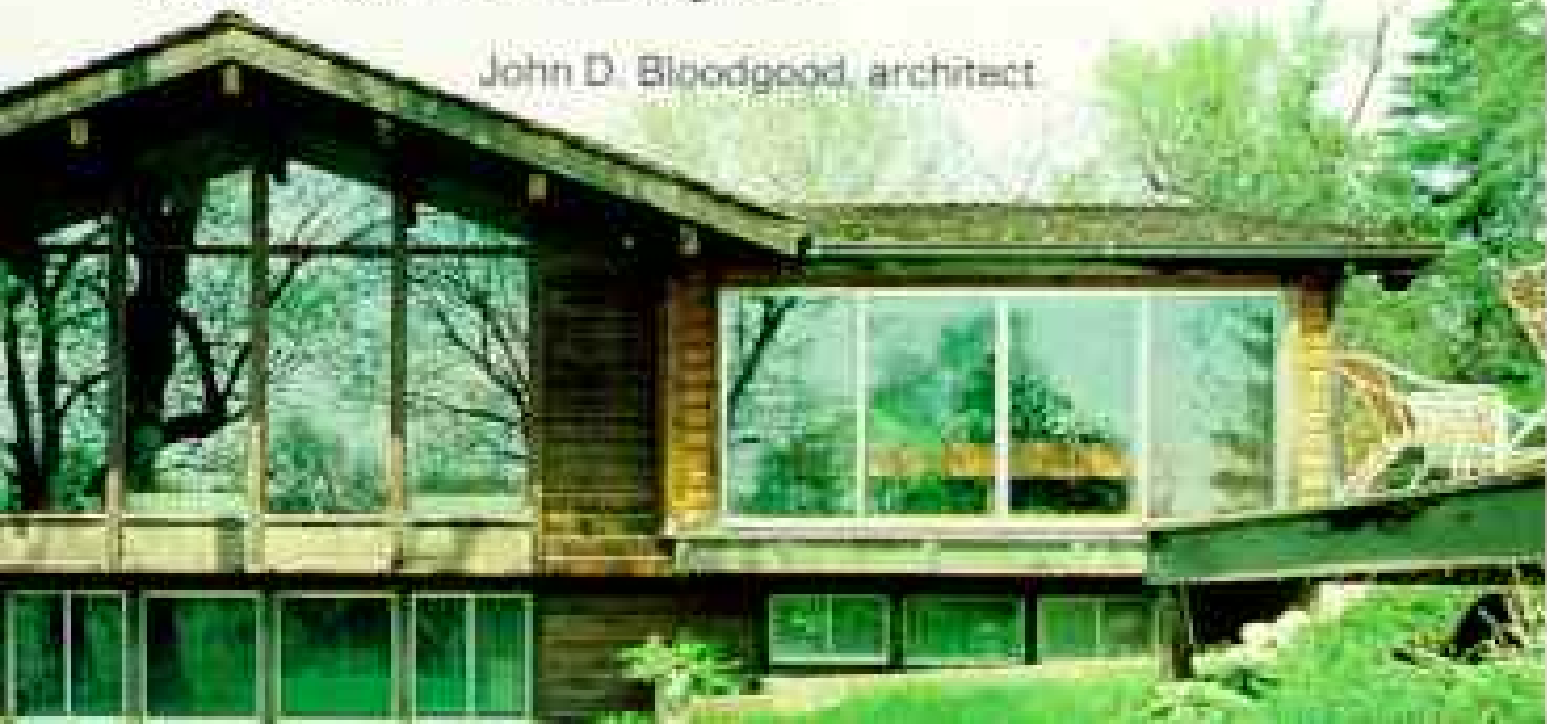
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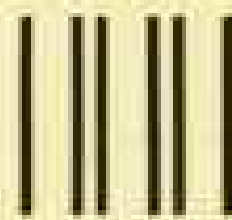
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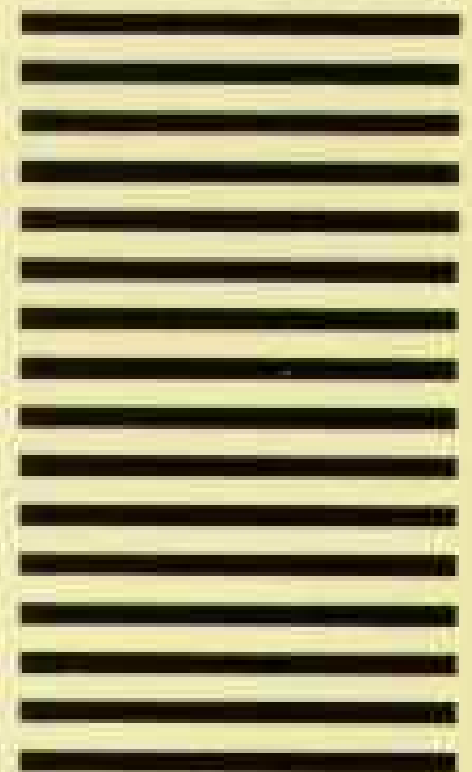
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All-new cab interior. More leg room than last year. New instrument panel. New anti-theft features like locking steering column, inside hood release. New options include AM/FM stereo with 8-track or cassette player, underhood tool box.

BEST GAS MILEAGE RATING
of any American-built
standard pickup

19 EPA EST. MPG* **29** EST. HWY. MPG*

Standard 4.9L (300 CID) Six with optional overdrive transmission.

LONGEST RANGE

722 **1,102**
EST. MILES HWY. MILES

Std. 72L (19-gal.) tank plus opt. 72L (19-gal.) auxiliary tank (on LWB Stylesides only). Total: 144L (38 gals.).

*EPA estimates. Compare these estimates with others. Your mileage and range may differ depending on speed, distance and weather. Actual highway mileage and range will probably be less than estimated. California estimates lower. Diesels and car-trucks excluded.



America's best-selling truck line for the 3rd straight year.

(Based on 1979 retail deliveries)

FORD

FORD DIVISION



If your sales force can't cover the map, maybe you need a new map.

Sometimes the biggest obstacle between a salesman and a sale is 400 miles of four lane.

While 400 miles is 400 miles on anybody's map, one look at our map can show you how to turn a day of driving into a day of selling.

With a Beechcraft business airplane.

If you've put business airplanes into the "nice but not necessary" category, Beech has a file of down to earth facts and figures that could change your mind in a hurry.

It spells out how, in fact, you can effectively quadruple your sales force by shrinking eight hours travel time into two. And turning one sales call into four.

It levels with you on costs. And shows you how you can pay less a month for a Beechcraft than you would for a company car and a handful of airline tickets.

It's interesting reading. Especially if your sales map has more map than it has sales.



Our map may look the same as yours, but it can take you places you've never been before.

Send for your free Management Guide to Business Aviation in the '80's and put your company on the right map.

Write us on your company letterhead, and we'll send you everything you need to decide whether your company can profitably use a Beechcraft. And which Beechcraft suits you best. Write to: Beech Aircraft Corporation, Dept. A 3, Wichita, Kansas 67201, and please mention if you're a pilot. If you'd rather call, call collect and ask for Dick Schowalter, Jr. (316) 681-7072.

Member of General Aviation Manufacturers Association



The Beechcraft Bonanza A36. A 6-seat single engine airplane that gets you where you're going fast. Up to 206 mph. In Beechcraft comfort.



30

The First Danbury Mint Porcelain Mother's Day Bell

- ★ Fine imported porcelain decorated with a lovely rose bouquet and trimmed with precious 22 kt. gold.
- ★ Limited edition available at original issue price only until Mother's Day, May 11, 1980.
- ★ Each bell individually hallmarked, serially numbered, and registered.
- ★ Attractively packaged for gift-giving; not available in stores.
- ★ Guaranteed shipment for Mother's Day delivery for all orders received by April 21, 1980.
- ★ Priced at only \$19.50.

For yourself, or as a gift for someone special, The First Danbury Mint Porcelain Mother's Day Bell can be acquired with confidence, and given with pride. Crafted from fine imported porcelain, this delicate bell is decorated on both sides with a bouquet of roses, and embellished with two hand-painted hands of precious 22kt gold.

This beautiful porcelain bell is a perfect Mother's Day gift which you can display in your home all year round. Each bell is attractively packaged for gift-giving, and *shipment for Mother's Day delivery is guaranteed for all orders received by April 21, 1980.*

The First Danbury Mint Porcelain Mother's Day Bell is available at the original issue price only until May 11, 1980. At just \$19.50, this could well be the start of a delightful collecting tradition, or a special gift to someone you love.



Rose Bouquet

Shown smaller than actual size of 5 1/2" in height.

The First Danbury Mint Porcelain Mother's Day Bell

The Danbury Mint
47 Richards Avenue
Norwalk, Conn. 06856

Available at original
issue price only for orders
postmarked by May 11, 1980

Please enter my order for *The First Danbury Mint Porcelain Mother's Day Bell*. I have enclosed my remittance as follows:

_____ quantity Bell(s) at \$19.50	\$	
Postage & Handling at \$1.50 per bell	\$	
Total amount enclosed*	\$	

Check here if any Porcelain Mother's Day Bell is to be shipped to a different address, and please give us specific shipping instructions on a separate sheet of paper. Also include any message for a gift card which we will provide if requested.

Your name _____

Address _____

City, State _____ Zip _____

Please make check or money order payable to Danbury Mint

*Connecticut residents add \$1.47 per bell to include sales tax.

If you don't have at least \$1,000 to spend on an Audiovox Hi-Comp autosound system, read no further.

By Robert Harris, Technical Director

There are few things in this world that can take a driver out of the traffic jam or away from a gas line, better than great music, well reproduced.

Audiovox understands this. That's why they engineered the Hi-Comp range of high fidelity stereo components designed to produce exemplary sound in automobiles.

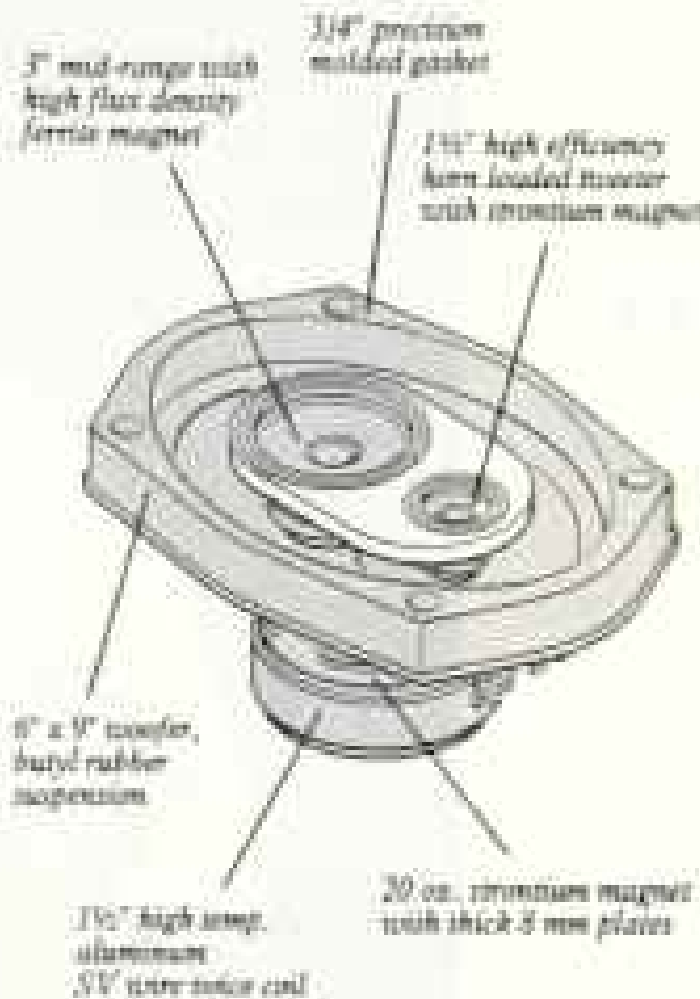
A total range of exotic amplifiers/receivers.

Each model builds on the one before it until you reach the HCM-0010 – the "master system."



HCE-750 Hi-Comp Semi-parametric graphic equalizer

It's an electronically-tuned AM/FM multiplex receiver with a built-in auto-reverse cassette deck. The HCM-0010 has 12-station memory, LED display,

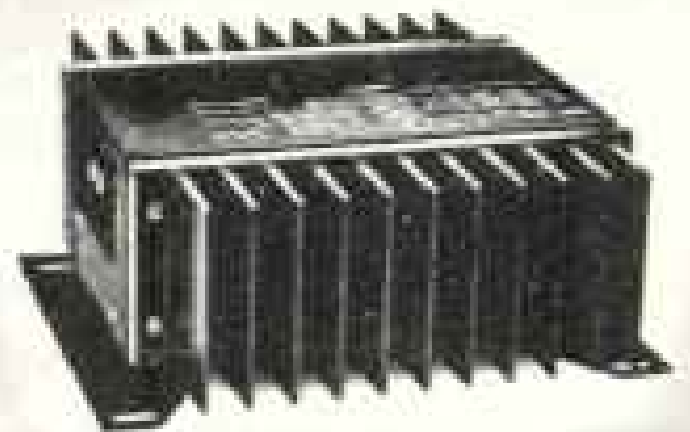


HCS-362 Hi-Comp 6" x 9" three-way speaker system

built-in quartz clock and an automatic station seek. It also features a CrO₂ switch, Dolby[®], FM muting, 4-way stereo balance controls, separate bass and treble controls and a Hard Permalloy tape head. Its looks are straight out of a stereo buff's music room.

4 power-matched speakers systems.

The ultimate is the Hi-Comp 362 system: 6" x 9" three-way speakers with 1 1/2" Strontium horn tweeters, 3" mid-ranges, 20-ounce Strontium magnet woofers, 1 1/2" heat proof aluminum voice coils, and a 70 to 18,000 Hz response range with crossovers at 2,900 and 9,000 Hz, and a power capacity of 70 watts. Hook these up to the HCM-0010 with the Hi-Comp power amplifier, HCB-830, 120 watts RMS at less than 0.3% distortion, and you've got enough sound to pop a moon roof.



HCB-830 Hi-Comp 120-watt 4-channel power amplifier

Now for the equalizer.

Apart from a heavy-duty fader control or a dual slide-bar pre-amp, the only other Audiovox Hi-Comp component you might buy is the HCE-750 semi-parametric graphic equalizer with 5 slide-bar response controls and bi-amp capability.

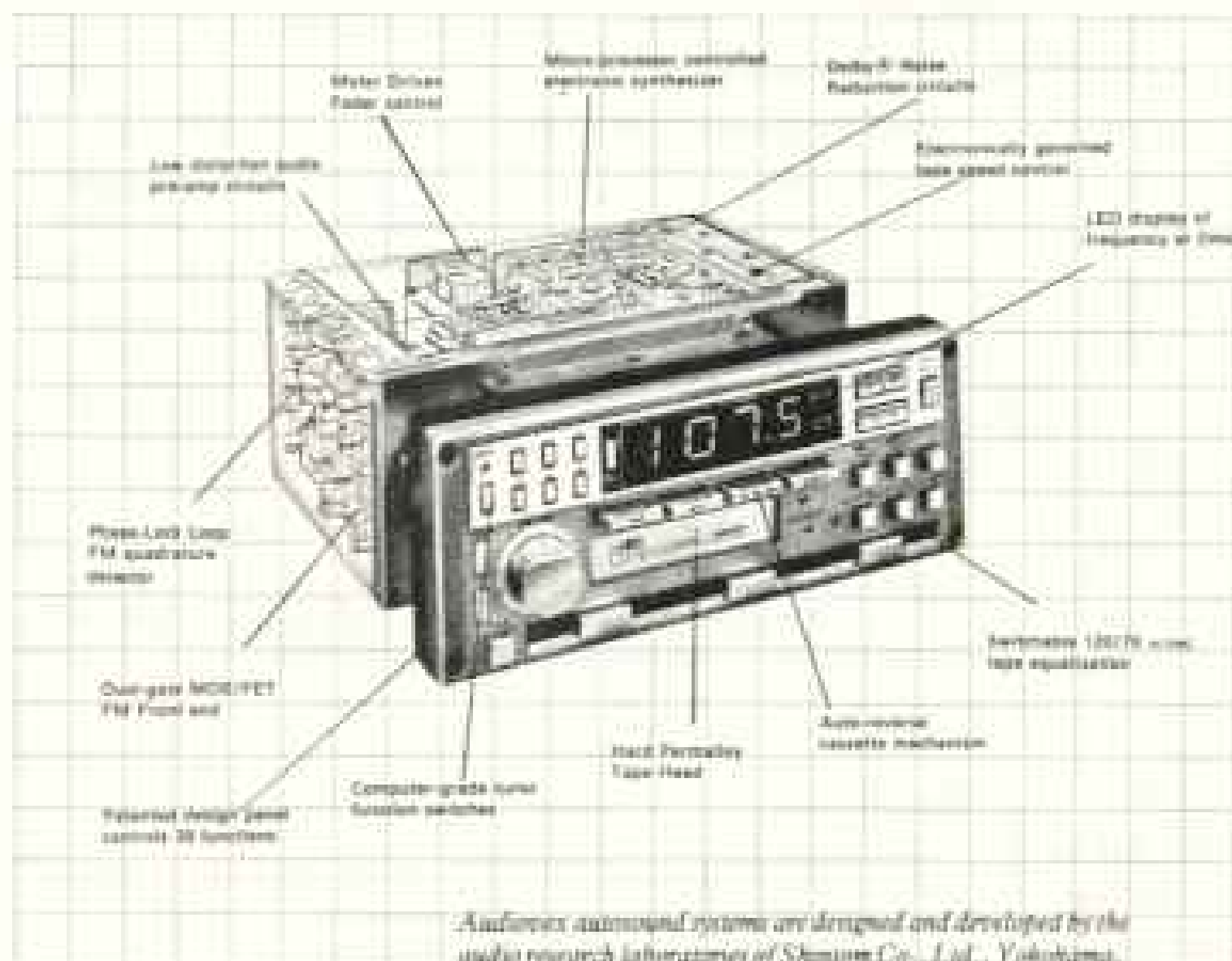
You spend \$1,000 and what do you get?

Probably the finest sound you've heard, *anywhere*. It takes money to get it. But it also takes a lot of specialized dedication. Audiovox only knows how to do just one thing: How to engineer the finest automobile sound systems you've ever heard.

For further information, write to: Robert Harris, Technical Director, Dept. 5F, Audiovox, 150 Marcus Blvd. Hauppauge, New York, 11787.

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Audiovox autosound systems are designed and developed by the audio research laboratories of Shionji Co., Ltd., Yokohama,

"To those who have seen Hawaii,
I can promise many special new
delights on a return visit."

James A. Michener



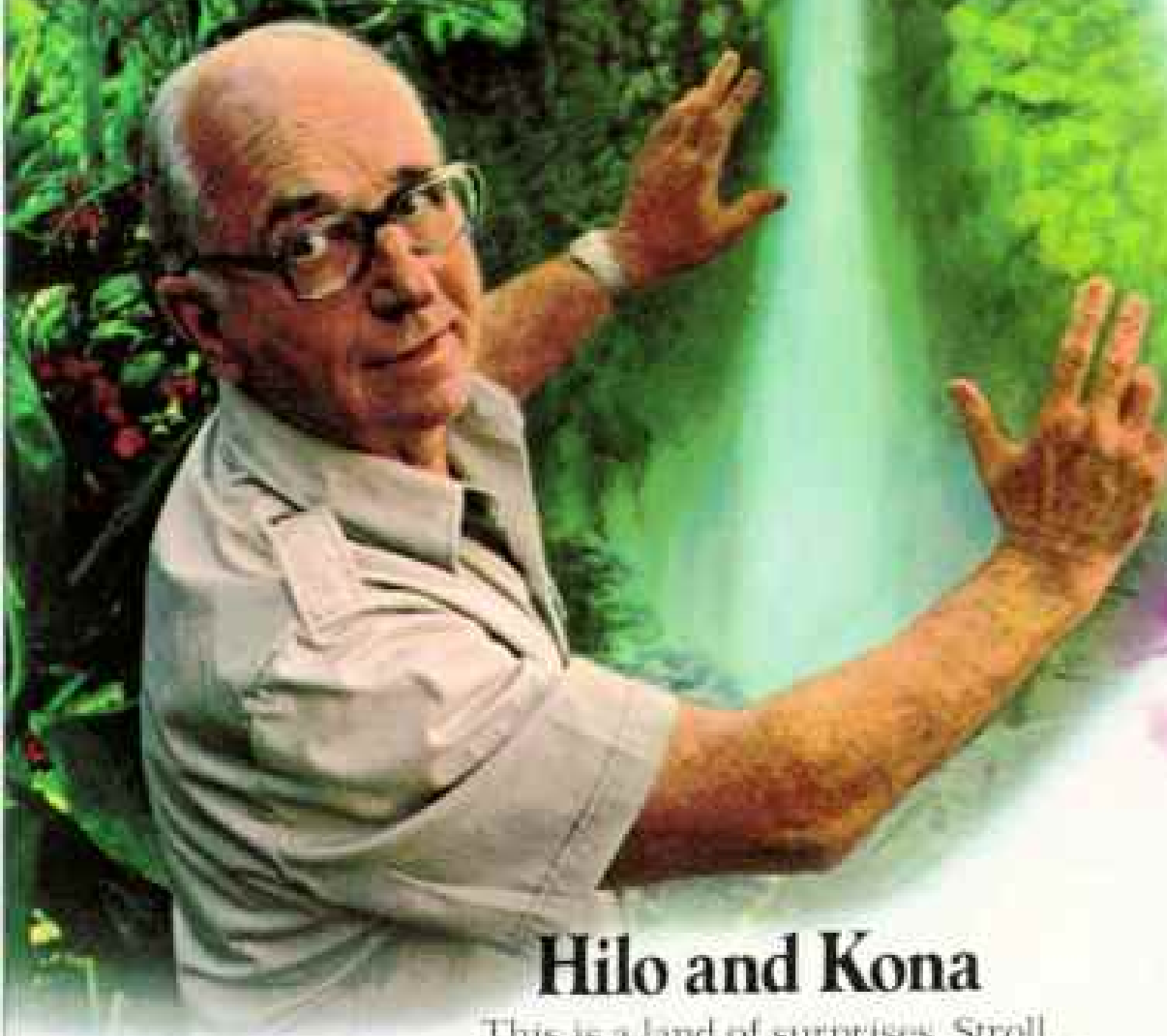
Maui

Quite near your comfortable hotel
you may still find Hawaiians
fishing in the surf.



Molokai

A pleasant ride by boat takes you to
cliffs honeycombed with caves.
This one is navigable for two hundred
feet into the island.



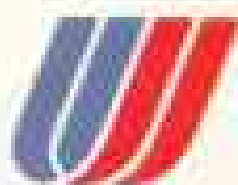
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Falls, three times as tall as Niagara.

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KEEP THESE CODES HANDY

JAPAN	01		
Amagasaki	6	Kumamoto	963
Chiba	472	Kyoto	75
Fukuoka	92	Nagasaki (Nagasaki)	958
Gifu	582	Nagasaki	23652
Hamamatsu	534	Nagoya	52
Himeji	792	Niigata	252
Hiroshima	822	Nishinomiya	798
Kagoshima	992	Osaka	6
Kanazawa	762	Sakai (Osaka)	722
Kawasaki Buzen	9477	Sapporo	11
Kawasaki	44	Sendai (Miyagi)	222
Kitakyushu	93	Shizukawa	22646
Kobe	78	Tokyo	3
		Yokohama	45



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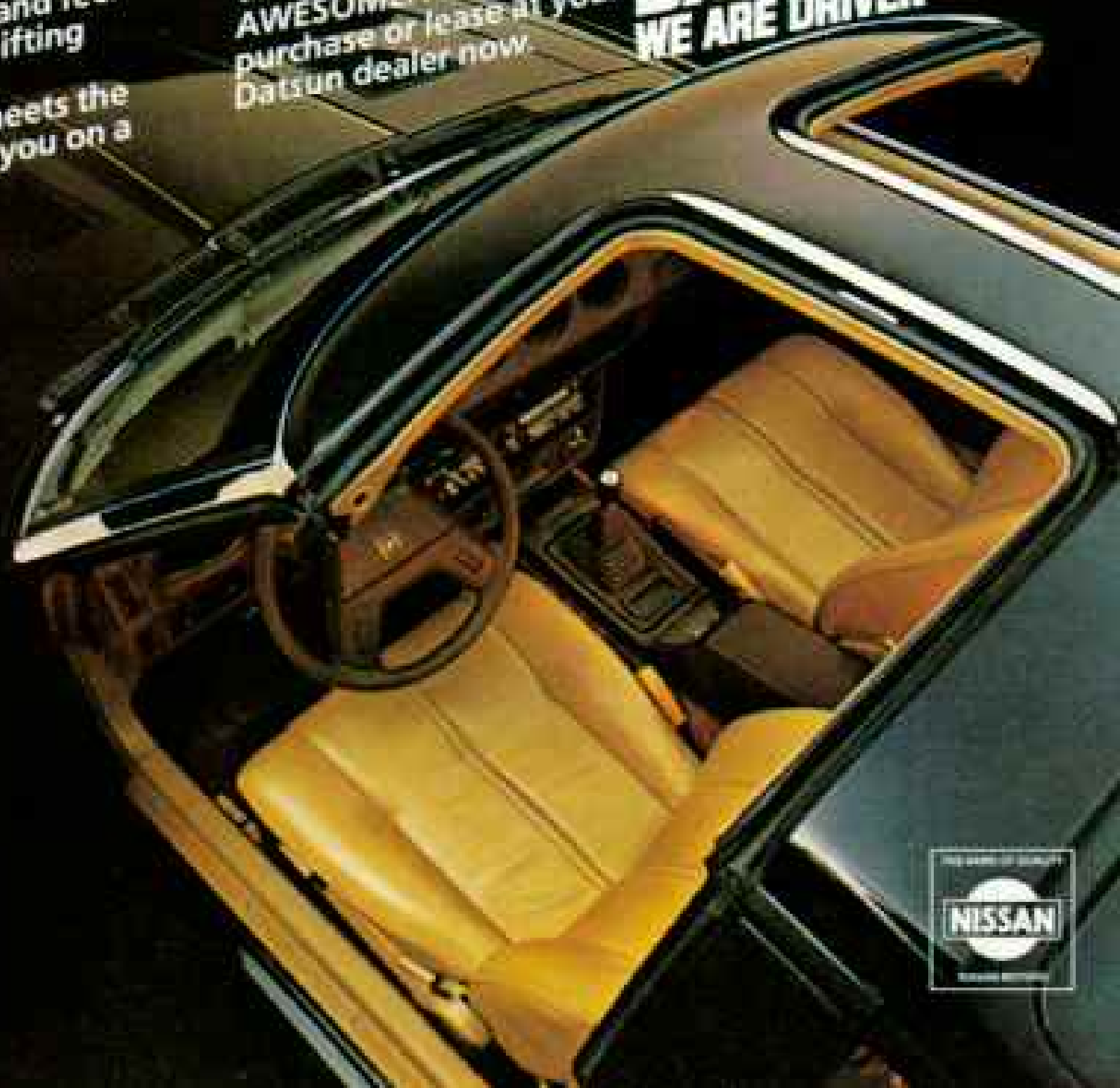
443
MILES
EST. RANGE

654
MILES
EST. HWY. RANGE

21
EPA EST. MPG

31
HWY. EST. MPG

Projected 280-ZX ranges are based on EPA estimated MPG and highway MPG with five-speed transmission. Use estimated MPG for comparison. Your mileage and range may differ depending on speed, trip length and weather. Highway mileage will probably be lower than EPA highway MPG.
*California Range [22] 654. California Mileage [20] 31.



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AAA

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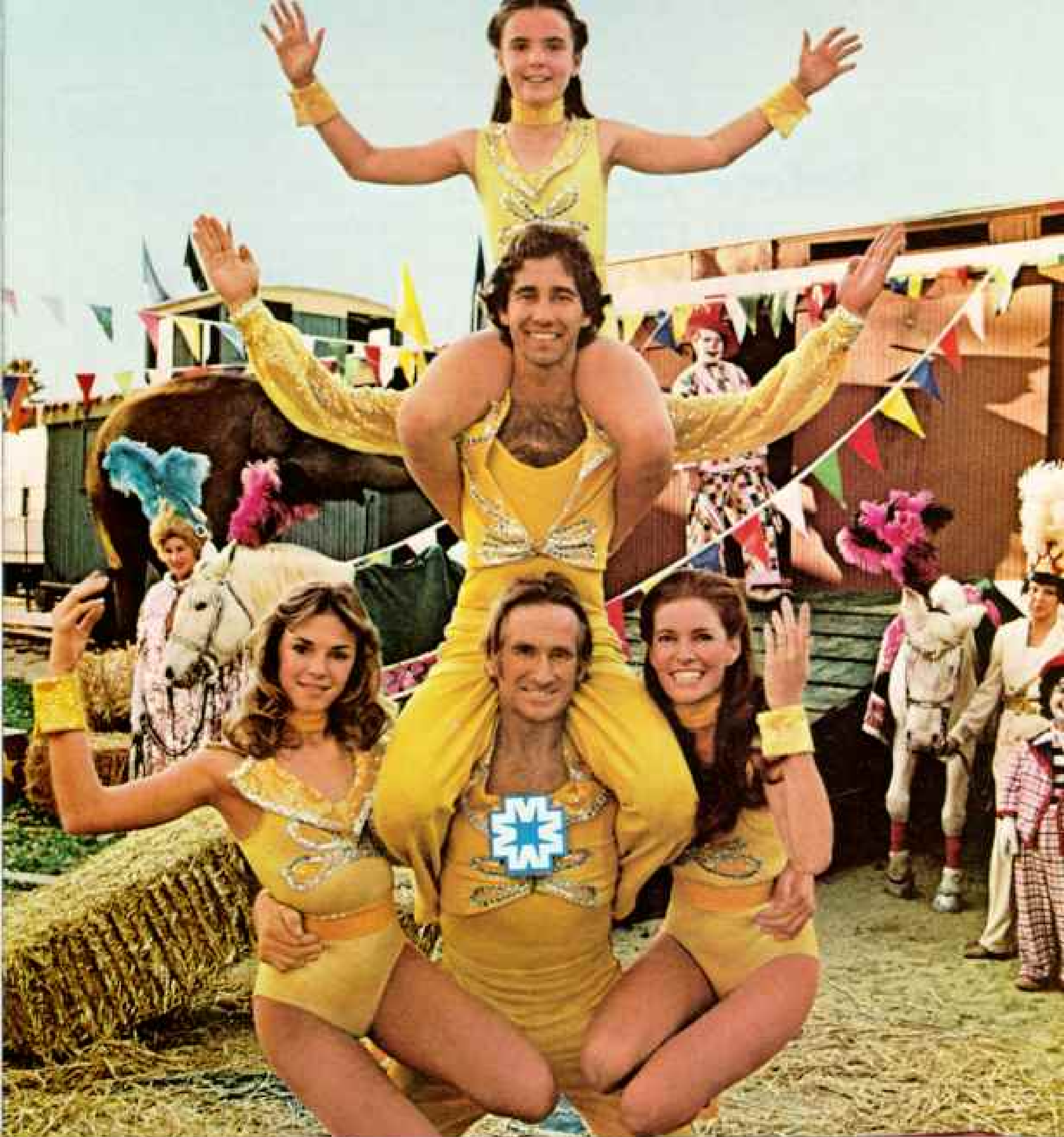
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Metropolitan

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These are two of our 1980 Cruisers, the mid-size Cutlass Cruiser Brougham on the left and the full-size Custom Cruiser on the right. If you're looking for a wagon that'll give you solid value and loads of utility, you're looking in the right direction.

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They're also very economical. They offer impressive mileage and range estimates. The EPA estimates below are for our available diesel V8.

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We think you'll be very satisfied with the station wagon

Oldsmobile's had built for you.



Cutlass Cruiser Diesel

22	400	34	618
EPA Est. MPG	EPA Est. Range	Hwy. Est.	Hwy. Range

Custom Cruiser Diesel

21	462	31	682
EPA Est. MPG	EPA Est. Range	Hwy. Est.	Hwy. Range



Remember: The listed EPA estimates are for comparison to other cars. Your mileage and range depend on your speed, weather and trip length; your actual highway mileage and range will probably be less than the highway estimates. Driving range estimates are obtained by multiplying the EPA and highway estimates by the standard fuel tank capacity rating of 18.2 gallons for Cutlass Cruiser - 22 D for Custom Cruiser. Seats are optionally available in California. Oldsmobiles are equipped with GM-built engines produced by various divisions. See your dealer for details.

Oldsmobile

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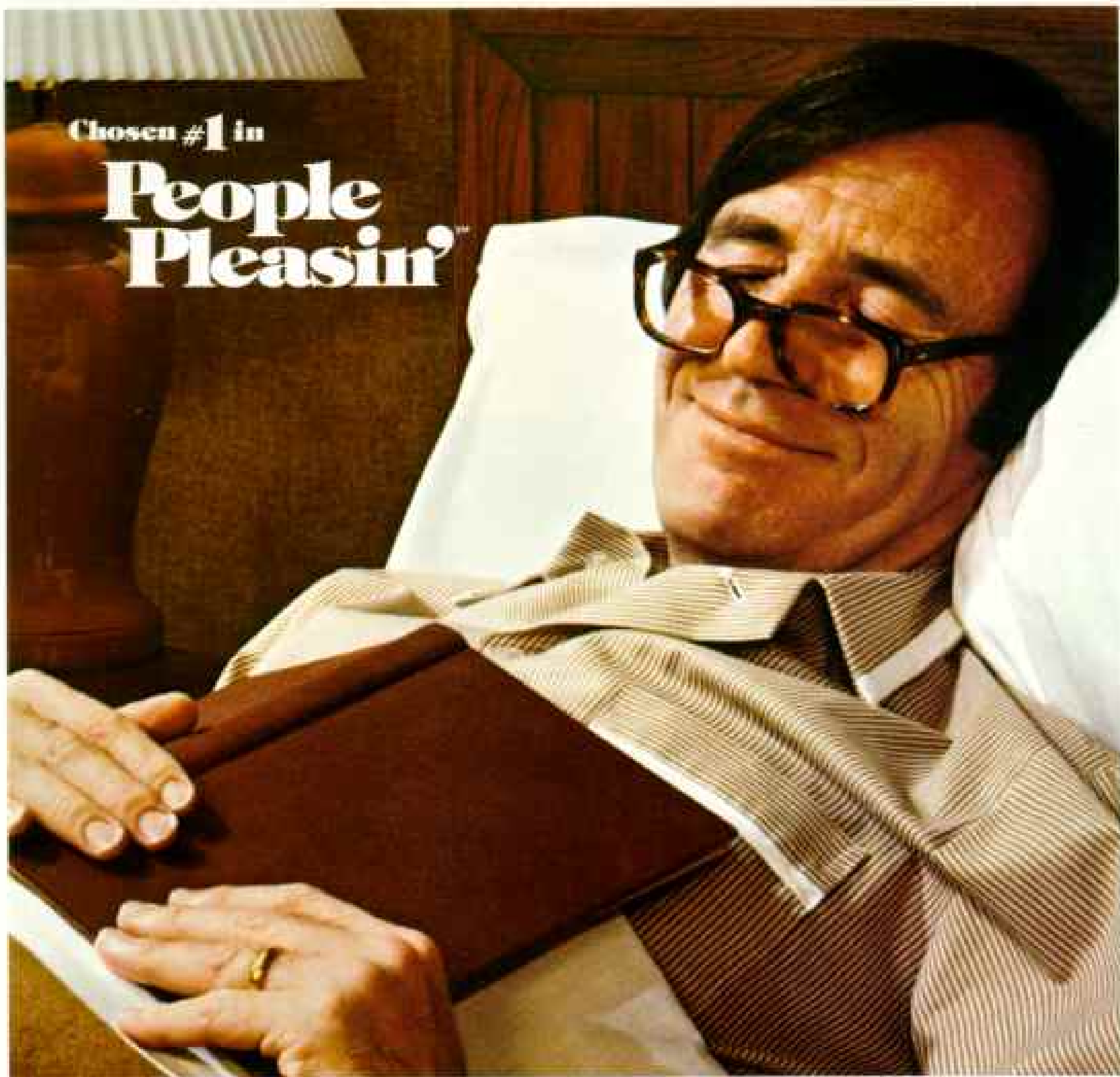
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