DOUBLE MAP SUPPLEMENT: THE MIDDLE EAST AND ITS EARLY CIVILIZATIONS

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WHEN WORD CAME that Japanese explorer Naomi Uemura had reached the North Pole after an epic solo dogsled journey, there was no reason to doubt it. His position had been fixed by a satellite orbiting far overhead, responding to pulses from a transmitter on his sled, and further verified by aircraft that five times resupplied him en route.

Those of us who grew up with the traditions of polar exploration thought instantly of Comdr. Robert E. Peary. How very different it was in 1909, when life rested on what dog and sled could carry all those bitter miles from Cape Columbia. Uemura's confrontation with a hungry polar bear would, 69 years earlier, have meant certain disaster and probably death.

Had Commander Peary and his rival Dr. Frederick A. Cook been equipped with today's sophisticated navigation instruments, the longtime controversy that still surrounds them would never have occurred. At the planet's highest latitudes there was vast chance of error in observation by fatigued, desperate men.

In retrospect, it seems to matter not so much if explorers of that day found, undershot, or overshot the Pole. For they epitomized a kind of courage and fortitude that stands as a monument to them. Those who fell short of a technical victory achieved an enduring moral one.

If technology has lessened the risks, it has also added to our appreciation of the rigors involved.

MOTOHISA ANDO

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New Mexico's Mountains of Mystery 416
In the fastness of the Sangre de Cristo, author Robert Laxalt finds the spirit and language of old Spain still alive, though changing under 20th-century pressures. Photographed by Craig Aurness.

COVER: *Adventurer Naomi Uemura faces due north under a 24-hour April sun as he dogsleds for the Pole single-handed. Photograph by Ira Block, meeting Uemura (left) at an air resupply point.*

SOLO TO THE POLE

ONE AGAINST THE RIGORS *of a polar wasteland, Japanese adventurer Naomi Uemura, his face raw from frostbite, pauses for a self-portrait on his way to becoming the first person to reach the North Pole alone. Perilous terrain and severe cold daily tested the mettle of Uemura on his journey "to challenge the limits of human endurance."*

NAOMI UEMURA

By NAOMI UEMURA

Photographs by the author and IRA BLOCK

SHORTLY BEFORE DAWN the polar bear attacks. From the great surrounding ridges of ice he emerges like a wraith, padding silently toward the camp.

From my sleeping bag inside the tent I hear the sudden yammer of the dogs and sense a note of alarm. In the Arctic there are few creatures a sled dog instinctively fears: One is man, another is the polar bear.

As I reach for the zipper of my sleeping bag, the barking trails off, and I realize that the dogs have broken loose and scattered. Seconds later I hear the footfalls.

Unlike those of a dog, they are heavy and shuffling, with a weight that sends tremors through my pillow. The sound of breathing follows, and I feel the presence of the bear, inches away on the other side of the nylon tent wall.

"It's all over," I think. "I'm going to be killed." Then my mind turns to my beloved wife in Tokyo.

"Kimi-chan, help me somehow," I pray, and a sudden sense of calm overtakes me.

I shall probably be killed, but if I have any chance at all, it is to lie still in the sleeping bag and breathe just as little as possible.

I think of my rifle lying almost within reach, yet it is not loaded and is as useless now as if I had left it behind at my base camp on the shore of the Arctic Ocean.

The sweat pours from me, making me itch all over as if bitten by fleas. Outside I can hear the bear slashing through the food supplies—pemmican, frozen seal meat, a bucket of nourishing whale oil.

"May he be satisfied with that!" I pray silently, my lungs almost bursting.

But he isn't. Turning to the tent, he begins ripping at the flimsy nylon with his great claws and grunting loudly as I literally hold my breath. A new terror seizes me as the tent wall bulges inward and I feel the bear's nose thrust against my back.

"Now it is surely over," I think. "Live human meat is tastier than pemmican or frozen seal. He's found my scent. I'm finished."

And suddenly, unaccountably, the bear leaves. With a final sniff at the tent he pads off, the sound of his heavy footsteps slowly receding. Silence at last.

And a giant lungful of air.

The date is March 9, 1978, four days since

ALL BY IRA BLOCK

Last dose of companionship before two months of solitude keeps Uemura in stitches (**left**) as he sews a wolverine hood cover in his base camp at Alert, Canada. Uemura outfitted himself Eskimo fashion with a caribou-fur jacket, polar-bearskin trousers, and sealskin boots. At Qânâq, near Thule, Greenland, he commissioned an Eskimo artisan to build from oak a 4.5-meter (15-foot) sled (**below, left**). Rough ice and deep snow later forced Uemura to exchange it for a lighter and shorter one of pine.

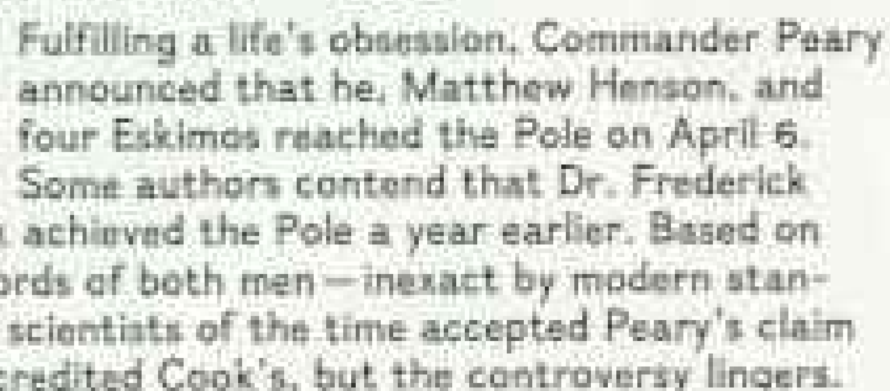
At $150 a head, sled dogs are valuable cargo; Uemura loads a husky (**right**) into a DC-3 en route from Qânâq to the base camp. Uemura used 14 to 17 dogs to pull the sled. He was financed largely by Japanese media interests.

At 37, Uemura is no stranger to solo epic adventures. He has scaled the highest peaks in North America, South America, and Africa; rafted 6,000 kilometers down the Amazon; and mushed more than 12,000 kilometers from Greenland to Alaska—the longest solo dogsled trip on record. He has also climbed Mount Everest with the first Japanese expedition to reach the summit.

"Sharing a project means sharing the satisfaction from it," Uemura explains. "I want to do a project all by myself."

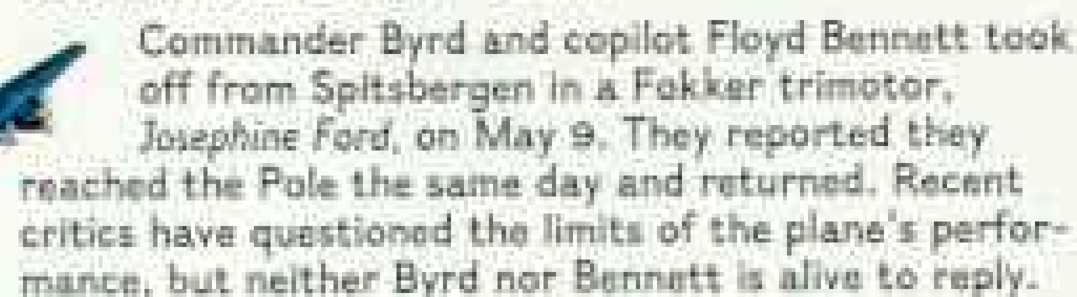
By ice, air, and sea

ROBERT E. PEARY 1909



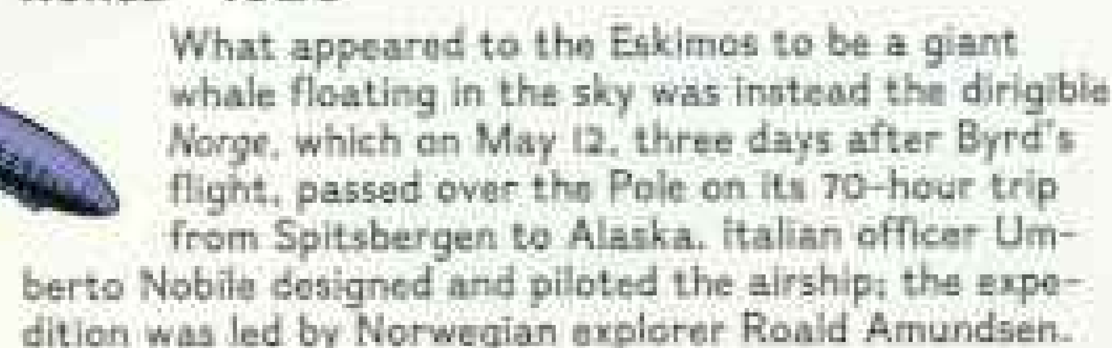
Fulfilling a life's obsession, Commander Peary announced that he, Matthew Henson, and four Eskimos reached the Pole on April 6. Some authors contend that Dr. Frederick A. Cook achieved the Pole a year earlier. Based on the records of both men—inexact by modern standards—scientists of the time accepted Peary's claim and discredited Cook's, but the controversy lingers.

RICHARD E. BYRD 1926



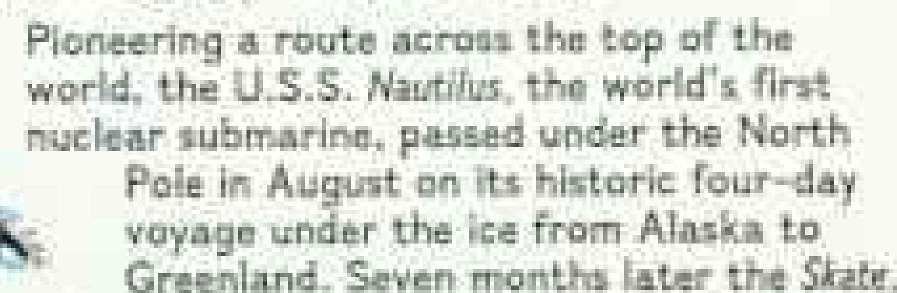
Commander Byrd and copilot Floyd Bennett took off from Spitsbergen in a Fokker trimotor, *Josephine Ford*, on May 9. They reported they reached the Pole the same day and returned. Recent critics have questioned the limits of the plane's performance, but neither Byrd nor Bennett is alive to reply.

NORGE 1926



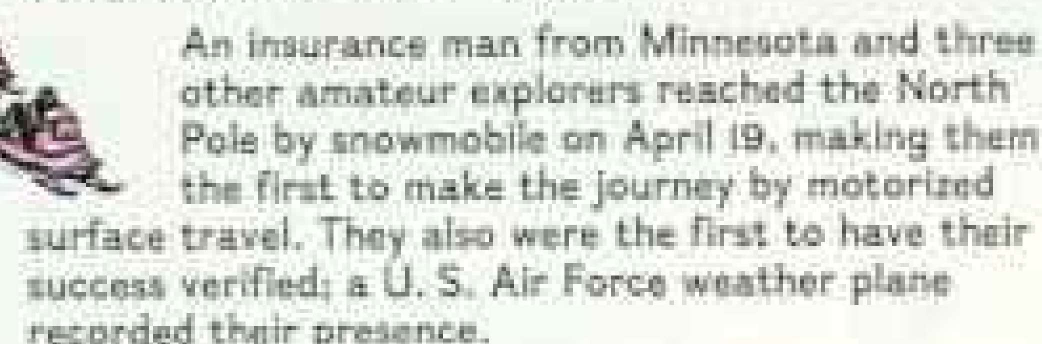
What appeared to the Eskimos to be a giant whale floating in the sky was instead the dirigible *Norge*, which on May 12, three days after Byrd's flight, passed over the Pole on its 70-hour trip from Spitsbergen to Alaska. Italian officer Umberto Nobile designed and piloted the airship; the expedition was led by Norwegian explorer Roald Amundsen.

NAUTILUS 1958, *SKATE* 1959



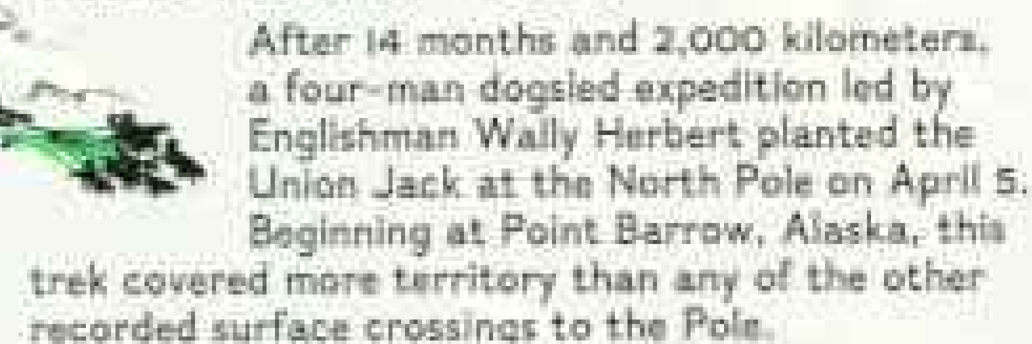
Pioneering a route across the top of the world, the U.S.S. *Nautilus*, the world's first nuclear submarine, passed under the North Pole in August on its historic four-day voyage under the ice from Alaska to Greenland. Seven months later the *Skate*, its course classified, became the first submarine to break through the ice and surface at the Pole.

RALPH PLAISTED 1968



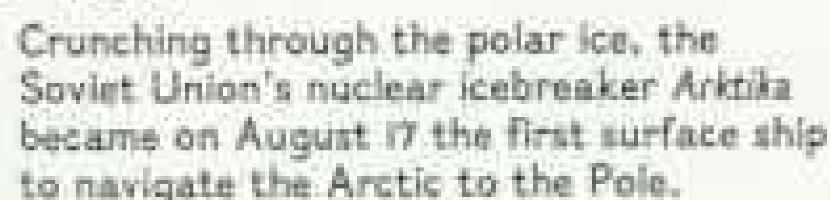
An insurance man from Minnesota and three other amateur explorers reached the North Pole by snowmobile on April 19, making them the first to make the journey by motorized surface travel. They also were the first to have their success verified; a U. S. Air Force weather plane recorded their presence.

WALLY HERBERT 1969



After 14 months and 2,000 kilometers, a four-man dogsled expedition led by Englishman Wally Herbert planted the Union Jack at the North Pole on April 5. Beginning at Point Barrow, Alaska, this trek covered more territory than any of the other recorded surface crossings to the Pole.

ARKTIKA 1977



Crunching through the polar ice, the Soviet Union's nuclear icebreaker *Arktika* became on August 17 the first surface ship to navigate the Arctic to the Pole.

First solo assault

ICY WILDERNESS awaited Naomi Uemura on March 6, 1978, when in minus 45°C weather he pushed off from Cape Columbia and headed toward the Pole—the goal of adventurers ever since European explorers in the 1500's sought a northern passage to China. For the next eight weeks Uemura struggled across 800 kilometers of the icebound Arctic Ocean, its surface, according to Robert E. Peary, one of "unimaginable unevenness and roughness." Massive ice floes are constantly moving, grinding, and crashing like continental plates, throwing up jagged

on the Pole

ridges of ice and cracking apart to create treacherous lanes of open water. On April 29, after repeated hardships and several close calls on his life, Uemura arrived at the top of the world.

I left by dogsled from Canada's Cape Columbia on the Arctic Ocean in an attempt to be the first person to reach the North Pole alone (map, preceding pages). Although several expeditions have succeeded before me, none was a solo effort. To achieve my goal, I have arranged for resupply flights along the 766-kilometer route to the Pole by ski-equipped aircraft from the Canadian settlement of Resolute.

Now, with almost the entire distance still to go, I am thankful to be alive. Surveying the wreckage of the camp, I spy my dogs in the distance. My anger fades over their behavior, for it stemmed not from fear but from excitement. In the frenzy of the bear's attack they had broken loose and then chased after a female dog that was in season. Such mischief is to cost me dearly later on.

March 10: After radioing base camp for another tent and fresh supplies, I settle back to wait for the intruder, certain he will return for another meal. I am concerned about the rifle, for at minus 40° Celsius it can freeze up or hang fire at the critical moment.

As a precaution I soak the firing mechanism in kerosene to ensure instant action. Nearly 24 hours after the first attack the bear emerges once more from the towering ice range alongside the camp.

At the first yip from the dogs, now tightly secured, I station myself beside the sled and train my telescopic sight on the bear. He comes toward me, dignified, massive through the eyepiece. At a range of fifty meters I squeeze the trigger; the bear stands upright. Then with a groan he is down, dragging his great body back toward the safety of the ice hills. Several more shots for good measure, and it is over.

Within hours the supply flight is overhead, dropping a new tent, dog food, and

ALL BY IRA BLOCK

other replacements. Once again the sled is fully loaded. It weighs more than 450 kilograms (1,000 pounds) overall, a heavy burden for 17 dogs in only fair condition. At the Eskimo village of Qânâq, near Thule, in Greenland, where I had purchased the dogs, I was forced to take what was available. To get a particular dog, I frequently had to accept a poor one in the bargain. The results are already obvious.

ON MARCH 11 we resume the battle with our timeless foe, the Arctic Ocean. It is a terrible region, seemingly without a flat surface. As the dogs and I strain to advance the sled through an endless maze of jagged ice boulders, I feel surrounded by giant thorns (following pages). Often I must hack a passage through solid ice with an iron bar so that the dogs can scramble through. *(Continued on page 309)*

Alert to danger, Uemura sits amid newly delivered supplies and cleans his rifle (**left**), ready should a polar bear attack. Two weeks earlier Uemura had been awakened by the dogs' barking, a noise that faded to leave only the sound of heavy footsteps and loud breathing. A polar bear was raiding the camp. The marauder devoured the dog food and shredded the tent as Uemura lay helpless inside his sleeping bag, his high-powered rifle unloaded near him. The young bear nudged the bag with his nose and then decided to leave. When the bear returned the next day, Uemura was ready, shooting the animal at a distance of fifty meters. In accordance with Canadian laws, Uemura reported the kill to wildlife officer Bernard P. Bergman (**top**) and later handed over the jawbone for age identification (**above**).

The polar dash slowed to a crawl whenever ice ridges stood in the way. Coming upon a barricade sometimes reaching nine meters in height, Uemura would be forced to hack open a path with an iron rod and then by hand maneuver the 450-kilogram (1,000-pound) loaded

NAOMI UEMURA

sled across the trail. So numerous were the ridges near land, and so time consuming and fatiguing the efforts to cross them, that the expedition soon fell two weeks behind schedule. Before long, flat ice became for Uemura the most glorious sight in the Arctic.

The day will soon come when one passage—an advance of several meters—requires 20 to 30 hours' work.

On this day we struggle for eight hours and cover only two kilometers, a distance I can walk in half an hour. It is a relief at last to stop and pitch the tent. How far can we move tomorrow?

MARCH 12: The Pole is still far, far ahead. Wind and cold punish us severely. With the thermometer still at minus 38°C and with the wind in my face, I develop frostbite on my nose and chin. The dogs fare little better. When their paws are cut by ice or injured in a fight over food or a female, pain forces the animals to sleep with legs outstretched rather than folded under them. The result is exposure and frostbite.

Two dogs suffer so badly that I release them from the traces and let them walk beside the sled. Now there are 15 left to pull, and our progress slows accordingly.

At this time of year the sun shines in a low arc along the horizon for about nine and a half hours a day. Within three weeks or so there will be continuous light, improving visibility but not the temperature.

Always, under way, I must scout the route ahead, climbing the endless blocks of ice to find the best possible path ahead. Invariably the choice is discouraging.

The great pressure ridges of ice remind me of the stone fences built by Sherpa tribesmen along the slopes of the Himalayas, where I have climbed. The fences were works of art; the ridges are nightmares.

March 16 brings a new problem, one we will face increasingly with the approach of spring. In a stretch of flat ice we encounter a lead of open water some fifty meters wide, blocking our route. There is nothing to do but wait till the lead closes in a day or so. At last the gap narrows to a meter and a half, and I drive the dogs across. They are sluggish, and five get a soaking; their wet skins freeze in a second. After ten minutes of exertion, however, they are warm again.

By March 26 we are doing better, twenty kilometers on this one day. In soft snow the dogs run as if they are swimming, forepaws outstretched and heads lifted high. Although I feed them full rations—more than a pound each of pemmican and dog food daily—they are always hungry. Unless I watch them carefully, they devour in an instant their rawhide traces, the sealskin whip, even my gloves. The female dog in season causes further problems along the way. Fights and attempts to mate with her never cease, and I am constantly forced to separate the animals.

The pressure to keep moving is constant, and I sleep only five or six hours a night. At the end of a day's chopping and struggling against the ice, my legs are staggering and I feel as if my body does not belong to me. Sometimes I fall asleep as soon as I enter the tent. Tonight when I. . . .

THIS MORNING I have forgotten what I intended to write, and in any case April 1 is a special day. The supply plane has managed to land on a stretch of flat ice that I have located and marked among the ridges. At my request the plane has brought a smaller and lighter sled, plus two fresh dogs to replace the injured ones, and supplies for the next two weeks: pemmican and commercial dog food, frozen seal meat, kerosene, tools for sled repair, a new camera, and a pair of gloves.

In addition there is food for myself—frozen caribou meat, along with biscuits, sugar, whale oil, salt, coffee, and jam. Back aboard the plane go my old sled and the two invalid dogs. With a roar the plane lifts off, and I am alone once more.

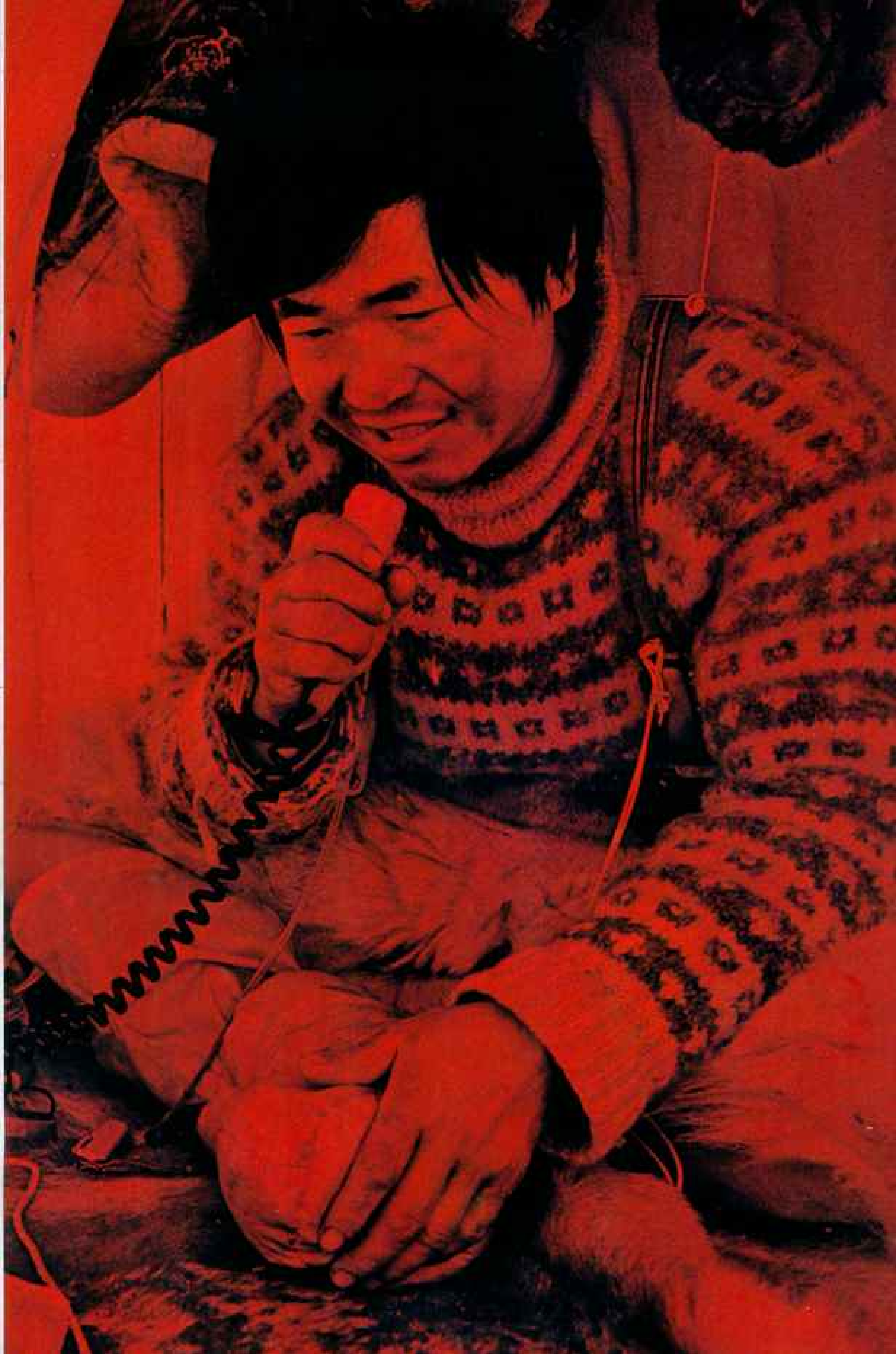
I am grateful for the supplies, especially the caribou meat. I eat as the dogs do—once a day at the end of travel, and always uncooked meat. Caribou is both nourishing and delicious in raw form, and I have little time for cooking. Moreover, if I boil meat inside the tent, the vapor crystallizes on the tent wall and creates a continual ice storm.

An oasis of tracks on a desolate and rumpled Arctic plain marks the perimeters of Uemura's campsite following an airlift of supplies. A marker at top indicates the start of an improvised runway. In all, Uemura received five airlifts, which furnished him regularly with food and kerosene and replaced dogs injured by frostbite or too weary to carry on.

IRA BLOCK

Help from above arrives when a supply plane drops a tent and dog food to replace goods ruined in the polar-bear attack. Meanwhile, the mountains still visible on Canada's Ellesmere Island remind Uemura of the long way he must go. Inside the red-walled tent (**below**) Uemura melts snow for drinking water to go with a meal of caribou meat topped with whale fat. Afterward he puts in his daily radio call (**right**) to base camp to discuss his progress, to talk about ice conditions, and perhaps just to hear somebody else's voice.

ALL BY NAOMI UEMURA



April 4 brings promise of an unexpected addition to the party: One of the female dogs, Shiro, has become noticeably pregnant. She is sure to give birth within a week, and what am I to do when that happens? I have never helped deliver puppies. In the Arctic one must learn to improvise.

April 5, and the cold continues. My morning sighting with the sextant is hampered by a strong northeast wind that attacks my hands like bee stings. My fingers grow numb and lose sensation, as if they were not my own. I slip my hands inside the polar-bear fur of my trousers, and the sting returns for a time, then finally disappears.

With great care I work out my position: 85° 19′ 2″ N., 69° 25′ 2″ W. I am 246 air kilometers from Cape Columbia, and more than twice that—520 kilometers—from the Pole. Grimly I set off northward again.

BY NOW I have crossed enough ice hills to disgust me. If I had companions, like the Nihon University team from Tokyo that is heading separately for the Pole, I could share the everlasting jobs of

BOTH BY NAOMI UEMURA

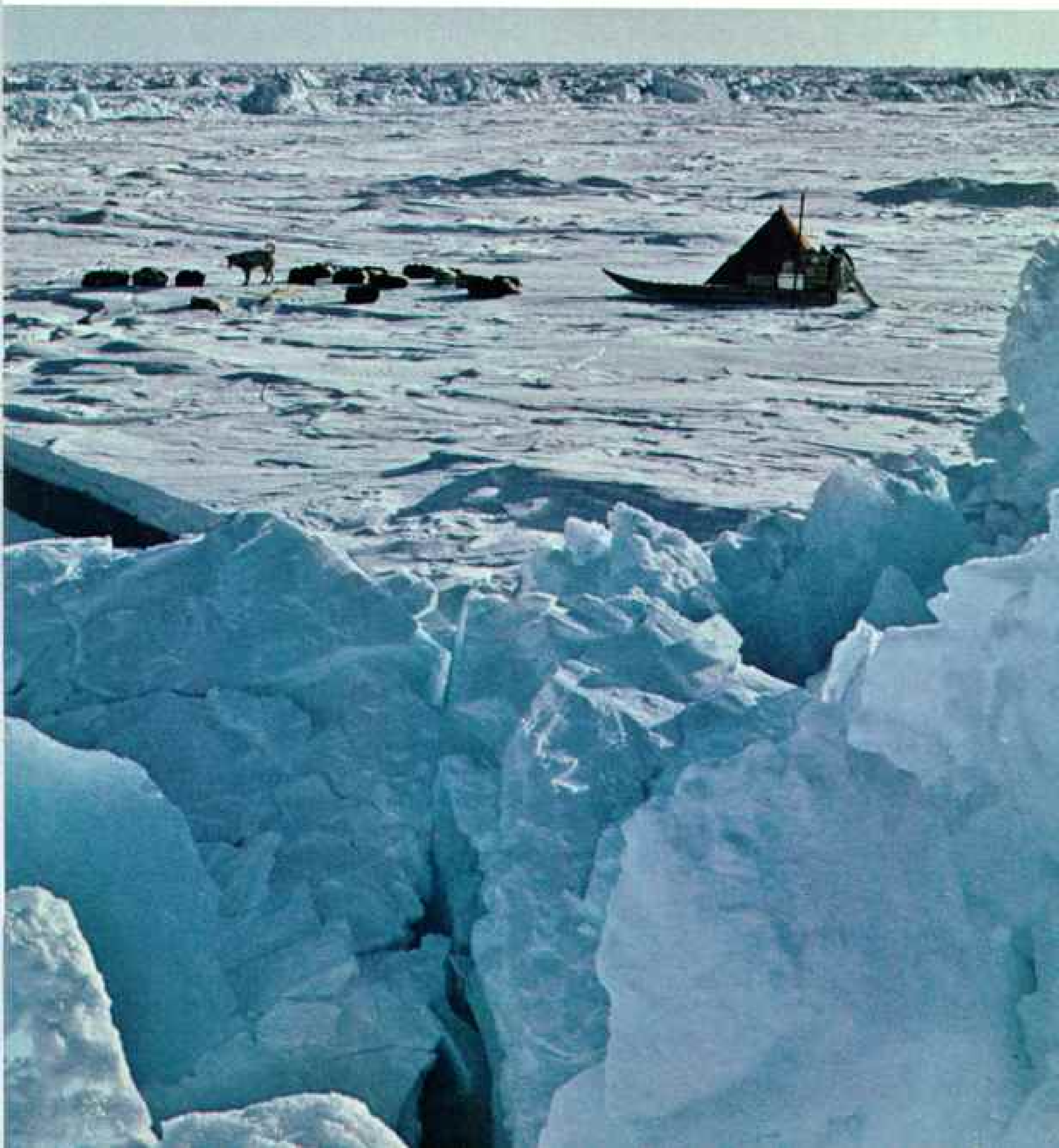
A prod here, a prod there, tells Uemura whether newly frozen ice is firm enough to hold his sled. North of the 86th parallel he encountered constant difficulty with the crack-up of ice, which at one campsite (**right**) left him stranded for several hours at the edge of a dangerous expanse of ice-filled water. Most times Uemura would wait for the surface to freeze, but on occasion the explorer used moving ice blocks to ferry dogs and sled across the dark water.

hacking a way through the ice and helping the dogs haul the sled. But how can I complain? I have chosen to go alone of my own free will. That is the challenge, and I must meet it.

During times of monotony the dogs are a diversion. No two have the same nature. There is the dog that always pulls to the right side, another that pulls dead center, and still another that pulls to the left. There is the dog that cries "Yap!" even when the whip does not touch it, and another that never cries, no matter how much it is whipped. Then there is the dog that begins pulling with all its might if I so much as raise my whip hand. And finally there is the dog that casts a sidelong glance at me while running, as if to say, "Can't you see I'm doing my best?"

Now at last Shiro decides to have her pups. On the night of April 9 she begins to deliver, one pair outside the tent. These are eaten by the other dogs before I am able to reach them.

Then, inside the tent, comes another batch, four this time, one dead, and the remaining three make their first cry of "Mew!



Mew!" These I bed down in an old, warm caribou skin.

After a sleepless night as midwife, I bundle Shiro and her three offspring aboard the sled. The extra weight slows us down, but I hope that the puppies will live to fly out safely on the next supply flight. Then on the night of April 11 come three more puppies, one dead, and the number of survivors stands at five. Later, one dies of exposure.

ON APRIL 12 I make a costly mistake. Shortly after the morning start we encounter a lead about five meters wide, running northwest by west across the route. Leaving the dogs with the sled, I search along the edge of the lead until I find a narrow point where we can cross. Returning to the dogs, I pause to take a few pictures of some unusually large ice blocks beside the lead. When at length I return to the narrow section, it is no longer there—the gap has almost doubled in width!

Regret. Resentment. Unkind thoughts concerning photographs. Now I must either wait for the lead to close, which may take a day or two, or detour to the west in search of passable ice. Impatiently I choose the latter, and we set off westward.

Half an hour later we reach a section of the lead some five meters wide, with thick slabs of ice floating in it. We cross over by way of the slabs, only to find an even bigger lead beyond, this one at least ten meters wide.

"If the ice continues like this," I reflect, "we will never reach the Pole."

Once again floating ice slabs provide the solution. At the narrowest point of the lead, some eight meters in width, there are a few slabs in the water. It occurs to me that I can improve matters by cutting slabs from the edge of the lead a few meters away and adding them to the existing ones to strengthen our "pontoon" bridge.

It takes two hours, but finally we are ready. Examining the slabs, I realize that the dogs must maintain speed at all cost. There can be no letdown when they reach the far side of the lead, for they must still pull the sled across the last remaining slabs.

They succeed, but only barely. With a shout I set them off, pushing the sled from behind across one slab and then the next. At the last slab, when the dogs have already made it across, they suddenly stop pulling.

The slab tilts dangerously and the rear runners begin to slide underwater. Leaping forward, I hit the slackened traces with my whip handle and scream at the dogs, "Go! Go!" With a final effort they lunge forward, and the sled crunches at last onto solid ice.

Once before in the Arctic, while driving a team along the Greenland coast, I lost both dogs and sled momentarily through the ice. I came close to following them and surely would have perished in the freezing water.

Such experiences do not strengthen one's courage; on the contrary, they shake one's confidence. During that moment on the tilting slab I recalled the Greenland accident, and the memory increased my fear of the freezing water. Once we come to know fear, the more quickly it seizes us, and the longer it takes to gather up our courage.

I AM PAST the halfway point. On April 13 I take a noon sighting and plot my position—406 air kilometers from Cape Columbia, 360 to the Pole. Though my route is hardly so direct, the figures are heartening. Yet I am still behind schedule. I had hoped to reach the 87th parallel by tomorrow's supply flight, but I am 27 kilometers south of the line.

Next day the plane manages to land with fresh supplies and half a new dog team. Nine animals jump off the plane and 16 go aboard, including Shiro and four surviving puppies (page 318). I am relieved to see the others go, for they never displayed much spirit. Still, they helped pull the sled more than 400 grueling kilometers from Cape Columbia, and for that I owe them thanks.

Alone once more, I ponder the route ahead. With 360 kilometers still to go, I can reach the Pole in ten days if ice and weather permit. Despite past difficulties I feel strangely sure of success, yet the success is not mine alone. Credit goes to those who believed in me, who advised and supported me. In Japan I received many donations from people I do not even know. It is for all these that I must reach the goal.

The next morning, April 15, I am less optimistic. A blinding snowstorm with high north-northeast winds pins me down all day and the next. Visibility is near zero, and it is dangerous to move; the dogs do not budge.

They lie curled up in the lee of the tent, heads downwind, the driving snow turning them into shapeless white mounds.

By noon on the 17th the weather improves slightly, and I can wait no longer. But the snow is a cunning enemy. It covers the terrain ahead, camouflaging both the old solid ice and the newly formed sections that are dangerously thin. Several times the dogs break through, and more than once I go in up to my knees.

SOON A NEW DANGER presents itself: Vast areas of ice are on the move. As I call a brief halt, I notice an ice peak fifty meters to the north, moving majestically in a southeast direction. The world around me seems to move like a revolving stage in a giant clockwise manner. Movement creates cracks in the floes, and in the evening I pitch camp in such a way that if the ice begins to break up near me I will be ready to escape quickly.

April 18, and the ice is still shifting. If the direction is southeastward, it is working against me; when I camp, I am actually losing ground. The noises of breaking ice, greatly magnified, remind me of a carpenter working in a basement, or of a stonemason cutting stone. Lesser sounds resemble glass shattering somewhere in the distance. None of them is pleasing.

For the first time I am literally afloat on the Arctic Ocean, traveling across huge sections of disconnected, grinding ice. Inevitably the sections grow smaller.

On the evening of this day I find myself on such a section, a flat island of ice measuring 200 or 300 meters across. Choosing what seems to be a solid area for a campsite, I tie down the dogs and pitch the tent. No sooner have I done so than a massive crack appears less than twenty meters from the tent, instantly reducing our island to a third of its former size.

Clearly we cannot remain while our island dwindles to nothing beneath us. I look for an escape route to a larger island. An ice floe seven meters high floats past me. As I watch, it capsizes and thunders into the water, popping its massive head to the surface a moment later.

In the midst of such an icequake, what am I to do? I consider radioing base camp to report my situation, but the camp is more than four hundred kilometers away. By the time help arrives, I will be a block of ice myself, floating in the dark ocean.

Most of the dogs are new, and my heart has not yet reached theirs. Still, I must try to make them save themselves, together with the sled and me. While I consider the possibilities, another crack opens up even closer than the last one, and our island suddenly becomes an islet. There is no more time for reflection.

An eddy of current catches our bit of ice and jams it against another block leading to what appears to be solid ice. It is our only chance. Grabbing an iron chopping bar, I lift it above my head and bring it down as I had done once before with my whip handle on the traces between the dogs and the sled. "Go! Now! Go!" I shout with all my voice, and in a single spurt the dogs pull the sled to the adjoining ice block.

Good. Once more and we are safe. I bring the bar down again on the traces, and the dogs strain with all their might. Seconds later we are on firm ice again.

MY NARROW ESCAPE convinces me that I have been too impatient. Traveling alone in the Arctic requires careful planning at all times, and too often I have jumped ahead without thinking. Competition with the Nihon University group has sometimes clouded my judgment; it is the Arctic I must challenge, not my countrymen.

So now I try patience, waiting hopefully for the ice sections to freeze together in a single mass. The temperature stands at minus 20°C, and freeze-up occurs very slowly. Almost every hour I test the newly forming ice with my iron bar to see if it will hold the sled. Not until the morning of April 21 do I decide it is safe to travel again.

My patience is quickly rewarded: On this memorable day the dogs and I cover forty kilometers. April 22 adds another sixty kilometers, one of the best runs during the entire expedition; we are closing fast on our goal. By my calculations we are only 233 kilometers from the Pole—five days' travel under good conditions.

My own figures are borne out by a tracking system arranged for me by the U. S.

Smithsonian Institution in cooperation with the National Aeronautics and Space Administration. A small battery-powered transmitter on my sled sends an automatic signal to the American satellite Nimbus 6 traveling in a circular orbit over both Poles. The resulting fix is transmitted to my base camp at the edge of the Arctic Ocean and relayed to me by radio.

APRIL 23 slows me down with heavy clouds that reduce visibility and prevent me from gauging the roughness of the ice. A great jumble of ice boulders presents another obstacle, and we advance only twenty kilometers.

Over such terrain the dogs quickly become exhausted. At my order of "Yah!" to commence pulling, each dog simply lies in harness and gazes around at its teammates as if the order were meant solely for them. Moreover, in rough going the dogs abandon the Greenland fan formation and bunch together in single file, snarling the traces and forcing me to halt and untangle them.

On April 24 the ice begins to open again, and I must detour in search of passable leads. At one point I come upon an expanse of dark open water, curving through the pale ice like the graceful sweep of a Japanese calligrapher's brush across rice paper.

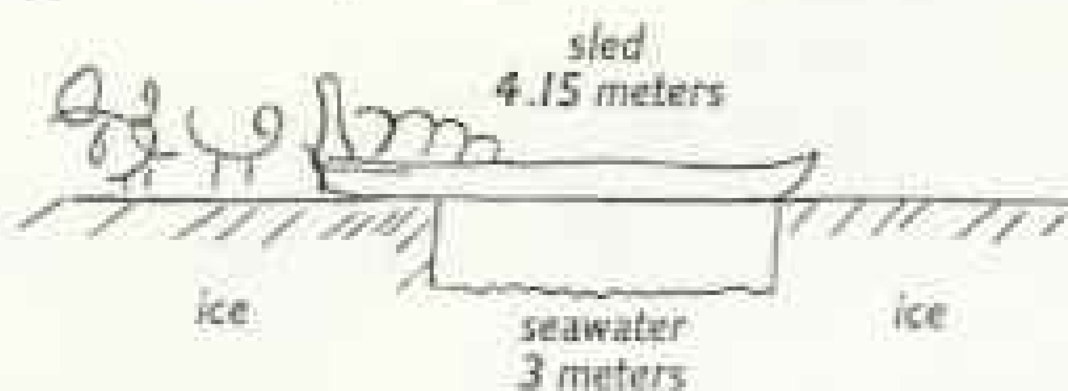
And still we push ahead, sometimes crossing wider leads by the familiar pontoon technique, utilizing floating ice slabs. On one occasion when there is no floating ice, I decide to make a bridge of the sled itself, unloading it and sliding it out over the water until both ends rest firmly on the edges of the lead.

The dogs are skeptical of my handiwork, but they allow themselves to be led one by one across the makeshift span. When they are all on the far side, I harness them once more, and with a single pull the bridge becomes a sled again.

I am pleased with my small success, and

Howl of wind, creak of ice, whimper of dogs—the sounds only deepen

at day's end in camp I sketch a small diagram of the operation:



Despite my resolve I am disappointed to learn by radio that the Nihon University team is closer to the Pole than I am and will almost certainly arrive first. No matter, I have set myself the goal of being the very first to make it alone, and I am determined to do so.

BY APRIL 25, the day I had hoped to reach the Pole, we are still 128 kilometers short of it. Once more the day's progress is disappointing; hampered by ice boulders, we advance only about twenty kilometers. One of the dogs has injured his foreleg badly. Though I need all the pulling power and speed possible, I cannot see him suffer. I exchange his harness for a seat on the sled.

Not long afterward the weather makes up for the loss. The wind turns brisk and swings round to the south, favoring me with a following breeze. I calculate the effect as that of two additional dogs, so we are ahead by a total of one!

On April 26 the final supply flight drops enough food for several more days, and I vow I will need no more. Cheered by the thought, I drive the dogs hard the following day, and we make excellent progress. Only 75 kilometers remain to the Pole.

They prove to be difficult ones. As we near the top of the world, the ice boulders seem to grow more numerous, and I am forced to push the dogs to the very limit of their endurance.

The sled shows equal signs of strain: a cracked front runner caused by sudden

the spell of solitude as Uemura pauses amid an empty, white sea.

NAOMI UEMURA

impact with an ice block, and a broken rear handle board suffered when the sled turns completely over. The board does not trouble me, but the runner is a serious matter: If my temporary repairs fail, we will be immobilized for days.

The Nihon University team has already reached the Pole and will soon be airlifted out. It is useless to dwell on the mishaps that delayed me and perhaps prevented me from arriving first. I have done my best in my own way, as I am sure they have done in theirs. To resent their success would be unworthy. Instead, I feel gratitude for having come safely so far. May the rest go as safely.

APRIL 28: Will this be the final day? Perhaps, if there is flat ice beyond the ridges and boulders. Somehow I feel the North Pole should be covered with totally flat ice, though present conditions do not suggest it.

For more than a week now the sun has shone 24 hours a day, so that I both travel and sleep in the midst of light. One grows used to the sensation and allows the body to become its own clock: When exhaustion takes over, it is time to stop; a few hours' rest restores the urge to move. Chronometers are strictly for finding longitude.

This morning after an hour's travel the ice boulders seem to thin out, and patches of flat ice appear as welcome oases. Although the ice seems solid, I know that it is constantly moving, as much as three kilometers a day. I cannot tell whether it is carrying me toward the Pole or away from it, but if I make reasonable speed, it will not matter.

The temperature has risen to minus 18°C, and where I must still hack a passage through ice for the dogs the sweat pours from me as if I were in a *furo*, a Japanese bath.

Thanks to fewer supplies the sled is considerably lighter, perhaps down to 200 or 300 kilograms. The advantage is offset by rising fatigue in the dogs, though they do the best they can for me.

Once again we encounter leads, which crosshatch the level surface of the ice like some giant fisherman's net laid out to dry. Most of the leads are narrow enough for the dogs to jump across, but still they cost us time. Though we travel steadily for almost 14 hours, it is not enough: Tomorrow must be the day.

Wearily I unhitch the dogs and raise the tent—surely for the last time? I regard my sleeping bag and realize I cannot get into it; my excitement is too great for sleep. With the tent walls aglow from the midnight sun, I wait out the needed hours of rest. Each time I feel the impulse to be up and traveling despite the costs, I repeat the old saying, "Make haste slowly." And slowly the polar night slips by.

SUMMER MORNING in the Arctic is a matter of personal choice; there is no dividing line with night. I am up early and stirring, while the dogs flatly ignore the arrival of another "day." Since it is our final morning, I decide to film the camp and the team, and I try to rouse the dogs from sleep. They do not share my enthusiasm for the historic moment, and the result is a motion-picture still life.

On the trail things are different; the dogs put forth a tremendous effort. Once under way I feel a sense of well-being. We are certain to reach the Pole today, the first solo attempt in history to succeed. Running behind the sled, I can only be grateful to the dogs for their contribution to final victory.

Despite its importance the day proves almost uneventful, with the normal quota of minor crises and perhaps a dozen leads to cross. Only at the widest lead do I experience a moment's real fear. After cutting several ice slabs to bridge the three-meter gap, I start the dogs across.

As they have done once before, they balk on the far side of the lead and the sled teeters on the edge. I have a sudden vision of the sled and gear vanishing into the Arctic Ocean along with all my hopes. But a sharp command to the *(Continued on page 324)*

Newcomers to the Arctic, a pair of four-day-old huskies, their eyes still closed, are placed in a box before being flown with their mother back to base camp in Alert. Out of a litter of nine, only four pups lived, the rest stillborn, eaten by male dogs, or lost to the cold. In a month the survivors will be hardy enough to withstand a polar night.

IRA BLOCK

The Pole at last! Arriving on a stretch of ice that looked like a hundred others he had seen during the past 55 days, driving a battered sled and commanding weary dogs, Uemura stopped at what he believed to be the top of the world. For hours he circled

IRA BLOCK

the area, taking one sextant reading after another to confirm his position. His support team, landing a day later, verified with the plane's instruments that Uemura was indeed standing at the North Pole. History had been made.

Ninety North: All directions point south from Uemura's triumphal campsite at the North Pole, shown here (**above**) in a panorama of pictures. From this exceptional vantage point, the sun can be seen circling the horizon, not setting for six months, and then giving way to six months of twilight and night. The Pole itself has no length or width or breadth. It is a mathematical point where the imaginary line of the earth's axis intersects the earth's surface. Since no plaques or markers exist here on this desert of moving ice, Uemura relied on celestial navigation with his sextant (**right**) to determine the location of the Pole.

On this day, as on all the days of his journey, his position was monitored by satellite. A transmitter attached to his sled beamed regular radio signals to Nimbus 6, a United States meteorological research satellite, passing over the Pole every 108 minutes. Data collected from the signals were relayed by a tracking station in Alaska to the Goddard Space Flight Center in Maryland, where latitude and longitude, as well as temperature and atmospheric pressure, were computed automatically.

Although the expedition was founded on adventure, Uemura took sporadic snow, ice, and air samples for scientific study.

Once he was sure he had attained the Pole and before the journalists arrived to break the solitude and take pictures, Uemura indulged in a private celebration. As the Arctic wind whistled, the adventurer photographed himself (**below**) stringing up the flags of the nations where he had found support for his quest: Canada, Denmark (which has jurisdiction over Greenland), the United States, and Japan.

IRA BLOCK (CENTER); NAOMI UEMURA

Victory hugs go to the dogs at the polar camp (**below**). To arriving journalists, Uemura extends a jubilant salute (**facing page**). After three days at the Pole, Uemura was flown to northern Greenland, where he began an attempt to traverse the world's largest island—perhaps an even more arduous trek. Why undertake such dangerous journeys? The answer probably begins with curiosity. To seek the unknown is an impulse forever human.

BOTH BY IRA BLOCK

(Continued from page 319) dogs stirs them to action, and we pass still another hurdle.

It proves to be the last. After nearly 12 hours' travel I estimate that I have reached the Pole. On April 29 at 6:30 p.m. Greenwich time—the only time zone practicable at the Pole—I halt the sled and take a sighting. It is so close that if there were actually a North Pole, I believe it would be in view.

Yet I am aware that navigational error has plagued other polar explorers, and one sighting is hardly enough. I decide to take a full day's worth of readings to make sure I am at the exact top of the world.

Every few hours thereafter, and well into the next day, I take more sightings. Though they vary slightly, owing to the angle of the sun, all of them indicate that I have indeed reached the Pole.

Because of atmospheric interference I cannot contact my base camp to check the data from Nimbus 6, but several days later I learn that the satellite has confirmed my sightings: For the first time man has reached the North Pole alone.

AS I AWAIT THE AIRLIFT back to base camp on the Arctic Ocean coast, I review the past 55 days. They have been grueling ones, to be sure, including the attack by the polar bear, the endless ordeal of hacking a way through barrier ice centimeter by centimeter, and narrow escapes from icy death in the sea.

Truthfully, there were many times when I thought I would fail. What drove me to continue then was the thought of countless people who had helped and supported me, and the knowledge that I could never face them if I gave up. Of course the polar bear nearly saw to that. If he had succeeded, I would have been spared all excuses!

Above all, I think of my wife, Kimiko, in Japan, and the thought brings both longing and regret. Because of such expeditions as this, I have never given her a normal married life. Instead, I have left her at home with her constant fears for my safety and have done exactly what I wished to do.

Perhaps she and all those whose thoughts and blessings traveled with me over the long days will take pride in an expedition that would surely have failed without them.

If so, what a happy person I am! □

Amid the ruins of ancient empires a young nation tests a new stability

Syria

AUTUMN in Syria. The borders, as always, are troubled. To the east, the frontier with Iraq is sealed; in Lebanon, turmoil; on the Golan Heights, an occupying Israeli army.

With two Syrian officers in an army Land-Rover, I course the sunny plain from Damascus to the foothills of storm-shrouded Mount Hermon. Then we lurch up a twisting dirt track that all but defeats the vehicle's four-wheel drive. As we ascend, the temperature drops; gusts of icy rain lash the windshield. Higher, fog closes in like dense smoke; snow stings us in squally flurries. At 7,300 feet we halt by a concrete bunker—now seen, now erased by the fog. The wind buffets our ears like some chaotic concerto. Two sentries in lumpy overcoats pull themselves to attention and present arms.

This is one of Syria's most sensitive outposts. A few hundred yards over the crest of the mountain lies a similar Israeli installation. Inside, the bunker is a claustrophobia of dim concrete walls. Wooden planks and sheets of plastic seal the sole fire port against the cold. A pressure lamp on a table flares with harsh, white light; a kerosene stove emits a sparse halo of warmth. I crowd near it, sipping a glass of hot, sweet tea. With me are Lt. Col. Muhammad Halal, who commands the sector, and Lt. Ali Diab, who commands the bunker.

Lieutenant Diab shrugs: "Life here is routine. From time to time there's an aerial sortie, but otherwise little enemy activity. We watch by day, we patrol during the night."

When the British withdrew from neighboring Palestine in 1948, Syria—along with other Arab nations—took up arms against the fledgling State of Israel. It has been a continuing war, with major hostilities in 1967 and again in 1973.

Colonel Halal, who commanded a battalion, reminisces about October 1973: "The Syrian infantry achieved 75 percent of its initial objectives; for once, the Arabs achieved surprise. But a flood of American equipment replenished the Israelis. All flown in, even tanks. The tide turned. But, by God, we fought all the way."

A long silence. The lamp throws distorted shadows on the walls. "What about now?" I ask. "Do you expect an attack?"

The colonel smiles thinly and fingers his pistol. "I'm paid to expect an attack."

Autumn, any autumn, in Syria.

Land Suffers History of Conquest

The Syrian Arab Republic was born in 1946 in an ancient land swept for more than four thousand years by waves of conquerors—Akkadians, Assyrians, Babylonians, Persians, Greeks, Romans, Byzantines, Crusaders, Turks, and Frenchmen. And for 30 of its 32 years of existence as a nation Syria has been at war—a fact, I learned, that colors virtually every aspect of Syrian life.

"This country," a young Syrian told me, "could be a paradise. But since before I was born, more than half of our national budget has gone for defense. As a result, we can develop very little. Our natural resources remain almost untapped."

Nonetheless, the nation that many regard

By HOWARD LA FAY

Photographs by
JAMES L. STANFIELD
BOTH NATIONAL GEOGRAPHIC STAFF

as the "Great Syrian Desert" offers endless surprises. Superb beaches line the Mediterranean; eternal snows crown Al Jabal ash Sharqi along the Lebanese frontier; magnificent cherries and apples grow in the uplands surrounding Idlib; a new dam on the Euphrates is beginning to irrigate one and a half million acres of farmland.

And, boasts the contemporary writer Gabriel Saadé, "In Syria one can literally learn the history of the world! All the gods have lived in our skies and all the great civilizations of the Mediterranean basin have flourished on our soil."

Modern Syria, however, presents a chronicle of chaos. In its first 24 years the nation saw 23 changes of government—15 by military coups. With war a continuing fact of life—men are conscripted for two and a half years—the army grew ever more powerful. Since 1949 most heads of state have been military officers.

A Syrian yearning for Arab unity produced, in 1958, a disastrous merger with Egypt into the United Arab Republic. But Syria soon felt that it was being treated as a colony by its powerful partner, five times as populous. After three years the Syrians withdrew, and the U.A.R. perished.

In 1963 Syria attempted another, equally unsuccessful alliance—this time with Egypt and Iraq. Thereafter, governments rose and fell, most with socialist goals. The nation plunged into economic torpor as well as a xenophobia that isolated it from much of the world except the U.S.S.R., which continues to provide arms and technological aid.

Then, in 1970, *(Continued on page 333)*

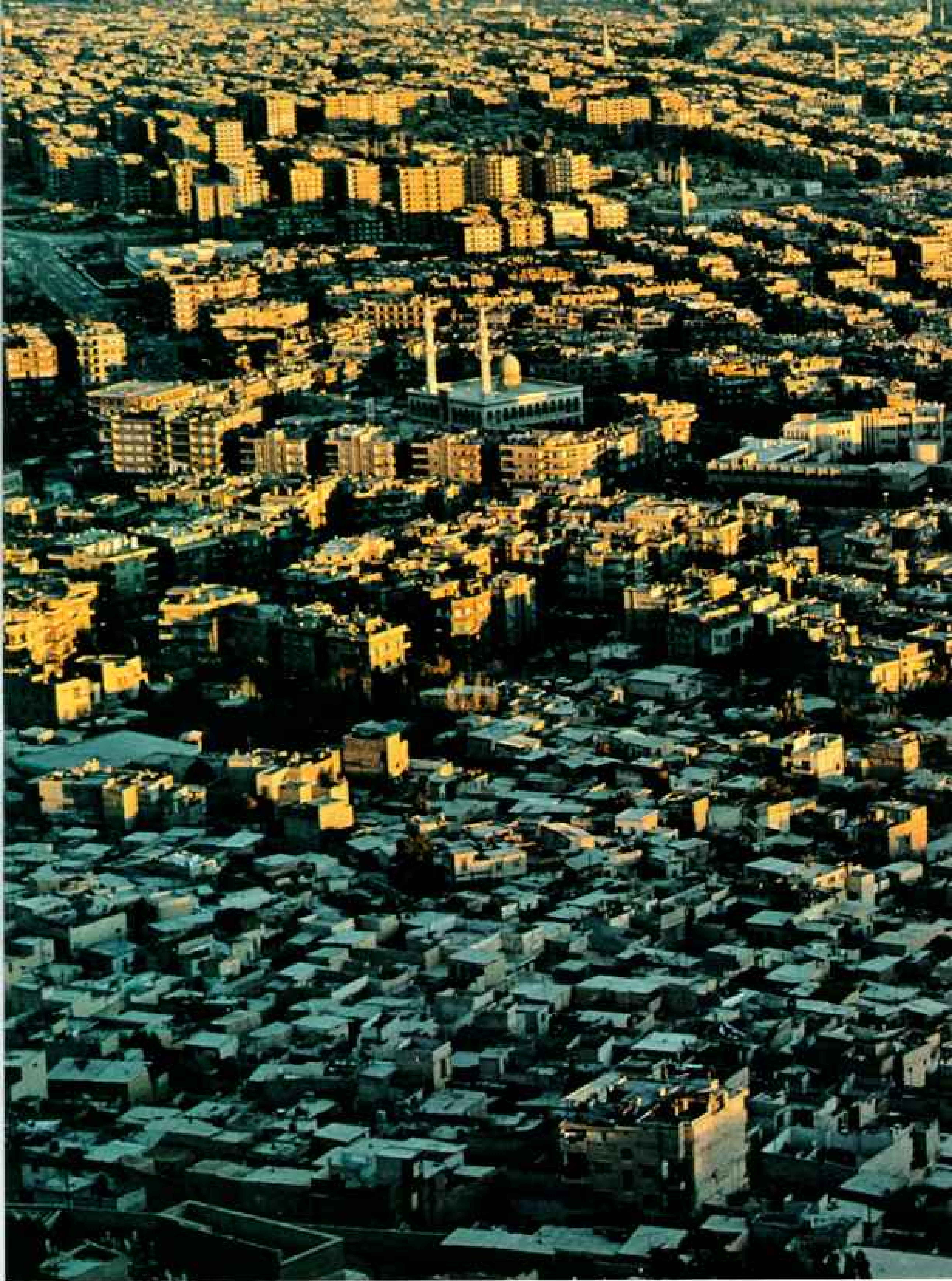
Pondering his nation's future, President Hafez al-Assad must consider its past. For 30 of its 32 years Syria has been racked by the Arab-Israeli conflict. And 15 military coups preceded Assad's ascendancy in 1970. Now the soldier-statesman seeks economic growth and political stability.

P

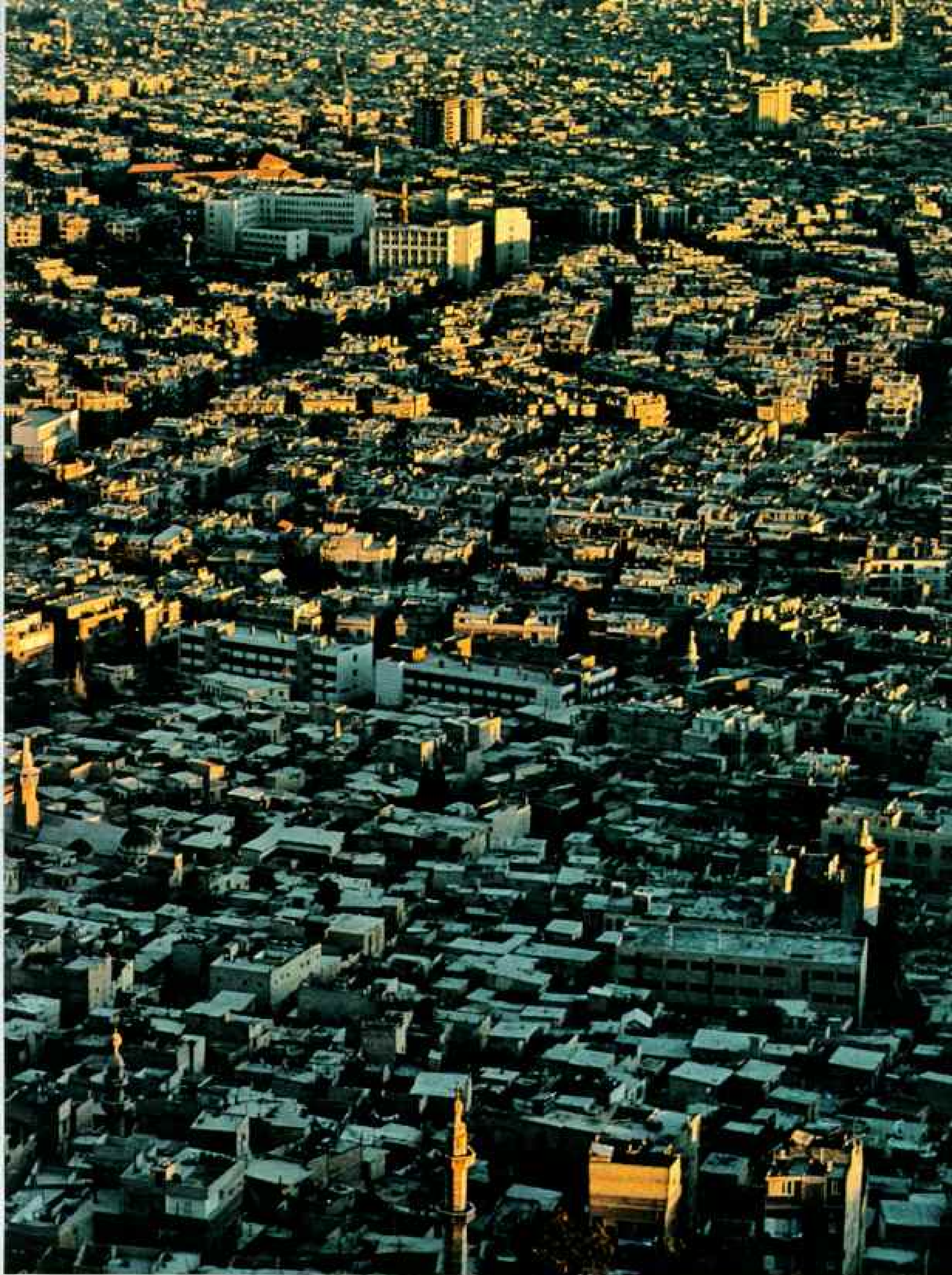
Holiday hubbub brings already crowded Damascus to a near standstill as children leave school for al-Adha, a feast held during the Muslim pilgrimage to Mecca. A vendor hawking sodas cooled on blocks of ice (**left**) vies with honking taxis and the recorded call to prayer from a dozen mosques.

Old Testament elders, followers of Christ, and Muslim caliphs who in the seventh and eighth centuries ruled an empire reaching from Gibraltar to China once walked Damascus streets. Now autos prevail, and for their convenience street improvements (**below**) proceed to the rat-a-tat of pneumatic drills.

Change is evident everywhere. Since 1974 aid from Arab oil states and the West has outstripped Soviet assistance; the resulting boom has fed rising expectations, especially among the 20 percent of the population that goes to school. Some 45,000 students—a fifth of them women—attend the University of Damascus (**above**). Until men complete their education, they are deferred from the obligatory two-and-a-half-year army stint.



Fabled Damascus sprang from an oasis in the desert that lured conquerors from the ancient Egyptians to the Turks of modern times. Now new housing multiplies



in this northeast section called Rukn ad-Din, or Pillar of Religion. At upper right shines the eighth-century Umayyad Mosque, one of Islam's holiest shrines.

Azaz
Dar Ta Izzah
Aleppo
Euphrates River
Balikh River
930
Lake Assad
Sabkhat al Jabbul
Kassab
Idlib
OIL PIPELINE
Khabur
Ar Raqqah
Fadghami
UGARIT
Latakia
EBLA (Tell Mardikh)
Al Thawra
Tibni
JABAL AN NUSAYRIYAH
Orontes River
Baniyas
867
Hamah
Tartus
KRAK DES CHEVALIERS
Euphrates
216
Homs
PALMYRA (Tadmor)
MARI
Sabkhat Muh
SYRIAN DESERT
Maalula
1401
Damascus
MT. HERMON
2,814
900
El Quneitra
Golan Heights (occupied by Israel)
Shahba
VOLCANIC DEBRIS
TALL AL MASIYAH
JABAL AD DURUZ
Salkhad

Elevations in meters (black) feet (red)

KILOMETERS 100
STATUTE MILES 100

sabkhat ..... marsh, salt lake
jabal ..... mountain(s), range
..... ruin

Syria

In climate the nation resembles southern California; in area, North Dakota. Its borders are a bitter legacy of European administrators who divided the League of Nations mandate into Lebanon and Syria, ceded Antioch to Turkey, and drew arbitrary boundaries, often splitting religious and ethnic groups such as the Druzes and Kurds. Most Syrians live in the west, the area of greatest rainfall, but with the opening of oil fields and irrigated desert acres, the government hopes more people will settle in the arid east.

AREA: 71,516 sq. mi. **POPULATION:** 8,700,000. **LANGUAGE:** Arabic. **RELIGION:** Islam. **ECONOMY:** Oil, cotton, tobacco, textiles. **MAJOR CITIES:** Damascus (pop. 1,500,000); Aleppo.

DRAWN BY ELIE SABBAN
COMPILED BY ROSS M. EMERSON
NATIONAL GEOGRAPHIC ART DIVISION

(Continued from page 327) Lt. Gen. Hafez al-Assad, representing the Baath, or Arab Renaissance, Party, led a "corrective movement" that was ratified in presidential elections the following year. A foreign observer described Assad's policy as "to move the regime out of its isolation . . . and to strengthen the army." Assad also introduced compulsory education; currently Syria counts almost 1,800,000 students at all levels—more than 20 percent of the population. Earlier, Syria became the first Arab nation to extend the vote to women. Assad was reelected in February of 1978 to another seven-year term. The Baath Party dominates Syrian political life, so he ran unopposed.

Despite the heavy burdens of defense and debt—including millions in repayments to the U.S.S.R.—the Syrian economy continues to grow. In recent years Western Europe has replaced the Eastern bloc as the nation's principal trading partner.

Damascus, Islam's Sacred Oasis

My exploration of Syria began in the capital, Damascus. Many archeologists regard the city as the world's oldest continuously inhabited settlement, and to Muslims it is sacred. Cradled in its green oasis, called Al-Ghutah, Damascus stands serene and beautiful in the desert. Devout Muslims believe that Damascus occupies the site of the Garden of Eden, and tradition holds that when the Prophet Muhammad looked upon the city he refused to enter it, not wishing to anticipate paradise.

The modern city (pages 330-31) has grown mightily. The 1940 population of 250,000 has exploded to one and a half million. Embassies and luxury apartments line the streets of the Arnouss and Jisr quarters; the 12th-century section of As-Salihiyah, founded by Muslims driven from Jerusalem by the Crusaders, climbs the vertiginous slope of Jabal Qasiyun.

To the east and southeast, rank upon rank of new condominiums rise from the dusty terrain. The prices dazzle the Damascenes. "*Wallah!*" cried a worker. "By God, do you know what they cost? The smallest are $40,000. And even this," he declared proudly—he who would never see $40,000 in his life—"is nothing. In the Charkasiyeh quarter an apartment sells for $250,000!"

I met a teacher who had returned to Syria after a ten-year absence. "I couldn't believe what I found," he said. "Ten years ago the great majority of women went veiled. Now, even in the villages, few do. Most girls wear blue jeans and are really indistinguishable from Europeans or Americans."

In fact, one brand of jeans carried a tiny American flag emblazoned on the rear pocket. And an inordinate number of young men wore football jerseys sporting the names of lesser-known U. S. colleges: St. Cloud State . . . Florida Atlantic . . . New Jersey Tech.

Devout Gather for Pilgrimage

Not everyone regards the innovations with approval. A high government official told me: "I look at what is happening in Damascus—the new high rises, the swimming pools, the expensive hotels—and I'm filled with regret. New ways destroy old virtues."

Yet the past permeates the Syrian capital. You can still walk down the Street Called Straight, where Saul of Tarsus regained his sight almost 2,000 years ago. And the Suq al-Hamidiyah, the most magnificent of bazaars in the city, erupts daily in a frenzy of commerce.

The best time to visit the suq is during the hajj, or pilgrimage. Every Muslim is adjured to journey, at least once in his life, to Mecca, the cradle of Islam. Damascus is a staging area, the last stop before the pilgrims plunge into the desert. In the month of the hajj, much of the Islamic world streams through the suq. Whip-lean Afghans, squat Turks, tall Sudanese, Pakistanis, Iraqis, and Kurds shoulder their way through the swirl of Damascenes.

Merchants cry the merits of their wares. Water sellers clang their little cymbals calling, "*Atchan, taa saubi!*—If you thirst, come to me!" Sherbet sellers entice you with, "Refresh your heart! Refresh your heart!" Over vats of steaming corn, others cry, "*Bedha ha-dara bedha!*—White corn white!" And everywhere the scents of spices and perfumes, the sinuous flash of brocades, and the sobriety of intricately inlaid wood.

But the old days of happy bargaining—"Regard it! A pitcher of pitchers! The sun and the moon of pitchers!" "That! It is dented, worthless. But, from charity, I will offer you 50 piasters"—are disappearing. Most

prices are fixed. Still, all the world's goods are gathered in that great suq—woolens from England, soaps from France, tools from West Germany, and, from the People's Republic of China, "Double Happiness Ping-Pong Balls" and the curiously named "White Elephant" flashlight.

Beyond twin Corinthian columns that once bounded an immense Roman temple to Jupiter, the Suq al-Hamidiyah ends in a skirmish of booths selling perfumes and religious objects. Ahead looms the Umayyad Mosque, one of Islam's holiest sites.

The Umayyad dynasty reigned as caliphs in Damascus from A.D. 661—after the Arabs had wrested the city from the Byzantines—until 750, when the rival Abbasids all but exterminated the Umayyads and moved the capital of Islam to Iraq. In that brief century Damascus dominated an empire that stretched from the Atlantic Ocean to China. Syria enjoyed an epoch of glory that still glows in folklore and legend.

Caliphs Corrupted by City Life

Amid the delights of Damascus the Umayyad caliphs soon forgot their austere desert origins. They donned rich robes and turned a blind eye to certain precepts of the Holy Koran—notably its proscription of alcohol. The Caliph al-Walid II, who delighted in swimming in a pool of wine, rarely failed to gulp enough to lower the level considerably. His reign was predictably brief.

But the Umayyads were builders, and the great mosque of Damascus is their monument. Upon the site of the pagan temple to Jupiter, Christians had erected the Cathedral of St. John the Baptist. With the church as a focal point, the Umayyads elaborated it into a structure more than 400 feet long fronting upon a magnificent courtyard.

I visited it with a Syrian friend, Muhammad Kuteifan. As we threaded our way among the faithful, all of them intent upon their devotions, Muhammad told me, "Perhaps only one-third of all Syrian Muslims perform their religious duties. But the rest feel guilt. And I can assure you, for I am one of them, that all of them remain Muslims in their hearts."

We paused before an aged blind man in a yellow robe. His sightless eyes stared into some private eternity. In a high, sweet voice, he was intoning a sura from the Holy Koran:

Therefore shun those who
Turn away from Our Message
And desire nothing but
The life of this world.

The Syrian capital is an overpopulated city, but perhaps its most crowded facility is the University of Damascus, grossly overtaxed by 45,000 very serious students.

"The eye also feasts," Syrians say of such appetizing arrangements in restaurant windows (**above**). In another display near Suq al-Hamidiyah, Damascus's teeming bazaar (**facing page**), straw brooms and reed baskets await buyers. Though the government sets prices, some haggling persists. As one official admits, "Syrians cannot live without bargaining."

On a pleasant afternoon I struggled through congested corridors to the office of Dr. Fuad Shaban, an associate professor of English. "In Syria," said Dr. Shaban, "there's an explosion in higher education. For one thing, the universities are free. The government even offers incentives to outstanding students to continue their studies.

"We are, of course, overburdened. When I was a student here in the 1950's, there were perhaps 35 people in my class. Now we have 4,200 in the English department, and a growing number are women."

Later I spoke to a member of that burgeoning minority—Majida Keylani, a student of English literature. Given Islamic custom, I asked, did being a woman at the university generate any problems?

"Not really. Five or ten years ago there might have been difficulties, particularly for girls from small villages. But no longer."

Had Miss Keylani ever worn a veil?

"In my family the veil is a personal option. No, I've never worn one. But my younger sister is religious and chooses to do so.

"Personally, I'm very happy to be here. The university gives both men and women a broader view of life. Since lower schools are often segregated, in the university we can communicate freely for the first time."

Miss Keylani's sunny outlook is not shared by all young Syrians. A recent graduate,

At the heart of society, a farm family gathers for the evening meal (**left**); beehive roofs cover each room and the granary of their 200-year-old mud-brick compound at Tell

male, told me: "I think that we are victims of genuinely harmful traditions. If you have some imagination and drive, this can be a stifling society.

"For one thing, time has absolutely no value here. A day passed in idle conversation is counted a day well spent. In some government offices, the public cannot enter until 11 a.m., and they all close at 2:30 p.m. Jobs are rarely awarded for skill. In fact, merit is the least of qualifications. If you come from a respected family or if you have a powerful sponsor, the job is yours.

"If I take a girl out two or three times—for a walk in the park or to a cinema—people will ask: 'Will you marry her? Do you realize that you're destroying her reputation?' Believe me, it's easier just to avoid girls.

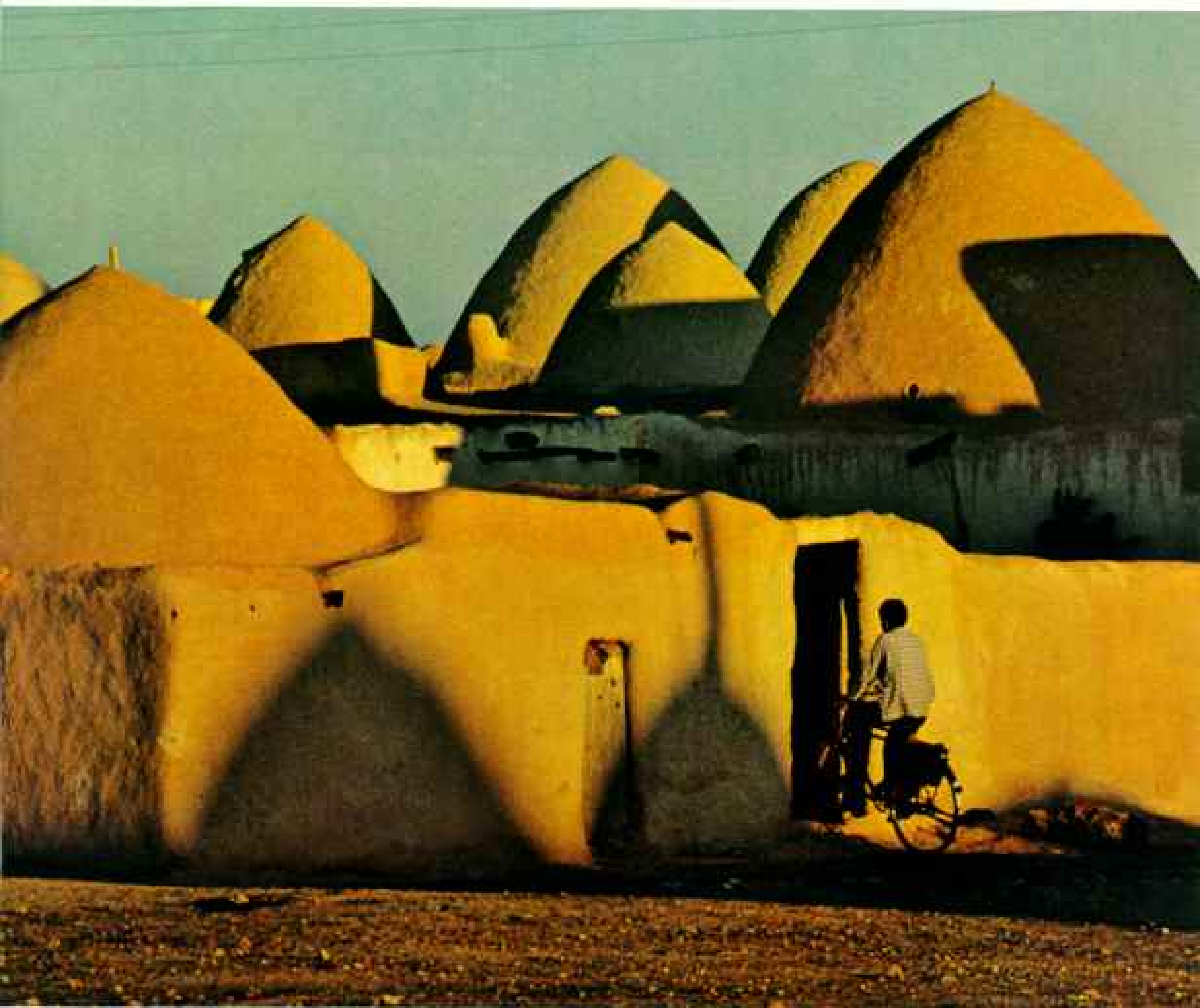
"Wallah! By God, I love this country. But I'm not sure I can survive in it!"

Druzes Descended From Greeks?

From Syria's southern plain, hard by the Jordanian border, rises the Jabal ad Duruz, Mountain of the Druzes. Burnt cones of extinct volcanoes stud a high, rolling plateau. Dark, scorched soil and basalt boulders impart a blasted, sinister atmosphere.

The Druzes are anomalies in the Middle East. Three hundred thousand live in the mountains, and there are enclaves in Israel and Lebanon. Some are tall, fair, and blue-

Mardikh (**below**). The village adjoins an important new archeological site at Ebla, an ancient city whose royal archives have already altered knowledge of early civilizations.



"The Euphrates is a sultan," the Syrians say of their historic river and the power of its floods. Now the state has collared the sultan with an earthen dam nearly three miles across (**above**). Safeguarding against erosion, laborers face the river channel with concrete.

The longtime dream of controlling the Euphrates approached reality in the late 1960's after the Soviet Union provided loans and technical assistance. Last November in the generator hall (**left**), Soviet technicians assembled the last of eight turbines made in Leningrad. The total capacity, more than 800,000 kilowatts, will pave the way for rural electrification and further growth of industries.

And out on the desert, irrigation will reclaim $1\frac{1}{2}$ million acres. A scraper, barreling along at 20 miles an hour (**right**), can level 20 acres a day. Where wild flowers bloom after winter showers, grain will soon grow year round. Already, experimental farms are deciding on crops—rejecting rice, choosing

cotton, alfalfa, and sugar beets that grow bigger than footballs.

But the project has disrupted riverside life. Villagers are learning new irrigation methods and preparing to work on state farms. Many have moved to a new town of 30,000, appropriately named Al Thawra—The Revolution. Some displaced Kurds have joined relatives in southern Turkey. Syria predicts the Euphrates project will increase arable land by 10 percent, cushion the nation against drought, and help it become an exporter of food.

eyed. One of them, Hayel Amer, told me: "The Druzes are very ancient nomads. According to a legend, our blond hair and blue eyes came from intermarriage with the soldiers of Alexander the Great."

Time compresses in the land of the Druzes. I visited Tall al Masiyah (Hill of the Messiah), jutting more than 5,000 feet, with an apocryphal Tomb of Jesus on the summit; tradition holds that He spent a night there following the Resurrection.

Mr. Amer, curator of a museum in the Druze town of Shahba, told me that Druze religious tenets are a closely guarded secret. "Smoking and drinking are forbidden. Only believers may enter the Druze sanctuaries, and then in prescribed white-and-black garments. Women must worship separately."

Throughout their history, the Druzes have built a reputation as disciplined and ferocious soldiers. "Druzes are courageous because they do not fear death," said Mr. Amer. "Every man believes that when he dies he will be instantly reborn as an infant."

When a Druze dies in battle, the mountains remember. As you drive through that charred terrain, you pass the elaborate tombs of officers killed in the 1973 war. This one, crowned by a metal model of a jet fighter perhaps eight feet long, commemorates an air-force captain; that one, surmounted by a massive concrete tank, honors the commander of an armored echelon. All of them Druzes. All of them to be avenged.

Marriage Grows Expensive

In the village of Shaqqa I happened upon a wake. A man had died, and friends had assembled to mourn him. They sat gravely in a large room; tall, stately, warlike men with the look of eagles. By Druze tradition the host alone remained standing, alert to the wants of his guests. He offered cakes and hot, strong coffee—a Druze specialty.

As everywhere, the curse of inflation seemed to dominate the conversation. One man leaned toward another. "Do you remember," he said, "that five years ago I bought a ewe from you for $15?"

"Wallah! By God, I do. You got it cheap."

"Yesterday I bought a lamb. For $75. Next year it will be $100. And where, my good friends, is the end?"

"But," asked a young man, "what is a

Secrets of faith lie locked within Najib al-Hamoud, a Druze elder who lives in the southern mountains. Only the initiated may participate in services of this Muslim sect, founded in the 11th century. When the French ruled, they divided Syria among religious groups and encouraged rivalries. Now Syrian Druzes serve in their nation's army, whereas Druzes across the southern border bear arms for Israel.

sheep? It is the cost of brides that is ruinous."

The subject of marriage contracts evoked sympathetic sighs. "Five years ago," he continued, "you could have your choice of girls for $250. Now $2,500 is standard, and someone from another village might even bid $3,000."

"Deal with your relatives," advised another man. "A distant cousin will cost no more than $500."

I asked: "Why are brides so expensive?"

A Druze snickered. "Why? Because at those prices, no one can afford a divorce."

A Toast to Aleppo's Merchants!

Most visitors to Syria are beguiled by its second city, Aleppo (pages 358-9). Perhaps because every approach is from a flat monotony of arid fields, this verdant metropolis delights the parched eye. According to one legend the Arabic name of the city, Halab, derives from *halib*, meaning "milk," because the Patriarch Abraham once milked his cow atop the tell of Aleppo's mighty citadel, Al-Qalah.

The city is old; third-millennium B.C. cuneiform tablets from Ebla, an ancient city recently excavated near Tell Mardikh, mention it, and, until our own century, it dominated the trade routes connecting East and West. Even today Aleppo remains a city of miraculously resourceful merchants. I remember, after a desiccating day in the desert, entering the bar of the Baron Hotel—itself resembling a stage set out of the film *Casablanca*—and asking, with faint hope, for a beer. The barman produced—from only Allah knows where—an icy can of Schlitz.

The traffic in rarities goes in both directions. Medical science and pet lovers alike owe a debt to Aleppo. The hundreds of thousands of golden hamsters now in laboratories and homes are descended from a lone pregnant female trapped near Aleppo in 1930. Before that historic capture, only one other golden hamster had been recorded in the scientific literature, and that in 1839.

The suq of Aleppo winds through the oldest section of the city for eight miles or more, its lanes indented by centuries-old caravansaries. One day I was strolling in the suq with a Syrian friend when a singularly beautiful girl—unveiled—passed by. He stopped and stared, fixedly, yearningly. When I

reproved him, he turned on me fiercely. "Why did God give us eyes? To look upon beauty wherever it may be!" Faced with this unassailable logic, I joined him in staring at the girl, murmuring a dutiful *"Al-hamdu lillah*—All thanks to Allah."

After leaving the suq, we strolled along Rue al-Gassaniyin, a bustling street that skirts the old Christian quarter of Jedeide. Suddenly a truck filled with a platoon of infantry came gunning up the street. The troops were waving and singing, and everyone on the sidewalk broke into applause as they wheeled by. Going where? To Lebanon? To the Golan Heights? Going, in any case, to the war that has engaged Syria for thirty years.

One phase of that struggle has recently expanded. Three years ago, civil strife between Christians and Muslims, leftists and rightists, Lebanese nationalists and Palestinians erupted in Lebanon. With Beirut in ruins, with the once prosperous nation sinking into anarchy, with Israeli forces poised on its southern border, the Arab states attempted to impose a peace.

Thirty thousand Syrian troops moved into Lebanon. Diplomatic observers credit the Syrian Army with achieving a measure of stability in this volatile region, but some Syrians regard Lebanon as a morass that will entrap them, much as Viet Nam entrapped the United States.

Baal Still Haunts the Mountains

The drive from Aleppo to the Mediterranean coast takes you through uplands and green mountains, through the orchards of Idlib with their plump, sweet cherries famed throughout the Middle East. Up high into the Jabal Aqra, haunted by old gods. Baal Zaphon, the Canaanites' Baal of the North, dwelt here, and his spears flash still in the heat lightning of summer dusks; the Romans knew it as Mount Cassius, and on its summit emperors sacrificed to Jupiter.

Now, on its slope, you can visit Kassab, a town of some 2,000 Armenians. For at least five hundred years they have lived here, speaking Armenian, worshiping in Armenian churches, remembering Mount Ararat. And they grow crisp apples that burst upon the tongue, and grapes that cluster sweet and heavy on the vines.

You plunge down through the redolent pines, with an occasional fox darting zigzag across the lonely roads, into the lowland orchards that surround Latakia with golden cascades of bananas and the fragrance of oranges and lemons.

Just north of Latakia I stopped at Ras Shamrah. Here, in 1929, a French archeologist began to unearth a great Canaanite capital of the 16th to 13th centuries B.C. named Ugarit. (See the map supplement **Early Civilizations in the Middle East**, which accompanies this issue.)

The continuing excavations have revealed a city with a highly developed sanitation system and a probable population of 10,000. More important, the archeologists discovered a library of cuneiform tablets that have radically broadened our knowledge of this shadowy era.

Among their finds was a finger-size clay bar inscribed with one of the world's earliest known alphabets. The keeper of the site showed me where the 30-letter tablet had been found. "Without the alphabet," he said, "nobody would ever have gone to the moon."

Latakia, Syria's principal port, ships out tobacco (a dark, aromatic variety bearing the city's name has gained immortal fame among smokers), cotton, cereals, vegetables, and hides. In come metal products, wood, rice, sugar, machinery, chemicals. And, in volume from the nations of the Soviet bloc, arms.

Latakia and her sister port forty miles to the south, Tartus, suffered from bombardments in the 1973 war, but Latakia bears a greater scar of the long Middle East conflict: a camp housing some of the 225,000 Palestinian refugees who now live in Syria (following pages).

I met one of the Palestinians, a man of early middle age. He has been in Syria for almost thirty years. "I lived in Haifa," he said. "Do you know it?"

I said that I did.

"It is very beautiful, particularly the curving roads on the hills overlooking the sea."

I agreed.

He placed a hand on his forehead. "The map of it is here, inside my head. Every day, in fantasy, I walk those streets. I look out at the sea. I trace the route to my family's house. I follow different streets and stop at

different shops." He laughed, a small deprecating sound. "Every day."

The Palestinians consider themselves a separate and stateless people. Other groups—Christians, Jews, and Muslims of minority sects—call Syria their home. The doctrine of the ruling Baath Party minimizes sectarian differences, and recent modifications of policy seem to have benefited minorities.

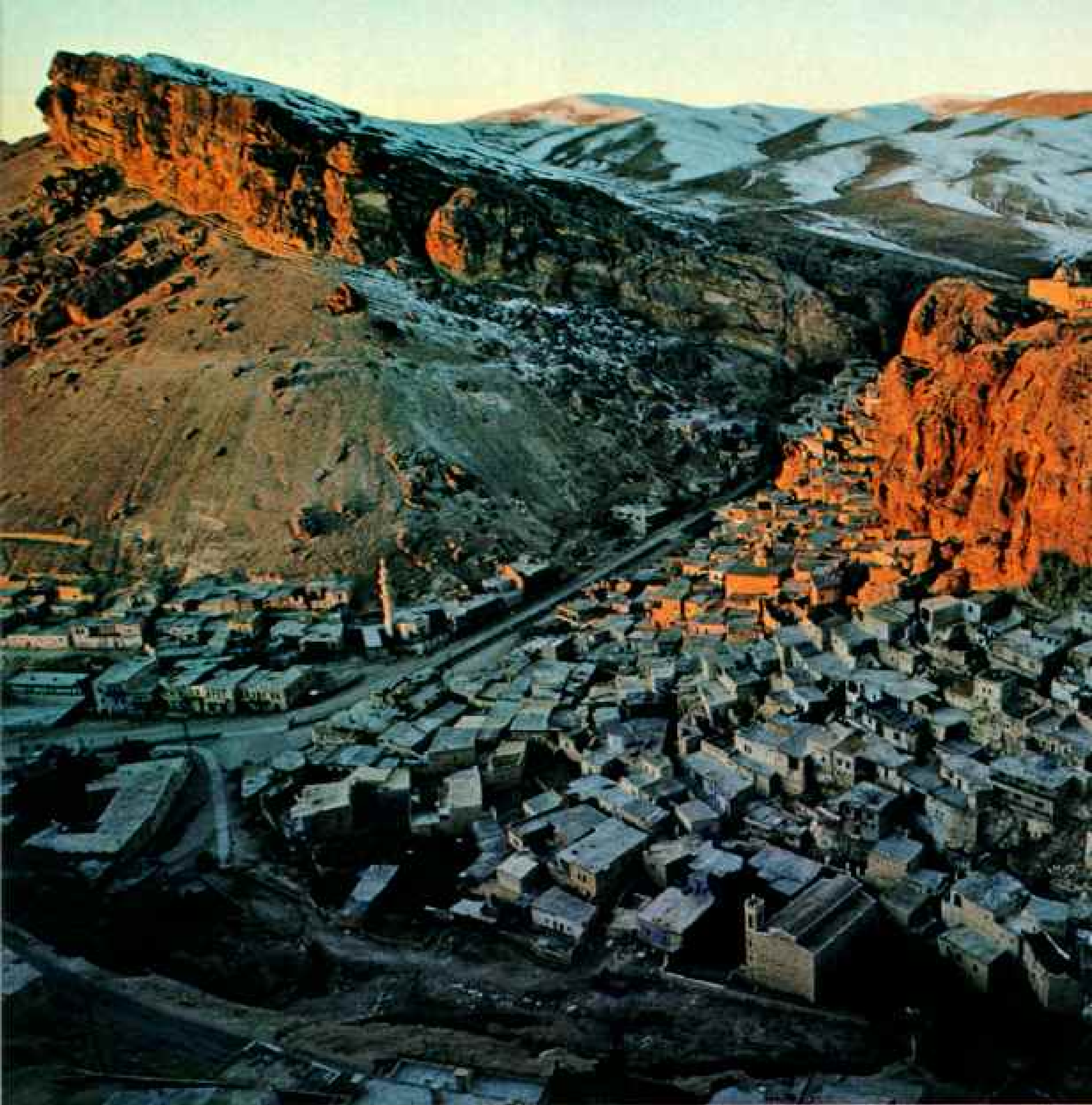
Crusaders Ruled "Beyond the Sea"

From Latakia south, the Mediterranean washes a fertile littoral backed by the green range of Jabal an Nusayriyah. A memory haunts this coast—a dream of medieval kings and barons, mailed knights and their wimpled ladies. For nearly two centuries, after they captured Antioch in 1098, the Crusaders ruled here. From northern Syria to the Red Sea in the south they both conquered and built magnificent castles to guard the land that they called Outremer, Beyond the Sea.

Vivid, turbulent, doomed, the Crusader states still kindle the imagination. Princesses with names like Melisende and Plaisance tied their favors to the lances of knights at Tripoli and Acre. Chivalric figures abounded. Richard Coeur de Lion and Louis IX of France fought there; Holy Roman Emperor Frederick Barbarossa, leading an army, died en route.

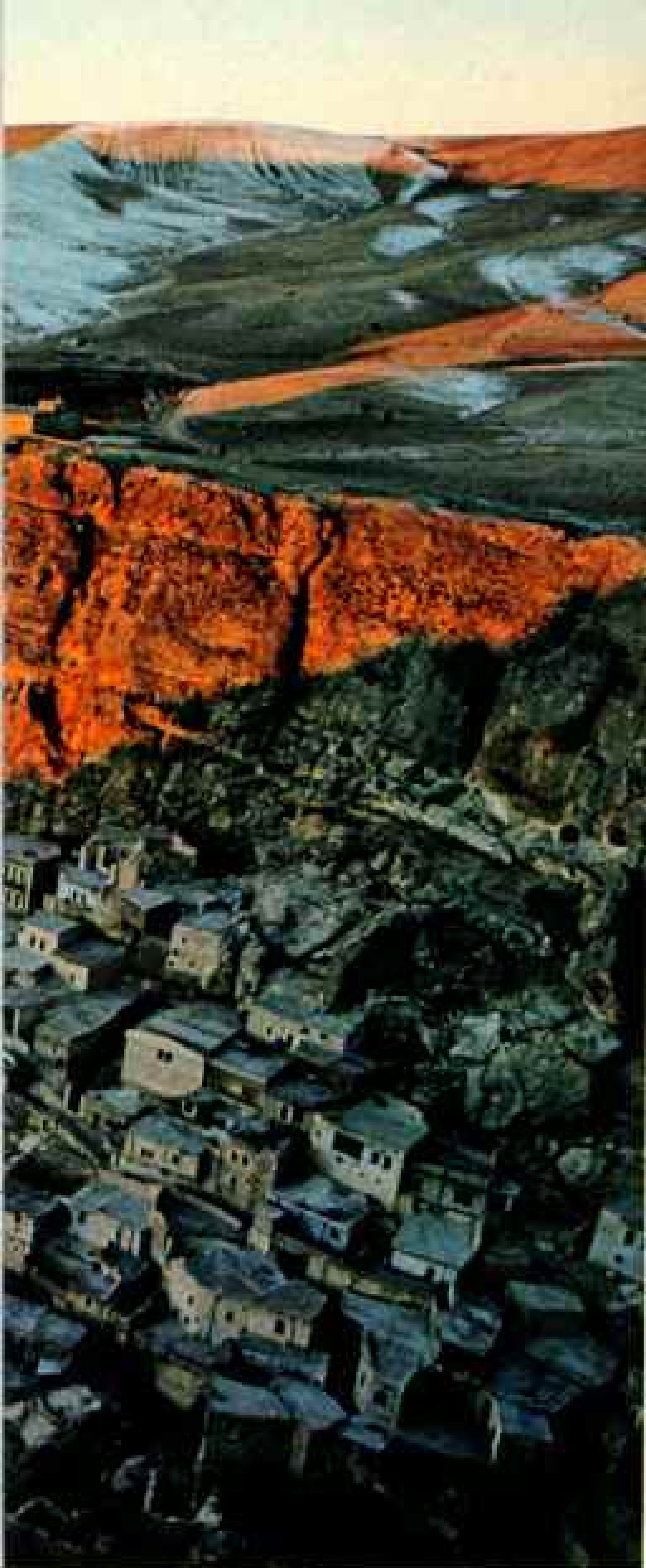
And all the ruined redoubts of Outremer recall the orders of warrior-monks: Knights of the Temple in white surcoats; Knights of St. John of the Hospital, their scarlet garments slashed with the white Crusader cross; and that grimmest of all companies, the Order of St. Lazarus, reserved for knights who had contracted leprosy.

Child of a refugee camp at Syria's major port of Latakia (**left**) represents the second generation of Palestinians born outside their native land. Some 600,000 Arabs fled Palestine in 1948-49 during fighting that accompanied the establishment of the State of Israel. That number has swelled to more than three million dispersed throughout the world. Syria now hosts 225,000 Palestinians, many of whom as refugees are supported by United Nations funds for education, health, and food.



A rockbound citadel of Christianity, Malula (**above**) clings not only to the teachings of Jesus but to his native language as well. Here 1,500 villagers speak Western Aramaic, chief language of commerce from 700 B.C. to A.D. 636, when Syria fell to Arabic-speaking horsemen from the Arabian Peninsula. Boys making the morning bread run (**upper right**) learn Aramaic at home, Arabic in school.

The mightiest relic of Outremer still stands—the Krak des Chevaliers, stronghold of the Knights of the Hospital. It looms on the summit of a 2,200-foot hill, commanding a vital pass that links inland Syria with the sea. From 1110 until 1271, the Krak with its garrison of 2,000 troops resisted all attacks. In 1188 Saladin—flushed with the smashing victories that sealed the fate of the Crusader states—led an army to besiege the Krak. The inspired but pragmatic Muslim leader took one look at the castle riding its height of land like a stone dreadnought, wheeled his army, and disappeared.



According to some historians, when the Krak finally did fall—to the Sultan Baybars in 1271—it was not to force but to guile. Baybars cleverly forged a letter from the Grand Master in Tripoli to the commander of the Hospitalers ordering him to surrender, which he promptly did.

Silent Castles, Crumbling Walls

I spent a long, dreamlike day on the ramparts at the Krak, where a wind gusted down from the north and the whole world seemed to roll away to the horizon. But the castle no longer resounds to the tread of the sergeants racing to the battlements, or the clatter of chargers' hooves, or the dull thump of besieging mangonels. Long ago the Krak made its peace with history.

In the seaside city of Tartus I began a love affair with the supple and dazzling Arabic language. With a guide whose ignorance of the city matched my own, I was searching for the Crusader cathedral. Finally, he hailed a passerby: *"Habibi, wen li-kniseh l-faranjiyeh?*—Beloved One, where stands the church of the Franks?"

Who could resist so elegant an idiom?

The Beloved One gave precise directions,

"**A prudent wife** is from the Lord," says Proverbs 19. Mrs. Tawfiq Milani, whose portrait as a young woman hangs in her Malula home (**above**), tends her family from a tiny kitchen (**facing page**). Here she pounds *kibbe*, a lamb-and-cracked-wheat dish, for Christmas dinner.

and in five minutes we were before the cathedral—but, alas, too late. The cathedral is now a museum and, like most public buildings, closes early. When I arrived, children were playing soccer in the courtyard, and the afternoon sun glinted on a mosaic of shattered windowpanes. Pigeons roosted on the arches; moss struggled for life on the stone sills. It was a desolate sight—a fortress of God that did not stand.

But in August 1291, with victorious Muslims controlling the hinterland and pushing at the outskirts of Tartus, the knights and their ladies attended a final Mass in this church—a requiem for Outremer—before sailing away forever. The dream that had intoxicated Christian Europe for two centuries died here.

Dusk was gathering as I left the little courtyard before the cathedral. The pigeons fluttered on their evening errands and suddenly, from every minaret in the city, came the muezzin's chanted call to prayer:

"*Allahu akbar. A shhadu allaa ilaha illa llah* . . . God is great. I bear witness that there is no God but God. . . ."

The voice of the East echoing above the last, fallen sanctuary of the West. It seemed a sad but somehow fitting epitaph for the doomed, sunset states of Outremer.

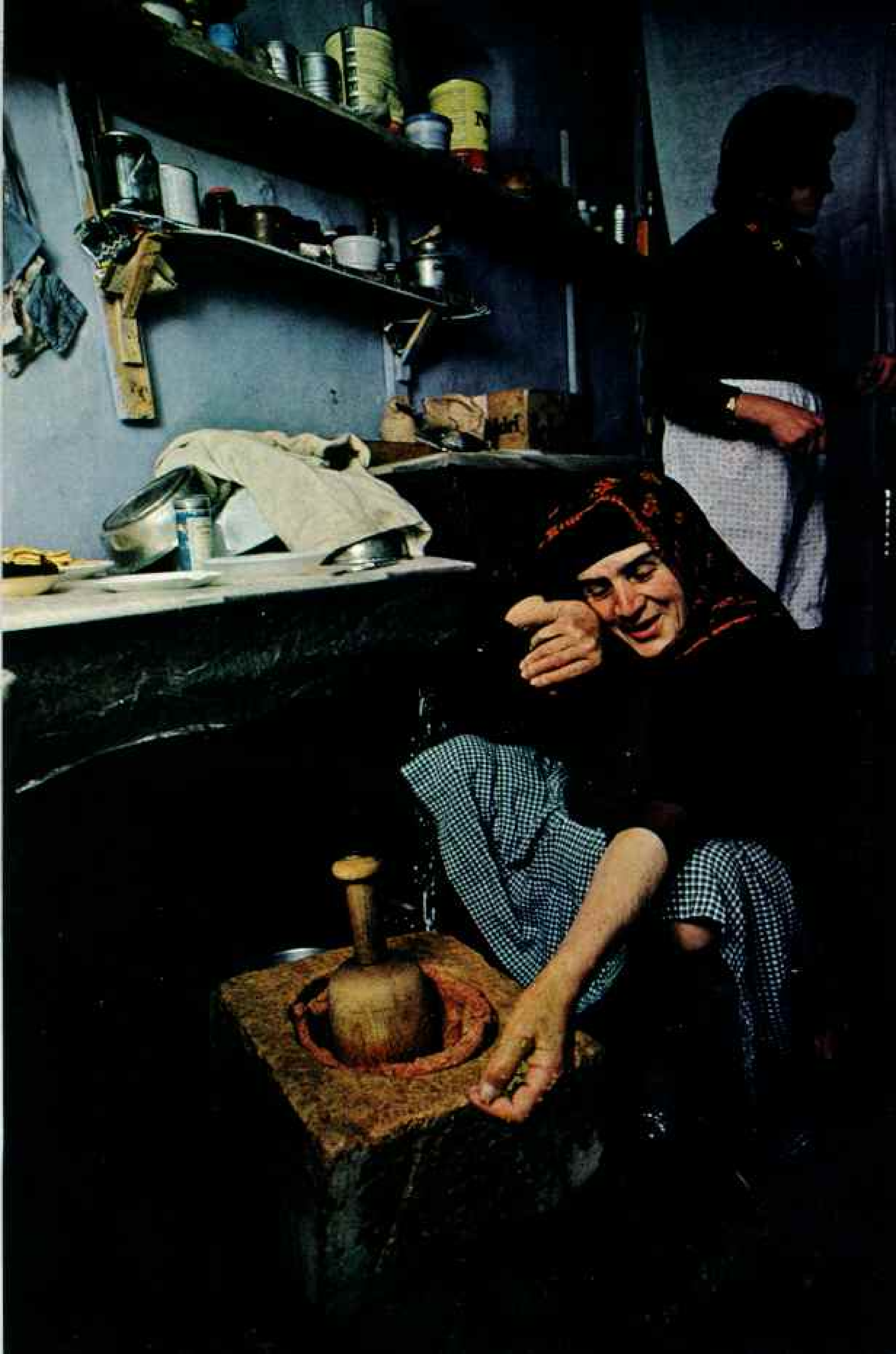
Industry Gains a Foothold

The pass from Tartus past the Krak des Chevaliers debouches into the fertile plain of the Orontes River. There, clustering around the cities of Hamah and Homs, Syria boasts a modest industrial complex.

Hamah is old and timeless and lovely. The Orontes, slow and majestic, sweeps through the center of the city. Huge, antique wooden waterwheels, called norias, scoop up gobbets of water and deflect them into irrigation channels, as they have for centuries. Their creaking creates a kind of music, and the spray from the lifted water envelops the wheels in shifting crystal tiaras.

Large factories outside Hamah process sugar beets and cotton. In the harvest season the cotton dropped from the delivery trucks gathers on the road edges like snowdrifts; every approach to the city slices through a counterfeit winter.

To the south, at Homs, I visited Syria's only oil refinery. A pipeline transports crude



from northeastern oil fields, and 3,000 workers labor around the clock to transform it into 4.7 million metric tons of petroleum products annually.

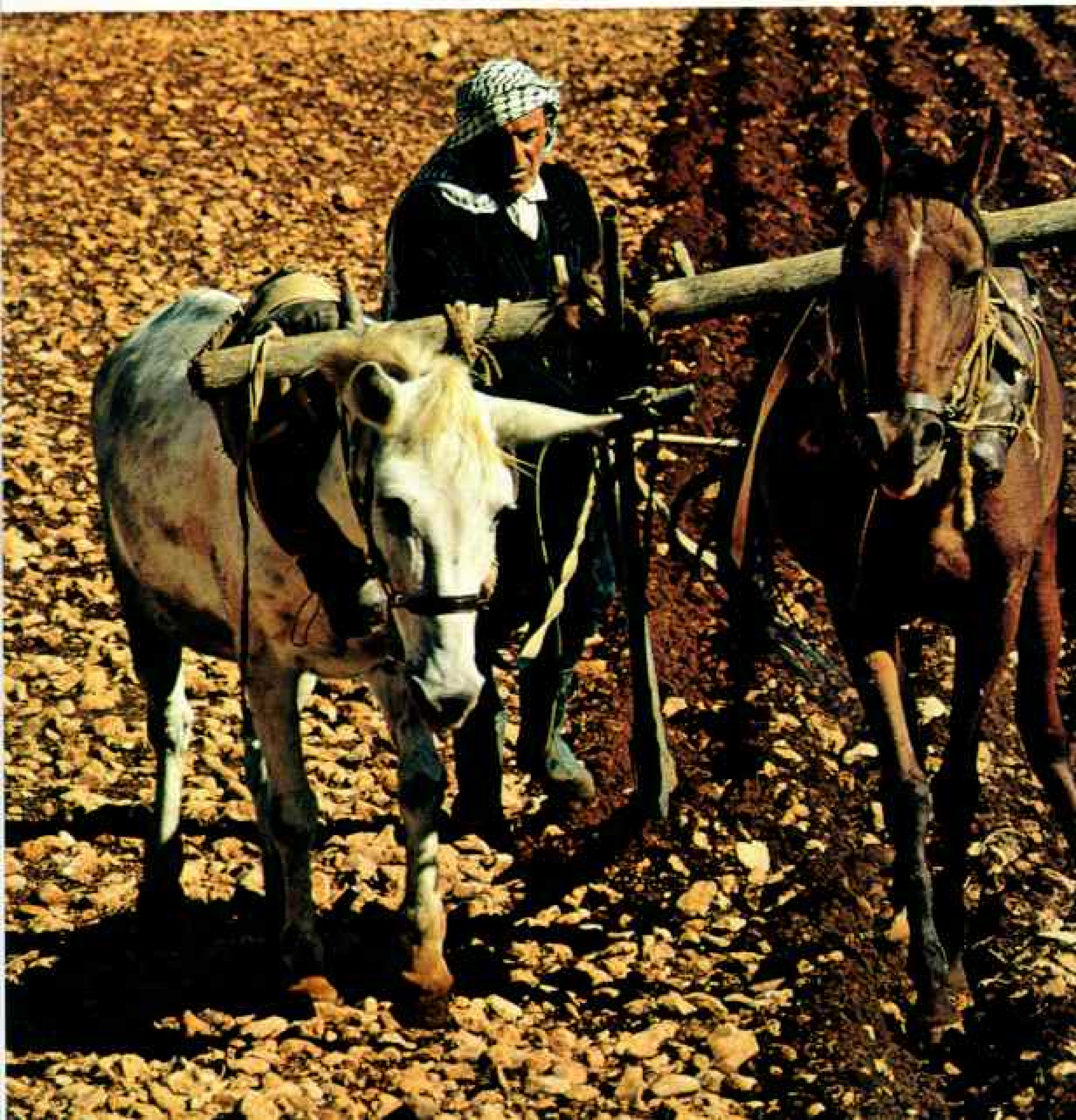
Another refinery, currently under construction in the coastal city of Baniyas, will come on stream at the end of 1978, at which point Syria will begin to export significant quantities of refined products.

The engineers who received me at the Homs refinery did so with exquisite courtesy. We toured the installation but, no, photographs were not permitted. Why not? The refinery, it eventuated, had been heavily bombed in 1973, crippling it and leaving 288 casualties among the workers. Now, presumably, defensive missile sites have been erected, and a random photograph might reveal one or more.

Syrian sensitivity is understandable. Their statistics show that in the 1973 offensive against Israel, the counterattack caused damage estimated at 1.8 billion dollars, nearly the sum of Syria's entire gross national product for that year.

Christians' Place of Refuge

Sixty miles south of Homs, in the fastness of Al Jabal ash Sharqi, the dwellings of some 1,500 Christians cling to the cliffsides.



Called Malula (pages 344-5), this village is an outpost of the remote past—one of the few remaining settlements in the world where people still speak Western Aramaic, the language of Jesus Christ.

Father Philippe Achkar welcomed me to the Monastery of Mar Sarkis. A gentle man with a small, neat beard, Father Philippe said, "In the past we had a community of priests here, working in the fields, worshiping God. Now I am the only one."

In the caves that riddle Malula, Father Philippe has found a depiction of a mother and child, both with halos, and a Greek inscription that he dates to A.D. 98. "I believe," he told me, "that Christianity came to Malula in the first century, and that Christians used the caves as places of refuge."

He showed me through the monastery's very old church, built on the site of a pagan temple. "Everything is original. Nothing is restored. Look at the altar." He pointed to a slab of marble with grooves and a basin to catch blood. "Certainly it was used for sacrifices." Father Philippe believes that the church dates from the fourth century and may be one of the oldest in Christendom.

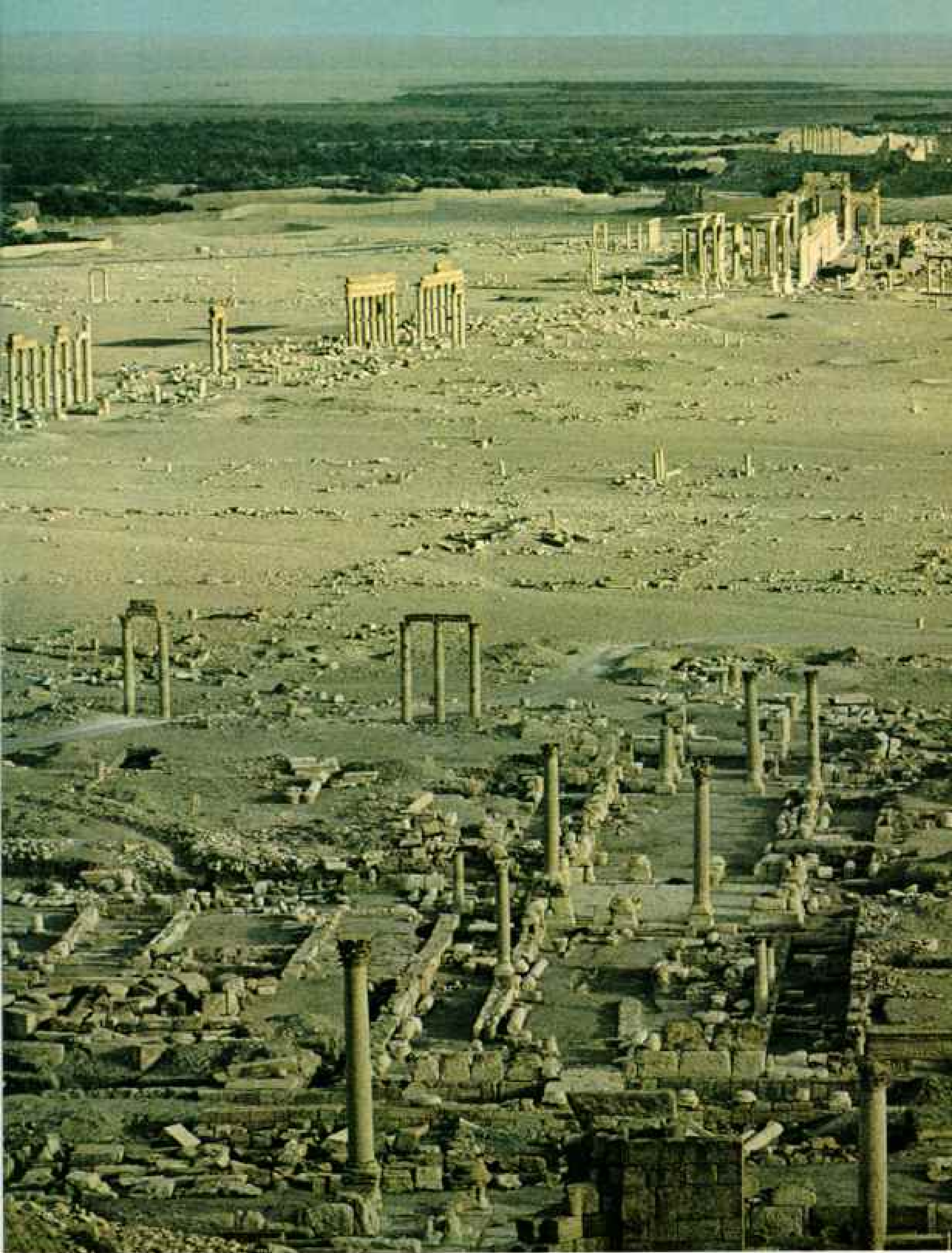
That evening we dined on cheese and produce from the monastery garden—potatoes, a salad of tomatoes and mint, and an opaque red wine that, he explained apologetically, was *"le fils de trois heures*—the son of three hours." He had bottled it that afternoon.

The priest spoke of Malula's unique heritage, the Western Aramaic language. "In public the villagers speak Arabic, but at home only Aramaic. The people are very jealous of the language, perhaps out of vanity, but they can no longer write it. Consequently, when we celebrate the Christmas liturgy in Aramaic, it is for me a formidable task. I must learn the words by rote, and always with someone to correct me."

The next day, after Mass, one of the parishioners, patriarchal Tawfiq Milani, recited the Lord's Prayer in the ancient, echoing church. The Gospel of Luke tells us that "one of his disciples said unto him, Lord, teach us to pray. . . ." It was awesome to hear the first Christian prayer—a cascade of flashing, liquescent tones—as it may have been spoken by Jesus Himself: *"Abuna debashemayya. . . ."*

Palmyra. Legend exalts the name of the city (following pages). Ninety miles east of Homs, it rises abruptly from the desert, a jumble of magnificent ruins towering over a verdant oasis. *(Continued on page 353)*

Field of stones must be transformed into shares of wheat by a farmer struggling with a mismatched pair, horse and mule, near the village of Dar Ta Izzah. Government attempts at land reform have shattered old agricultural work patterns, and young men increasingly leave the farms for industrial jobs.



Noble even in ruin, Palmyra whispers of the grandeur of this Rome of the East. In the third century A.D. the metropolis of 30,000 was ruled by the extraordinary Queen

Zenobia, who conquered Roman provinces from Egypt to Asia Minor before Emperor Aurelian ended her revolt and exhibited her in Rome—bound with golden chains.

The waters that bubble up here have fostered settlements for at least four thousand years and do so still; the village of Tadmor sprawls by the crumbling grandeur.

Since ancient times caravans from the Orient labored up the curving Euphrates, struck out across the Syrian Desert, and paused for refreshment—and the payment of tolls—beside the spring of Palmyra. The city was a synthesis of East and West, nowhere more apparent than in the Roman and Semitic elements in the name of one of its principal citizens of the second century, Marcus Ulpius Yarhai.

On a quiet day, in the hot, vertical sunlight of noon, I strolled through Palmyra—destroyed by the Romans—through the huge, colonnaded avenue, past the theater that has heard neither lyre nor applause for 1,700 years, through a monumental arch, and to the vast Temple of Bel.

The sun sank behind the mountains early, about 4:15 p.m., and the moon—full and lambent—swelled in the eastern sky. The chill of the desert night began to seep across the barren land. Stars appeared, their stately constellations little changed through the entire life span of mankind.

But the moon was as cold as the night; the deeps of space robbed the stars of fire. The columns of Palmyra stood still and lonely, pickets of an ancient dream that time had overrun. How many ruins would the sky of Syria illumine tonight? How many dead cities and forgotten empires? Ebla . . . Mari . . . Ugarit. All of them—like every human life they sheltered—built upon hope, illusions, dreams. And all of them gone.

Nomads Seek the Perfect Pasture

From Palmyra—if you are willing to sleep under the stars and take potluck with the Bedouin—you can hire a guide and strike due east across the desert. To Arabs the Bedouin are objects of romance. A Westerner might well wonder why. After all, they are only homeless nomads in search of a sweet, cool spring. Perhaps it is because they alone, in the sociological ferment of the Arab world, have preserved the wistful ideal of total freedom.

Occasionally their black tents appear on the outskirts of the cities. Men with lean, weathered faces and squinted eyes stalk through the suqs, buying coffee and rope. Soon the black tents are gone, and the Bedouin are roaming their beloved barrens—free of taxes and trauma and time. Free.

Economic Hopes Rest on Damsite

A four-day camel journey across the Bedouin heartland east of Palmyra will bring you to the ruins of Mari on the Euphrates, one of the great cities of the distant past. French archeologists have uncovered a palace of some 300 rooms and a library of 20,000 cuneiform tablets—a sounding into antiquity that, according to one expert, "will take another 200 years to excavate . . . completely."

From Mari a good road arcs northwest. It curves through a tawny, wasted landscape that rolls away into an infinity of emptiness. Even the Bedouin and their stringy flocks can find little sustenance here, and the eye searches in vain for their low tents. Suddenly you come upon ordered ranks of steel pylons—some marching south, others west.

The electric cables stretching between the skeletal towers create a peculiar 20th-century latticework across the ageless desert sky. Follow the pylons and you will discover Syria's most majestic engineering achievement—the Euphrates Dam (pages 338-9).

A thousand Russians and 12,000 Syrians spent ten years barricading the ancient river with a massive earthen wall. I walked across the graceful arc of its summit—2.8 miles long—looking down into the jade waters of newly formed Lake Assad. Fish in huge schools swarmed at the base of the dam, periodically scattering before the darting shadow of a predator.

Eventually Syria intends to plant the raw

Under a beloved burden, a mother picks cotton near Tibni. Women make up a third of Syria's labor force; most work in agriculture, which is not yet heavily mechanized. Cotton planted in pre-independence days to make Syria the "cotton farm of France" now provides an export second only to oil as a revenue earner. A growing number of Syrian mills are expected to weave 75 percent of the nation's cotton by 1980.

banks with trees to create a vacationland of pines and water. Meanwhile, the dam—with eight 103,000-kilowatt turbines—is already providing 70 percent of the nation's power. "At full capacity," an engineer told me, "the dam could meet the future requirements of Syria, Jordan, and Lebanon."

In a huge, marble-floored hall, longer than two football fields, I watched the Soviet turbines whirling lazily at 60 percent capacity. Their throb resounded in the ears like an audibilization of power.

With Irrigation, the Desert Blooms

Syria has bet most of its economic chips on this project, and electricity represents only one benefit. Lake Assad will ultimately stretch for 50 miles, storing 420 billion cubic feet of water. This reservoir will irrigate one and a half million acres, revolutionizing Syrian agriculture.

Near the town of Ar Raqqah, experimental farms fed by dam-diverted water have been functioning for five years. Sugar-beet harvests have been running 250 percent greater than forecasts; a breeding farm has adapted German Holstein-Friesian cattle to the Syrian climate so successfully that a dairy processing plant is being built.

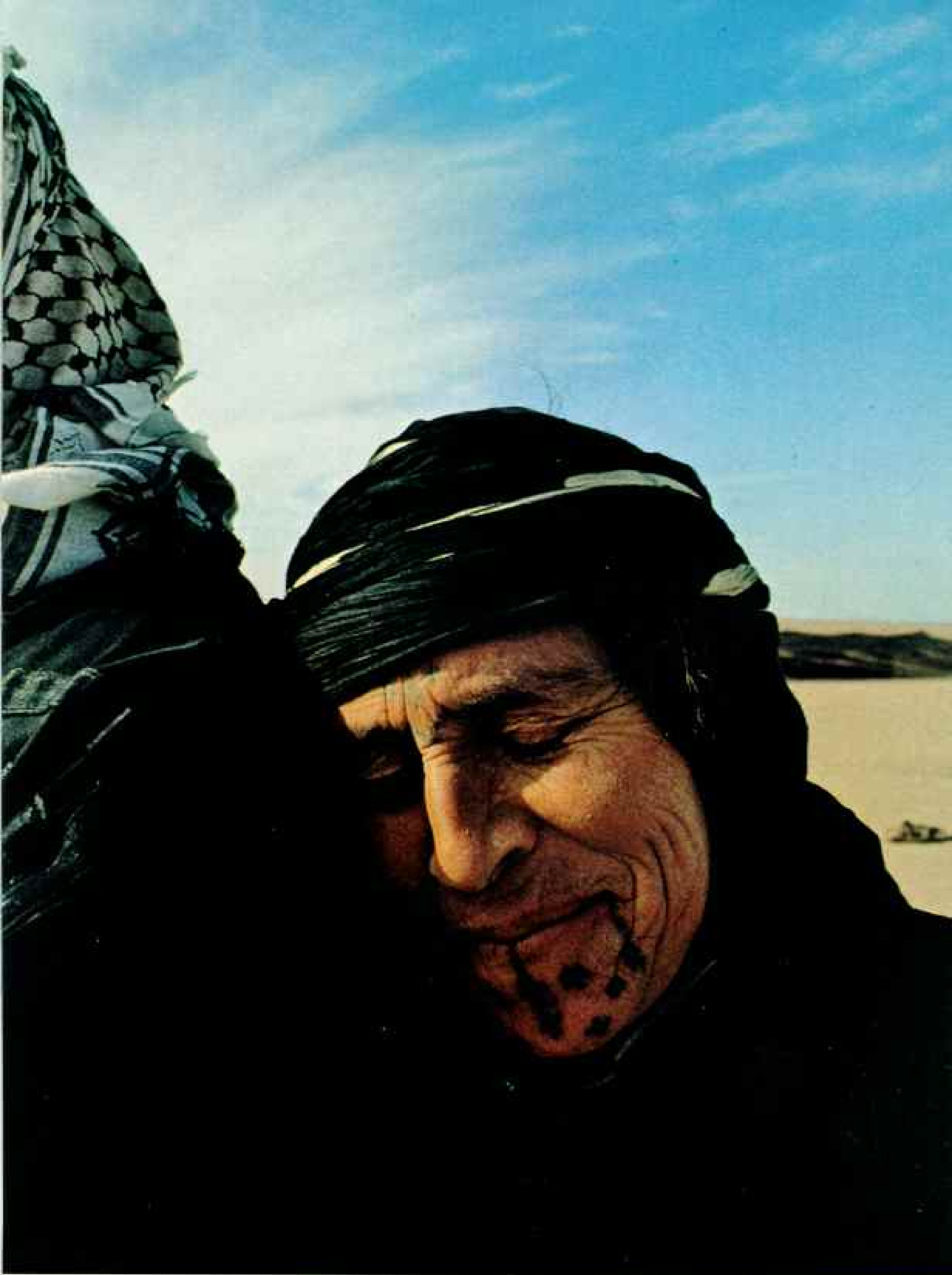
With construction of the dam already complete, a heavy responsibility has fallen upon Engineer Taha al-Atrash of SARICO, the Syrian company for irrigation constructions. For he and his crews must prepare an area as large as Delaware for cultivation.

Engineer al-Atrash, a sturdy, dynamic man with a beret tugged low on his brow, received me in his vast depot of earthmoving equipment. "All American! All Caterpillar!" he exclaimed proudly. "The best!"

Over the inevitable cups of coffee, he said: "We face serious problems here. The subsoil has a high proportion of gypsum. If we took no preventive measures, water seeping from the irrigation canals would dissolve the gypsum, creating subterranean hollows. Eventually the land and the irrigation system would collapse. This is not only our problem, incidentally, so anything we learn here will be of benefit to others.

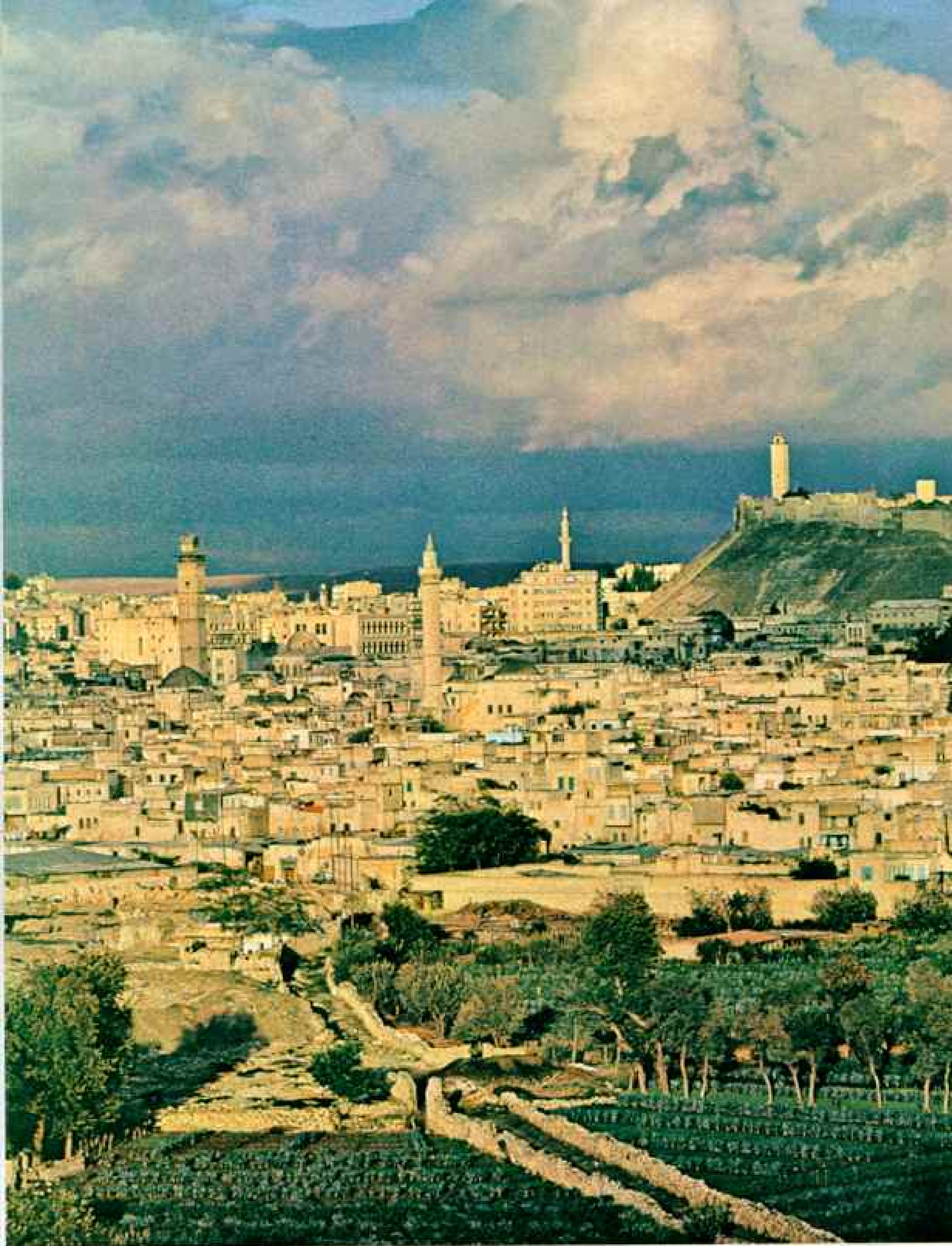
"International experts have studied the situation. We even held a conference on it in 1973. Well, now we think we're going in the right direction. *(Continued on page 360)*

Moment of affection softens a wind-scraped day for sheepherding Bedouin

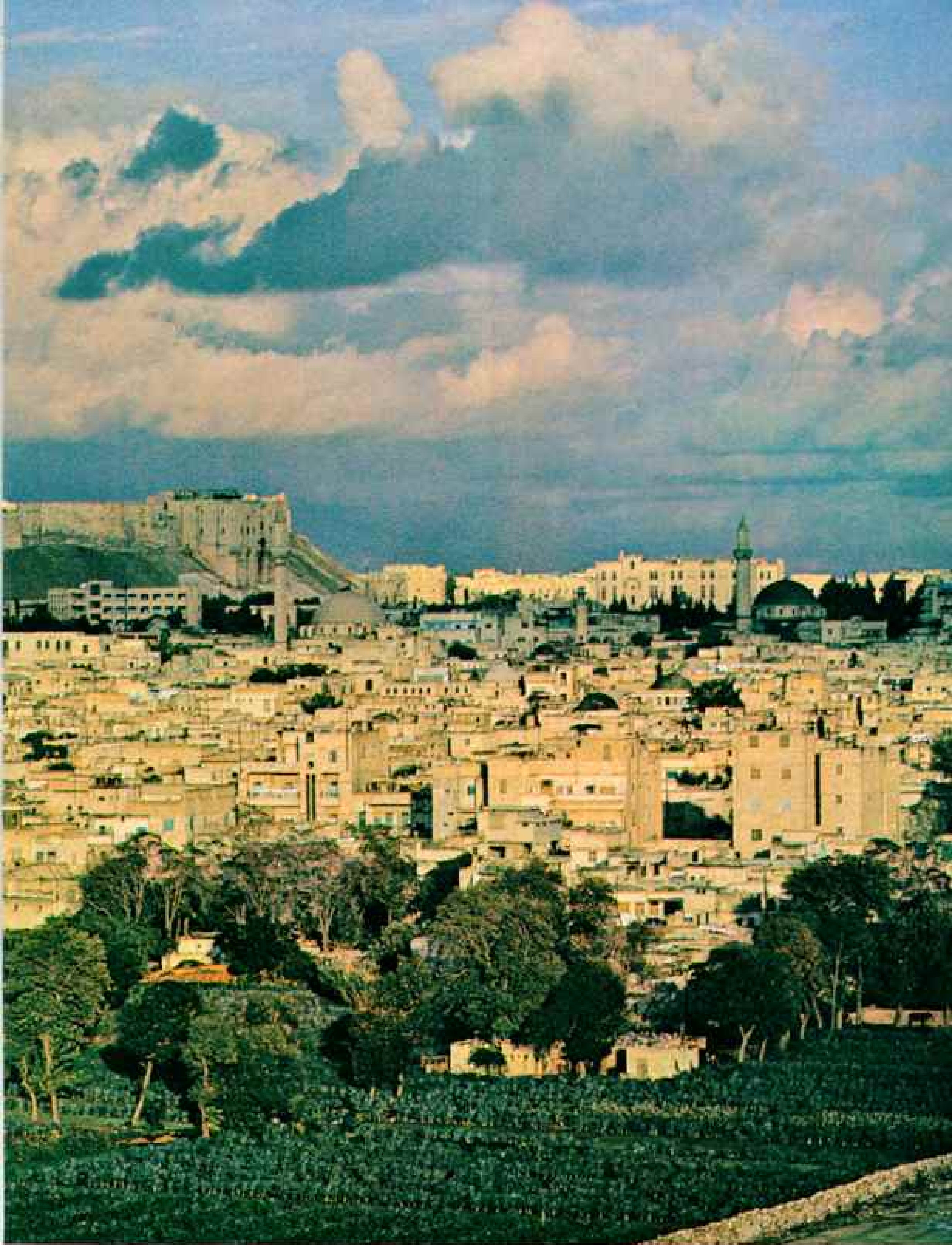


Muhammad Diab and his wife. The state offers free farmland to tribal chiefs to encourage nomads to settle, but tribes of camel Bedouin still haunt the desert.

At the ready, a sentry patrols the foggy slopes of Mount Hermon (**right**) near the disengagement line between Israeli and Syrian forces. During the 1967 conflict, Israelis knocked out Syrian guns that had been shelling Galilee from the Golan Heights, and later established fortified farms on the occupied land. After negotiations that ended the 1973 war, Israel agreed to withdraw from the war-ravaged provincial capital, El Quneitra. To Syrians the ruined town (**below**) is a "martyr city," and no move has been made to rebuild it. Neither country wants to relinquish control of the heights, which command both Galilee and Damascus.



Well acquainted with all the ages, Aleppo spreads around a height overlaid by ruins of earlier civilizations—Hittite, Assyrian, Greek, and Roman. Around A.D. 1200 a son of Muslim leader Saladin renovated the present hilltop bastion. Today's



ever young metropolis exudes the flavor of France in broad boulevards, sidewalk cafés, lively university, and imported Beaujolais. It renews itself on the profits of tractor, textile, and iron manufacture, and, as always, on trade.

(Continued from page 354) We're insulating canals with gypsum-free dirt. And we're replacing bad foundation soil with good soil, concrete, or sand."

Engineer al-Atrash ushered me into his warehouse of Caterpillar spare parts. In his impeccably organized domain, pistons, huge blades, carburetors, oil filters stood in shadowy ranks, reinforcements waiting to go into battle. At the door, on the floor, was a bathroom scale.

"This is our policeman," he said. "Everyone is weighed as he enters and again as he leaves." He watched my face carefully, then he exploded in laughter. "It's a joke!"

I laughed too. But I couldn't help thinking that it wasn't a bad idea.

Later, by the Euphrates, I watched the great machines at work. The big yellow Cat scrapers came growling and skittering across the powdery soil. They threw up huge plumes of dust that the sun transmuted into pastel peach and gold as they swirled skyward. The ground flattened, almost miraculously, beneath the iron caress.

"We're not just digging canals and leveling ground here," said Engineer al-Atrash. "We're also building roads and village sites. What we're really doing is bringing life to this part of Syria."

But elsewhere there is death. In the disputed Golan Heights I visited the Syrian city of El Quneitra, which was captured by the Israelis in 1967 and returned to Syria, after heavy fighting, in 1974. Empty, destroyed, as obliterated as ancient Tyre or Nineveh.

The Golan Heights hold great strategic importance for both Israel, which regards them as a Syrian firing platform endangering settlements in Galilee below, and Syria, which is aware that Israeli posts on the highest hills scan the very streets of Damascus, only forty miles away.

The Syrians claim that the already war-torn city was leveled systematically before its return—dwellings bulldozed and the remaining buildings looted and gutted. They call it a "martyr city" and have opted to preserve it in its ruin (page 357). A United Nations report cites much deliberate destruction. Israel holds that the damage was caused by the guns of war booming from both sides. But no matter where the blame is assessed, the place evokes a sense of despair.

Hope Blooms in Ruins of War

I saw Quneitra on an overcast day with gunmetal clouds scudding low above the ruins. Walking through the detritus struck me as a foretaste of the day after the end of

Lifeline of an empire lost: Limestone blocks of a Roman road laid 1,800 years ago—part of a road system stretching from Rome to Arabia—survive for half a mile in near-perfect condition west of Aleppo. A macadam highway, right, links the city to Azaz, near the Turkish border. From Aleppo, paved roads lead to Iraq and Jordan, helping Syria continue its role as a land bridge of the Middle East.

the world. Not a single birdsong disturbed the gray, final silence.

There is, in Quneitra, an ultimate checkpoint. You go down a straight road that flanks the sad, smashed dwellings and you reach a cluster of tank barriers—the limit of Syrian authority. Perhaps a hundred yards to the west looms a United Nations outpost, and, beyond that, Israeli soldiers guard the entrance to the occupied Golan Heights.

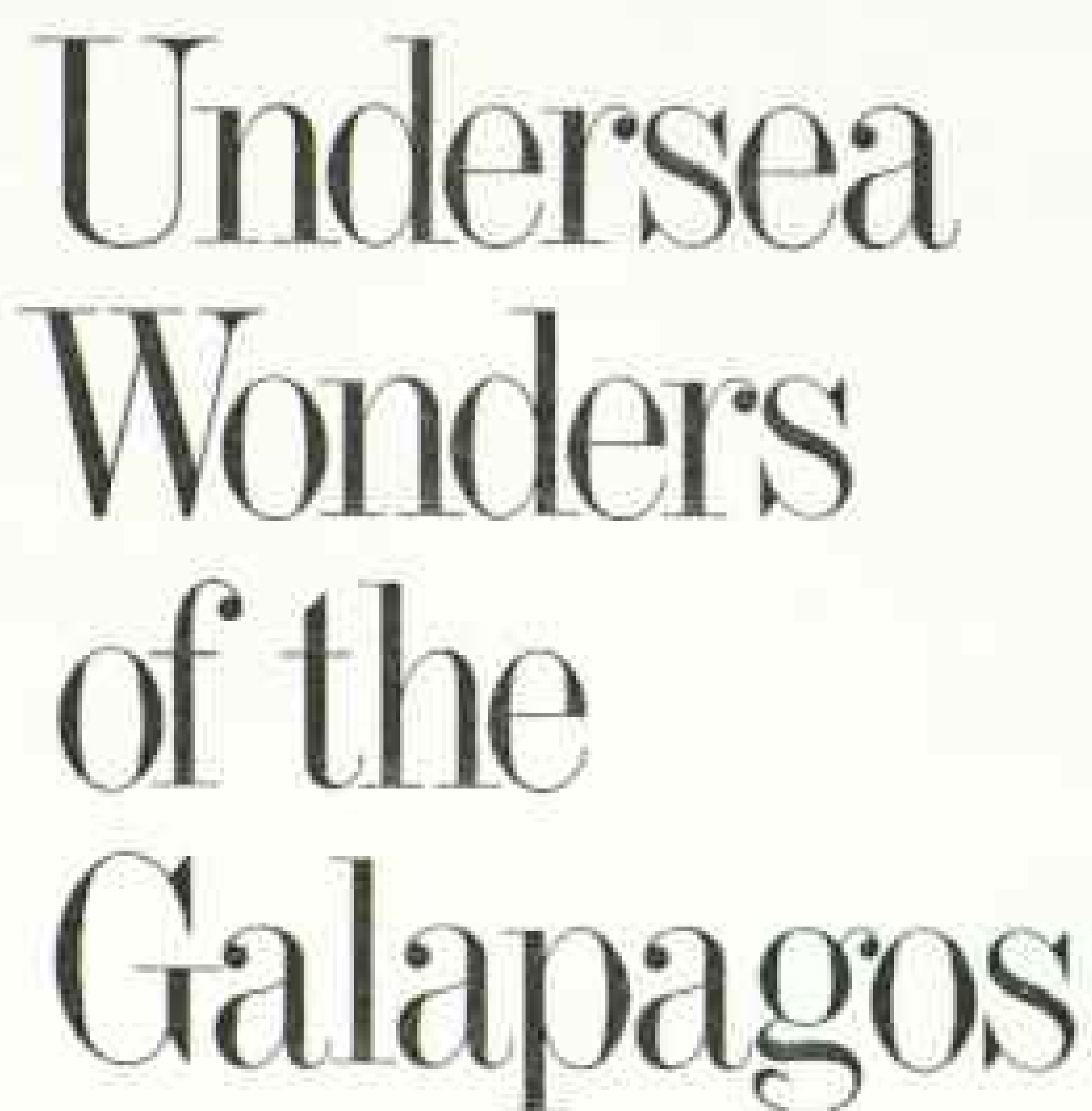
A tidy hut stands on the Syrian side; the nation's red, white, and black flag snaps above it. Attentive hands have flanked the hut with artillery-shell cases, serving as planters for flowering shrubs. I fell into a conversation with two liaison officers, Lts. Samir Abbadi and Ahmad Kalaji, standing a three-day watch. With typical Arab courtesy, they invited me into the hut.

"I am an expert maker of tea," said Samir. "So much so that our neighbors of the UN—who are our frequent guests—presented me with a certificate of excellence." He pointed to it, framed in a place of honor on the wall.

The tea, in the Arab fashion, was burning hot and piercingly sweet. As we sipped it, I said, "Quneitra must be a depressing post."

One of the officers shook his head. "No. Even among the ruins, hope grows. Did you notice those flowers outside in the shell casings—blossoms springing from the implements of war? Just so, we of the Arab nation must be optimistic. Mustn't we?"

He smiled tensely. "Mustn't we?" □



Undersea Wonders of the Galapagos

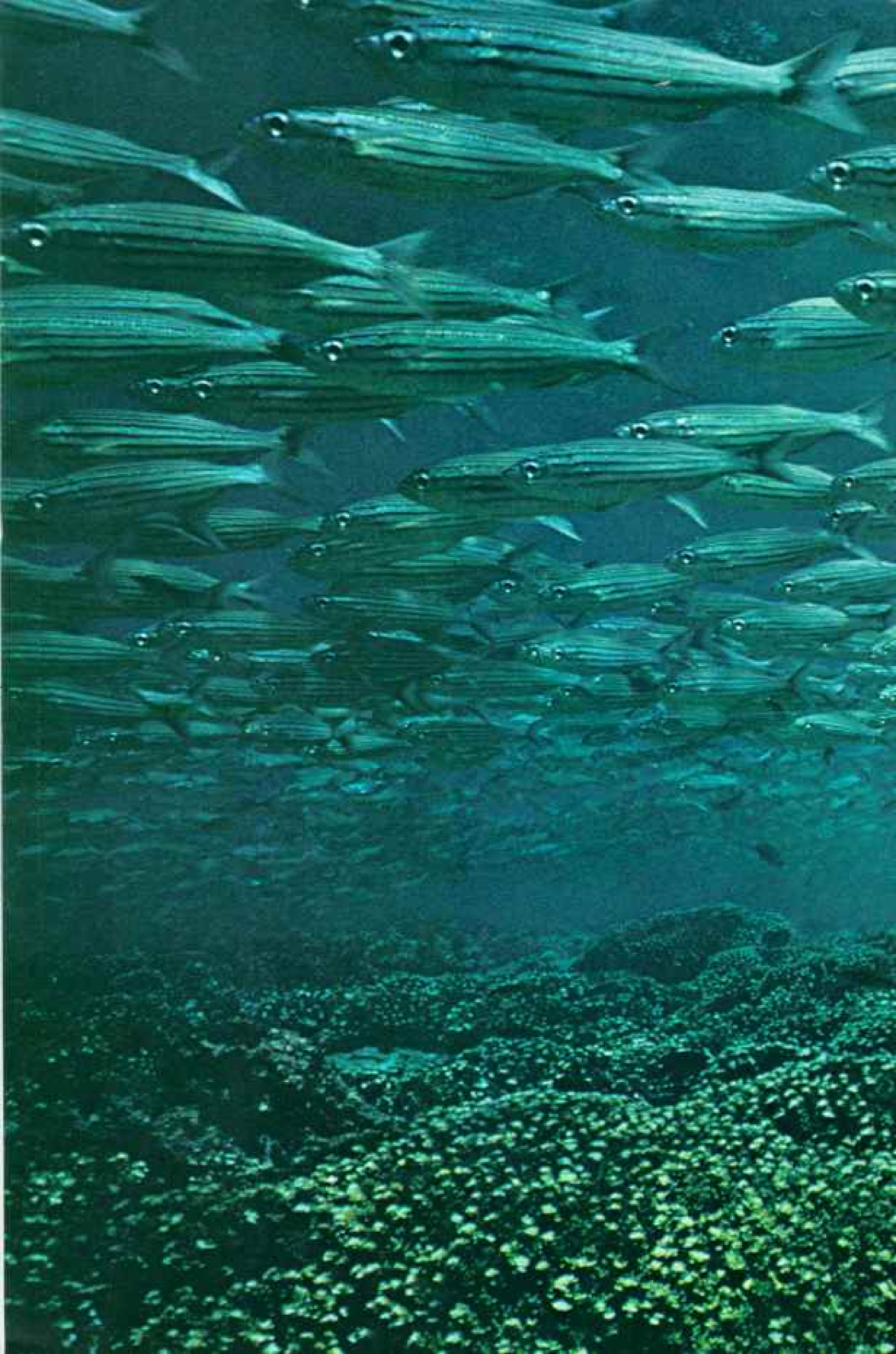
By GERARD WELLINGTON
Photographs by
DAVID DOUBILET

MAGICALLY they materialized from a moonless sea. The bottlenose dolphins caught the rushing bow wave of *Bronzewing*, and the black, plankton-rich water around them exploded with light. From their beaks to their flukes the dolphins were outlined in a bright bioluminescent glow. The frothy bow wave, white against the black sea, tumbled away incessantly, and just ahead we could see piercing flashes as smaller creatures darted here and there to elude these sleek, shimmering torpedoes.

Above us the sloop's mast arched gently against the star-laden equatorial skies; below we stared into the sparkling universe of the sea. That evening stamped indelibly on our minds the specialness of these Galapagos Islands and the teeming waters that surround them. Indeed, 17th-century Spanish mariners even considered them mystical, calling them the "Enchanted Islands." *(Continued on page 371)*

Living gargoyle, found only in "Darwin's islands," a marine iguana holds its breath while grazing on seafloor algae.

AMBLYRHYNCHUS CRISTATUS, 1 M (39 IN)



GRABBING THE LIMELIGHT, *sea lions stage an aquatic ballet. These affectionate clowns are among the tropics' few four-legged, flippered animals. Major Pacific currents, cool and warm, converge at the Galapagos to create a unique environmental setting for a startling diversity of marine life. Off Floreana, tropical grunts brighten the undersea horizon (overleaf).*

SEA LIONS: ZALOPHUS CALIFORNIANUS WOLLEBAEKI, 2 M (6.5 FT); GRUNTS: XENOCYS JESSIAE, 18 CM (7 IN)

Straddling the Equator, the Galapagos lie 1,000 kilometers (600 miles) off the coast of Ecuador. They form a volcanic archipelago embraced by great Pacific Ocean currents. It was here in 1835 that the young English naturalist Charles Darwin observed the strange plants and animals that later contributed to his theory of evolution by natural selection.*

What Darwin never saw, however, was the world beneath the sea, an underwater world richer than that above the tide line and perhaps just as strange.

I had previously spent two years in the Galapagos, studying the diversity of marine life and the variety of habitats for the Ecuadorian National Park Service and the Charles Darwin Research Station on Santa Cruz Island. Data from the study helped the government formulate a plan to protect this fascinating undersea world. Now, with photographer David Doubilet and his wife, Anne, I had returned to further explore and document.

Melville Hinted at Hidden Beauty

In contrast to bleak, cactus-studded shores, the marine environment is a kaleidoscope of colors and shapes. Herman Melville had experienced only a hint of this hidden beauty when he wrote: "Below the waterline, the rock seemed one honey-comb of grottoes, affording labyrinthine lurking places for swarms of fairy fish. All were strange; many exceedingly beautiful. . . ."

Large numbers of shorefish, marine mammals, and seabirds are indicative of the rich waters surrounding these unique islands. It is here that the cool Peru, or Humboldt, Current becomes the westward-moving South Equatorial Current. From January to May, when the Peru Current slackens, tropical water from the Gulf of Panama invades the islands, sometimes persisting for several months.

Here, too, the upwelling of the submarine Equatorial Undercurrent brings cool, nutrient-laden waters to the surface. This helps account for the presence of many temperate-climate marine species.

*See, in NATIONAL GEOGRAPHIC: "In the Wake of Darwin's *Beagle*," by Alan Villiers, October 1969, and "The Galapagos, Eerie Cradle of New Species," by Roger Tory Peterson, April 1967.

Ecuador's gift to science, most of the Galapagos's 3,000 square miles of islands and rocks (**above**) were set aside as a national park in 1959. Here experts of many nations study the strange flora and fauna that intrigued Charles Darwin. With Anne Doubilet, the author explores coral on the bottom of a watery world the English naturalist never saw (**facing page**)—a world Ecuador plans likewise to protect.

Nowhere else does one find both sea lions and penguins gliding gracefully over coral.

Marine biogeographers regard these waters as a distinct biotic province. Yet few studies have been made here, despite the tantalizing fact that nearly 25 percent of the known algae, invertebrates, and shorefishes occur nowhere else on earth.

Welcome to the Bizarre

Some species border on the bizarre. Only in the Galapagos can one find herbivorous reptiles clustered en masse along lava shorelines, occupying a niche seemingly invented for their existence. These air-breathing marine iguanas venture offshore to dive beneath the sea, where they feed by rasping with small razorlike teeth on the green algal mat carpeting the bottom (pages 362-3).

Within a period of six weeks, David, Anne, and I crossed the Equator eight times and dived where few had ever swum before. We discovered sheer undersea walls whose rock slopes plummet hundreds of meters into the abyss, and sparkling lagoons covered with coral. We explored a sandy cove, which by day appeared barren but at night revealed giant sea stars, a meter across, and a forest of bright-orange tubular sea pens.

It was easy to see that different zones within the islands reflect the various marine climatic conditions. To the north the fauna and flora closely resemble those found in the tropics to the west. Parrot fish, Moorish idols, and black triggerfish, all Indo-Pacific migrants, teemed around coral colonies.

Consigned to the ocean floor by its lack of a buoyant swim bladder, a rosy-lipped batfish (**below**) cuts a comic figure as it ambles and hops along on specially adapted

In the south and west, where cool water hugs the coast, a variety of South American warm temperate species, like the harlequin wrasse and the sheepshead, predominate amid masses of calcareous tube worms and encrusting sponges. Here, microorganisms frequently form a thick planktonic broth, and large cetaceans such as sperm and fin whales often visit to feed.

Finally, the central region of the archipelago is a combination of these distinct biotas. But most organisms here, like white-striped angelfish and yellow-tailed surgeonfish, derive mainly from the continental shores ranging from Ecuador to Mexico.

With the sea becalmed like a giant millpond in the early morning light, we headed north from Academy Bay aboard *Beagle III*, the 21-meter, steel-hulled vessel of the Charles Darwin Research Station. We passed manta rays—some more than three meters across and weighing half a ton—feeding near the surface with their peculiar "horns" extended, funneling plankton into their mouths.

Sea lions frolicked a few kilometers from land. "They may spend several days at sea hunting fish before they'll return to shore," Dr. Fritz Trillmich said.

Fritz, a bearded German scientist now based at the research station on Santa Cruz, was studying the ecology and behavior of Galapagos sea lions and fur seals. His preliminary findings indicate that these animals, normally creatures of temperate climates, have made behavioral adjustments

fins. Organic incrustations on a rock reef provide lodging for a rainbow-colored blenny—one of many fish found exclusively in the Galapagos's plankton-rich waters.

BLENNY: ACANTHEMBLEMARIA CASTROI, 5 CM (2 IN), GERARD WELLINGTON

BATFISH: OGCOCEPHALUS DARWINI, 15 CM (6 IN)

STARFISH: PAULIELLA HORRIDA GALAPAGENSIS, 10 CM (4 IN)

"**Life beneath the surface** . . . presents as great a contrast to the creatures of the land, as the fauna of a tropical jungle differs from that of the Arctic. . . ." So wrote William Beebe in 1923 after conducting marine studies in the Galapagos. Far deeper than Beebe could probe in shallow tidal pools, a brilliant starfish (**above**) grazes on algae in Tagus Cove. In the same 15-meter depths, a slipper lobster (**below**) stalks for small prey. Once so abundant they could be handpicked from inshore waters, these lobsters and two other species have been seriously depleted through excessive predation by man. Aiming to restore their numbers, the government has set curbs on their export.

The discovery of new and exotic species in these waters continually adds to the Galapagos's rich roster of marine flora and fauna—nearly 25 percent of which occurs nowhere else. Off San Salvador, an Indo-Pacific leaf fish (**right**) makes its first recorded appearance in the eastern Pacific.

LOBSTER: SCYLLARIDES ASTORI, 30 CM (12 IN)

LEAF FISH: TAENIANOTUS TRIACANTHUS, 15 CM (6 IN)

MANTA RAY: MANTA HAMILTONI, 3 M (10 FT)

to the tropical sun. Sea lion mating and territorial displays, for example, occur almost exclusively in the water, apparently to avoid overheating.

A Never-to-be-forgotten Plunge

After sailing northward for two days, we reached Marchena, where we donned scuba gear and plunged over the side. We found there the most fantastic congregation of tropical fish any of us had ever seen. Sitting nine meters down at the base of a large offshore rock, I looked up to see our lanky, red-haired captain, Fiddi Angermeyer, disappear into a maelstrom of goatfish, their yellow tails reflecting golden against the light rays streaming down from the surface.

In this high rise of fishes, fat groupers peered from crevices, and green moray eels nearly two meters long, mouths agape, engaged in territorial combat. Nearby, butterfly fish maintained cleaning stations, using their pointed beaks to remove minute parasites from the scales and fins of other fish. Hefty horse-eye jacks weaved in and out of view, while clouds of grunts and creoles patrolled in tight formation.

I counted 40 species—ten endemic to these waters—within 15 minutes. After two days of diving we headed westward.

As *Beagle* rounded Isabela, largest of the Galapagos, Redonda Rock loomed out of

Ghostly presence in the early morning darkness west of Santa Cruz, a manta ray turns its reflective belly to the camera as it sweeps by on a three-meter (ten-foot) wingspread (**left**). With the hornlike oral flaps that have earned it the name devilfish, it funnels plankton—its primary diet—into its broad mouth. The meter-long tail that it once sported—and doesn't seem to miss—was perhaps snipped off by one of the many sharks that patrol these waters.

From manta rays and fin whales to delicate sea anemones (**upper right**) and tiny coral polyps (**right**), creatures great and small thrive on a movable feast of plankton, nourished in turn by nutrients in the cool currents flowing past the islands. This soup of the sea can be so concentrated and turbid that it limits visibility to a meter or two.

SEA ANEMONES: GENUS TEALIA, 4 CM (1.5 IN)

CORAL: TUBASTRAEA COCCINEA, 1.3 CM (.5 IN), ANNE LEVINE DOUBILET

the mist. Some twenty-four kilometers (15 miles) from nearest land, this rock, swarming with birds, lies at the juncture of warm and cool currents. Huge swells crash against the cliffs, and a bridal train of white froth streams off into the open sea.

In the distance we spied several spouting sperm whales and pods of leaping common dolphins. The water below was a soup of myriad salpae—inch-long creatures resembling jellyfish—reducing visibility to nearly zero. I made a quick temperature check. "It's 65 degrees!" I called out. This was cool upwelled water, typical of the archipelago's western edge.

Late that afternoon we arrived at Tagus Cove. Eighteen meters down we encountered the weird batfish, *Ogcocephalus darwini* (pages 372-3), perched on the coarse brown lava sand. With its elongated snout, flaring fins, and bright-red lips, this Galapagos native belongs to an odd group that has become completely adapted to bottom dwelling. Propped off the seafloor by stilt-like fins, it hops about lethargically, aided by an occasional swish of the tail.

Next morning we motored to incredible Espinosa Point—site of an eye-boggling concentration of reptiles. On a spit barely a hundred meters long, 2,500 marine iguanas live in gregarious harmony.

Clinging with sharp claws to boulders

Nature sets a bountiful table in the Galapagos for thousands of sea lions. Lunch over, a female ignores a school of grunts while cruising off Floreana (**above**). Born singly, pups live charmed lives of nursing, playing, and sleeping (**below**). Sea lions are endearingly approachable by the boatloads of day visitors that tour their beaches—all but dominant males. During mating season they jealously protect territories containing as many as 30 cows from other bulls and humans alike.

covered with algae, these miniature sea dragons dotted the bottom, grazing underwater for 10 to 15 minutes at a time. We were amazed to find them so easily approached. In fact, as the strong swells tossed us about, David's camera nudged one of the feeding iguanas. Ignoring the prodding, it continued to pivot its head from side to side, ripping and tearing at the algal turf.

Only when approached during ascent or on the surface do they display fear. Limbs tucked against the body, the iguana swims with an undulating motion of its tail and body (page 381). In a sea full of sharks these vulnerable animals seem to avoid predation; how they do is unclear to me.

It was also at Espinosa Point that we caught fleeting underwater glimpses of the small Galapagos penguins. Literally flying submerged, they darted rapidly about in pursuit of abundant fish fry.

Returning to our base on Academy Bay, we changed boats and headed north to Wenman and Culpepper. Aided by two-knot currents, *Encantada*, a two-masted schooner, motored swiftly over a glassy sea toward these outposts some 300 kilometers away. They are so remote that Capt. Rolf Wittmer told us in his German-accented English: "I was born and have lived in the Galapagos over forty years, and this is the first time I come to these crazy islands!"

Diving Boobies and a Dolphin Escort

As we approached, squadrons of red-footed boobies greeted us. Unaccustomed to dealing with boats, several crashed into the masts and rigging but recovered with amazing agility. From stem to stern hundreds of dolphins escorted us. The smooth sea was

disrupted here and there by the backs of basking green turtles.

Dense vegetation and thousands of nesting birds made the islands stand out like oases in a boundless sea. We had come to these seldom-visited islands to observe the abundant Galapagos sharks. After dropping anchor at Culpepper, we prepared for an afternoon dive.

I had forewarned everyone that, even though we had found sharks omnipresent in the islands, this place might prove a bit scarier. What understatement! From the instant we touched the water, sharks as long as four meters surrounded us.

I was the first in. Fighting a strong current, I sought shelter against a large coral colony 13 meters below. As I watched David and Anne swimming down, framed in shafts of sunlight, five solid-gray Galapagos sharks headed for me out of the distant haze.

I pressed back against the coral as one swam directly over my head, its belly passing within half a meter of my face mask. Moments after we were all sequestered in coral foxholes, more sharks appeared, and still more. We counted 16 at one time, circling and passing around us.

With a nonchalance I did not feel, I jotted notes on my slate while David and Anne photographed. Fortunately the sharks showed no signs of aggressive behavior and slowly swam away.

A sudden, uneasy calm prevailed. Where were all the fish? Looking up, we saw 24 massive scalloped hammerhead sharks cruising scarcely ten meters away. Eyes mounted at the ends of strange cartilaginous protuberances, these beasts formed an echelon from top to bottom in the water column.

Big hammerheads have been known to attack man, and we shared uncomfortable visions of being the entrée in a shark feeding frenzy. Yet at the same time we were captivated by their gracefulness.

What had drawn so many predators to a location with so few fish? And why were these sharks swimming in such well-patterned schools? Schooling is considered to be a mechanism to confuse and avoid predators. Perhaps in sharks it serves a function in some yet unknown mating system.

Sharks weren't the only large animals in Galapagos waters to come calling. With almost every dive we were buzzed by amiable sea lions. These "dogs of the sea" nibbled our flippers and playfully nipped at our strobe lights and scuba tanks. At James Bay we dived in emerald-green lava grottoes with the once over-hunted, but now protected, Galapagos fur seals. Timid on land, they displayed an innate curiosity, almost affection, toward us underwater.

Watery "Land" of Opportunity

Unlike the terrestrial environment, which provided Darwin with the insight to crystallize his concepts of evolution, the Galapagos marine environment has yet to be fully discovered and appreciated by the scientist and naturalist. The opportunity to work in surroundings so undisturbed by man is becoming rare indeed.

More people have visited the Galapagos within the past five years probably than in the past five centuries. While most come only to explore the terrestrial wonders, more each year are entering the water.

The Ecuadorian National Park Service, which manages the Galapagos Islands, has made tremendous strides in conservation—most spectacularly, perhaps, in restoring the endangered giant tortoises.* Now the government is planning to expand the park's boundaries to protect the delicate marine environment.

Pending legislation offers hope that this unique world beneath the sea will survive unspoiled for the enjoyment and use of generations to come. □

*Craig MacFarland described these "Giant Tortoises: Goliaths of the Galapagos" in NATIONAL GEOGRAPHIC, November 1972.

The serpentine grace of a marine iguana in water, seen from below as it swims on the surface, contrasts sharply with its sluggish behavior on land. Related to land iguanas, also found throughout the archipelago, these creatures stay submerged for 10 to 15 minutes at a time. There they browse in a watery Eden that—with their island home—constitutes one of man's outstanding natural laboratories.

ART

A Most Uncommon Town Columbus

Photographs by
J. BRUCE BAUMANN
Text by
DAVID JEFFERY
NATIONAL GEOGRAPHIC STAFF

AS CIVIC DECORATION, it's not your typical cannon on the courthouse lawn—"Chaos I" (**left**), a clanking tangle made of old Indiana machinery by Swiss sculptor Jean Tinguely. But it's in Columbus, and that's not your typical midwestern county seat, either.

This day schoolchildren have come to The Commons, an enclosed public space designed by architect Cesar Pelli, to draw their impressions of the kinetic sculpture. People on their way to the adjoining shopping mall stop to look and to listen. Some regard the sculpture with heads cocked in puzzlement. Some scowl while others smile. Few ignore it.

At one end of The Commons older men gather in small groups to solve the world's problems and bemoan the price of fertilizer. Maybe some parts from their old combines, threshers, and augers—serious machines for serious work—have become, well, *art*. That's a good one.

In a way Columbus is like that, a town without any apologies for hard work, solid and industrious, yet one alive to and filled with art, especially contemporary architecture of national significance.

Roughly 40,000 people yearly come to look around this town of 32,000. Some just wander about on their own. Many go to the Visitors Center for guidance. So it's commonplace for a bus loaded with architecture students on tour to stop at The Commons. Children there won't pay them any mind, busy as they are exploring the universe of their fancies in a Playtank (**right**) while their parents run errands.

For townspeople the forty-plus buildings designed by modern masters of architecture do not make a spectator sport. They are places to learn in, pray in, read in, have fun in, work in, bank in, have the daily life of the community written and printed in. Small town in scale, they fit in like slightly eccentric neighbors, adding variety, provoking debate, and stimulating a taste for the unconventional.

TURNING ON at the City Power House, the Senior Citizens Kitchen Band, with Clara Wilds on her kazoosahose-funnelphone, practices in the former utility plant renovated for senior activities. The band goes "everywhere we're asked," getting raves at the State Fair and such requests as the one from a man in the convalescent home who asked for "a good old Methodist hymn —'Barney Google.'"

Over at City Hall, there's a brief break from the necessary but mundane concerns of streets, utilities, and budgets. Mayor Max Andress (**facing page**), former schoolteacher and football coach, beams as he concludes a wedding ceremony for a couple who had come down from Indianapolis because they like the lively spirit of building and rebuilding in Columbus.

Morning lights the rectangular planes of the First Christian Church (**below**), built in 1942 to Eliel Saarinen's design as the town's pioneer modern building.

Now that towns and small cities across the United States are enjoying a renaissance, Columbus stands among them as something of a Florence, with its Medici of the corporate variety.

ARCHITECTS: KEVIN ROCHE JOHN DINKELOO AND ASSOCIATES (RIGHT)

RESPONSIBILITY to the town was well established as a policy of the Cummins Engine Company when J. Irwin Miller (**above,** with his wife, Xenia) became its chief executive. Founder Clessie Cummins was the chauffeur to a local banker, W. G. Irwin, and persuaded him to finance improvements to the diesel engine. But the profits, Irwin insisted, were not to be the sole purpose of the venture. They were also the means to provide jobs and personal and moral growth for the community. The jobs now total about 11,000 locally. The firm's philanthropy continues.

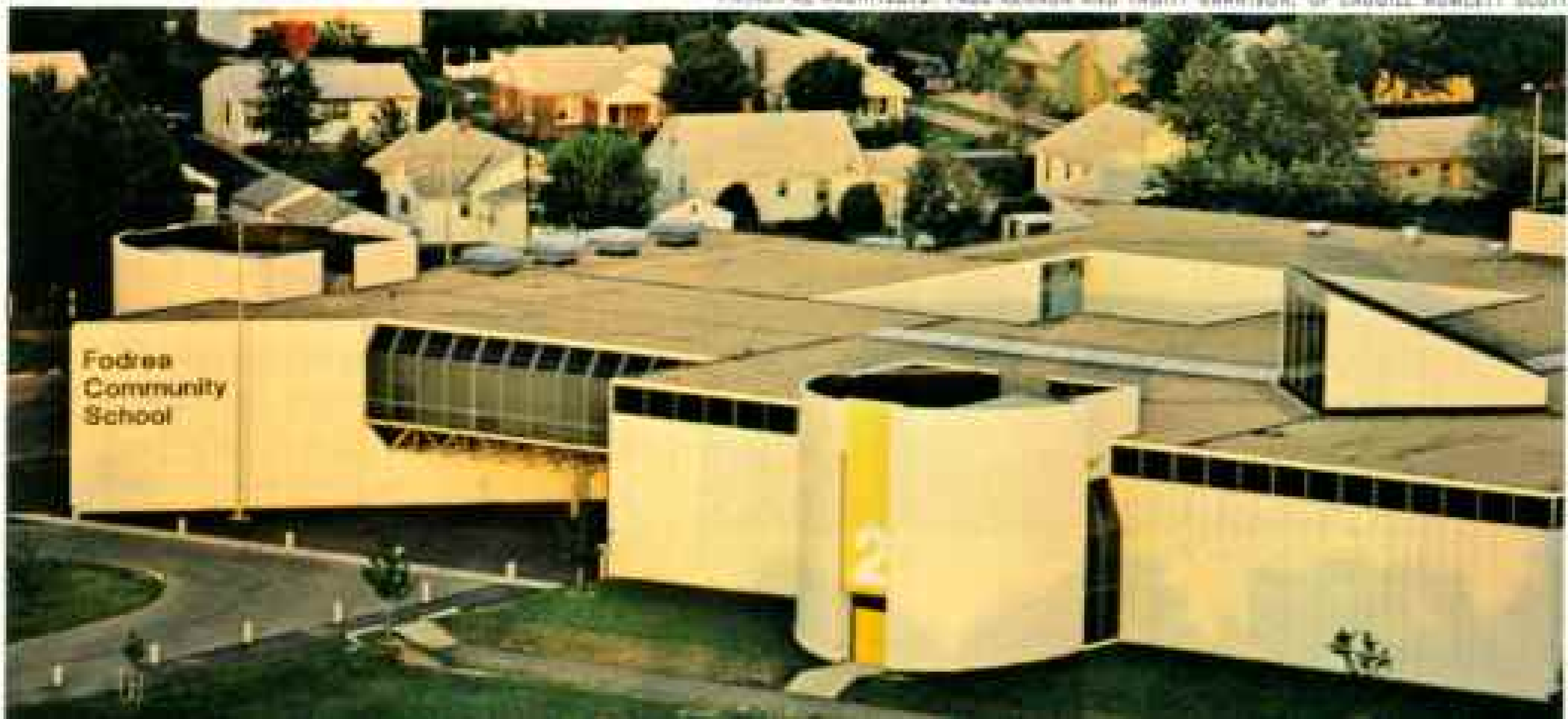
Most visible during Miller's tenure was a program that began with the schools. Cummins would pay the design fees if the school board picked from a given list of top architects. That was all; otherwise, the schools had complete control. Since 1957, 11 schools and several other public buildings have been so designed.

Setting its own example, Cummins built a new plant (**right**) into the landscape, with parking tucked away on top, and an outside view for all 2,000 employees.

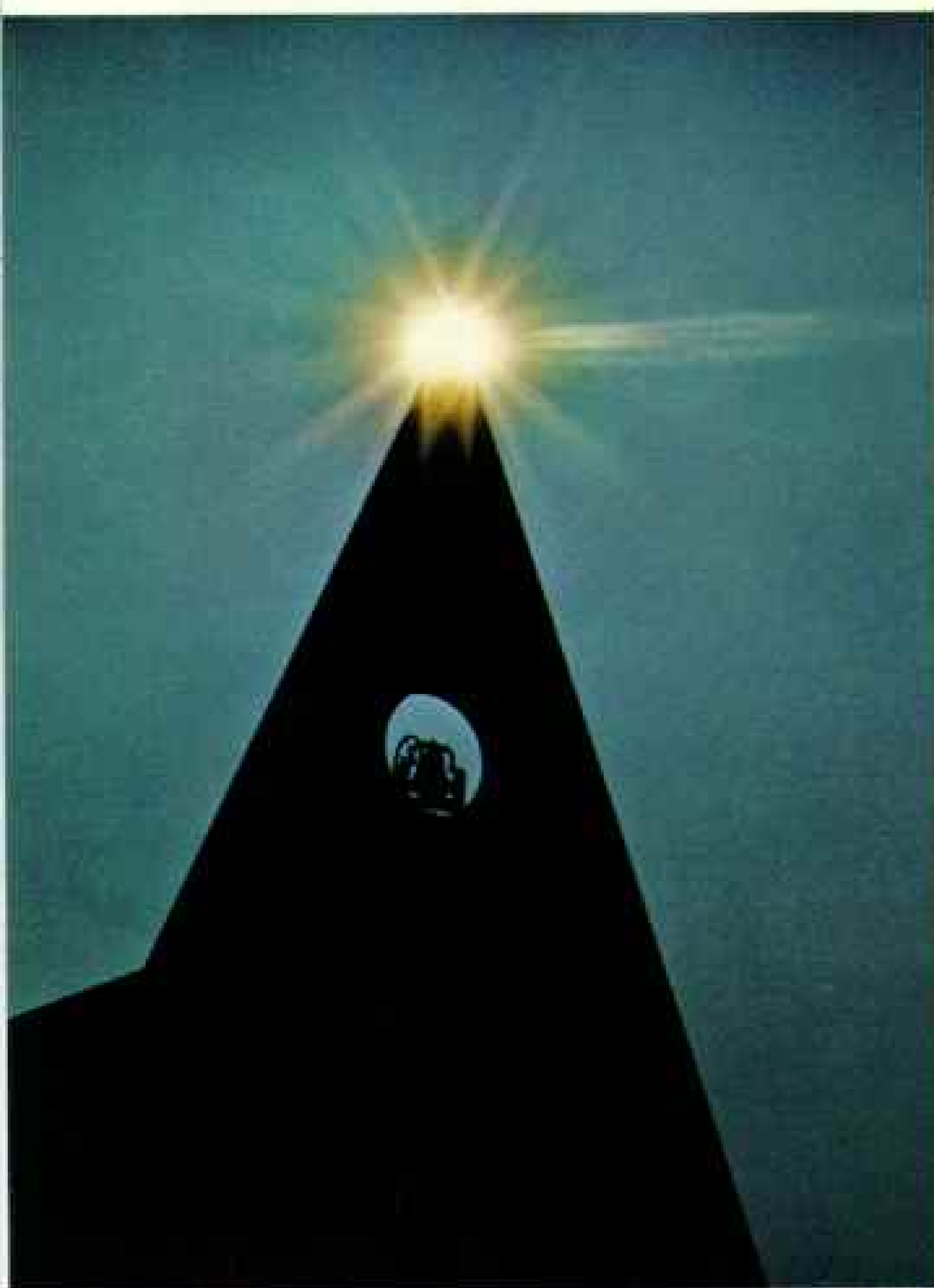
FROM A TO Z, the schools designed under the architects fee-paid program have, over 20 years, mirrored changing trends in educational philosophy. The most recent, Fodrea Community School (**right**), nestles into a neighborhood of modest, well-kept houses. Planned with the active participation of students, parents, and teachers, it features learning centers that occupy open, flexible space (**above**), where team teaching may be used to best advantage. As plans develop and funds permit, the school should become a center for the activities of all ages.

Sometimes the town gets its back up a bit. The building committee for the new library decided it wanted to choose its architect directly. So it went out and hired the renowned I. M. Pei on its own. It then turned around and asked Cummins for a building gift—and got $800,000.

PRINCIPAL ARCHITECTS: PAUL KENNON AND TRUITT GARRISON, OF CAUDILL ROWLETT SCOTT



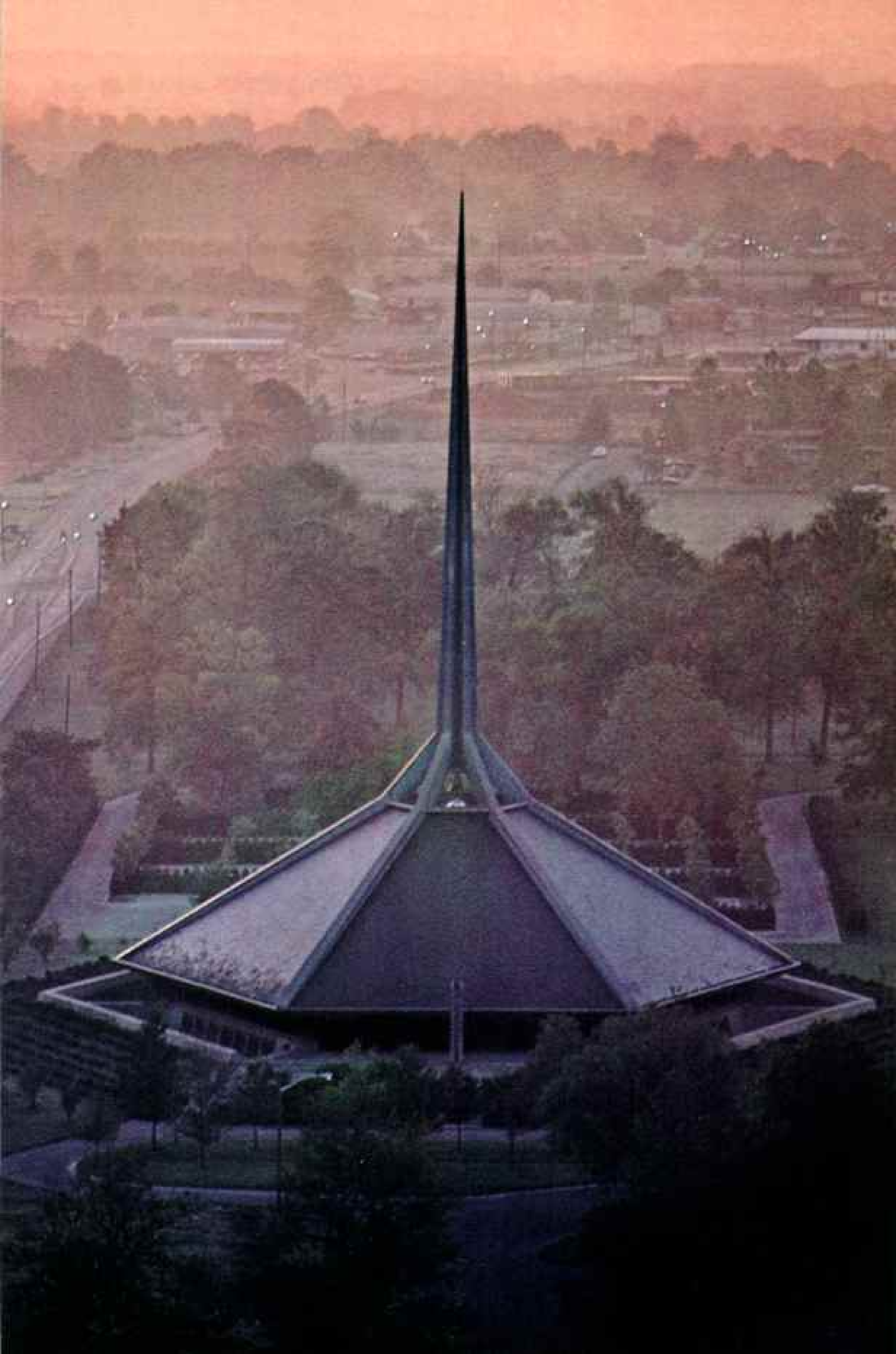
ARCHITECTS: KEVIN ROCHE JOHN DINKELOO AND ASSOCIATES AND EERO SAARINEN



ARCHITECTS: HARRY WEESE (ABOVE); EERO SAARINEN (FACING PAGE)

A SAMPLER of Columbus architecture might begin anywhere and run a gamut of public, private, and commercial structures done by such prominent architects as Harry Weese, John M. Johansen, Eero Saarinen, and Skidmore, Owings & Merrill. A spacious glass arcade (**above**) connects two downtown bank buildings. The bell tower of the First Baptist Church (**left**) crowns a house of worship whose aura is both post-modern and pre-Gothic. Eero Saarinen thought his North Christian Church (**right**) might be the work that would most commend him to St. Peter.

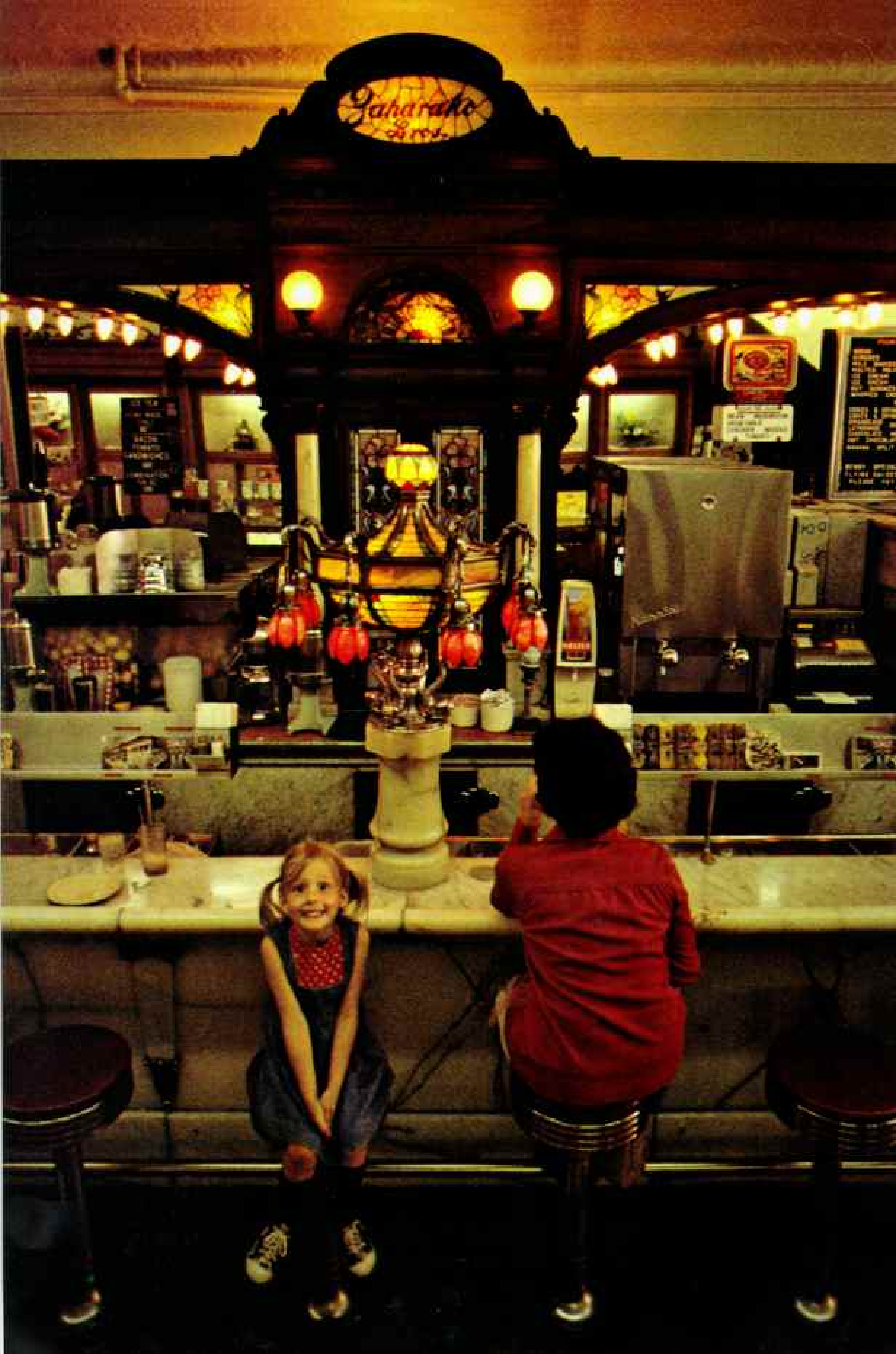
Others are less reverent, calling Saarinen's church the "oilcan" and grumbling about company-town charity. Hoosier disdain for paternalism goes back a long way. In 1821 Gen. John Tipton gave 30 acres to found a town named Tiptona in his honor. The town promptly changed the name to Columbus. The general left in a huff and never came back.



CLOWNING AROUND on the Fourth of July, children mug it up (**above**) as some 40,000 Cummins employees and families converge on their own recreation complex, the 345-acre Ceraland, which offers everything from camping to concerts.

All on "The Family," a granite schoolyard sculpture (**right**) by Harris Barron, join in on a chopper launch.

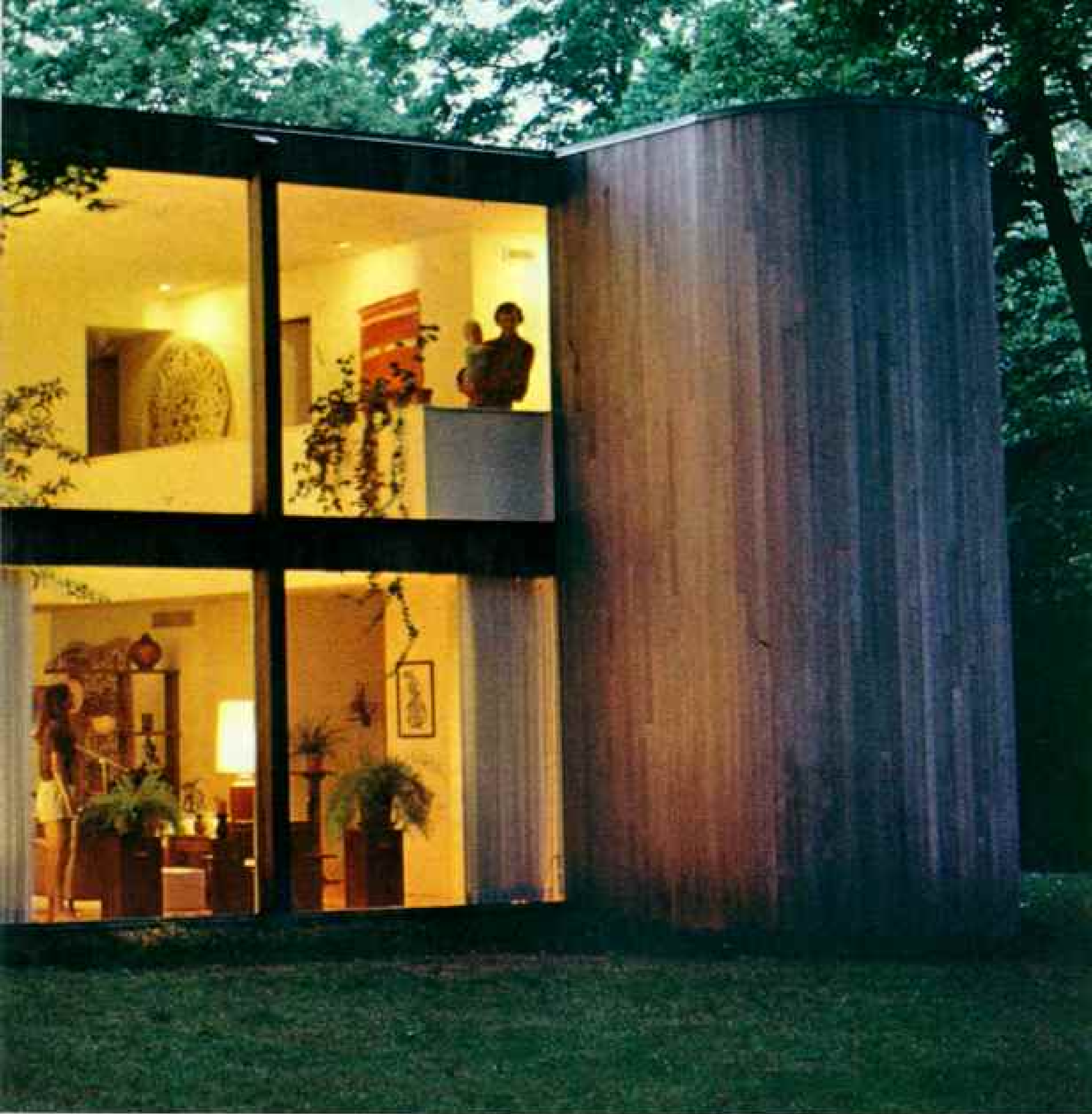
Art for its own sake enjoys widespread support and participation. When the Hartford Ballet (**left**) came to town, it not only gave performances but also offered workshops in dance. Corporate and private sources help finance the arts, but their vitality depends on volunteers. That is what all the musicians in the Columbus Symphony Orchestra are. As commercial and cultural center for a seven-county area, Columbus has it both ways: enough people, talent, and enthusiasm to support city amenities, yet preserve a smaller town atmosphere.


Zaharako Bros.

FOR SIX generations the same family has watched sunsets go down beside the original farmhouse as additions to it went up. With a thousand acres in wheat, soybeans, corn, and tobacco, Ray and Lou Marr (**above**) expect to see "at least one more generation in farming." Lou is active in historic preservation, and her enthusiasm is widely shared by others as concerned for the best of the old as for the best of the new.

At Zaharako's turn-of-the-century ice-cream parlor downtown, a satisfied customer (**left**) thinks the cut glass, onyx, and polished brass are OK, but the cherry phosphates—wow!

Retired from big crops, a farmer and his wife (**right**) expertly tend their small, in-town yard and garden.



LITTLE DETAILS can make life more livable. Add some paint and imagination, and a handball court (**left**) becomes a poster. Multiply the details, large and small, all over town, and life becomes that much more pleasant. Made a part of corporate philosophy by such large local concerns as Cummins, Arvin Industries, and Cosco, Inc., the amenities become strong points in recruiting executive talent that might more naturally head for the big cities.

"We're really mountain and ocean people." That's how Dianne and Ron Hoge felt six years ago when they came to town with a two-year commitment to midwestern life. In their cedar and glass home (**above**) designed by architect Scott Mitchell, they admit to having "been won over by Columbus," where in day-to-day living they learned to enjoy an improved quality of life away from the "urban hassle."

With the nation's growth now shifting to more rural areas, Columbus can only hope that hassle doesn't end up moving to town. □

The Joy of Pigs

By KENT BRITT

Photographs by GEORGE F. MOBLEY

BOTH NATIONAL GEOGRAPHIC STAFF

OF COURSE your pooch is a clever beast, and your tabby is probably just as bright but simply doesn't choose to flaunt it. But, to my mind, when it comes to pure native intelligence, both of them are completely overshadowed by that barnyard paragon, the pig.

"Stupid swine?" Don't you believe it!

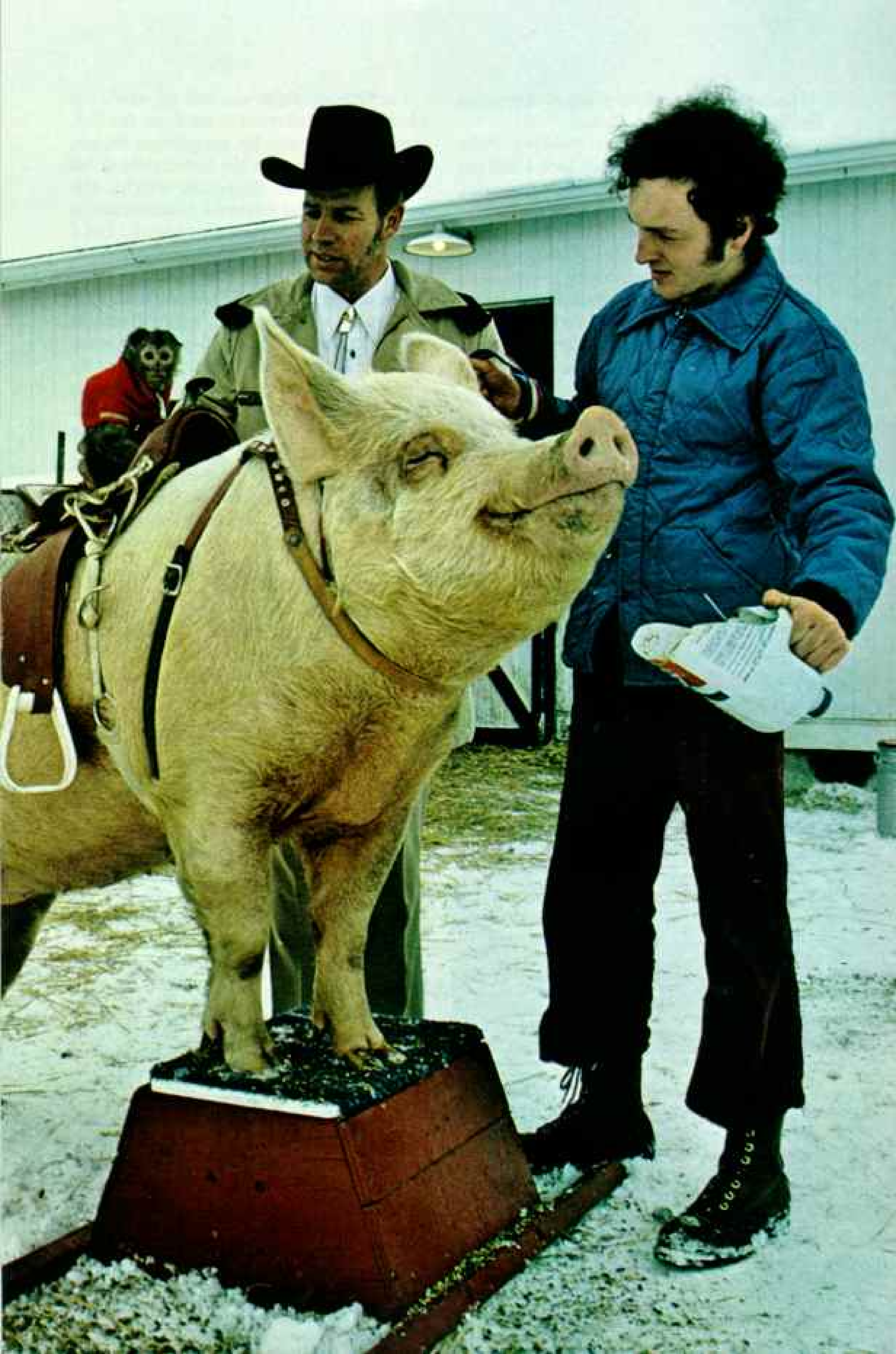
Scientists say that pigs, unlike all other domestic animals, arrive at solutions to problems by thinking them through, and pig experts report that the animals can be—and have been—taught to accomplish almost any feat a dog can master, and usually in a shorter time.

There was the sow in 18th-century England that became a better pointer than the bird dogs from whom, by mere observation, she learned the skill.

And the sow in Florida that some scoundrel had trained as a watchpig to guard a secluded marijuana patch (she bit two sheriff's deputies before being subdued).

And Charlotte, the pet hog of Mr. and Mrs. Frank Weller, Jr., of Baltimore County, Maryland, who delights in giving children authentic piggyback rides.

Hamming it up, Porky smiles smugly at words of praise from her cowboy-hatted trainer, Harold Tesch, a teacher at the Milton C. Porter Education Center near Adrian, Michigan. Although saddled with an odious reputation, *Sus scrofa* is the smartest of domestic animals. Tesch has his students work with the performing Yorkshire to teach them responsibility and, "more important, love. We think they will treat their neighbor just like they learn to treat an animal," he says.



And Ralph, the diving pig of Aquarena Springs in San Marcos, Texas.

And then there's my own good pet, Fido, who easily mastered the bolt lock I had put on a kitchen cabinet in a futile attempt to foil his periodic raids on my condiments.

Yes, I'm a pig freak. For years I have regaled friends with vivid accounts of *Sus scrofa*'s intelligence, curiosity, cleanliness, and general charm, and bristled with indignation at the drop of an anti-swine slur. But not until September 1976 did my longtime dream of owning a pet pig come true.

MISS PIGGY © HENSON ASSOCIATES, INC., 1976; 1978; DAVID BRILL (FACING PAGE)

Foam-rubber femme fatale, 29-21-33 Miss Piggy (**above**) each week delights 235 million viewers in more than a hundred countries on the televised "Muppet Show." Many aspects of the TV star—charm, grace, beauty (and occasional pigheadedness)—are seen by the author in his 225-pound pet pig, Fido (**facing page**), here strolling together near their suburban Washington, D. C., home.

The little red piglet was only 4½ weeks old when he was delivered to me from the University of Missouri; his earsplitting shrieks and struggles against the constraints of his harness belied his 8½-pound weight. His frustration squeal seemed a combination of a rooster's yodel, a parrot's squawk, and a Chihuahua's yelps. When unrestrained, though, he would nose about happily, emitting soothing grunts of contentment. Fido quickly became a true pet, and will remain so throughout his 15-to-20-year life span.

Had Fido been an ordinary pig, I probably would have been less eager to raise him in my suburban Washington, D. C., home. For all their winsomeness as babies, pigs can hardly be regarded as lap animals when fully grown. Adult domestic hogs commonly tip the scales at 800 pounds. (The heaviest on record was a North Carolina behemoth weighing 1,904 pounds—about the weight of a Volkswagen Beetle.)

But Fido isn't ordinary. He's an "S-1" miniature pig, one of several strains of scaled-down swine specially developed for laboratory-research purposes. My little "minipig" has attained his mature weight of *only* about 225 pounds (right).

Hogs Arrived With Explorers

Swine first appeared on earth some 36 million years ago (which makes them about ten times older than man), and they have been rooting for themselves ever since. Pigs were never native to the Western Hemisphere, although a close relative, the peccary, was (page 404). The peccary and the hippopotamus are the living species most closely allied to the true pigs.

Then along came Columbus, with his eye on the larder.

"Supposedly he left eight pigs on Haiti when he landed there," John Mayer II told me. John, a graduate student at the University of Connecticut, is researching the introduction of pigs into the New World.

"From that original stock they were transplanted throughout the West Indies, and apparently returned to their wild state. Later explorers going to the mainland would pick up the feral stock on the islands and take them along as provisions."

Pigs that escaped the explorers' cook fires survived in the wild. Some descendants,

A little help from a friend clears residue from the snout of a newborn piglet (**left**) at Circle Oaks Farm in Elora, Tennessee. Within minutes the seemingly helpless porker will be scrapping with its siblings. Experts estimate pigs at birth to be, physiologically, the equivalent of a human child at $1\frac{1}{2}$ to $2\frac{1}{2}$ years—but they eat like teenagers from the outset.

No matter how many in a litter (8 to 12 is average, 34 the record), each little piggy quickly lays claim to a particular feeding station on mama (**below**) and defends it fiercely. By age 6 months, the voracious critters will have increased their three-pound birth weight by 7,000 percent.

BOTH BY DAVID BRILL

after 400 years, still do. I went to Ossabaw Island, Georgia, to see them.

Lying five miles offshore some ten miles south of Savannah, Ossabaw is accessible only by boat or light plane. This physical isolation is what has kept the pigs that roam Ossabaw's 16,000 acres so free from the influences of domestic stock, which makes them ideal subjects for scientific study.

With the approval of the island's owners, university researchers launched an interdisciplinary study to determine the Ossabaw pigs' genetic makeup, their diet, their social behavior, and their impact on the habitat and how they've adapted to it.

Pigs Resemble Great-great-granddaddy

With professors and students from the Pennsylvania State University—and the help of three specially trained "catch dogs"—I got a closeup look at the pigs.

These beasts definitely were not models for cherubic Porky Pig or gentle, lovable Wilbur of the E. B. White classic, *Charlotte's Web*. These were lean, rangy, bristly hogs with teeth like razors and, as adults, dispositions to match. With their dark hues, flat heads, and long guard hairs, they seemed to have reverted—except for their smaller size—to the physiognomy of their ancestor, the European wild boar.

The dogs, which would bullyrag a targeted pig through salt marsh and palmetto thicket until they could pull it down by its ears and immobilize it, remained unscathed that day. They aren't always so lucky. It has been said of the wild boar that "Only the killer whale of all the earth's mammals can inflict a worse bite." Pigs in general show little fear of any creature but man, and even that seems more wariness than real fright.

Fido is no exception. Although he delights in being around people—especially if they talk to him and scratch him—he tolerates discipline only from the immediate family. And he's not crazy about other four-legged animals—except my sandy Scottish terrier, Macbeth, who is his best friend and constant companion. If you can visualize a reddish 225-pound porker romping in the grass with a pale, 22-pound Scottie, you will understand why I call them the "Odd Couple."

The female Alaskan malamute that bounded over the fence one day discovered

BUSHPIG

EUROPEAN
WILD BOAR

WARTHOG

COLLARED
PECCARY

HAMPSHIRE

DUROC

YORKSHIRE

POLAND
CHINA

PAINTING BY ROBERT E. HYNES

that three's a crowd. For maybe ten minutes Fido endured her sniffing and yapping and nipping. Then he charged, snapping his powerful head sideways into her ribs as if he possessed the awesome tusks that (among other things) a prepubescent operation had forever denied him. The malamute's flight through the air was punctuated by a most incredulous yelp of pain.

Pigs are even nastier to legless creatures; they don't just batter snakes and worms—they eat them.

"A pig'll slurp a snake down just like a piece of spaghetti," a Kansas farmer explained. "They just love 'em. I keep a couple of hogs down at the cattle pond just for insurance; that's where a lot of cows get snakebit. You see, a snake can't hurt a pig, not even a poisonous one."

Scientific evidence supports that claim. A pig's thick layer of fat apparently neutralizes snake venom or prevents it from reaching the bloodstream.

Eating Often Is Eating Well

Snakes, of course, are not everyday items on the piggy menu, just one of the many morsels that any swine will devour if given the opportunity. Their catholic appetites probably gave rise to one of the commonest misconceptions about pigs.

"Eat like a pig?" Piffle! If humans really did eat like pigs, we'd all probably be much healthier.

Unlike dogs and horses—and man—pigs will not dangerously overeat, even with unlimited food available to them. This is not to say that they don't eat frequently, and in copious measure.

"As for greed," the British novelist John Beresford wrote, "not even the most sincere apologist of pigs or lover of bacon can deny that they enjoy their victuals."

Ah, that they do! A pig does not bolt its food, but chews it, and savors it, and shoves it about with the snout to release the aroma; it revels in it. This, to a pig, is hog heaven.

It is wrong to think, however, that pigs will gobble anything put before them. Fido merely plays with onions, and disdains oranges and bell peppers altogether. In one classic experiment 243 kinds of vegetables were placed in front of a pig. The animal refused 171, prompting the experimenter's observation that "where it finds variety, it will reject the worst with as distinguished a taste as other quadrupeds."

Their taste for the best is equally distinguished. I'm referring to truffles, the "black diamonds of gastronomy."

In the Périgord region of France, where the world's best black truffles grow, farmers have traditionally used female pigs as *chercheuses*—searchers—for the $200-a-pound fungi (page 410). Truffles grow from two to twelve inches below ground, and it is the

MAURICE CHUZEVILLE, LOUVRE, PARIS

Gift for discerning gods, a pig meets with ritual slaughter in a 2,500-year-old Greek vase painting (**above**). Swine, both domestic and wild, were linked with deities in ancient cultures around the world, giving rise to sacramental sacrifices and thence to such taboos against eating pork as that found in Judaism. But, "originally, at least," states Sir James G. Frazer's *Golden Bough*, "the pig was revered rather than abhorred by the Israelites."

Sampling of swine shows the similarities among members of the family Suidae (**facing page**) from the bushpig and warthog of Africa to the European wild boar, progenitor of the domestic breeds—including the four pictured at bottom. Because of its different foot structure, the New World peccary, or javelina, is considered only a cousin of the true pigs.

Heartfelt thanks is more than a catchphrase for the 60,000 people walking around alive today because of a piece of pig in their chests, among them movie star John Wayne. At Hancock Laboratories in Anaheim, California, technicians "bioplasticize" heart valves from commercially slaughtered hogs and mount them in a doughnutlike stainless-steel-and-Dacron frame (**left, above**) for implantation in human patients. The device virtually eliminates blood-clotting problems associated with mechanical artificial valves.

Pigs' physiological similarities to man—surpassed only by the primates'—make the animals invaluable to medical science. From a hog's carcass come hundreds of glandular and chemical derivatives that extend human life and alleviate pain. Pigskin itself finds a use at clinics such as the Parkland Memorial Hospital Burn Center in Dallas, Texas (**left**). The protective covering relieves the awful agony of burn-exposed flesh and, because it clings without adhesive, can be easily peeled off.

Researchers at Battelle Pacific Northwest Laboratories in Richland, Washington, go whole-hog (**right**), attaching an inhalation device to a live, though anesthetized, "minipig"—a perfectly formed swine bred down to approximate human weight and body surface. This test, one of many hundreds involving pint-size porkers, helps determine safe levels of radioactive plutonium 239 in industrial and laboratory conditions.

pig's job to sniff out this buried treasure. Well suited to the task, the animal's cartilaginous snout, covered with tiny pores and a sprinkling of nearly invisible hairs, can detect a truffle ten inches deep from a distance of twenty feet.

Lately, though, truffle hunting has been going to the dogs—not because they have better sniffers (they don't), but because they're easier to cram into the backseats of Renaults. And dogs don't squabble with their keepers over possession of the prize.

Fido Finds the Good Life

Pigs feel about comfort the way they feel about a truffle: Get it if you can, but make do if you can't.

Fido doesn't have to make do. His indulgent human has provided him with a self-feeder, a self-waterer, a pet door into the family home (until he outgrew it), and two houses, one constructed entirely of Plexiglas to capture the heat of the winter sun. For summertime, Fido has a child's wading pool set into a wooden deck (the whole facility we call "Little Cuba"; the pool itself, the "Bay of Pig").

The "Bay" is essential. Hogs, with minimal sweat glands, must seek relief from excessive heat wherever they can find it. For those less pampered than Fido, that usually means a mud puddle. And hence the unfortunate term, "dirty as a pig."

Hogwash! I am convinced that any pig would prefer a swimming pool to a patch of mud. Fido is notably more inclined to use his pool when the water is fresh, and pigs in general are among the cleanest of domestic animals. They instinctively dung in the corner of their pen farthest removed from where they eat and sleep. As a result, they are easier to housebreak than a puppy.

I do not claim that pigs are averse to the soil; their snouts are designed to mine its secrets, and their rooting instinct is indestructible. Yet, rather than "dirty pigs," they might, in the words of porcinologist Ida M. Mellen, "more appropriately be called

JIM BRANDENBURG (ABOVE)

Dashing pigs sprint toward the finish line at the National Farm Show in Washington, Iowa (**left**), dispelling the notion of "lazy swine." And in Hot Springs, Arkansas, a self-activated shower for fastidious Agnes (**below**) of Animal Behavior Enterprises (ABE) gives the lie to the "dirty-as-a-pig" myth. Lacking major sweat glands to regulate body temperature, the animal must have moisture to keep cool in warm weather, but—though inherently more tidy than most other domestic animals—it usually has to resort to mudholes for relief.

Clean or dirt caked, swift or slow, a pig has a penchant for performing. Naturally curious, pigs, with proper training, quickly learn how to dance, tumble, retrieve, and dive; how to fetch newspapers or pull a cart. Hogs can even be trained to sniff out land mines in combat zones. Rewards—affection and food—are the training tools; punishment fosters belligerence. Some scientists claim that, unlike dogs and horses, pigs do independent thinking and can figure out a problem for themselves—the dictionary definition of intelligence.

'earthy pigs,' for it is the mother earth they love. . . ." And, "Soft brown earth just drying after a heavy rain is to them as intoxicating as catnip to a cat."

"Fat as a hog?" In the first place, most pigs today are bred and fed to satisfy the demand for lean pork, and consequently are not really all that fat. In the second place, while it is true that pigs fed ad libitum can become rather . . . shall we say . . . *chunky*, their physique is part of their glory.

"The excellency of hogs is—fatness; of men—virtue," Benjamin Franklin wrote.

G. K. Chesterton—no lean personage himself—was even more effusive: "The actual lines of a pig (I mean of a really fat pig), are among the loveliest and most luxuriant in nature; the pig has the same great curves, swift and yet heavy, which we see in rushing water or in a rolling cloud."

Fido, his great jowls jiggling and ponderous underside swaying as he galumphs across the yard for a treat, would have enchanted Chesterton. It is not for nothing that I sometimes call Fido the "Galloping Gourmet."

My pet would not fit in at all with the slim, trim swine I saw at the Comanche Livestock piggery in Strasburg, Colorado. But then, he really wouldn't want to. Those little piggies go to market.

Modern Farm a Hog Factory

Comanche Livestock is a family business, but not a small one. Daryl Haerther, who runs the operation with two sons-in-law, gave me the statistics: "We have a standing inventory of 11,000 to 12,000 pigs here, and send about 18,000 a year to the slaughterhouse. We average 6½ litters a day, all year round, with about nine piglets to a litter. From the time they're born until they go to market some six to seven months later, they're kept in one or another of our specialty barns—farrowing, nursery, finishing."

DENIS R. CAMERON (ABOVE); CHRISTIAN VIOUJARD, GAMMA/LIAISON AGENCY (BELOW)

No trifle, the truffle: This crowning glory of French cuisine (**right**), which grows 2 to 12 inches underground, commands as much as $200 a pound. The world's best trufflers, trained pigs of France's Périgord region (**above**) can sniff out a ten-inch-deep treasure from twenty feet away. Dogs do the same task but, because they detect only the ripest of the fungi, must work the ground daily. For the pig's supersensitive snout, once a week is enough.

If you think that sounds like an assembly-line approach, you're right, but in a nation of 219 million people, whose annual pork consumption averages 65 pounds each, mass-production hog farming helps hold down consumer prices. (The pigs do their part enthusiastically. One champion boar was reported to have mated 25 times in 24 hours.)

To the national economy, pig business is big business. There are some fifty million pigs, valued at more than 45 dollars each, on U. S. farms at any given time. They consume half the nation's corn crop and tremendous amounts of milo, wheat, barley, and soybeans. Some 75 million hogs are slaughtered each year, but the succulent hams, roasts, and chops they surrender to pork lovers are only part of the animals' contribution.

Meat-packers have long bragged that they use "all of the pig except the squeal." It's true. Once they process the 65 percent of a hog that is pork and lard, they channel the rest into more than 500 products that make life pleasanter for most people—and actually make it possible for others. The derivatives include everything from a hog-blood adhesive for plywood to an ammonium bacteria killer 400 times more potent than carbolic acid.

Because the pig is anatomically very like man—both are omnivorous, and they have similar digestive systems, skins, teeth, and blood—pig-produced chemicals and glandular secretions are also extremely useful in the treatment of human diseases.

From the pig comes insulin for diabetics; heparin for thinning the blood; thyroxine to treat underactive thyroids; and ACTH, a pituitary-gland compound used to combat the pain of such afflictions as arthritis, leukemia, and rheumatic fever.

Pig leather, probably the best known by-product, "breathes" better than other leathers because only in pigskin do bristle holes extend completely through the hide. (The "pigskin" kicked about by the likes of the Washington Redskins, however, is really cowhide.)

Pigskin has another use. It helps relieve the torment of burn injuries, as I learned at the Parkland Memorial Hospital Burn Center in Dallas, Texas (page 406). Specially treated and sterilized, and requiring no adhesive, it serves as surrogate skin until the victim's own skin grows back.

"You can't imagine how soothing it is," research associate Ellen Heck told me. "In second-degree burns especially, where the nerve endings are exposed but not destroyed, just *breathing* on the exposed flesh causes incredible agony."

At Hancock Laboratories in Anaheim, California, I saw technicians painstakingly fashioning artificial heart valves for human patients, using "bioplasticized" valves from pig hearts.

"We don't really know how long they'll function," I was informed by the inventor and company president, Warren Hancock. "We've never had a catastrophic failure in the ten years we've been producing them, and 60,000 have been implanted."

What, I asked, would all those people have done before the advent of artificial heart valves?

He pondered a moment, then answered. "Most of them would have died."

They Also Serve Who Live

The pig hearts used by Hancock, like the pigskin used in burn treatment, come from commercially slaughtered hogs. But living swine, too, serve science, in thousands of current research projects. Even the military is interested.

Bob and Marian (Mouse) Bailey, who operate Keller Breland's Animal Behavior Enterprises in Hot Springs, Arkansas, have not only trained pigs to take showers (page 409) but have also, with military funding, tested the ability of everypig's granddaddy, the European wild boar, to carry loads—internally as well as externally.

"Their abdominal cavities are voluminous," Bob told me. "We surgically implanted all sorts of things—wooden blocks, ball bearings, aluminum cylinders—that we had coated with beeswax, which is impervious to digestive juices. We determined that the boars could carry, with no discomfort, about 20 or 25 pounds."

The purpose of the experiment? Radios? Documents? Bombs?

"Well, you can use your imagination," Bob said. "I can't say; we weren't told."

In a great many studies involving swine, the "guinea pigs" are minipigs, which weigh

approximately the same as adult humans. Besides, full-size 800-pound hogs are too difficult to wrestle around.

Fido springs from the original minipig herd, developed by the Hormel Institute of the University of Minnesota. Progenitors of those first tiny tuskers ran wild through the woods of Alabama, Louisiana, Catalina Island off California, and Guam. The herd is now maintained by the University of Missouri's Sinclair Comparative Medicine Research Farm for the Study of Chronic Diseases and Aging.

That's where I learned that some pigs, like some people, are as fond of liquor as they are of food. Dr. Myron E. (Mike) Tumbleson, a biochemist, has been making the farm's minipigs into alcoholics since 1972.

"The pig is the ideal model for studies on human alcoholism," Mike said, "because it is the *only* mammal other than man that will voluntarily drink enough ethanol to be classified as an alcoholic. Of course, some pigs drink more than others, and for our purposes we prefer the heavy drinkers."

He's got some. Most of the alcoholic pigs

Tomorrow's bacon passes in review at the Clay County Fair in Spencer, Iowa (**left**). These Chester Whites, one of more than 300 hog breeds, show the lean lines of the modern pig. In the United States some 75 million hogs are slaughtered each year—after consuming half of the annual corn crop. Little Jacqueline Eichman, though, obviously thinks of pigs as something more than meat (**below**).

consume, on an average, the equivalent of one quart of 86-proof vodka a day, but one of them—nicknamed Friendly because she's such a willing tippler—set a farm record: Every day for a week she drank the equivalent of four quarts of vodka.

Fido Turns Beer Thief

I was reminded of Friendly several months later when my own Fido stole a six-pack of beer from me. He opened the aluminum cans, effectively if not elegantly, by simply biting through them, then licked the beer off the floor. Truly a sloppy drinker.

Mike takes in stride the joshing he gets about his "drunk pigs," but sees nothing amusing about alcoholism itself.

"We've got nine million alcoholics in this country," he said, "which makes alcoholism one of our major diseases. It *is* a disease and must be treated as a disease. We think the studies with these little pigs are going to help us do that a lot better."

Mike's appreciation of pigs as research animals is matched by his admiration of pigs as personalities.

"They're so communicative," he said. "You can tell their moods by the different sounds they make."

Australian researchers have recorded and classified pig noises. They found specific grunts signifying "Where are you?" and "Who are you?" and "Look out!" Others appear to mean "I'm here" and "Come and get it!" and "Do as you're told." There is a menacing grunt, and a rhythmic grunt of contentment that pigs, quintessential contact creatures, use as they jostle about shoulder to shoulder and snout to snout.

There's also a mournful, heart-wrenching cry that I heard Fido use—for hours—after he outgrew his pet door and was forced to spend his first night outside.

Pigs utter no squeals of joy; the squeal is solely a distress call, and it can be heard for blocks. Dr. Stanley Curtis of the University of Illinois measured average pig squeals that ranged from 100 to 115 decibels. (By comparison, the supersonic Concorde jet was originally banned from New York when its engines exceeded 112 decibels at takeoff.)

Paeans to Pigs

But the pig's appeal lies more in its disposition than in its varied vocalizations. Wrote naturalist W. H. Hudson: "He is not suspicious, or shrinkingly submissive, like horses, cattle, and sheep; nor an impudent devil-may-care like the goat; nor hostile like the goose; nor condescending like the cat; nor a flattering parasite like the dog. He views us . . . as fellow-citizens and brothers, and takes it for granted, or grunted, that we understand his language. . . ."

Is it any wonder, then, that enlightened souls ranging from Sir Walter Scott to pop-rock singer "Sweet Baby James" Taylor should make pets of these charmers?

Drewry Little, owner of a marina and tavern in Virginia Beach, Virginia, didn't think so in 1976. A big man with a big voice and a belly that's no stranger to beer, Drewry named his pet Hampshire pig Sweet Lips because "the first time I ever picked him up, when he was just a little piglin' following after his mama, he reached out and kissed me on the cheek. I fell in love."

Drewry took the piglet home. He hand-fed the animal, bathed him three times a week, taught him to stand on his hind legs for the dozens of Popsicles he received each month, and made him a favorite of all the regular customers. But happiness was short-lived.

Drewry, unlike myself, had failed to check first about local zoning restrictions. Someone blew the whistle on him, and he was haled into court. The judge ruled he'd have to give up his pig.

Drewry fought back. He appealed the case to the circuit court (and also acquired another pig, Little Lips). He lost again. He appealed to the state supreme court; it refused to consider the case. Now, with his pigs boarded at a farm, he's pinning his hopes on the Governor of Virginia.

"If that doesn't work," he declared, "I'm taking this all the way to the United States Supreme Court. I have never even been confronted by my accuser, and that's a constitutional right. All I want is justice!"

But it's the love of pigs, not legal issues, that keeps Drewry at the barricades.

"Of all the animals I've ever been associated with in my life," he told me, "these are the most devoted. In my heart they mean just as much to me as any human does.

"I tell you, I look at those pigs and say, 'Do you love your daddy?' and I swear they look up at me and answer, 'Uh-huh.' "

The big man's eyes were brimming.

Without doubt Drewry feels—as I do too—that there was more than a grain of truth in the last commandment penned by Napoleon, tyrant pig of George Orwell's *Animal Farm*:

ALL ANIMALS ARE EQUAL
BUT SOME ANIMALS ARE MORE
EQUAL THAN OTHERS

Merely an early morning yawn? Or is this Tennessee hog trumpeting indignant agreement with Sir Francis Head's observation that "There exists perhaps in all creation no animal which has less justice and more injustice shown him than the pig"? That may change if more people come to share writer William Hedgepeth's awe of the animals' "unquenchably inquiring minds, each with a vast capacity for sustained wonder. And such a beatific quality."

DAVID BRILL

New Mexico's Mountains of Mystery

By ROBERT LAXALT

Photographs by
CRAIG AURNESS

Rhythms of old Spain dance from the hands and fiddle of Pat Lujan, 73, while Tomas Franco, 22, strums along in the Old Cienega Village Museum. Located southwest of Santa Fe, the museum helps perpetuate the Spanish colonial culture of the nearby Sangre de Cristo Mountains. Like many other mountain residents, Lujan can trace his ancestors back to Spain. The waltzes and polkas he plays were handed down, father to son, for seven generations. The mountains are steeped in the lore of conflict and accord among Indians, Spanish, and Anglos, diverse peoples who share a legacy of deep religious convictions and cultural pride.

HE WAS WORKING on his knees in the secluded flower garden of the Holy Family Church of Plaza Abajo in Chimayo. Although he wore an open-throated shirt and his sleeves were rolled up to his elbows, something about his demeanor told me he was a priest.

In halting English, Father José Maria Blanch said he had but recently arrived from Spain. He was the latest of a long succession of priests who have come from their native Catalonia to serve the remote villages of the Sangre de Cristo Mountains of northern New Mexico.

Touching soil-stained fingertips to his lips, Father Blanch threw a kiss toward the green peaks surrounding us. "Here they speak the Spanish of Cervantes!" His long ascetic face, an El Greco portrait come to life, was filled with childlike wonder. "For thirty years I studied and taught the classics of the 16th century. I did not dream that I would ever hear that very Spanish spoken every day. *Es muy bonito*—it is very beautiful. But it is only one of the mysteries that are locked in the Sangre de Cristo."

At that moment I could not reconcile the presence of mystery with the sun-kissed country I had seen on the road up from Santa Fe. The pink-hued foothills, studded with piñon and juniper trees and rent with arroyos, had seemed warm and inviting. The softly contoured adobe houses, each with its garden of corn and chilies and beans, were brilliant in the July sun.

But as I took my leave of Father Blanch, thunderheads thrust up over the rim of the Sangre de Cristo and obscured the sky. Tongues of lightning flickered and blasts of thunder reverberated through the valley. Then came the rain, a torrential downpour that had no preliminary of scattered droplets. Standing under a *portal*, an overhanging roof, I looked about. All that had been dazzlingly bright was now gray and dreary. The green peaks of the Sangre de Cristo were cloud-bound and forbidding. A thought kept running through my mind—a land of sunshine and shadow.

A shroud of mystery does hang over the Sangre de Cristo Mountains, and I was to encounter things difficult of explanation. The Sangre de Cristo harbors not only a Spanish dialect as it was spoken 300 and

more years ago but also wise village elders, religious apparitions, a shrine with purportedly miraculous powers, and the secret Penitentes. This sect's practices of scourging and crucifixion may have given the mountains their name, Blood of Christ.

Conquistadores brought Spain's culture to the Sangre de Cristo in the 16th century. New Mexico became a United States territory in 1850, but wasn't admitted to the Union until 1912, as the 47th state. "After that, everybody forgot we existed," one man noted. "For that matter, so had Spain and Mexico, long before." The remote heights of the Sangre de Cristo insulated villages from further outside influence, freezing customs and language in a time frame long eclipsed in other parts of the Southwest.

Ranchos Enfolded in Natural Grandeur

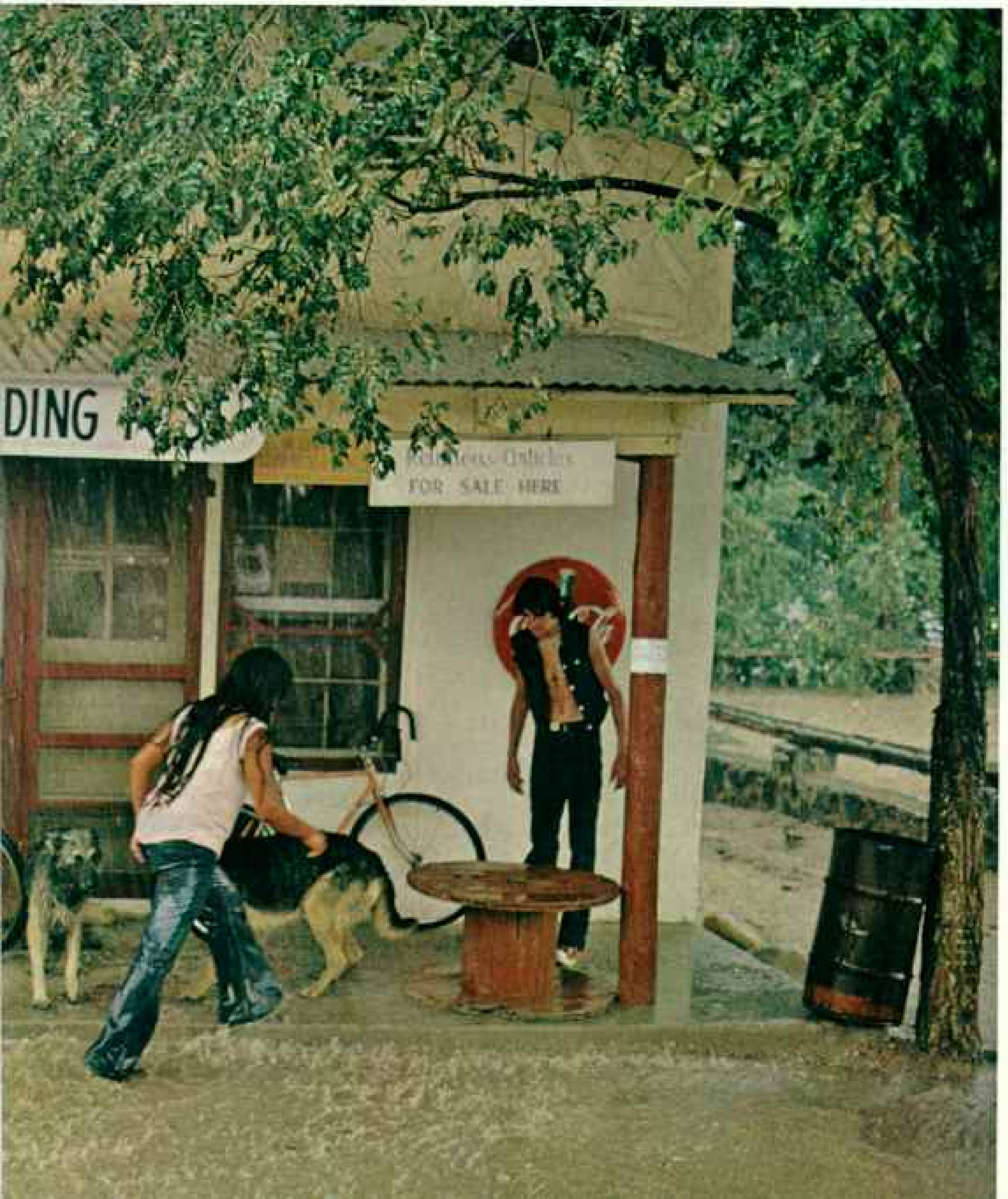
Flanked on the west by the Rio Grande and on the east by the High Plains, this range of the Rockies rises in its northern New Mexico extreme to 13,161 feet at Wheeler

Peak. The state's highest eminence, the mountain embraces three of the seven life zones found in western North America, from the ponderosa pine of the Transition Zone to the tundra of the Arctic-Alpine.

Scattered through valleys bound on every side by forests of pine, fir, and spruce are hundreds of tiny ranchos, remnants of great land grants in the days of Spanish and Mexican domination. Industry is scarce—only an occasional mine or lumber mill.

Excluding Santa Fe, the capital of New

No sun, but it's still fun to hang around Elma Bal's store in Potrero, even during a summer downpour. There you can buy sacks of piñon nuts, homemade tamales, pictures of Jesus, or souvenirs from the nearby Chimayo church and sanctuary. Potrero is one of several barrios in the town of Chimayo, where residents speak the Spanish of the 16th-century conquistadores who came in search of gold.

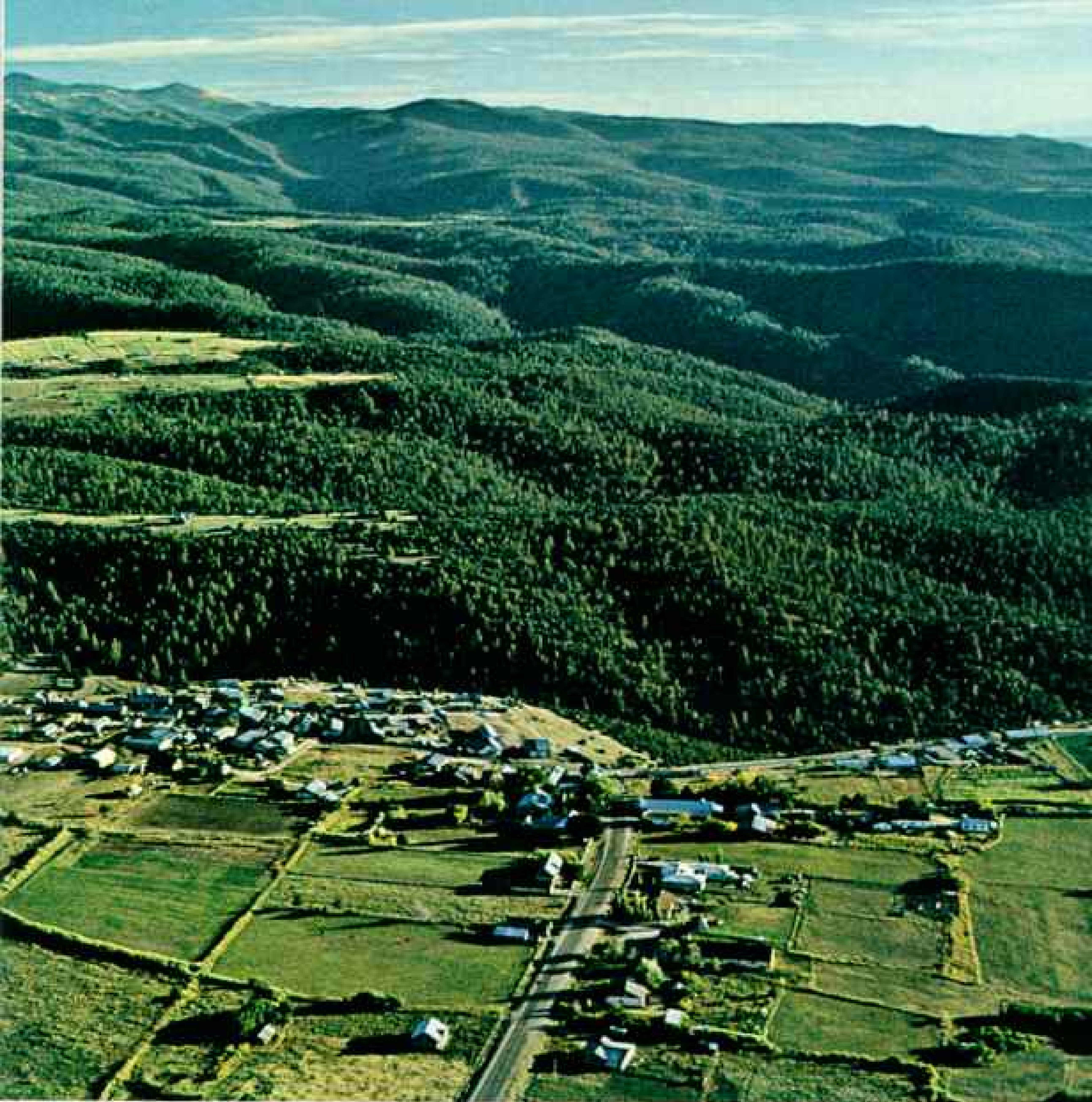


"**Mountain air, cool, fresh** and joyous to breathe. . ." bathes the village of Truchas, one locale for Richard Bradford's novel *Red Sky at Morning*. Here members of the Penitentes, a Roman Catholic group, whip themselves and reenact the Crucifixion. Some church officials once condemned the secret brotherhood; others have defended it for its piety and good works. Perhaps 2,500 Penitentes remain, and the severity of their practices has lessened in recent years.

Mexico and the southern gateway to the Sangre de Cristo, Taos, which was discovered by artists and writers in the 1890's, and a few other towns, the population of this 70-by-100-mile region (map, pages 424-5) is less than 50,000. It is overwhelmingly Spanish, with only small numbers of Indians and Anglos.*

The Spanish insist on being called just that. "The word Hispanic is for scholars, and Chicano is for the big cities," master weaver David Ortega told me when I met

*See "New Mexico: The Golden Land," by the author, NATIONAL GEOGRAPHIC, September 1970.



him in the community of Chimayo. "Neither word has any meaning here."

In Defense of Tourists

It is easy to understand why David Ortega feels akin to Spain. He can trace his forebears in the New World back to Gabriel Ortega, one of the early colonizers of the Chimayo region in the 1700's.

We talked over the sound of thumping looms and breathed the pungent lanolin scent of wool in the shop where eight generations of Ortegas have made rugs and blankets. David recently expanded his business, and that has led, in some measure, to a breakdown of the Sangre de Cristo's barriers against the outside.

"I have at least sixty weavers working in the villages near here," he said. "Some of the local people don't like it, because the weaving brings too many tourists. But tourism isn't really a bad thing. Tourists buy and then they go home, and the money they spend goes to make life better for all of us. Work gives a man pride. No work plus poverty breeds anger."

Another Chimayo resident parted with tradition recently and opened a restaurant. I

chatted with Arturo Jaramillo on the flower-bedecked patio of his ancestral home, Rancho de Chimayo, where he serves tourists tempting dishes made with the hot chilies for which the region is well known. "Some people raised their eyebrows when I opened a restaurant, and others thought I was crazy," he said. "For a while I was inclined to agree with the latter. Then the idea caught on. Others will be doing it soon."

Still, a traveler can visit a score of villages and look in vain for a place to eat, much less a motel—one reason that few Anglo tourists penetrate the region. Most of the villages are unincorporated, and the reach of the law is short, limited to investigations by the state police of shootings arising from old family feuds or saloon brawls, or perhaps a fight erupting at a wedding. At a *wedding?* "Everyone is gathered together—can you think of a better time to settle an old score?" commented a villager.

In some areas on the eastern side of the mountains, where poverty reigns, there are long, burning memories of land grants lost after 1850, when Anglos began moving into the region. The outsider is not always welcome. Mora Valley is such an area, rife with crumbling houses and unemployment.

Communities like Mora are known in New Mexico as "Tijerina country." Here live many followers of the revolutionary leader Reies Tijerina, who in 1967 staged a shoot-out with police at the courthouse in Tierra Amarilla. Earlier, as part of his plan to draw attention to the lost land grants, Tijerina and his followers had illegally occupied national forest lands for a few days. He was arrested and sent to prison.

Changing Names, Changing Times

I found the communities to the west of the Sangre de Cristo decidedly friendly. Wandering through Chimayo, Cordova, Truchas, and Trampas, I came upon freshly whitewashed houses, tended gardens, and well-kept churches and graveyards—signs of at least modest prosperity.

From Chimayo I set out one morning for Cundiyo. So the village is known on the map. Local folk call it "Todos Vigiles"—All Vigils. Until recently everyone who lived

there had the same family name, Vigil.

I journeyed down a steep road to this hamlet, which lies near the junction of two cottonwood-fringed streams, the Rio Frijoles and the Rio Medio. The setting was pastoral, with abundant orchards, scattered farmhouses, and wandering livestock.

In a thick-walled adobe home I visited 83-year-old Norberto Vigil, patriarch of Cundiyo's 35 families. Recovering from a recent illness, he nevertheless greeted me with the courtliness that marks the old ones of these Spanish villages.

"From the time when our forebear José Antonio Vigil settled the land, we were all Vigils here," he told me.

I said I could see how this was so with the male line, but what about women who married men from outside the village?

Norberto gestured with expressive hands. "It is very simple. If their men wanted to live here, they were politely requested to change their name to Vigil. Or leave." He shrugged fatalistically. "But now there are young men who don't want to give up their names. Times change, you know."

He held out his hand in good-bye. "They tell me I am dying," he said. "But I do not believe it. I was told in a dream that I would live to see three world wars."

For Soldiers, War Was Play

On another July day, in Chimayo's Plaza Abajo, I watched a performance of probably the first European drama enacted in what is today the United States. In 1598, nine years before the English settled Jamestown, soldiers of the conquistador Juan de Oñate staged *Los Moros y los Cristianos,* The Moors and the Christians.

The sun glinted off the silvery crown and chain mail of the Christian leader, Don Alfonso, as he gathered his mounted troops before his cardboard fortress. They were resplendent in shining helmets and cloaks bearing crimson and white crosses. Their horses danced nervously, nostrils flaring. At the other end of the field the grand sultan stood ready before his Moorish cavalrymen, who wore turbans and flowing robes and carried gleaming scimitars.

Don Alfonso raised his sword and cried

Scaring the devil out of kids, the *abuelos*, or grandfathers, visit homes before Christmas with fiendish masks and cracking whips, to make children recite prayers. But not all abuelos are old. Two whip-toting youngsters join a dance (**left**). Crosses near Chimayo mark *descansos* (**above**), places where pallbearers once rested on the way to the cemetery.

out: "*En el nombre de la Cruz y del humanado verbo*—In the name of the Cross and the word incarnate."

With wild cries, the opposing forces charged and clashed in a melee of churning horses, sword against scimitar and shield against buckler. When it ended, the Christian victory had been won and the sultan was converted from Islam.

I walked with Father Casimir Roca, a diminutive priest who had been responsible for reviving the horseback drama nearly twenty years before. He told me how the play had survived in New Mexico villages for almost four centuries—handed from father to son until it was set down on paper.

Appropriately, the drama takes place on the feast day of Santiago, or St. James, the patron saint of Spain. At the fair that followed the performance, the square behind the church was thronged with villagers from the mountains.

Women who had not seen each other since the last feast day of Santiago kissed delicately on the cheek, and men embraced with the hearty Spanish *abrazo*. There was dancing to Spanish and Mexican folk songs. The aspect of fair-skinned men and women with alabaster complexions and lustrous black hair and eyes was so truly Spanish that I felt disjointed in time and place.

The lilting sibilance of the Spanish tongue

Sangre de Cristo Mountains

THE FACE OF THE PAST peers over every sun-washed peak, forest, and town of the Sangre de Cristo. A craggy land with mind-stretching scenery, the mountains were once the hunting grounds of native tribes, then stained with blood from Indian clashes with the Spanish conquerors. The origin of the name Sangre de Cristo, Blood of Christ, is debated. Some say it was inspired by the mountains' color at sundown. Others cite the once bloody rites of the Penitentes. Over the hub of the area, Santa Fe, have flown the flags of three nations: Spain, Mexico, and the United States. Though the 20th century is making increasing inroads, other centuries live on in manners, arts, and customs. But that keystone to any culture—language—is finally yielding. The Spanish dialect traceable to Castile of the 1600's is now beginning to dissolve, the victim of television and increased mobility.

filled the air; English was reserved for the few outsiders who had ventured up from Santa Fe. The common greeting was the archaic "*¿Como estamos?*"—"How are we?" —instead of the modern "*¿Como esta usted?*" —"How are you?" And one could hear such words as *truje*, meaning "I brought," instead of the later *traje*. The Spanish of Cervantes was indeed richly preserved here.

Sacred Shrine Remains a Mystery

The shrine of Santuario in the adjoining hamlet of Potrero is little known to the world in the religious spectrum that contains Lourdes and Fátima. For the Spanish of the Sangre de Cristo, however, Santuario has no peer. During Holy Week ten thousand pilgrims—many bearing crosses on their shoulders—come to worship at the chapel and take sacred earth from a hole in a room beside the altar.

The origin of the shrine is clouded in legend. One account is that about 1800 an ailing shepherd named Bernardo Abeyta saw an apparition at the site and was instantly cured. In another version a burst of shining light drew him to a hole in the ground. When he dug into the hole with his hands, he unearthed a marvelous wooden crucifix bearing a bloodstained Christ (page 432). Standing six feet high, the crucifix was intricately painted with golden leaves.

Other things are yet to be explained. The crucifix is a near duplicate of the "Cristo Negro," the famous Black Christ of Guatemala. Was the crucifix fashioned by the same wood-carver, or is it of local origin? That it could have found its way 1,800 miles from Guatemala makes for heavy conjecture. And then there is the claim that the sacred earth of Santuario has worked a multitude of miraculous cures. Another legend holds that the healing earth was known to early Pueblo Indians.

Father Roca led me through the primitively beautiful adobe chapel, pointing out that it does not contain a single nail. At the side of the fabled crucifix, he explained that this finely sculptured Christ figure differed greatly from the crude work of the *santeros*, carvers and painters of religious figures, of long ago. I saw crutches and canes of the cured, only a portion of many stored in the attic above.

Finally, I visited the small room where the two-foot-wide hole of healing earth lay. I took up some in my fingers; its taste reminded me of sculptor's clay. For more than a century and a half pilgrims have taken away the earth in little portions.

I asked Father Roca if he had witnessed a cure. "Not exactly," he said. "But some years ago came a man carrying his crippled little wife in his arms. They went into the chapel so that she could taste of the earth. I heard a scream, and the man ran out to me. She followed, walking."

He spread his hands in perplexity. "Who is to say what cures them, medicinal earth or their faith alone? I have been to shrines throughout the world, but never have I seen faith so pure as here."

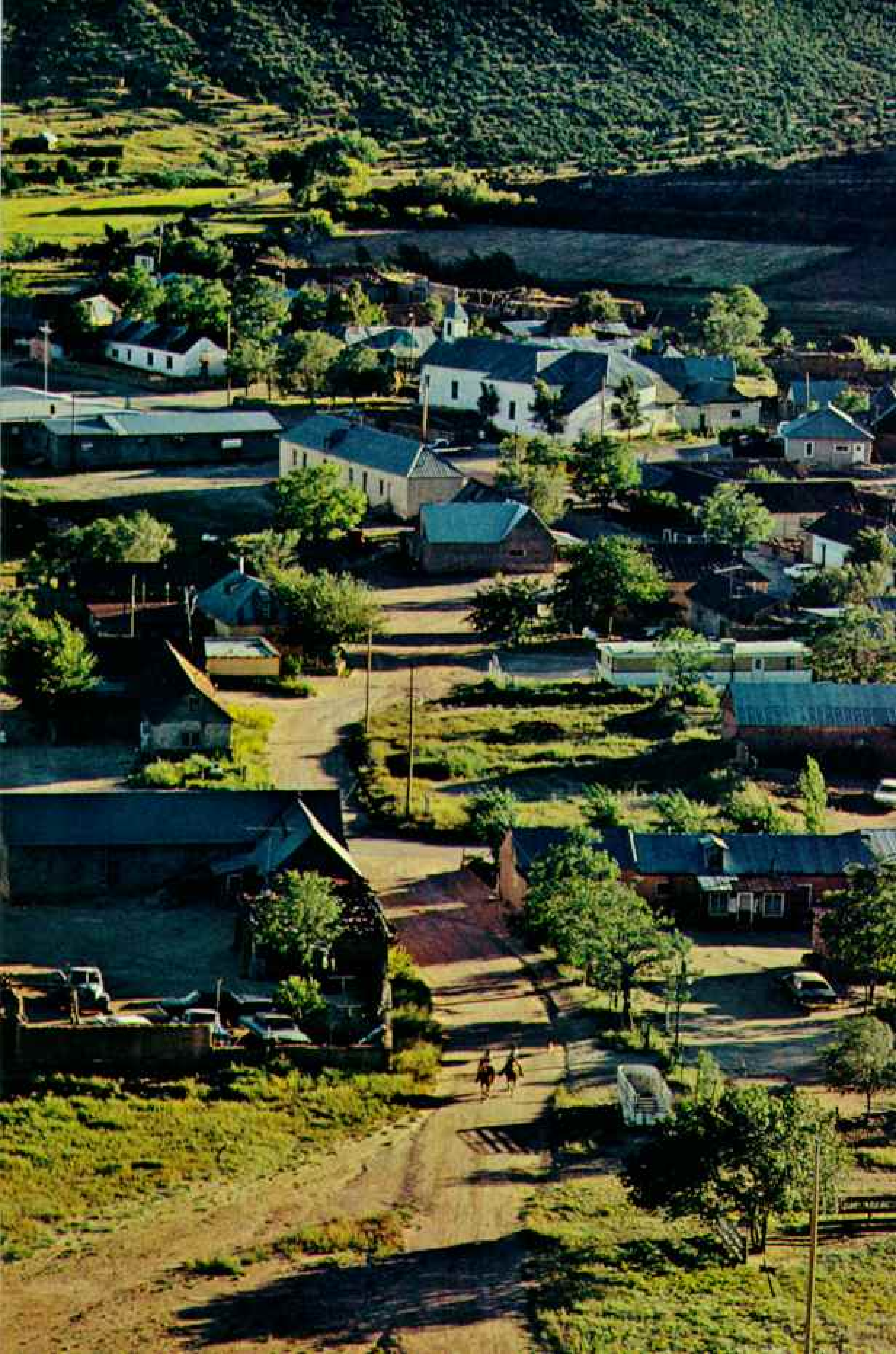
Red, hot, and tasty too, chili peppers from Chimayo please the taste buds of aficionados of Spanish-American food by having flavor as well as fire. Many swear they're the best in the Southwest. Eduardo Martinez, 77, hoists a five-pound string onto his shed for drying to the dull-red color that means they're ready for making sauce—which purists never dilute with tomatoes. Martinez works from 5 a.m. to dusk and goes home to a house built as a dance hall 250 years ago.

Main street is a winding dirt road in Villanueva (**facing page**). The village church displays a brilliantly hued 265-foot-long tapestry that tells the story of the area from pre-Spanish days.

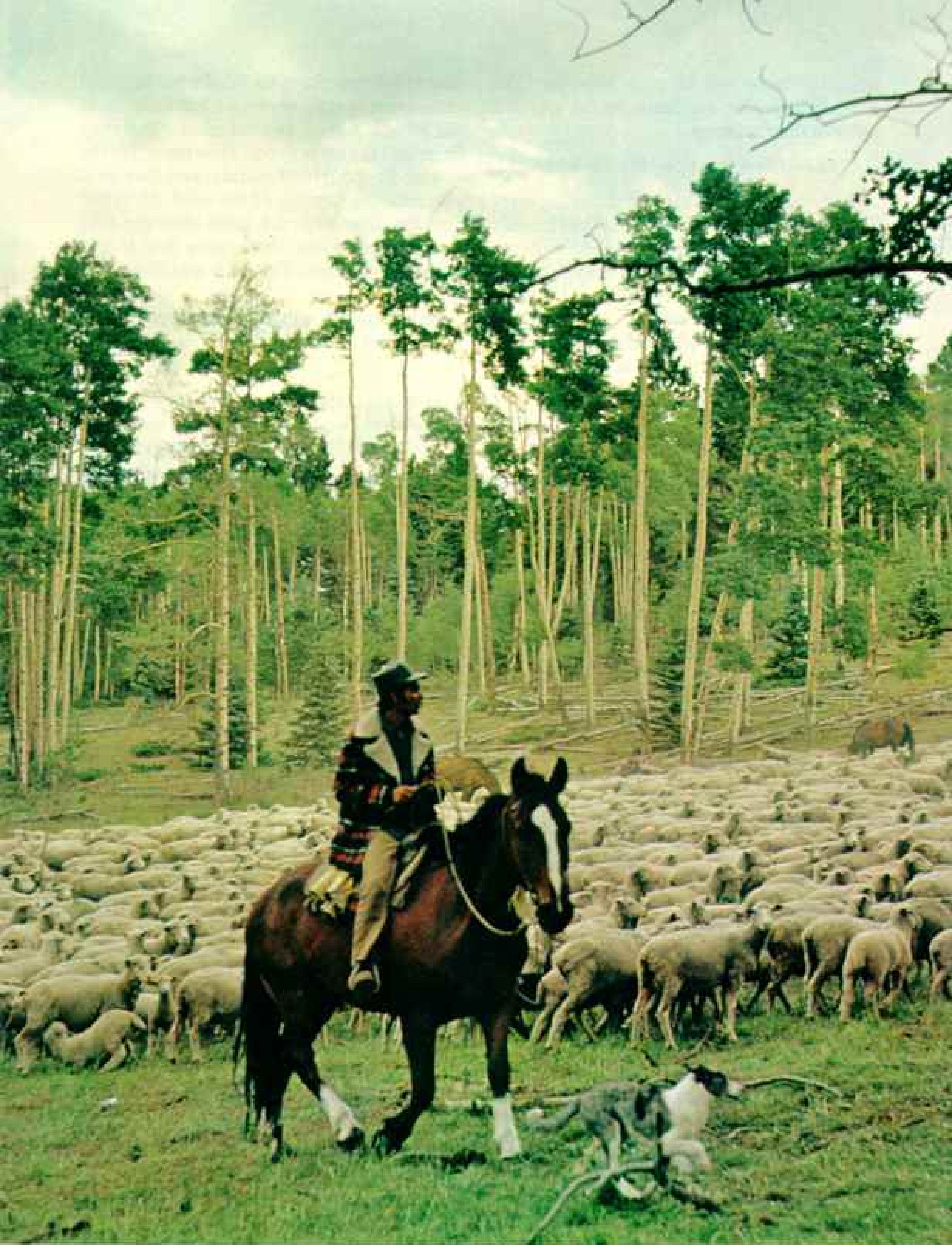
Youths Learn Pride in Their Heritage

Father Roca, also of Catalonian origin, has served in the Sangre de Cristo Mountains for 16 years. He talked of the poverty he found when he came. In spite of it, he said, the people were the happiest he had ever encountered.

Some young people have left to seek jobs and new opportunities, he told me. When I wondered whether this was a trend that would change the mountain villages, he shook his head emphatically. "No! In ten or twenty years, the *(Continued on page 430)*



Keeping watch over a flock in a lonely valley near Taos, José Guzman (**right**) tends 900 sheep, since sold by the owner. Sheep raising is dwindling in New Mexico because of scarce labor, predators, and more public grazing land going to cattle. On



a less lonely pursuit, Jay Thompson keeps company with Mae Martinez (left) at the Working Cowboys Rodeo at Vermejo Park. Reviving a long-abandoned tradition, the owners invite cowboys and area residents to vie for prizes.

Spanish flavor will be even stronger than now. The young are learning the rightful pride in their heritage."

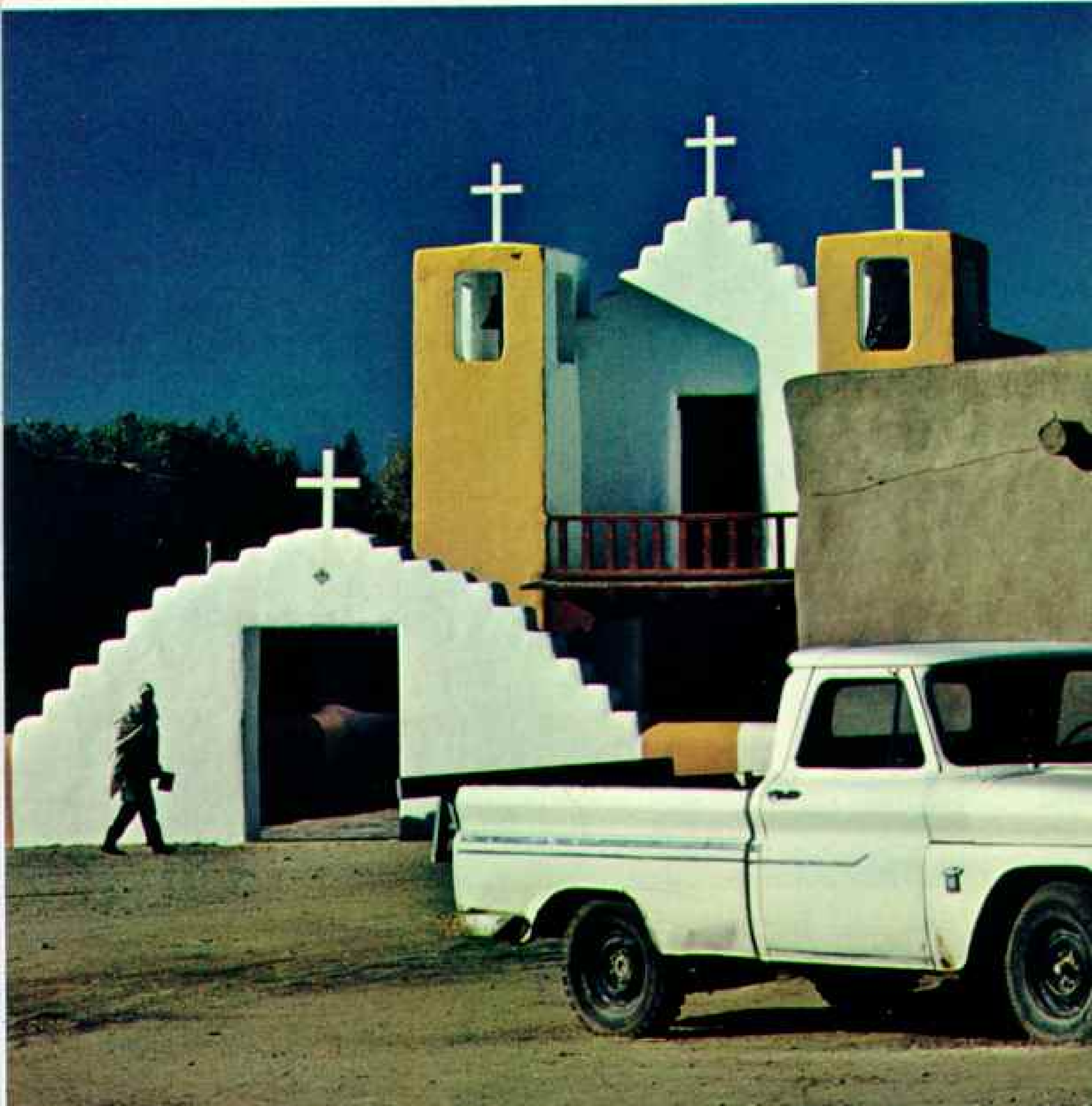
Secret Sect Practiced Bloody Rites

Although it is a subject that one inquires into with caution, I asked about the church's once troubled relations with the Penitente sect of the Sangre de Cristo. To my surprise, he waved his hand airily and said, "I have the highest regard for them.

"They have been a much misunderstood people because they practiced whipping and crucifixion as their ancestors had in Spain in the Middle Ages," he continued. "But they did much that was good. They cared for the sick and conducted funerals, and they provided for the families of the dead. Most important, they kept the faith alive for fifty years or so, when there were few if any priests in the area. The faith was their life's blood."

As we talked, pilgrims interrupted us to ask Father Roca to bless crucifixes and

Signs of two cultures, mingled yet distinct, abound throughout the mountains. Stark crosses crown San Gerónimo Mission at Taos Pueblo, a clump of apartmentlike adobe buildings discovered by Coronado's men in 1540. The 900-year-old pueblo is



icons. He sprinkled holy water on the objects and intoned prayers with hardly a break in our conversation.

"Of course," he continued, "I learned a lesson early in dealing with Penitentes. We had a conflict in the village of Truchas. They had planned services to be held in their *moradas*, meeting places, at the same time I was scheduling Holy Week services for the parish church. I was the first priest ever to come to Truchas, and the Penitentes were set in their ways. On Good Friday, I held services in an empty church. Being a practical man, I made peace."

Father Roca spread his hands in mischievous satisfaction. "Since then, I have celebrated Mass in a morada. And I believe I am the first priest to be elected an honorary *hermano mayor*, or elder brother, of the Penitentes. That is progress, eh?"

Later I heard a rare admission from a man who had been a Penitente. "What I am telling you, I should not be telling you," he said, "because we were under pain of expulsion

home to 1,200 Indians, whose traditions deeply influence the renowned Taos art colony nearby. At the annual fiesta at Santa Fe, fiesta princess Evonne Trujillo, 19 (**right**), recites the Lord's Prayer in Indian sign language.

"**The earth, O Lord,** is full of thy mercy. . . ." A passage from the Book of Psalms is literally true to the ailing pilgrims who visit the Santuario de Chimayo, built, it is said, where a wooden crucifix (**above**) was unearthed. Father Casimir Roca helps a woman (**below**) to a room where soil is taken from a hole in the floor and either eaten or spread on the flesh. Another room full of abandoned crutches and braces stands as testimony to belief in the earth's curative power.

In Santa Fe, the San Miguel Mission (**facing page**) is one of the oldest standing churches in the United States.

never to reveal our secrets. But I do not believe in them anymore."

He paused, then plunged on. "When I was initiated, the *sangrador,* or bloodletter, cut three gashes along either side of my spine with the sharp edge of a flint. Then I had to crawl three miles through anthills, the ants biting at my cuts as I went.

"Later I had a heavy sin to atone for, and the hermano mayor had me flogged for a day with yucca whips. Every time I fainted, they brought me back with a drink of boiled sage. That gives you your strength, so that you can endure it.

"You ask if there were crucifixions on Good Friday. Yes! It was not the worst man in the village; that would be an affront to our Lord Jesus. The one to be crucified was a *good* man, and he had to volunteer. In times before, some say he was nailed to the cross, but in my time, he was tied to the cross with horsehair ropes. This crucifixion has a name, 'Tres Horas'; that was the length of Christ's ordeal, three hours."

Language Presents Stumbling Block

Education remains a problem in the mountain villages. "The old people are ashamed that they cannot read English," said Candy Montoya, a social worker in Cordova. "And they are terrified by government documents. They come to me with envelopes hidden under coats and dresses. Usually the letters turn out to be Social Security statements advising them how much they have been paid in benefits. When I tell them, they say things like, 'Oh! You have no idea how relieved I am. I didn't sleep all night, thinking I owed all that money.'"

For the young of the Sangre de Cristo, recent years have brought strides in educational opportunity. Elementary schools now dot many of the smaller villages, and buses transport youngsters to high schools in centrally located villages and towns.

In higher education, New Mexico Highlands University in Las Vegas has accomplished some minor miracles. In recent years, for example, the university has produced 23 of the 88 public-school superintendents in the state.

"Students come here from the Sangre de Cristo villages with a heavy handicap in the English language," President John Aragón

San Miguel
Mission

Riding short in the saddle, 4-year-old Illian Chisholm of Taos Pueblo braces for the day he turns old enough to take a mean curve without the kickstand down. The pueblo governs itself. Many Indians—some of them equally fluent in English and Spanish as well as their native tongue—work at outside jobs.

Making the scene in the blue jeans of youth everywhere, teenagers watch the Santa Fe Fiesta (**facing page**), a local celebration dating from 1692. Threatened by such cultural homogenizers as television, telephones, automobiles, and tourism, the survival of the Sangre de Cristo's olden ways depends on the young.

told me. "They blame their problems on their Hispanic background. They say, 'That's the root of my problem. I'm not going to speak that stupid language again, eat that stupid food again, go back to that stupid town.' It's our job to teach them their Spanish heritage is something to be proud of."

Facundo Valdez, director of the social-work program at Highlands, is one graduate who conquered the cultural conflicts and enjoys visiting his native village of Mora. He accompanied John Aragón and me on a trip through the eastern-slope villages.

We set out with some trepidation on my part. I confided that on an earlier visit to the Mora region, I was met with open hostility.

"You can't blame them," shrugged Facundo. "They thought you were a *rico*, a rich man, with designs on what little property they have left from the early land grants."

We passed postage-stamp ranchos running down in rectangles to the Mora River. When I remarked on their uniformity of size, Facundo said, "That is the old Spanish way. Our grandparents and parents divided their land equally among their children, so that they would always have a place to come back to one day."

Land Tax Too Heavy a Burden

Everywhere in the Sangre de Cristo the story of the land-grant loss is the same. Under Spanish and Mexican law, a man was not taxed for his land. After the area was ceded to the United States, however, a property tax was instituted. When landowners neglected or were unable to pay the tax, their land was sold to speculating Anglos. The Spanish were left with small parcels of their original 35 million acres.

It seemed to me that livestock was scarce in the verdant mountains, and in Taos I mentioned this to Jock Fleming, a staff officer of the U. S. Forest Service. He manages 473,000 acres in the Sangre de Cristo, in the Carson National Forest. Jock told me that only 3,000 cattle and less than 2,000 sheep grazed on Forest Service land, far fewer than the land can support. "Like everywhere else in the West, the trend in sheep raising is downward," he said.

Since the American sheep industry was born out of the churro breed that the conquistadores brought with them to the New

World, I found this particularly sad in the Sangre de Cristo.

"It's just getting too tough," said Patricio Martinez of nearby Ranchos de Taos, whose family has raised sheep in the Sangre de Cristo for two centuries or more.

A slender man wearing a short-brimmed sheepman's stetson, he leaned against a scarred pickup truck. "Synthetic fabrics, cheap foreign imports, predators, no one willing to be a sheepherder anymore. From 1,800 head, I am down to 900. I hate to quit, but there isn't much choice left to me."

In the memories of villagers, the land-grant losses of times past as well as the more recent coming of the Forest Service both contributed to the eventual decline of livestock raising. "We were stunned when the open range was fenced off by the Forest Service and the Bureau of Land Management," one man told me. "We couldn't afford to pay the grazing fees. It was a sentence of death for the small ranchero."

Huge Ranch Evokes Bygone Days

But there remains a region of the Sangre de Cristo where one can glimpse the magnitude of the old land grants.

In late September I ventured north to Vermejo Park. The cottonwoods along the stream banks had become bursts of yellow. Aspens formerly unseen in evergreen forests had emerged in all their trembling golden splendor. Strings of red chilies hung on the *portales* of adobe houses, and the air was crisp and bore a faraway hint of snow.

Vermejo Park, a mere remnant of the 1.7-million-acre Maxwell land grant, is still immense—495,000 acres of forested mountains, pristine valleys, and high grassy plateaus. Owned now by the Pennzoil Company, Vermejo is one of the biggest ranches in the Southwest, with more than 3,500 Hereford cattle.

For several weeks cowboys had been rounding up cattle on the high plateaus preparatory to driving them to lower country, where the animals would be separated and the steers trucked to feed yards.

On the morning of the big drive I arose in chilly predawn blackness and heard the clinking of spurs on booted feet in the bunkhouse. After a big breakfast of ham and eggs and strong coffee, we saddled up.

The cowboys were a picturesque crew ranging in age from 19 to 64. The older ones wore long weathered chaps that hung on their hips as if they had been born in them. The young cowboys wore short chaps called "chinks" and high boots into which they tucked their jeans. Big sweat-stained hats, colorful bandannas, and warm coats finished their outfits.

There was a moment of inactivity while cattle foreman Slim Burmeister gave a few instructions. Then the cowboys scattered. Digging in my own spurs, I helped comb the ridges and ravines, driving cattle to the point from which the trail drive would begin. I soon learned that Vermejo cowboys prefer to do everything at a dead run.

Jim Taylor, a young man with strong, gaunt features and a shock of hair peeping out from the drooping brim of his hat, rode point because he knew the trails. Quiet Tim Zupan rode swing, to turn the herd at critical spots. Other cowboys rode the demanding flank, pounding over rocks and fallen trees to gather in cattle that had scattered into high timber. The rest rode drag, pushing the herd along. The air was filled with the sound of bellowing cows and bawling calves, cut through with the staccato yelps and shrill whistles of the cowboys.

A Way of Life Still Free

Along the way I rode every post except point and managed to talk with everyone.

"Too many people crowd me," Jim Taylor said. "Here I can take off on a horse and be by myself." Sandy-haired Bart Rhea said, "I don't like towns, and I like to keep on the move. You learn something new from every outfit." Black-hatted Even Collinsworth, who had grown up in Tennessee, gone to school in New England, and hitchhiked through Europe and Africa, said, "I came west to be a cowboy. I've learned as I've gone along. I love the freedom of this life." Serape-clad Joey Martinez, whose father is a cattle foreman, said, "The men of my family have been vaqueros for generations in these mountains. I see no reason to change that."

I left them at day's end, bone tired and dusty—and envious of these men who had turned their backs on town jobs and found freedom in the unpeopled reaches of the Sangre de Cristo. □

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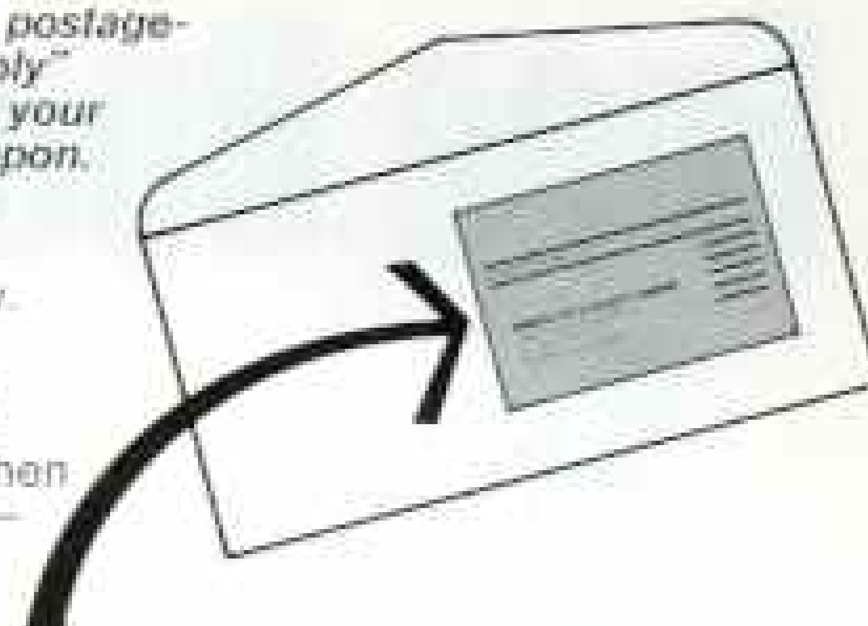

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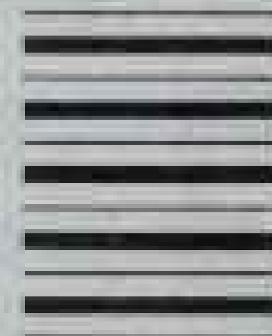

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I'm not sure I understand why every man or woman who is interested in their own financial security wouldn't want to send for the "Money Book" – free and by mail – in order to find out more about how to help guarantee themselves the added money they need and want for the future.

Perhaps you feel you don't have to do anything right now about your financial future. But that's the very reason all too many folks end up with far less money than they need to really enjoy life the way they want.

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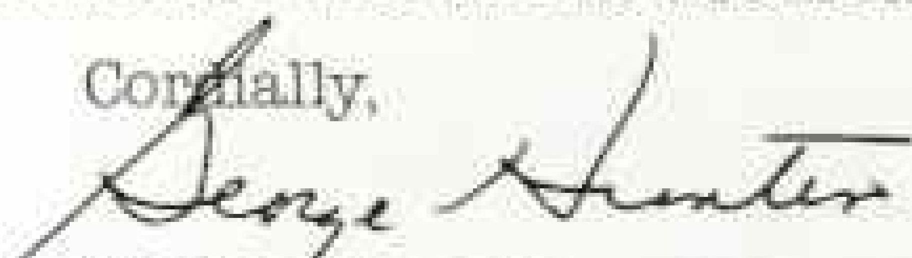
Cordially,



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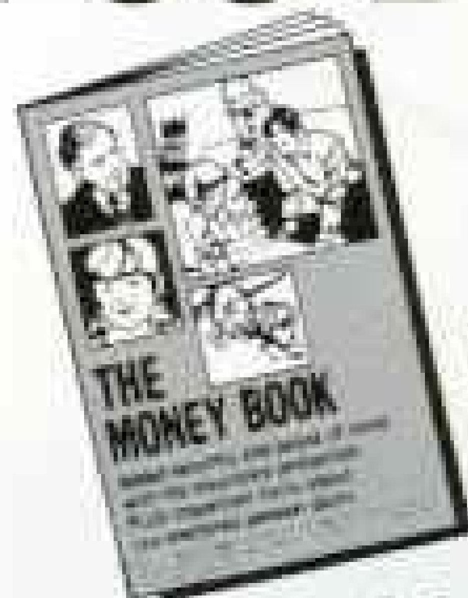
Director, Public Information

Free Book



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With so much concern about health, shouldn't more people replace the vitamins they're losing?

Vitamins are essential to everyone's health. The body requires vitamins and minerals to maintain its life support systems. These nutrients are essential elements in the body's process of converting food to energy and in building body tissues.

Research has shown that it's very possible to come up short on vitamins over a period of time with gradual depletion of body stores. Then, once levels are significantly depleted, noticeable symptoms can result.

You can lose your appetite and then body weight. Irritability, sleeplessness or constant drowsiness may occur. Lowering of vitamin levels over extended periods can affect your body's chemistry and, in turn, result in abnormal metabolism. This then can influence your performance.

You may not even know you aren't getting enough vitamins.

As part of everyday living, you do things that may be lowering the level of vitamins in your body, and robbing you of these vital nutrients.

Smoking and Vitamin C.

You are probably aware of the continuing controversy about smoking and health. But, you may not be aware that smoking may rob the body of vitamin C. Fact is, studies have shown that blood plasma levels of vitamin C were as much as 30 percent lower in heavy smokers than in non-smokers.

Drinking and B_1, B_6 and folic acid.

Heavy consumption of alcohol can rob your body because it interferes with the body's utilization of vitamins. Particularly B_1, B_6 and folic acid. What's more, alcohol consumption can lead to poor eating habits and a consistently poor diet.

The Pill.

If you take oral contraceptives, your vitamin levels may be at risk. Research has indicated that a large proportion of the more than 10 million women who use the pill may have reduced levels of C, B_1, B_2, B_6, B_{12} and folic acid. Your vitamin B_6 needs can increase from two to ten times the normal amount, for instance. Ask your physician.

Dieting and poor eating habits.

If you eat on the run or skip meals, or eat less than normal so you'll lose weight, you may not be getting all the vitamins and other nutrients you need. If children snack in between, your nutritious meals may often end up in the garbage.

How to replenish the vitamins you may lack.

Fortunately, there are a variety of ways to make sure you get enough vitamins. First, eat a balanced diet, featuring a variety of nutritious foods. Today, many foods are fortified, so read the nutritional labels of the food you buy, and choose wisely.

Just to be sure, you can take vitamin supplements daily. There are a number of different formulations including multiple vitamins and B-complex with C, as well as supplements of individual vitamins. Since vitamins are essential for good health, isn't it worth a few cents a day to protect yourself?

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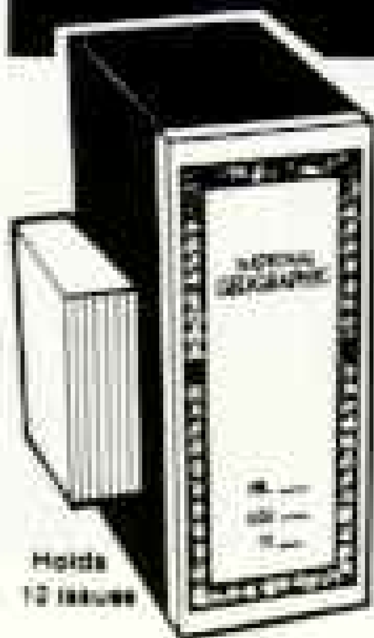

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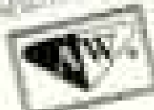

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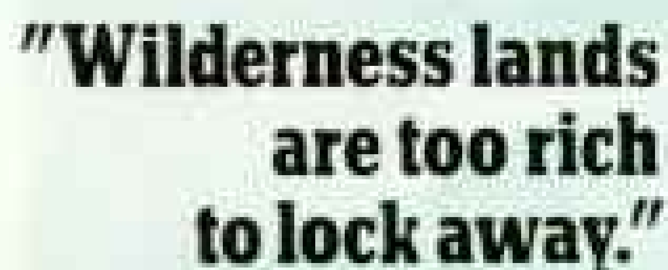

Primitive, primeval. Vanishing sanctuaries. Many say, "Lock away these last wilds!" Others say we must harvest the riches these virgin lands hold. Who's right?

In vast, impenetrable, trackless wilds, peaks rise 20,000 feet. Perpetually white. Where eagles soar. In valleys, birds, ground squirrels bustle among spring flowers. Deer browse in misty meadows. The last great bears roam free and sovereign. Majestic, forbidding, inhospitable lands. Yet fragile. And those who hear the call of the wild say, "Leave them untouched. Forever!" That's understandable.

But others cite our need for treasures wild lands store. In Alaska alone, perhaps 35 billion barrels of oil. Ten times last year's overseas imports. And 100 trillion cubic feet of natural gas! Vast timber stands. Untold stores of copper, nickel, coal, chromium. Raging waters to harness for power. Many feel we must develop such lands. That's understandable, too.

But we can't both preserve and develop, mine and sequester. What then to do? Let's start by looking at priorities. America will need certain critical resources: minerals, oil, hydro-power, timber. Those needs may take precedence over aesthetic values. But, development must carry with it responsibilities. Utilization must be balanced with preservation. And, the balance is best arrived at through public discussion of needs, benefits, costs and aesthetic considerations.

Caterpillar makes the basic machines of resource development. We believe long-term policies require input from all interests: for development, for preservation, for compromise.

"The wilderness
is priceless.
We must preserve it."

**There are
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Only intelligent
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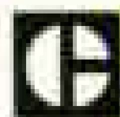

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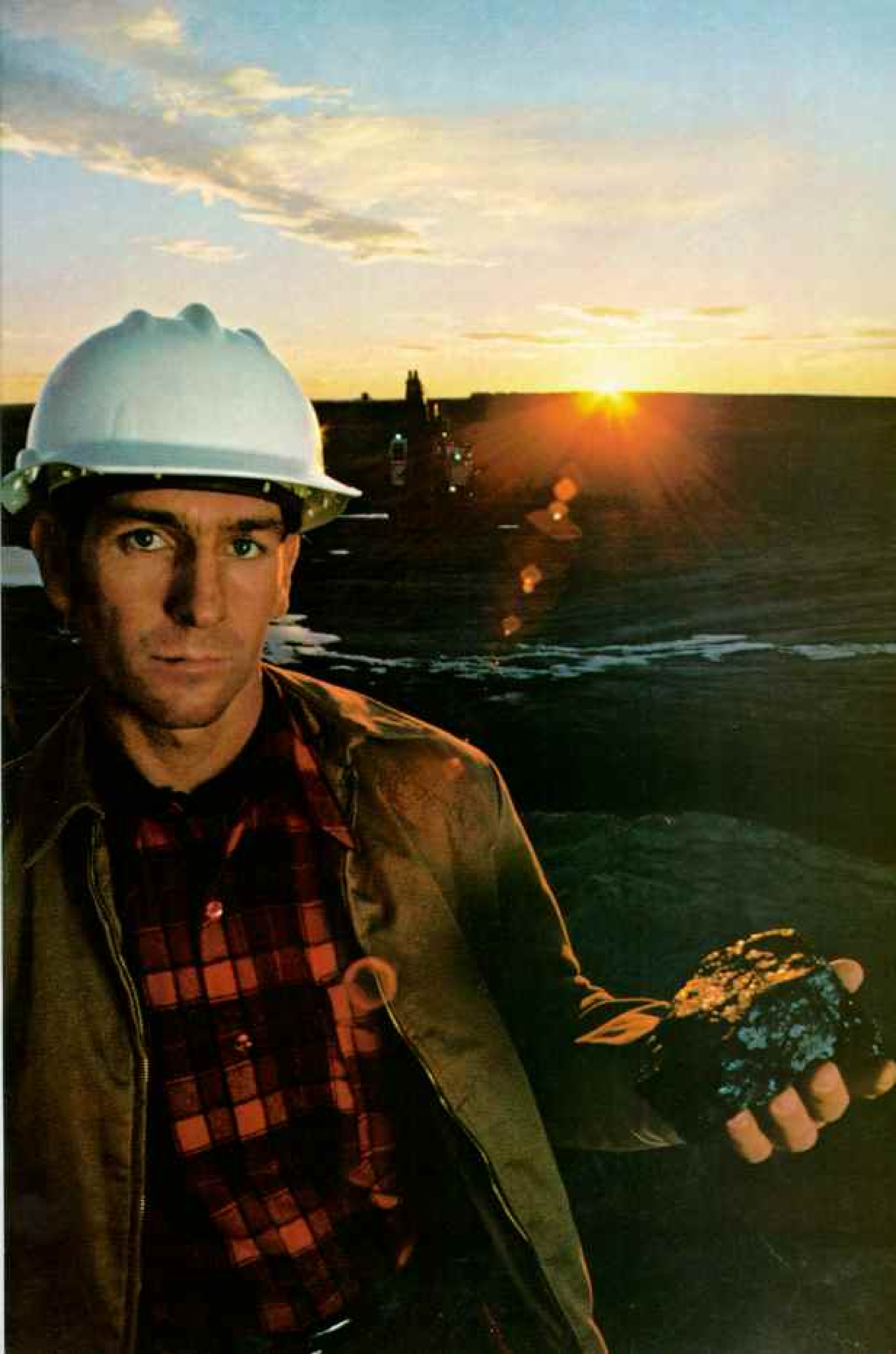

A Message for Involved Americans from Atlantic Richfield Company.

I think America's future is black. Coal black.

Coal was our main source of energy until about 1940. The energy from coal kept us warm in winter. Cool in summer. Powered our first radios. Vacuum cleaners. Electric toasters. In those days, America ran on coal.

Today, America runs on oil and gas. And it looks like we have about a 30 year supply left. Scientists, the government and the energy companies are busy developing alternate energy sources. But those new sources won't be available for many years. We need more time.

Coal can buy us that time.

There's still plenty of coal left. And today, we have better ways of extracting it. Safer, more efficient ways of burning it. If we start developing our coal reserves now, we can make a smooth transition to other energy sources such as solar energy or nuclear fusion – both with unlimited energy potential. If we wait around, we may be in trouble.

The way I see it, sometimes you have to dig up an old idea before you can come up with a new one.

Atlantic Richfield Company believes that one of our national goals must be a national energy policy that includes a plan for the prompt and orderly development of our country's coal reserves. You can help make it happen. Consider the facts. Take a stand. Get involved.

For a free booklet with additional information on this issue, please write: Atlantic Richfield Company, Coal, P.O. Box 30169, Los Angeles, CA 90030.

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The M645 is a medium-format camera. Its larger image size delivers better results—enlargements of superior quality.

The system includes the lenses and accessories to meet your current photographic challenges and those you'll face in the future. You won't outgrow the M645.

Versatility, craftsmanship, and the ability to produce quality results are the things Mamiya builds into the M645 System. It's no coincidence these virtues are precisely what all serious photographers seek from themselves.

Perhaps you should visit a Mamiya dealer to investigate this reflection of excellence for yourself. You're also invited to write Bell & Howell·Mamiya Company, Dept. NG-019, 7100 McCormick Road, Chicago, IL 60645, for a detailed system description.

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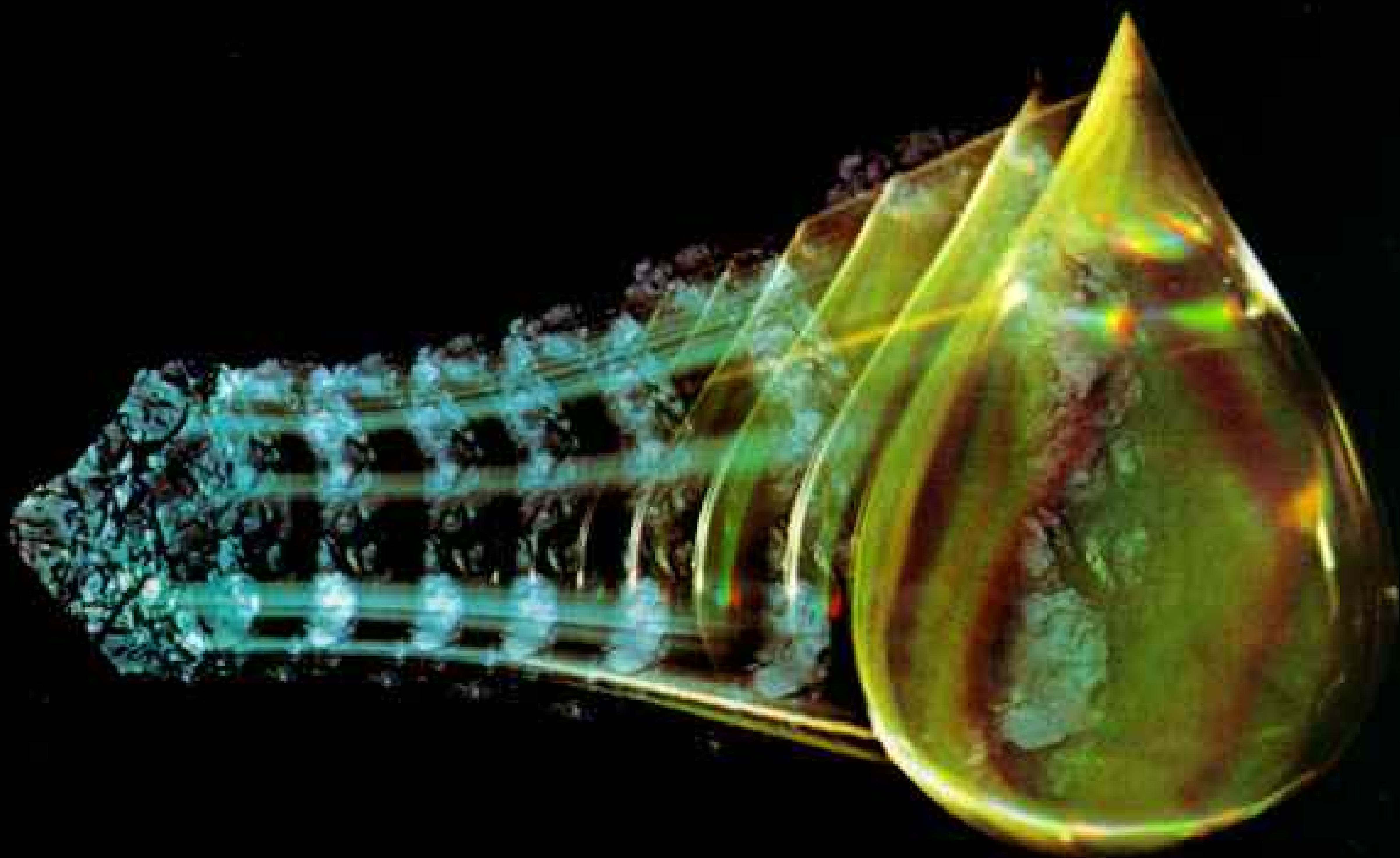

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Heraclitus

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