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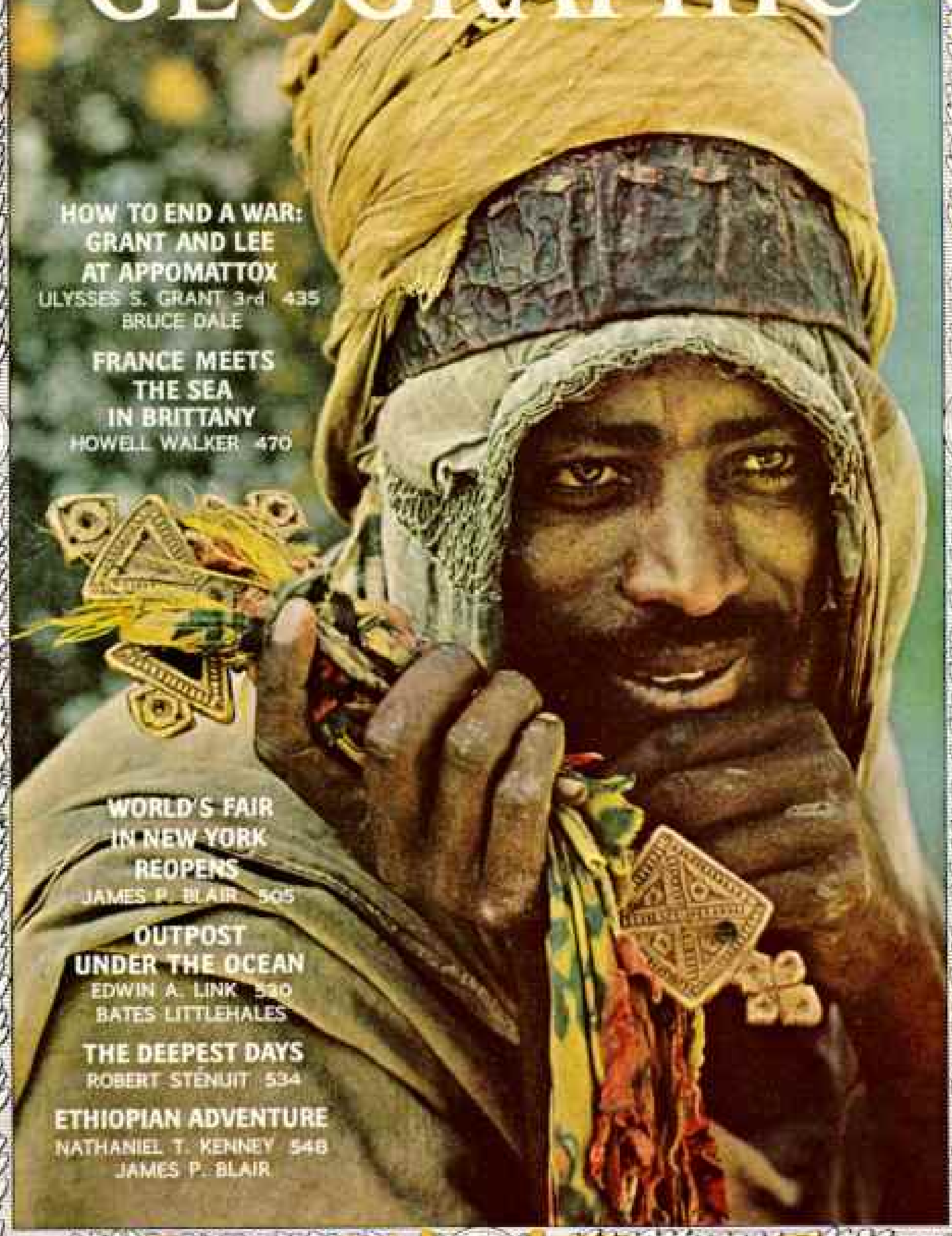

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Appomattox

WHERE GRANT AND LEE MADE PEACE WITH HONOR A CENTURY AGO

By ULYSSES S. GRANT 3rd

Illustrations by National Geographic photographer BRUCE DALE

BEARING DESPERATE TIDINGS, the War Department messenger hurried up to St. Paul's Church in Richmond, Virginia, that fine spring Sunday a century ago. He strode into the hush of a congregation at worship. Quietly he turned Gen. Robert E. Lee's message over to the sexton, who walked down the aisle to Jefferson Davis and handed him the dispatch.

Richmond, capital of the Confederate States of America, must be abandoned, advised General Lee. No longer than that day could he continue to defend the city against the surging Union forces of Lt. Gen. Ulysses S. Grant.

The President of the Confederacy rose and left the church. Jefferson Davis had known this would come. Now he and his government must flee, aiming to re-establish the symbol of secession and slavery elsewhere—just as Lee and his valiant Army of Northern Virginia must retreat, intending to fight another day.

It was April 2, 1865. The frightful four-year timetable of America's Civil War was closing, inexorably, though Southern hopes still flickered.

Flames in Richmond Signal the End

That grim night the Richmond & Danville Railroad carried Davis, his cabinet, archives, and treasury southwest 150 miles to Danville. It was General Lee's goal, too, though he never reached it. Pillage and rioting rent the South's capital as the train pulled out; exploding munitions made the night hideous, and fires painted garish crests against the black skies.

One week later, April 9, Palm Sunday, General Lee would surrender to General Grant, my grandfather, at the Virginia hamlet of Appomattox Court House. On Good Friday, April 14, at Ford's Theatre in Washington, D. C., Abraham Lincoln would fall mortally wounded by an assassin's bullet.

And on May 10, a month and a day after Grant and Lee shook hands, Davis would be captured near Irwinville, Georgia, by a detachment of the 4th Michigan Cavalry.

Few other lands torn by civil war had ever paid so dear a price. The long years of strife are estimated to have cost the lives of more than 600,000 men, and devastation scourged the South. But when this terrible expenditure at last purchased

Mute cannon marks the Confederate line by the banks of the narrow Appomattox River. Here in April, 1865, Gen. Robert E. Lee awaited the word from Gen. Ulysses S. Grant that spelled the end of the Civil War.

peace, it also bought something even greater: a Nation united for all time.

Union—there lay the crux of the war.

By 1864, the people on both sides wanted peace. They were sickened by their sacrifices and their family losses. Their leaders were ready to make peace if terms could be agreed upon.

Lincoln's Peace Overtures Fail

The last effort to negotiate a peace occurred February 3, 1865. President Lincoln and Secretary of State William H. Seward met with three Confederate peace commissioners aboard a Federal steamer at Hampton Roads, Virginia. The conference failed, for reasons I shall presently detail.

In the final ten months of the war, Ulysses S. Grant established his headquarters at City Point, the old steamer landing at the junction of the Appomattox and James Rivers, today part of Hopewell, Virginia.

Eighteen miles northwest stood beleaguered Richmond; ten miles southwest lay embattled Petersburg. Out of City Point, the Union trenches stretched ever longer, covering Richmond and curving around Petersburg like a closing fist (map, pages 452-3).

One after another, Lee's vital supply roads angling in from the south and west had been chopped off. The Confederate capital itself suffered from shortages. As early as the spring of 1863, General Lee said that one reason he would risk marching north was his inability to supply his army in Virginia.

Throngs of visitors from the District of Columbia, 110 miles north, descended on City Point during the winter of 1864-5. Four steamers busily plied the Washington-City Point run, and President Lincoln was a frequent passenger, coming to check on the progress of the war firsthand.

Two of the last three weeks of Lincoln's life were spent at my grandfather's City Point headquarters—General Grant always remembered that with satisfaction. The President lived on the steamer *River Queen* and conducted affairs of state from the drawing room of Appomattox Manor, a large white frame house still standing high on the bluff above the Appomattox and James Rivers (pages 442-3). General Grant used the manor's dining room as his office and communications center.

My grandmother, Julia Grant, and her four children came to City Point at various times during this period. They lived with General

Man of resolution: Designated lieutenant general and commander of the Union Armies in 1864, Ulysses S. Grant determined to give Lee's army no respite. Laying a nine-month siege to the rail center of Petersburg, Virginia, he pounded, harassed, and mortally wounded the Army of Northern Virginia, then let it perish with honor amid the rolling hills of Appomattox.

Grant's saddle rests on a fence entwined with honeysuckle; ghostly horse brings to mind Cincinnati, the general's favorite mount. Appomattox Manor at Hopewell, Virginia, preserves the saddle.

Grant in one of the 42 log-and-board dwellings he built for his staff near the manor house.

Here Mr. Lincoln often called. One of his visits occurred just after his meeting with the Confederate peace commissioners. As my grandmother related in after years, the general was in his office and she, being anxious, "at once became inquisitive and asked Mr. Lincoln if any conclusions in the interests of peace had yet been reached.

"He hesitatingly replied, 'Well, no.'

"He had evidently come to have a talk with the general," my grandmother went on, "and perhaps thought my questions premature, as they undoubtedly were.

"I exclaimed: 'No! Why, Mr. President, are you not going to make terms with them? They are our own people, you know!'

"Then he answered: 'Yes, I do not forget that,' and quietly taking from his pocket a large paper, he carefully unfolded it and read aloud the terms he proposed to them, which were most liberal, I thought.

"After finishing, he looked up, and I said: 'Did they not accept those?'

"He smiled wearily and said: 'No.'

"Whereupon I wrathfully exclaimed: 'Why, what do they want? That paper is most liberal.'

"He smiled, saying, 'I thought when you understood the matter, you would agree with us.'"

General of Firmness, Man of Gentleness

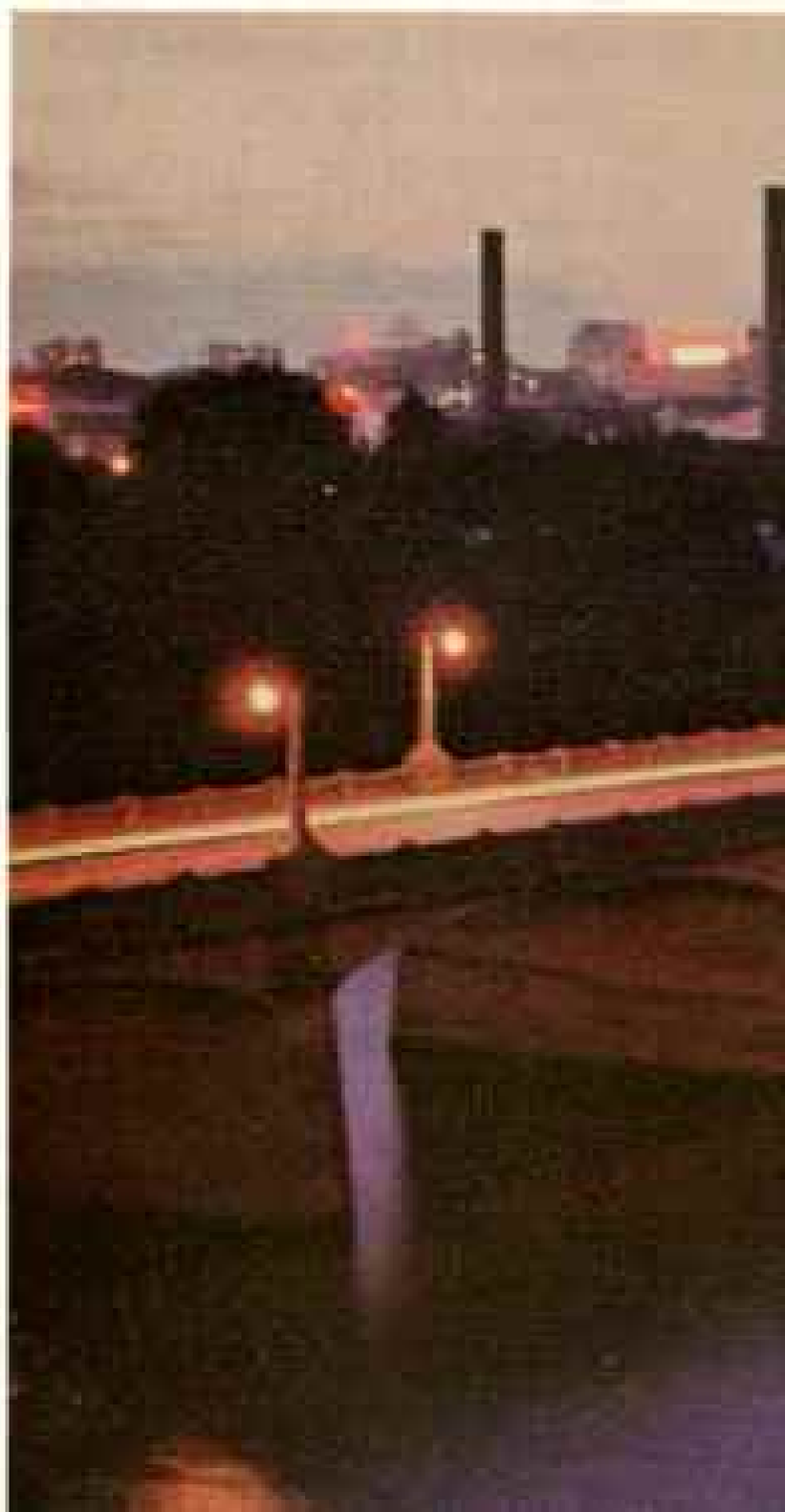
Mrs. Grant then told Mr. Lincoln that she too had talked with the Confederate emissaries, while they awaited their meeting with the President.

"I had quite an interview with the commissioners," she informed him, "telling them they held a brother of mine as a prisoner and that he was a thorough Rebel, if ever there was one. I knew this to be so, as I had had many a battle royal with him on this subject.

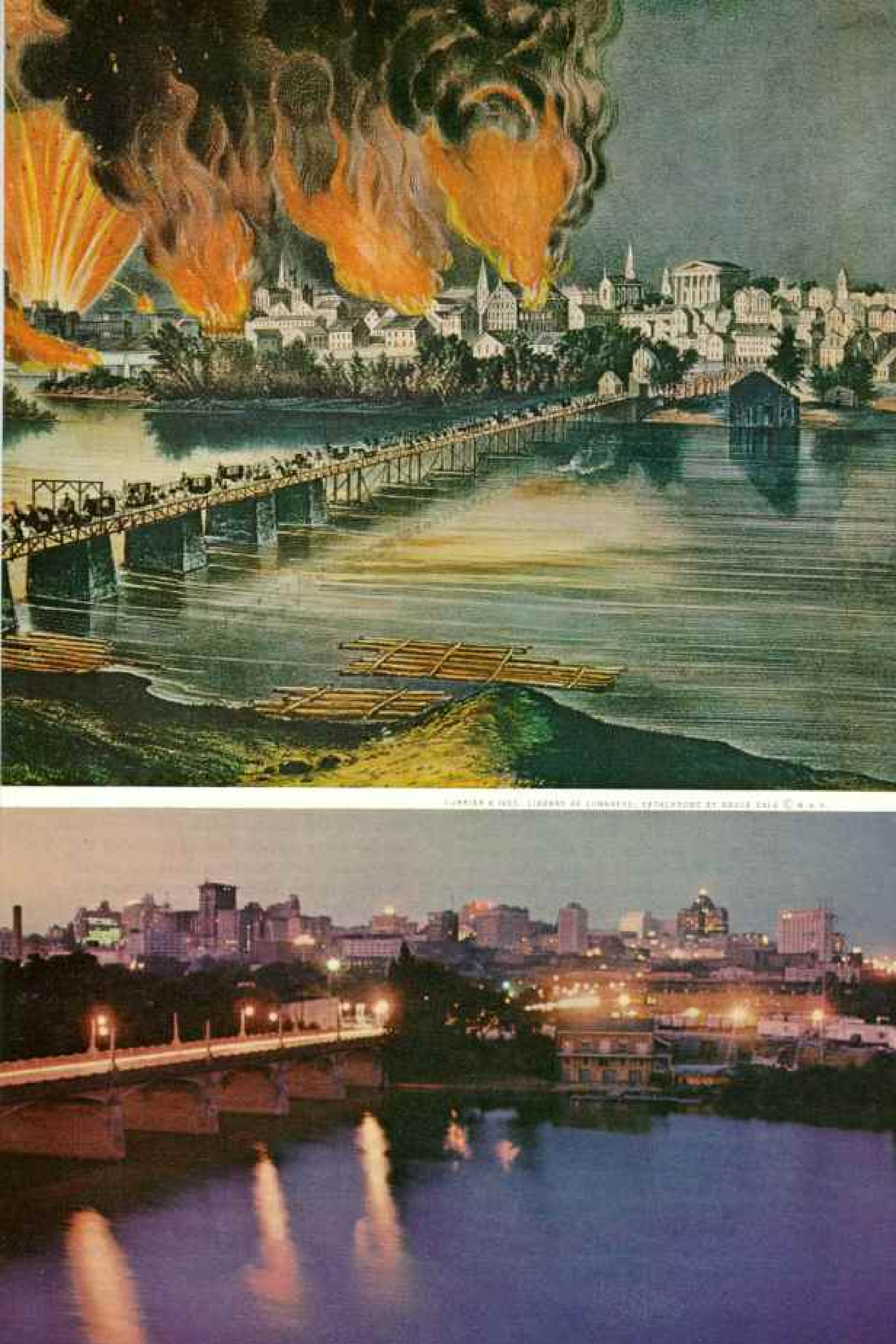
"These gentlemen asked if General Grant could not exchange him. 'Why, of course not,' I explained. 'My brother is not a soldier.' He was on a visit to a friend in Louisiana when he was captured.

"I had already approached General Grant on the subject, and he had asked me if I thought it would be just for him to give a war prisoner in exchange for my brother, when we had so many brave men languishing in prison, who had fought for the Union."

Fleeing an inferno, Southern troops and citizens stream across Mayo's Bridge as they leave Richmond. A Confederate soldier, watching flaming warehouses and exploding ammunition his fellows in arms had put to the torch, thought, "The old war-scarred city seemed to prefer annihilation to conquest." On April 3, 1865, Union troops entered a city "wrapped in a cloud of densest smoke through which great tongues of flame leaped in madness to the skies." After four years, the Stars and Stripes flew again at the pillared capitol of Virginia.



Modern Mayo's Bridge casts its lights on the James River. Buildings almost hide the capitol's columned façade, above the clump of trees at opposite center.



PHOTOGRAPHED BY ENOCH KNIGHT © NATIONAL GEOGRAPHIC SOCIETY

The Author: Maj. Gen. Ulysses S. Grant 3rd, USA (Ret.), a West Pointer and classmate of the late Gen. Douglas MacArthur, marks his 84th birthday this July 4. Grandson of the Union general in chief, he likes to recall that as an Army engineer he oversaw design and construction of Arlington Memorial Bridge at Washington—fulfilling President Jackson's wish that the Potomac River should here be spanned with arches of granite, symbolical of the firmly established union of the North and the South.

In April, 1961, General Grant—then chairman of the United States Civil War Centennial Commission—opened your Society's anniversary coverage with the story of the firing on Fort Sumter. In July, 1963, poet-biographer Carl Sandburg and staff writer Robert Paul Jordan chronicled the deeds at Gettysburg and Vicksburg that brought the turning point of the conflict. Now General Grant, shown here in the reconstructed parlor where the North's Grant and the South's Lee shook hands, writes compassionately and fairly of the last days of the war that divided—and then united—our Nation.

In these few words addressed to President Lincoln, my grandmother tells as much about the general's character as his biographers tell in their books. He was an uncomplicated man, direct and firm and fair to all. Yet there was a gentleness in him, and a rare appreciation of others. It is apparent in his *Personal Memoirs*, as when he writes of what President Lincoln disclosed to him about the Hampton Roads peace conference.

"He . . . said he had told them that there would be no use in entering into any negotiations unless they would recognize, first: that the Union as a whole must be forever preserved, and second: that slavery must be abolished. If they were willing to concede these two points, then he was ready to enter into negotiations and was almost willing to hand them a blank sheet of paper with his signature attached for them to fill in the terms upon which they were willing to live with us in the Union and be one people. He always showed a generous and kindly spirit toward the Southern people, and I never heard him abuse an enemy."

Sherman and Grant Close In

Still, the Confederate peace commissioners found Mr. Lincoln's terms unacceptable. Bullet and sword, then, would settle it.

March, 1865, wore on. Up from the south drove Union Maj. Gen. William T. Sherman's army, marching, fighting, and hacking out a swath of destruction from Savannah, Georgia, starting February 1, all the way to Goldsboro, North Carolina, by March 21 (map, opposite). And by then the mauled Confederate forces of Gen. Joseph E. Johnston could do little more than annoy him.

Sherman commanded some 80,000 troops as of March 23, Johnston about 37,000. Only 130 miles north of Goldsboro, Grant's seasoned 106,000-man legion held Lee's starving Army of Northern Virginia at bay—an army even smaller now, because of desertions and illness, than the 65,000-plus who had been available as the month began.

Lee for some months had appreciated the danger to his army resulting from the thrust of Sherman to the Atlantic coast and then his march north. This now threatened an attack on Petersburg and Richmond by the combined forces of Grant and Sherman. Of the conclusion of this grand maneuver, Maj. Gen. J. F. C. Fuller, the famed British soldier-historian, writes:*

"The one great strategical problem of the North was to maneuver in such a way as to create an enemy rear. This was accomplished from the West, the western Federal forces moving southwards down the Mississippi, eastwards through Chattanooga, Atlanta, to Savannah, and then northwards towards Richmond. A right flank wheel of over a thousand miles extending in time over three years; a strategical movement compared to which the German right flank wheel in 1914, however powerful, was child's play."

**The Generalship of Ulysses S. Grant.* Copyright © 1958 by Indiana University Press, Bloomington.

President Lincoln, hailed by Negroes as a messiah, risked death to visit Richmond on April 4, 1865.

Major Strikes of the Civil War

Prepared by
National Geographic Society ©
Geographic Art Division
Drawn by Elie Sutton, Research by Eugene M. School

Based upon maps of the Civil War period

Confederate infantry

Confederate cavalry

Union infantry and navy

Union cavalry

Major battles

Dates following the names of cities indicate when they were occupied by Union forces

Encircle and squeeze: This was the basic strategy of the North. Maintain and break out, the South answered—and almost succeeded with the genius of her commanders. For two years, the incomparable Army of Northern Virginia won victory after victory.

"Hold on with a bulldog grip," Lincoln urged Grant. "Chew and choke as much as possible." The U. S. Navy blockaded 3,000 miles of coast against support from Europe. Cavalry units, raiding, spying, and outflanking, further plagued the Confederacy.

Audaciously, Lee struck north—to meet defeat at Gettysburg. Grant moved down the Mississippi and captured Vicksburg, cutting off the West. Then, slashing the heart of the South, Sherman marched from Chattanooga to the sea. Grant broke the back of Lee's army at Five Forks, and Richmond fell.

EDITED BY J. BALMER, FRANK LESLIE'S ILLUSTRATED NEWSPAPER, APRIL 22, 1865, COLLECTION OF W. H. KELLER © NATIONAL GEOGRAPHIC SOCIETY

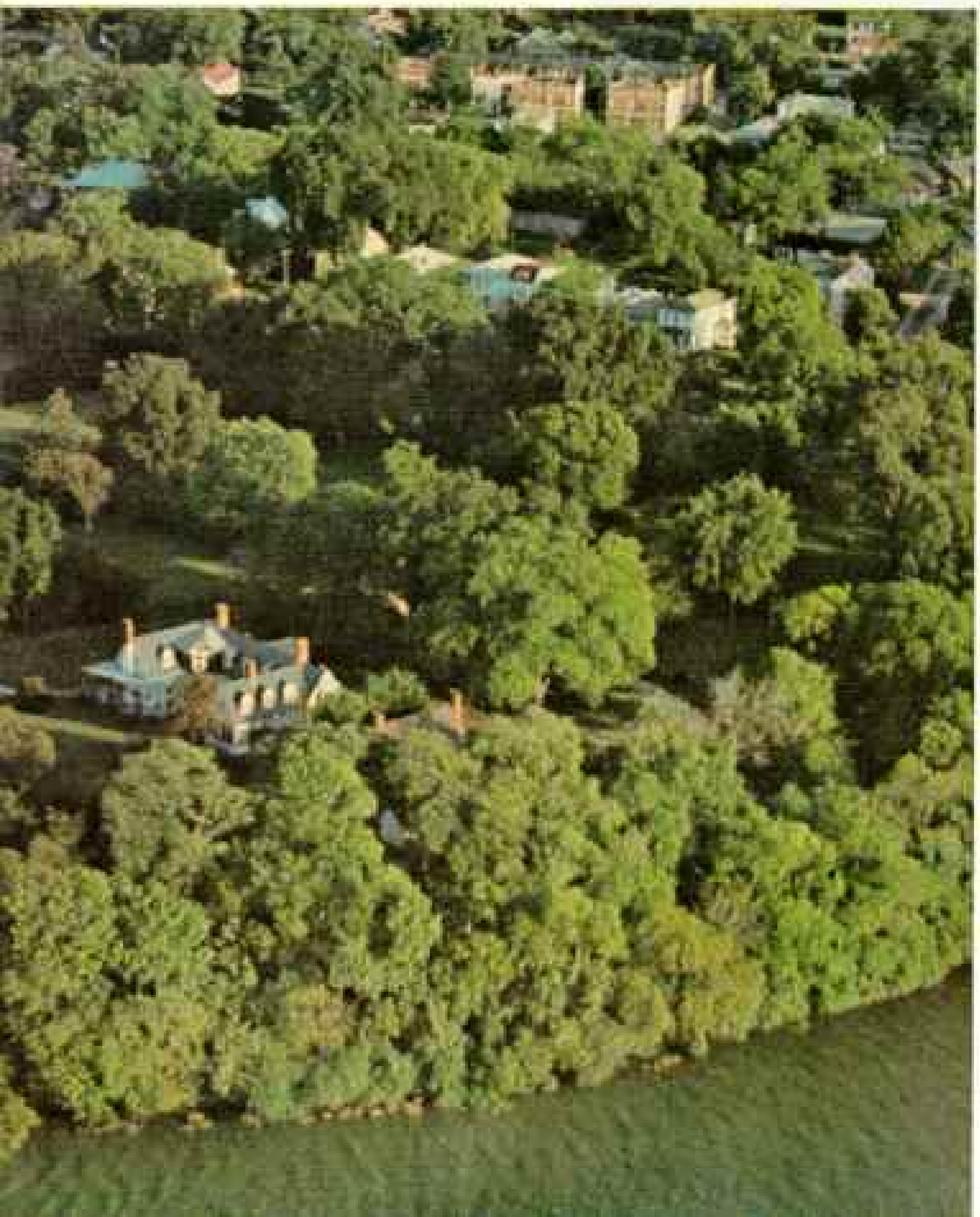
Symbol of Union strength, City Point, Virginia, overflows with supplies brought in by a fleet of ships (right). Eighteen trains a day carried the provisions to trench-bound Federal troops at Petersburg. This contemporary painting shows officers' cabins and hospital tents crowding the headland, where the Appomattox and James

MATHEW BRADY, LIBRARY OF CONGRESS

A moment with the family. General Grant's wife Julia and youngest son Jesse visit him in the doorway of his cabin at Appomattox Manor, City Point.

EDWARD LAMSON HENRY, COURTESY OF ADDISON GALLERY OF AMERICAN ART, PHILLIPS ACADEMY, ANDOVER, MASSACHUSETTS © N.G.S.

Rivers join. Lincoln, living the last two weeks of the war on the steamer *River Queen*, often conferred with Grant in Appomattox Manor, the large house on the bluff. The mansion still stands (lower center) on land owned by the Eppes family since 1638. The promontory lies within the modern city of Hopewell, Virginia.



INTERIOR VIEW AND RECONSTRUCTION BY BRUCE DALE © NATIONAL GEOGRAPHIC SOCIETY

Keep awake or else! One nod of a sentry's head and his teeter-totter seat tipped forward. A young visitor tests a copy of a chair possibly used by soldiers guarding Union headquarters at Appomattox Manor.

With Richmond and Petersburg threatened, Lee conceived a desperate plan: To attack the right of the Union line before Petersburg, attempting a breakthrough to the south or southwest to join forces with Johnston. Perhaps then he might attack Sherman, and, defeating him, turn north and try to whip Grant.

Lee set this plan in motion at 4 a.m., March 25, storming Fort Stedman, the Federal work before Petersburg. The attack seemed to succeed at first; the assaulting troops entered Fort Stedman and spread to the right and left.

But Union Maj. Gen. John G. Parke counterattacked, and the Confederates fell back in confusion, losing 2,600 men.

President Lincoln looked over 1,800 of them, prisoners of war, that afternoon at Maj. Gen. George G. Meade's headquarters.

By interesting coincidence, on the previous day, even as the South prepared to attack the Union right at Petersburg, General Grant had ordered the movement of his forces around Lee's right flank to start on March 29. This would cut off Lee's supply lines, the Richmond & Danville and the South Side Railroad, and force him to abandon his 37 miles of defenses.

Pickett Faces Sheridan

Now, on March 29, began one of the greatest American campaigns of all time, directed by two masters of the military art (map, pages 452-3). Here Lee's ingenuity and resourcefulness, and his retreating army's marching and fighting, excite admiration. But my grandfather was equally resourceful, and his soldiers were not handicapped by lack of food.

Maj. Gen. Philip H. Sheridan, who distinguished himself greatly in the next few days, led the Union's push with his cavalry corps, followed by the Army of the Potomac's infantry under General Meade. Heavy rain fell steadily on March 29 and 30, and the cavalry often bogged down, horses sinking up to their bellies in water and mud. Roads became sheets of slush, and soldiers called out to their officers, in the ageless irony of the fighting man: "When are the gunboats coming?"

As Sheridan's men approached Five Forks, one road of which led to the South Side Railroad, they found it occupied by Confederate cavalry and infantry under Maj. Gen. George E. Pickett. Like Grant, Lee had recognized the strategic importance of this five-road intersection (pages 446-7), and his orders to Pickett were blunt: "Hold Five Forks at all hazards. Protect road to Ford's Depot and prevent Union forces from striking the South Side Railroad."

Pickett prevailed—at the outset. He pushed Sheridan's cavalry back to Dinwiddie Court House on March 31. And the following afternoon, apparently confident that his repulse had settled the matter, Pickett rode off to enjoy a shad bake!

As he did so, Sheridan was preparing to renew the attack, augmented—belatedly—by troops of the V Corps under the command of Maj. Gen. Gouverneur K. Warren.

Two lead slugs collided in mid-air at Five Forks. "Bullets," said an eyewitness, "were humming like . . . bees."

"Go at 'Em With a Will"

"This battle must be fought and won," declared Sheridan, "before the sun goes down. All the conditions may be changed in the morning. We have but a few hours of daylight left us. My cavalry are rapidly exhausting their ammunition, and if the attack is delayed much longer, they may have none left!"

Bugles blowing, the assault moved out about 4 p.m., April 1. When Northern skirmishers wavered, under fire issuing from a dense woods as they crossed an open field, Sheridan rode among them with characteristic dash, shouting: "Come on, men, go at 'em with a will! Move on at a clean jump, or you'll not catch one of 'em. They're all getting ready to run now, and if you don't get on to them in five minutes, they'll every one get away from you. Now go for them!"

Sheridan put his spurs to his horse and jumped the Confederate parapet, landing amid a number of surrendering Southerners.

"Where do you want us to go?" they asked.

"Go right over there," Sheridan ordered, pointing back. "Get right along now, drop your guns; you'll never need them any more. You'll be safe over there. Are there any more of you? We want every one of these fellows."

He farms a battlefield. Mr. J. P. Gilliam plays with his hunting dogs in front of his ancestral home, the headquarters for Union Maj. Gen. Wesley Merritt during the Battle of Five Forks. The Federal Government provided the gravestone for six Confederate soldiers buried in the yard.

When Confederate forces under the command of Maj. Gen. George Pickett—of Gettysburg fame—entrenched along the White Oak Road at Five Forks, the South's Maj. Gen. Fitzhugh Lee advised the Gilliams to leave. Mrs. Gilliam, the present owner's grandmother, sent her daughters to stay with relatives, but she herself remained at the house throughout the battle to care for a sick servant.

Pickett's adjutant, Lt. Col. Walter Harrison, described a clash on a field near the house as "one of the most brilliant cavalry engagements of the war." Mrs. Gilliam reported that after the battle her lawn and garden were so littered with dead horses that it took days to drag them away.

Riding to tell Grant of the victory, an orderly with Lt. Col. Horace Porter called out the news to Union troops along the way. "No, you don't," one replied—"April fool!"

"I then realized," said Porter, "that it was the 1st of April."

Slashed by Union soldiers, a boyhood portrait of Mr. Gilliam's father, Samuel Yates Gilliam, hangs in the family home. After Union forces departed, Mrs. Gilliam glued back the damaged portion of the painting.

LITHOGRAPH BY HENRY A. ULKE

"Come on, men," cries Maj. Gen. Philip Sheridan at the Battle of Five Forks. "go at 'em with a will! Move on at a clean jump, or you'll not catch one of 'em."

KODACHROME © NATIONAL GEOGRAPHIC SOCIETY

Faded sign marks Five Forks. With authorization from Congress, the National Park Service hopes to purchase 1,200 acres and add them to the Petersburg National Battlefield.

Union troops captured some 5,000 Southerners there. Thus was won the victory of Five Forks, and it doomed the Army of Northern Virginia—and the Confederacy. Lee then had to telegraph Jefferson Davis and Secretary of War John C. Breckinridge that Richmond and Petersburg must be abandoned.

The great race was on; swiftly the end came. It turned into a war of legs, a walking match, though bullets still would fly. Richmond and Petersburg were evacuated during the night of April 2-3, and Grant ordered Meade to push west with all haste.

The evening of April 3, Grant and Meade both went into camp at Sutherland's Station.

Crossroads of disaster for the Army of Northern Virginia: Five Forks. General Pickett posted his troops behind breastworks along the

But the Army of the Potomac caught only a few hours' sleep and was again on the march at 3 a.m. on the 4th. Another strong Union force, Maj. Gen. Edward O. C. Ord's Army of the James, was swinging toward Burkeville to head off Lee's escape to Danville.

Grant Slips Through Enemy Territory

The 4th was another day of racing westward, and the Union soldiers all seemed to realize that if they won this race the war would be over, at least in the eastern theater. That night General Grant camped at Wilson's Station. On the 5th, a horseman in full Confederate uniform emerged from some woods like an apparition and was immediately seized.

Lt. Col. Horace Porter, an aide, recognized him as one of Sheridan's spies. When they brought him to General Grant, he took a small pellet of tin foil out of his mouth, opened it, and pulled out a message to Grant from Sheridan: "I wish you were here yourself."

Sheridan, about 20 miles northwest at Jetersville, was fearful that Lee might escape if much of the Union Army of the Potomac were moved farther to the right, as General Meade then was proposing.

General Grant immediately rode off to confer with Sheridan, accompanied only by the spy, two aides, and a mounted escort

White Oak Road (running diagonally, left to right), then rode two miles to the rear for a shad bake. In his absence, Sheridan swept in from the south (left background). Pickett returned too late; the complete rout put Union forces west of Lee, forcing the evacuation of Richmond and Petersburg. 447

of 14 men. The route led through woods, and an occasional enemy campfire flickered in the trees. It was 10:30 p.m. when the party reached Sheridan's pickets—who could hardly believe that General Grant would venture into enemy country with so little protection.

Grant got Sheridan's estimate of the situation, and then both proceeded to Meade's headquarters and explained to him that they did not want to push the enemy and follow him. They must get past him and in front of him and surround him. Meade promptly changed his orders to conform to this strategy, and the race continued—a fascinating race between the Confederate army trying to escape, and the Union army exerting every effort to circle around the South's right flank.

Precious Trainload of Food Goes Astray

By April 4, Lee had the remainder of his army pretty well assembled at Amelia Court House. There he had hoped to obtain forage and rations, sent by train to this way station on the Richmond & Danville, 33 miles west of Petersburg.

He found, instead, only ammunition for his guns. There was nothing to eat for his famished men and horses—food and fodder had not arrived. Lee lost a day scouring the barren countryside for food, and then, in the night of April 5, headed in a westerly arc for Farmville, evidently trying to escape to Lynchburg now that Federal forces blocked the way to Danville.

On the 6th, at Sayler's Creek, eight miles from Farmville, Sheridan's cavalry and Maj. Gen. Horatio G. Wright's VI Corps infantry destroyed two Confederate corps, capturing 7,000 men. Seven generals were among them, including Custis Lee, Robert E. Lee's son.

Lee's emaciated troops pushed on through Farmville—ever west, though the intent still was to turn south eventually—ever nearer a sleepy village named Appomattox Court House, now just thirty or so miles away.

Grant came up to Farmville April 7, and the cheers of his men filled his ears. He tipped his hat to them. He was amused by their sallies—the spontaneous testimony of blooded veterans who knew the end at last was in sight.

"Cavalry's gi'n out, general. Infantry's going to crush the rest of the mud." And, "We've marched nigh twenty miles on this stretch, and we're good for twenty more if the general says so."

But the general had something else to say that spring day, in his direct way.

Grant wasn't dramatic, as Lee was. I remember my grandfather well, though I was only four years old when he died. As I see him—through all the war, through the Presidential years that followed, and down to his death in 1885—he remained a simple farm boy at heart.

He was always most affectionate and considerate with us children. I have in mind's eye the picture of a great man, the unquestioned head of a happy family, quiet and reserved and uncomplaining even in adversity and suffering, loving and interested in his grandchildren, but not permitting his affections to become indulgence or disregarding any open breach of discipline.

General Grant States His Case

When it came time, as it now finally did at Farmville, to address General Lee, his words marched straight to the point:

"The results of last week," his note read, "must convince you of the hopelessness of further resistance on the part of the Army of Northern Virginia in this struggle. I feel that it is so, and regard it as my duty to shift from myself the responsibility of any further effusion of blood, by asking of you the surrender of that portion of the Confederate States Army known as the Army of Northern Virginia."

Lee, however, was not yet convinced, and so this note became the first of 11 brief letters that passed between the two commanders, ending two days later on April 9 with Lee's acceptance of the surrender terms. All but one letter bore the identical complimentary close: "Very respectfully, your obedient servant." The exception was the tenth communication, Grant to Lee, which contained the surrender terms. It ended: "Very respectfully."

Grant finally convinced Lee on the morning of April 9 that further resistance was useless. At daybreak on the 9th, with massive Federal

No thunder of gunfire disturbs the leafy tracery of sweet gum, white oak, and ash in a swamp near Petersburg. Here the retreating Army of Northern Virginia slogged its way, too exhausted, too famished to heed the cardinal's cheery call and the blue jay's flashing wing—sights and sounds cherished in peaceful springtimes.

Grim mementos found on the Petersburg National Battlefield include Minié balls, a Confederate infantry button, and the tip (left) and throat of a bayonet scabbard.

Well-fed, well-clothed Union soldiers turn heads for this 1865 photograph of the trenches at Petersburg. A few hundred yards away, Lee's army waits in tatters.

forces threatening to ring the Confederates, now camped at Appomattox Court House, Lee had attempted a last, desperate breakthrough. The Union line was too strong.

The Confederate general in chief then said, "There is nothing left for me to do but to go and see General Grant, and I would rather die a thousand deaths." Under white flags, he asked Meade and Sheridan to suspend hostilities until a message requesting a meeting could reach Grant. Suspecting a ruse, they agreed only reluctantly to a two-hour cease-fire. Grant, however, entertained no doubts about Lee's good faith.

My grandfather had been suffering acutely from one of his attacks of migraine. When he received Lee's message on the morning of the 9th, it immediately cured his sick headache, for his opponent had written:

"I therefore request an interview at such time and place as you may designate, to discuss the terms of surrender of this army. . . ."

Two Men, Two Worlds Meet

Two very different men, Ulysses S. Grant and Robert E. Lee, but no more different than North and South.

General Grant was not yet 43 years old at Appomattox, of medium height, bearded, and spare; General Lee was almost 15 years his senior, tall and imposing, a patrician (page 469). Grant was an eighth-generation American of New England ancestry. Ohio-born, he was the descendant of men who since 1630 had served as local officials and who had participated in French and Indian wars. He was a son of the soil, who graduated about the middle of his class at West Point and saw distinguished service in the war with Mexico.

Sick of being separated from his family by service in California, he had resigned from the Army in 1854, as a captain, to rejoin his family and take up farming near St. Louis, Missouri. He rejoined the Army as colonel of the 21st Illinois (Volunteer) Infantry in June, 1861. Within three years he had command of all the Union armies; and the next year he received the surrender of the last Confederate army able to offer substantial resistance. In three more years he was elected President.

For their meeting, Lee had selected the parlor of Wilmer McLean's commodious brick home. Back when the war was young, farmer McLean had lived in Prince William County,

BRADY COLLECTION, NATIONAL ARCHIVES (ABOVE); KODACHROME (BELOW) AND RECONSTRUCTION BY BRUCE DALE @ NATIONAL GEOGRAPHIC SOCIETY

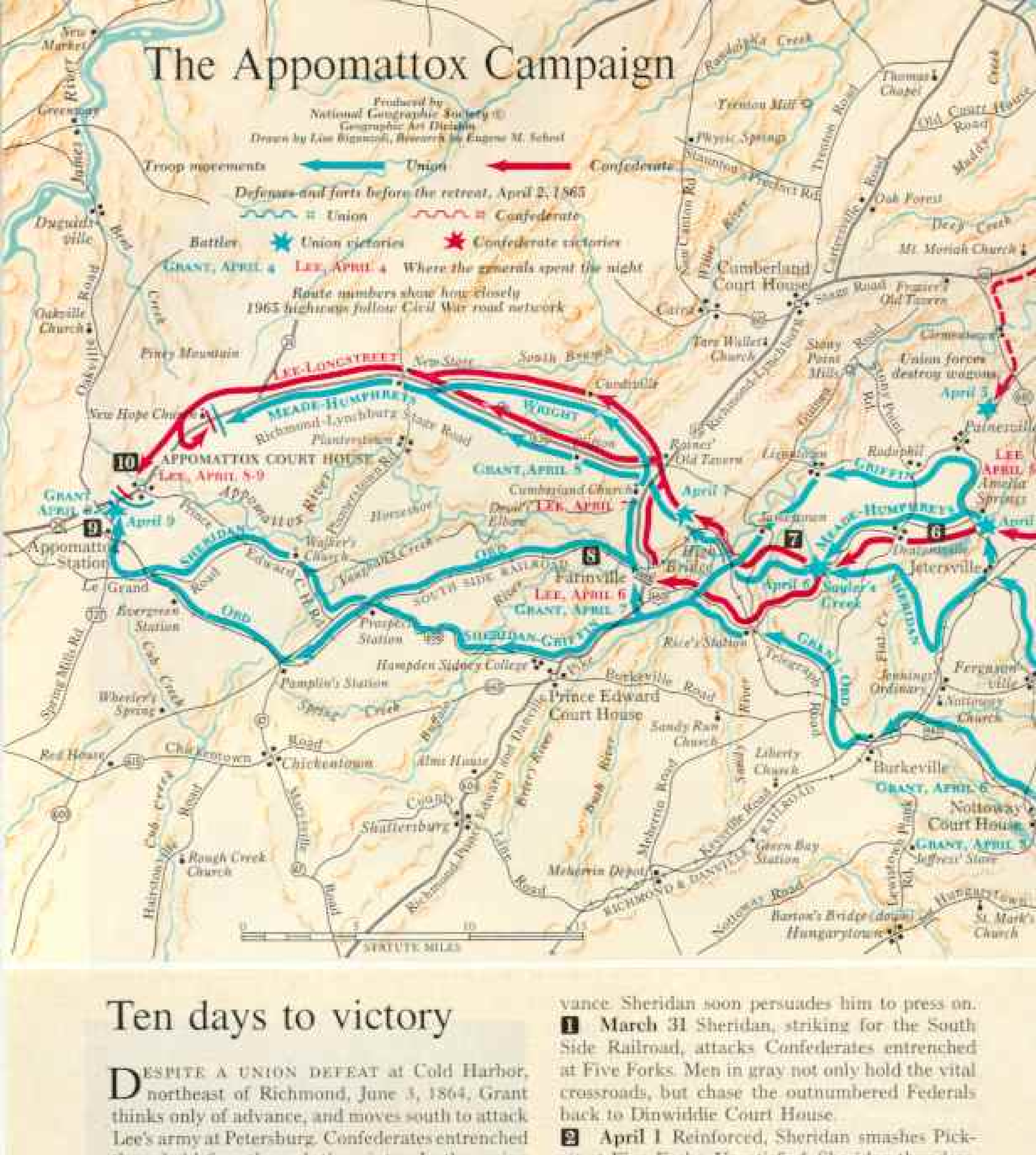
Virginia. Over his land, in 1861, North and South fought the first big fight: Manassas, the first Battle of Bull Run. A year later, they fought there again. McLean then moved to Appomattox Court House to get away from the war. Nevertheless, he now found himself in the midst of the final act (page 462).

It was about 1:30 p.m. on April 9 when Grant, mud-spattered, rode up to the McLean house and entered the parlor. Lee rose, and they shook hands. Grant wore the blouse of a private, with shoulder straps of a lieutenant general; Lee wore his dress uniform.

Various high-ranking Federal officers filed into the room and stood behind Grant. Lee's only attendant was his military secretary, Lt. Col. Charles Marshall (pages 464-5).

General Grant opened the conversation by saying he remembered General Lee very well from the Mexican War. He did not expect

Pint-size souvenir cap, copying a 19th-century soldier's, tops the head of a young visitor at Petersburg's Fort Sedgwick, nicknamed "Fort Hell."



Ten days to victory

DESPITE A UNION DEFEAT at Cold Harbor, northeast of Richmond, June 3, 1864, Grant thinks only of advance, and moves south to attack Lee's army at Petersburg. Confederates entrenched there hold firm through the winter. In the spring Grant strengthens and extends his left flank. His aim: to stretch Lee's line to the breaking point. Lee counterattacks at Fort Stedman on March 25, hoping to gain time to join Gen. Joseph E. Johnston in North Carolina. The gamble fails.

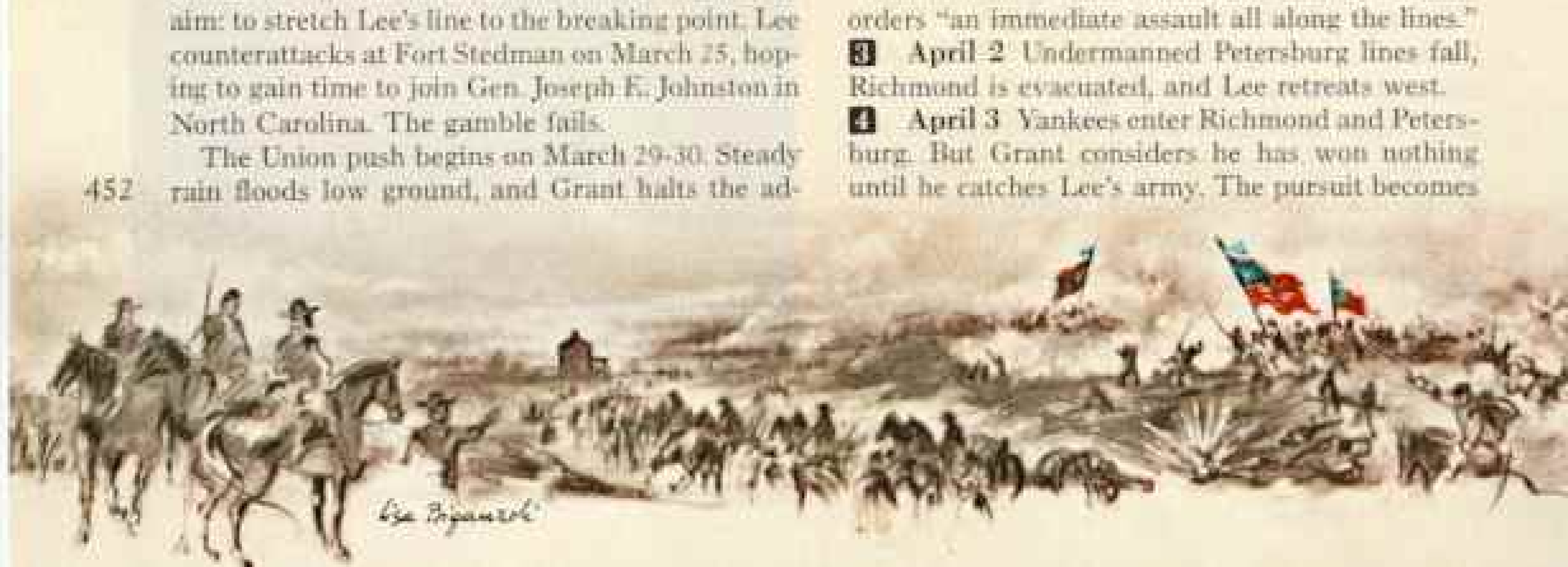
The Union push begins on March 29-30. Steady rain floods low ground, and Grant halts the advance. Sheridan soon persuades him to press on.

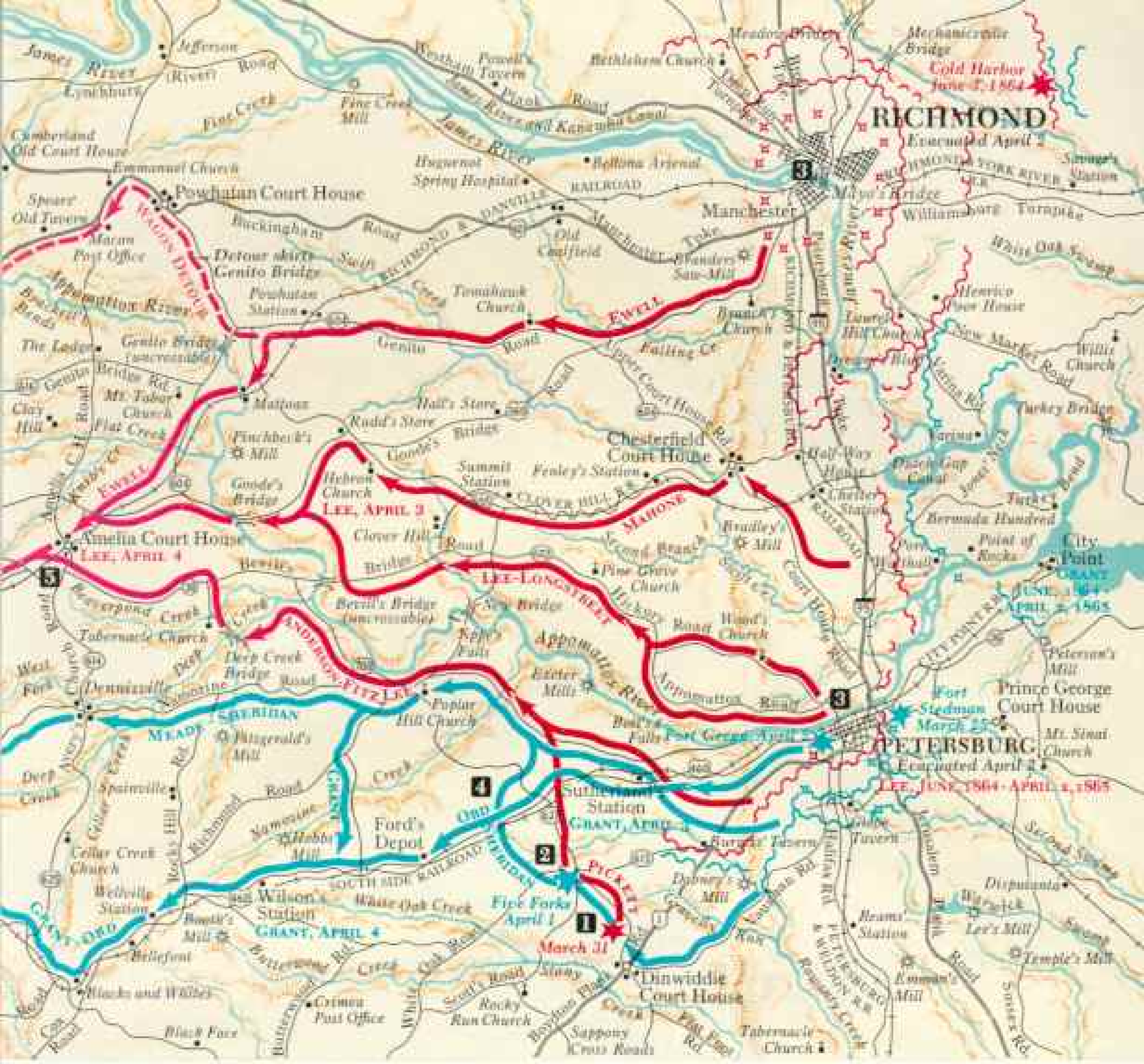
1 **March 31** Sheridan, striking for the South Side Railroad, attacks Confederates entrenched at Five Forks. Men in gray not only hold the vital crossroads, but chase the outnumbered Federals back to Dinwiddie Court House.

2 **April 1** Reinforced, Sheridan smashes Pickett at Five Forks. Unsatisfied, Sheridan thunders, "What I want is that South Side Railway." Grant orders "an immediate assault all along the lines."

3 **April 2** Undermanned Petersburg lines fall, Richmond is evacuated, and Lee retreats west.

4 **April 3** Yankees enter Richmond and Petersburg. But Grant considers he has won nothing until he catches Lee's army. The pursuit becomes





"swift, unflagging, relentless." Sheridan—"the inevitable," as the enemy call him—leads the way with Meade behind. Ord follows the South Side Railroad. "The great walking match" begins, but swollen rivers divert and delay the Confederates.

5 **April 4** "Long lines of veterans with bristling bayonets," the Southerners converge at Amelia Court House. Sheridan and Meade dig in at Jetersville, blocking Lee's path southwest.

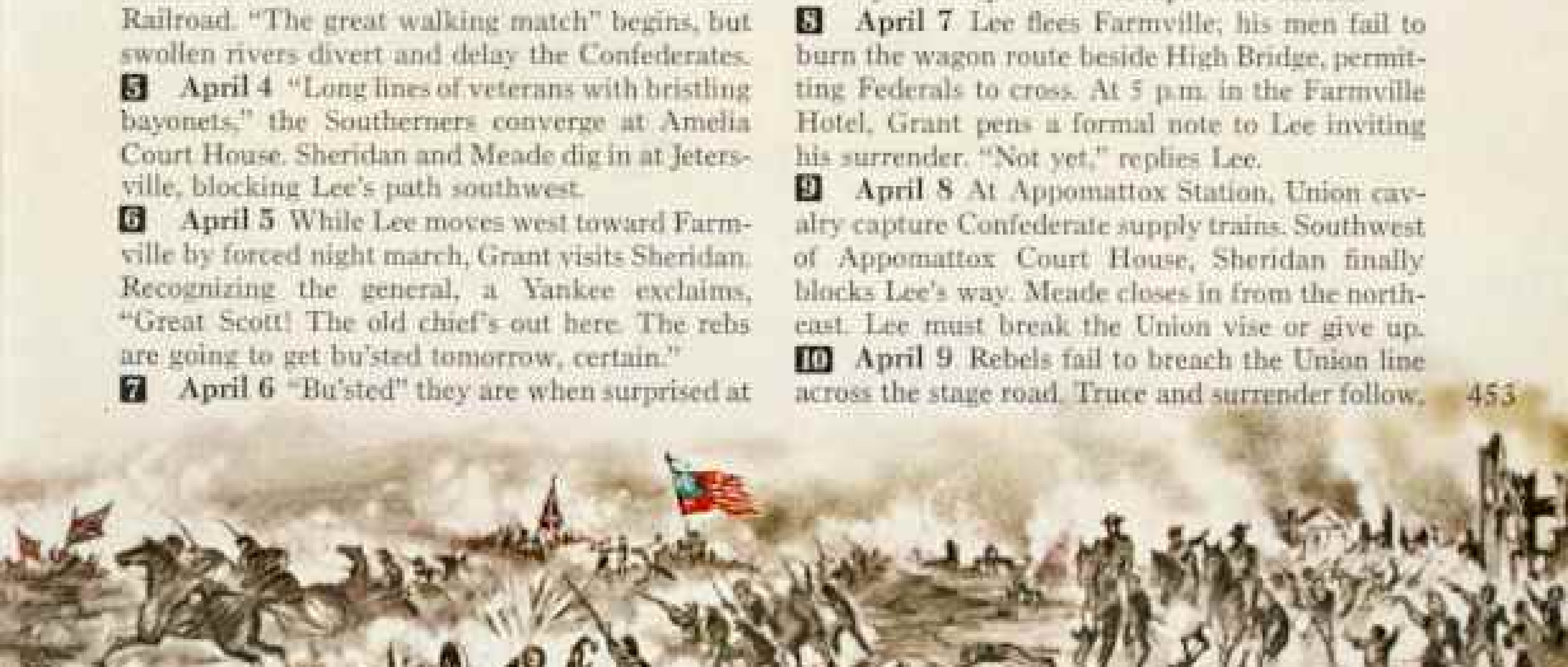
6 **April 5** While Lee moves west toward Farmville by forced night march, Grant visits Sheridan. Recognizing the general, a Yankee exclaims, "Great Scott! The old chief's out here. The rebs are going to get bu'sted tomorrow, certain."

7 **April 6** "Bu'sted" they are when surprised at Sayler's Creek. Watching the carnage, Lee sorrowfully exaggerates, "Half of our army has been destroyed." Hope for an escape route falters.

8 **April 7** Lee flees Farmville; his men fail to burn the wagon route beside High Bridge, permitting Federals to cross. At 5 p.m. in the Farmville Hotel, Grant pens a formal note to Lee inviting his surrender. "Not yet," replies Lee.

9 **April 8** At Appomattox Station, Union cavalry capture Confederate supply trains. Southwest of Appomattox Court House, Sheridan finally blocks Lee's way. Meade closes in from the northeast. Lee must break the Union vise or give up.

10 **April 9** Rebels fail to breach the Union line across the stage road. Truce and surrender follow.



Valiant men struggle for possession of Fort Gregg, last major Confederate stronghold at Petersburg. Sgt. Henry Day, a Medal of Honor winner, stabs the parapet with the colors of the 39th Illinois Regiment. "Men . . . were met with pistol and bayonet," wrote reporter Morris Schaff, "and it was only after twenty-five or thirty minutes of awful slaughter that the heroic garrison was conquered." The battle for Fort Gregg on April 2 gave the Confederate army time to evacuate Petersburg.

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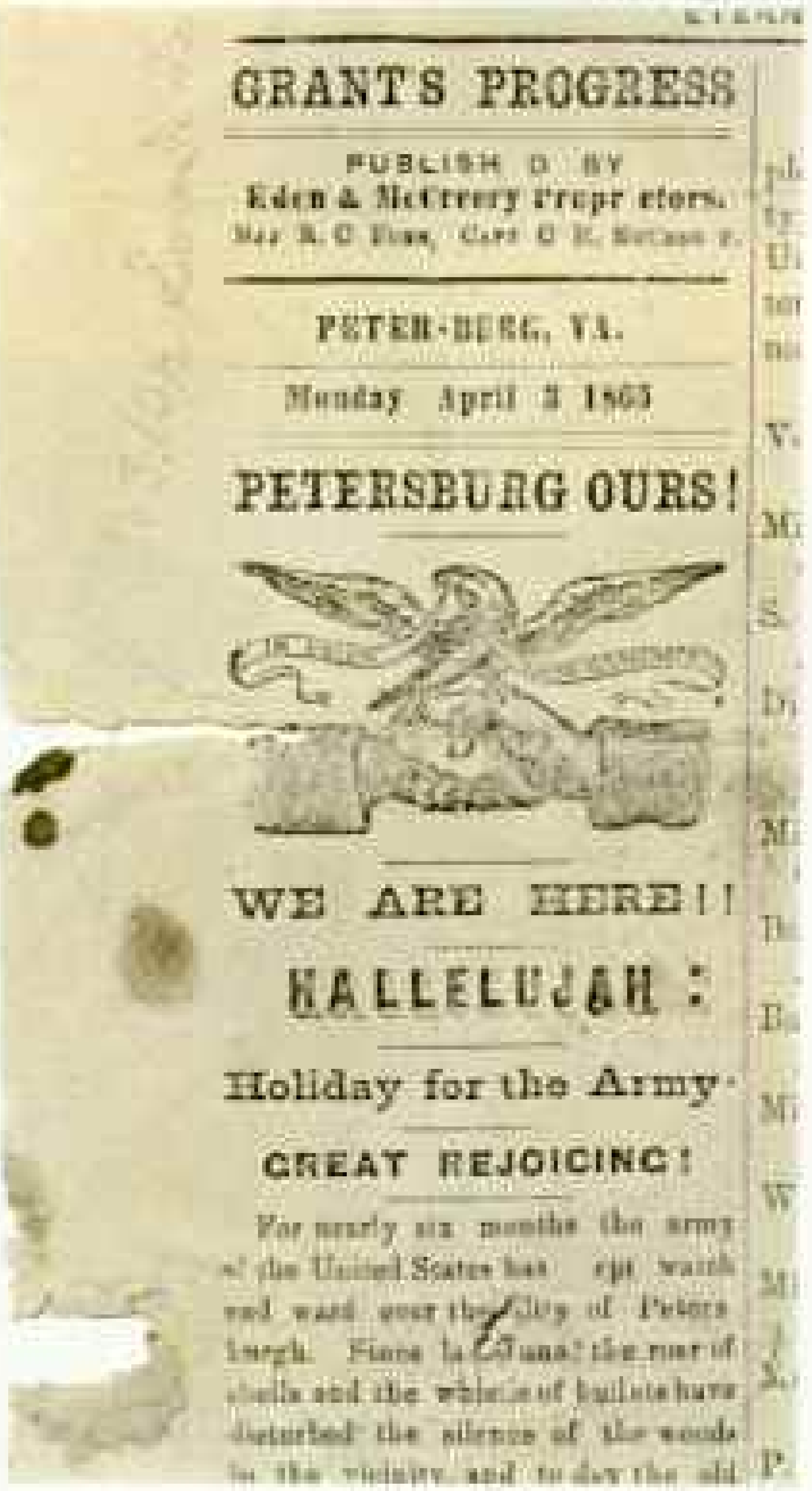


GRANT'S PROGRESS

PUBLISHED BY
Eden & McCreery Proprietors.
Maj R. C. Eden, Capt C. E. McCreery.

PETERSBURG, VA.

Monday April 3 1865

PETERSBURG OURS!

WE ARE HERE!!

HALLELUJAH!

Holiday for the Army.

GREAT REJOICING!

For nearly six months the army of the United States has kept watch and ward over the City of Petersburgh. Since last June the roar of shells and the whistle of bullets have disturbed the silence of the woods in the vicinity and to-day the old

Proclaiming victory, the first edition of *Grant's Petersburg Progress* announces: "We intend to publish a live paper as long as circumstances will permit; that is, as long as we can steal the paper and get men detailed to set the type. Our terms will be: 10 cents a copy, invariably in advance, except to Lieutenant, Major and Brigadier Generals; no credit being given to others on any consideration except immediately before the advent of the Pay master.

"We . . . will take Hard tack, Greenbacks, Cigars, Postage Stamps, and in fact most any available currency. . . ."

Lee would remember him, he added, because of the difference in their ages and ranks at that time. (My grandfather was a lieutenant in the Mexican War; Lee, a captain who had received several brevet promotions, was serving as a lieutenant colonel.)

General Lee said something about remembering meeting him in Mexico but not having been able to remember his features.

Grant had been jubilant on receiving Lee's letter earlier that day. But as the conversation went on, he recalled later, he "felt like anything rather than rejoicing at the downfall of a foe who had fought so long and valiantly, and who had suffered so much for a cause, though that cause was one of the worst for which a people ever fought."

Finally Lee said, "I suppose, General Grant, that the object of our present meeting is fully understood. I asked to see you to ascertain upon what terms you would receive the surrender of my army."

The terms, General Grant replied, were substantially those he had outlined by letter. General Lee then asked that they be committed to a final writing, so that they could be formally acted upon.

General Grant asked Col. Ely S. Parker, secretary of his staff, for his order book and wrote out in pencil:

> Appomattox C. H. Va.
> Apl. 9th 1865
>
> Gen. R. E. Lee
> Comdg. C. S. A.
> Gen.
>
> In accordance with the substance of my letter to you of the 8th inst. I propose to receive the surrender of the Army of N. Va. on the following terms: to wit
>
> Rolls of all the officers and men to be made in duplicate. One copy to be given to an officer designated by me, the other to be retained by such officer or officers as you may designate. The officers to give their individual paroles not to take up arms against the Government of the United States until properly [exchanged] and each company or regimental commander sign a like parole for the men of their commands.
>
> The arms, artillery and public property to be parked and stacked and turned over to the officer appointed by me to receive them. This will not embrace the side arms of the officers, nor their private horses or baggage. This done each officer and man will be allowed to return to their homes not to be disturbed by United States authority so long as they observe their parole and the laws in force where they may reside.
>
> Very respectfully
> U. S. Grant Lt. Gn.

General Lee carefully studied this draft. Some words had been inserted by Colonel Parker at Grant's direction, among them "until properly"; here, "exchanged" had been left out inadvertently. After asking if he might indicate the omission, Lee borrowed a pencil and did so. Later, "exchanged" was added (page 467).

Wrecked railway station at Richmond reveals the desperation of the South, whose fleeing forces left much of the city in ruins.

Checkpoint on the foot race: the High Bridge near Farmville. Union forces nipping at his heels, Lee fired a lofty rail trestle and a wagon bridge across the swollen Appomattox River. The High Bridge blazed freely, but pursuing Federals doused flames on the wagon bridge and poured across. No reprieve in sight, the remnant of Lee's army trudged on in retreat. Here masonry piers of the span destroyed by the Confederates rise alongside the rebuilt railroad trestle.

When Lee read the last two sentences, he remarked with some feeling, General Grant thought, that this would have a very happy effect upon his army. He then added that many Confederate cavalrymen and artillerists —men in the ranks—owned their own horses, and his expression indicated he would like them to be allowed to retain them.

The terms as written did not provide for this, General Grant replied. "But," he went on, "I think we have fought the last battle of the war . . . it is doubtful whether they will be able to put in a crop to carry themselves and their families through the next winter without the aid of the horses they are now riding. . . ." He would instruct the officers administering the paroles, General Grant said, to allow every man of the Confederate Army who claimed to own a horse or mule to take the animal to his home.

Once again General Lee expressed his appreciation. "This will have the best possible effect upon the men," he said. "It will be very gratifying, and will do much toward conciliating our people."

Lee and Grant had known how to fight a war. Now they showed how to end one.

Magnanimity in Victory

Napoleon once remarked, I recall, something to the effect that an army is very seldom beaten—a general very often is.

I don't think my grandfather was ever beaten. He suffered reverses, true, but he always had his troops arranged so they could support one another if something went wrong. Perhaps this tells why he had the phenomenal success as a commander to have received the surrender of three armies—at Fort Donelson in Tennessee, Vicksburg, and Appomattox.

What is not generally appreciated about him in our day and age, I believe, is his magnanimity to the defeated. Robert Louis Stevenson, in an essay entitled "Gentlemen," takes note of it:

"On the day of the capitulation, Lee wore his presentation sword; it was the first thing Grant observed, and from that moment he had but one thought: how to avoid taking it. A man who should perhaps have had the nature of an angel, but assuredly not the special virtues of the gentleman, might have received the sword, and no more words about it: he would have done well in a plain way. One who wished to be a gentleman, and knew not how, might have received and returned it: he would have done infamously ill, he would have proved himself a cad; taking the stage for himself, leaving to his adversary

(Continued on page 463)

PAINTING BY BRUCE DALE, BRADY COLLECTION, LIBRARY OF CONGRESS (OPPOSITE) © N.G.S.

The trap at Appomattox Station. When Lee's last supply trains pulled into the depot on April 8, Maj. Gen. George A. Custer and his cavalry took the crews by surprise, captured the trains, and made off with them and the provisions for the hungry Southerners.

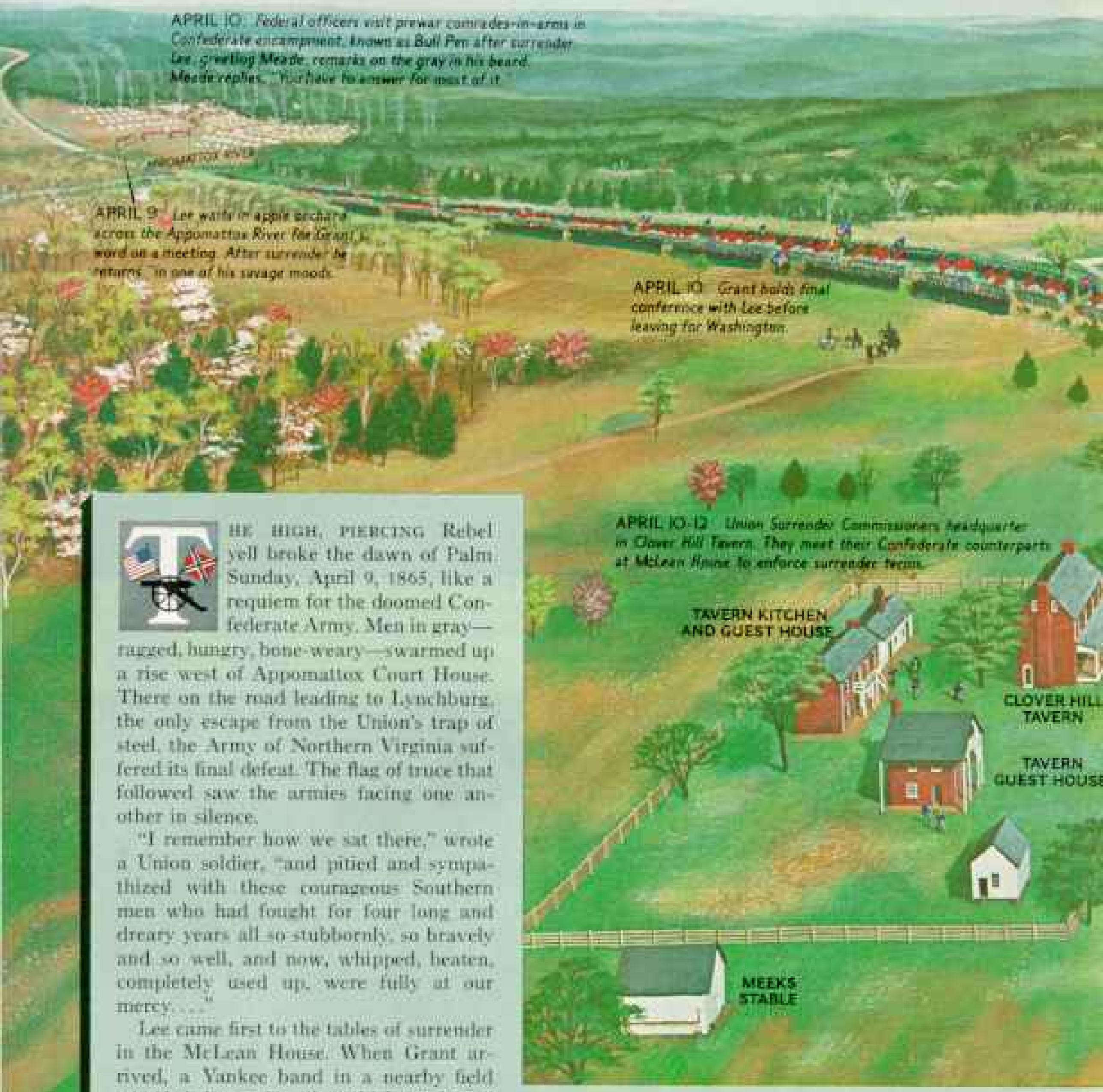
MATH LIBRARY OF CONGRESS © NATIONAL GEOGRAPHIC SOCIETY

Victorious Federals, their rifles stacked, line the fence before Appomattox Court House. Arriving shortly after the surrender, photographer T. H. O'Sullivan took this picture and the one above at Appomattox Station. The old courthouse burned 27 years later.

Gleaming tracks run beside the red-brick station of present-day Appomattox. When the county elected to move its seat to the station in 1892, a town sprouted around the new courthouse. Appomattox Court House, three miles away, became a deserted village.

PHOTOGRAPHS BY BRUCE DALE © NATIONAL GEOGRAPHIC SOCIETY

Rebuilt as photographs showed it, the courthouse stands today in the middle of Appomattox Court House National Historical Park (following pages). The park, a partial restoration of the village, lies 22 miles east of Lynchburg on Virginia Route 24.



THE HIGH, PIERCING Rebel yell broke the dawn of Palm Sunday, April 9, 1865, like a requiem for the doomed Confederate Army. Men in gray—ragged, hungry, bone-weary—swarmed up a rise west of Appomattox Court House. There on the road leading to Lynchburg, the only escape from the Union's trap of steel, the Army of Northern Virginia suffered its final defeat. The flag of truce that followed saw the armies facing one another in silence.

"I remember how we sat there," wrote a Union soldier, "and pitied and sympathized with these courageous Southern men who had fought for four long and dreary years all so stubbornly, so bravely and so well, and now, whipped, beaten, completely used up, were fully at our mercy. . . ."

Lee came first to the tables of surrender in the McLean House. When Grant arrived, a Yankee band in a nearby field sounded the strains of "Auld Lang Syne." In three hours it was over: the Army of Northern Virginia was prisoner. As Lee mounted his horse Traveller and rode from the house (page 466), Grant on the steps tipped his hat in silent salute. Federal officers lining Lee's path saluted as well.

Returning to his army, encamped on the slope above the Appomattox River, Lee spoke a few heartbroken words: "Men, we have fought through the war together, and I have done my best for you. You will all be paroled and go to your homes. . . ."

The next day, commissioners from both armies gathered to arrange the surrender, as parole papers were printed for the Southern forces. Lee and Grant met once more on a knoll between the two armies. Then Grant set out for Washington, and Lee returned to his troops, to be with them until the formal surrender on April 12.

On that day, the fourth anniversary of the firing on Fort Sumter, Union troops massed along the road leading to the river. Remnants of the Confederate regiments marched between them to stack arms and banners on the Surrender Triangle.

"On they come," wrote a Union officer, "with the old swinging route step and swaying battle flags. . . . Before us in proud humiliation stood . . . men whom neither toils and sufferings, nor the fact of death, nor disaster could bend from their resolve; standing before us now, thin, worn and famished, but erect, and with eyes looking level into ours, waking memories that bound us together as no other bond. . . .

"On our part," wrote the officer, "not a sound of trumpet more, nor roll of drum, not a cheer, nor word nor whisper . . . nor motion . . . but an awed stillness rather, and breath-holding. . . ."

After four agony-racked years, the Nation stood ready for rebirth.

APRIL 9 *Union forces camp here in an encircling movement that keeps the Confederate Army*

VA. ROUTE 24

APRIL 12 *Army of Northern Virginia stacks arms and furls banners before the salutes of Union troops lining the road*

PEERS HOUSE

SURRENDER TRIANGLE

KELLY HOUSE

ISBELL HOUSE

COUNTY JAIL

COURT HOUSE

WOODSON LAW OFFICE

MAIN STREET

(RICHMOND-LYNCHBURG STAGE ROAD)

MEEKS STORE AND HOUSE

APRIL 9 *Lee rides away after signing surrender; Grant, on steps, and Federal officers salute him*

McLEAN HOUSE

APPOMATTOX
THE LAST FOUR DAYS

Surrender drama of a century ago plays across this view, looking east, of today's Appomattox Court House National Historical Park. In the partially restored village, once-neglected buildings now stand neatly behind fences replacing those torn down by men of both armies.

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NATIONAL GEOGRAPHIC SOCIETY
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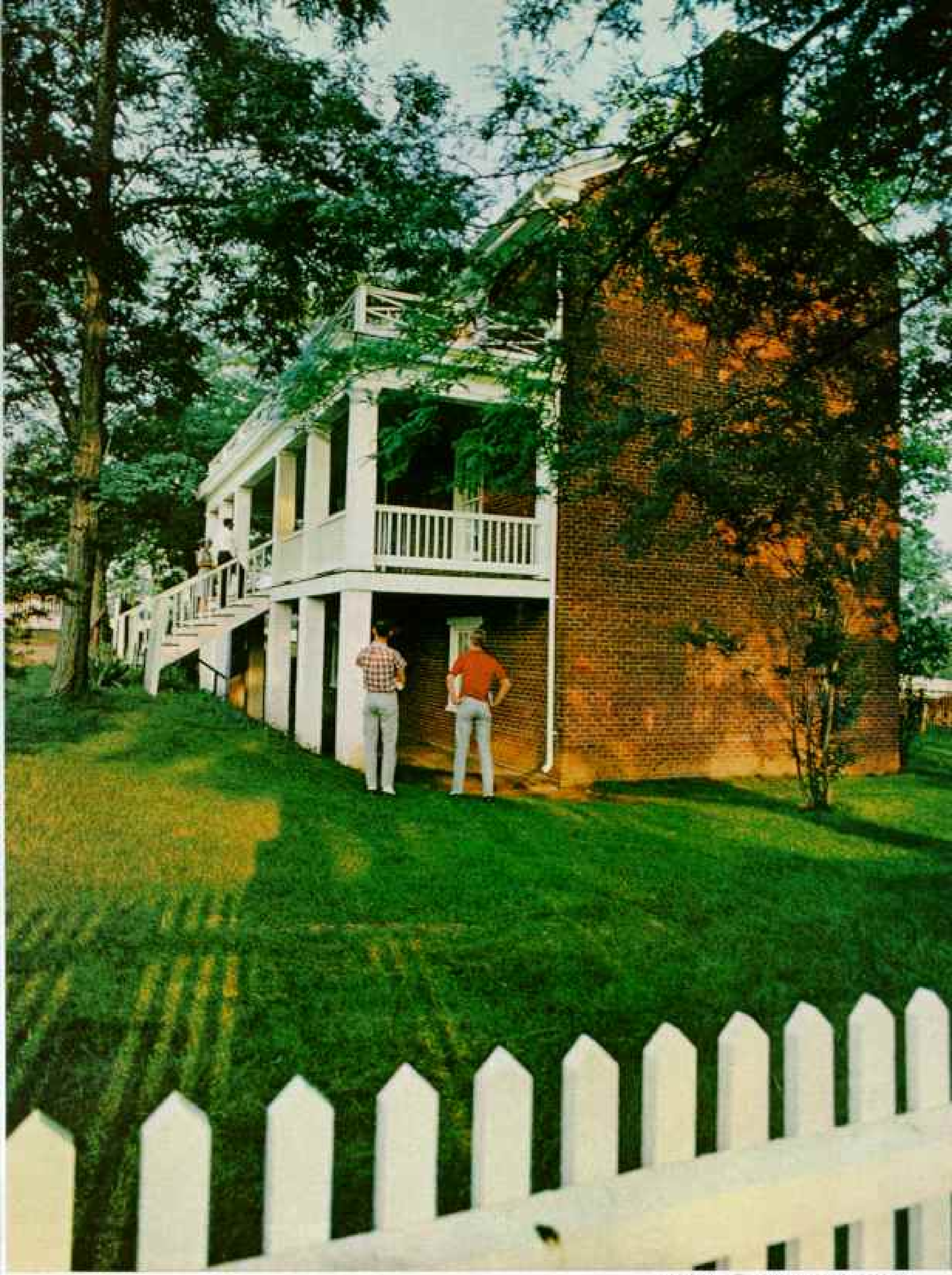
PRINTED BY ROBERT A. HICKCOCK
DESIGNED BY HOWARD A. NICHOLSON



Lee's corridor of sorrows ends at the McLean House. Here Wilmer McLean moved after two Civil War battles surged across his Manassas farm—only to have the conflict *end* in his parlor. Plans to exhibit the house at the Chicago World's Fair of 1893 and then to re-erect it in Washington, D. C., as a war museum fell through. Dismantled, the structure lay near its present site until 1949, when the National Park Service reconstructed it; one brick in every 13 is original.

confusion of countenance and the ungraceful posture of the man condemned to offer thanks. Grant, without a word said, added to the terms of this article: 'All officers to retain their side arms,' and the problem was solved and Lee kept his sword, and Grant went down to posterity, not perhaps a fine gentleman, but a great one."

Of course, the Union general in chief had talked informally with Mr. Lincoln many times and knew that the President agreed with his attitude of compassion toward the South. Both were intent on bringing the seceded states back into the Union. But the terms General Grant now offered at Appomattox were in no way indicated by the President.

Others were to take exception to the final sentence of the terms of surrender, but its guarantee enabled General Grant subsequently to prevent the prosecution of General Lee and other high-ranking Confederates and the hatred that might have resulted.

General Lee sat in Wilmer McLean's parlor and carefully studied those terms; then he wrote a brief letter accepting them (next page). While copies were being made, General Grant presented the Union officers to Lee. The latter shook hands with Maj. Gen. Seth Williams, who had been his adjutant at West Point when Lee was superintendent, and with the others who extended their hands. He acknowledged the rest with a formal bow.

Union Rations Feed Hungry Southerners

General Lee mentioned that he had no food or forage, that his men had lived for the last few days principally on parched corn. He was not certain how many men had to be fed. Among them were a thousand or more Union prisoners, he said.

General Grant proposed to send over 25,000 rations, which Lee thought would be ample. The number of men surrendered actually turned out to be 27,516.

Conscious that his appearance—a soldier's blouse with the insignia of rank only, muddy boots, no sword—might be regarded as disrespect, General Grant explained that he had been separated from his headquarters baggage for several days, and that he generally wore a sword as little as possible.

Years later, a gushing lady asked my grandfather: "What were your thoughts, general, in that sublime moment when you knew that at last Lee would surrender, and the heavens of your glory were about to open?"

My grandfather replied: "My dirty boots and wearing no sword."

At last it was finished. The conference had begun about 1:30 that day, and now it was nearly 4 and the sun was westering. The niceties, the grace notes remained.

General Lee rose, shook hands with General Grant, bowed to the other men, and left the room with his aide, Colonel Marshall. The Union officers followed, all standing on the porch save General Grant, who halted on the steps and raised his hat to Lee in parting salute. All his officers followed suit.

General Lee lifted his hat in return and rode off to his men, now prisoners of war.

News of the surrender had made its way to the Union lines, where jubilant bluecoats fired salutes at several points. General Grant ordered them stopped at once, saying:

"The war is over; the Rebels are our countrymen again; and the best sign of rejoicing after the victory will be to abstain from all demonstrations in the field."

How to End a War Among Brothers

Nearly thirty years after the close of the Civil War, Colonel Marshall—the only Confederate officer with Lee at the historic conference in the McLean House—made a speech in New York City in 1892. It sheds much light, I believe, on the triumph of the principle of an indissoluble union; and it captures both the soldier and the man, Ulysses S. Grant. I quote Colonel Marshall:

"On that eventful morning of April 9, 1865, General Grant was called upon to decide the most momentous question that any American soldier or statesman has ever been required to decide.

"The great question was: How shall the war end? What shall be the relations between the victors and the vanquished? Upon the decision of that question depended, as I believe, the future of American institutions.

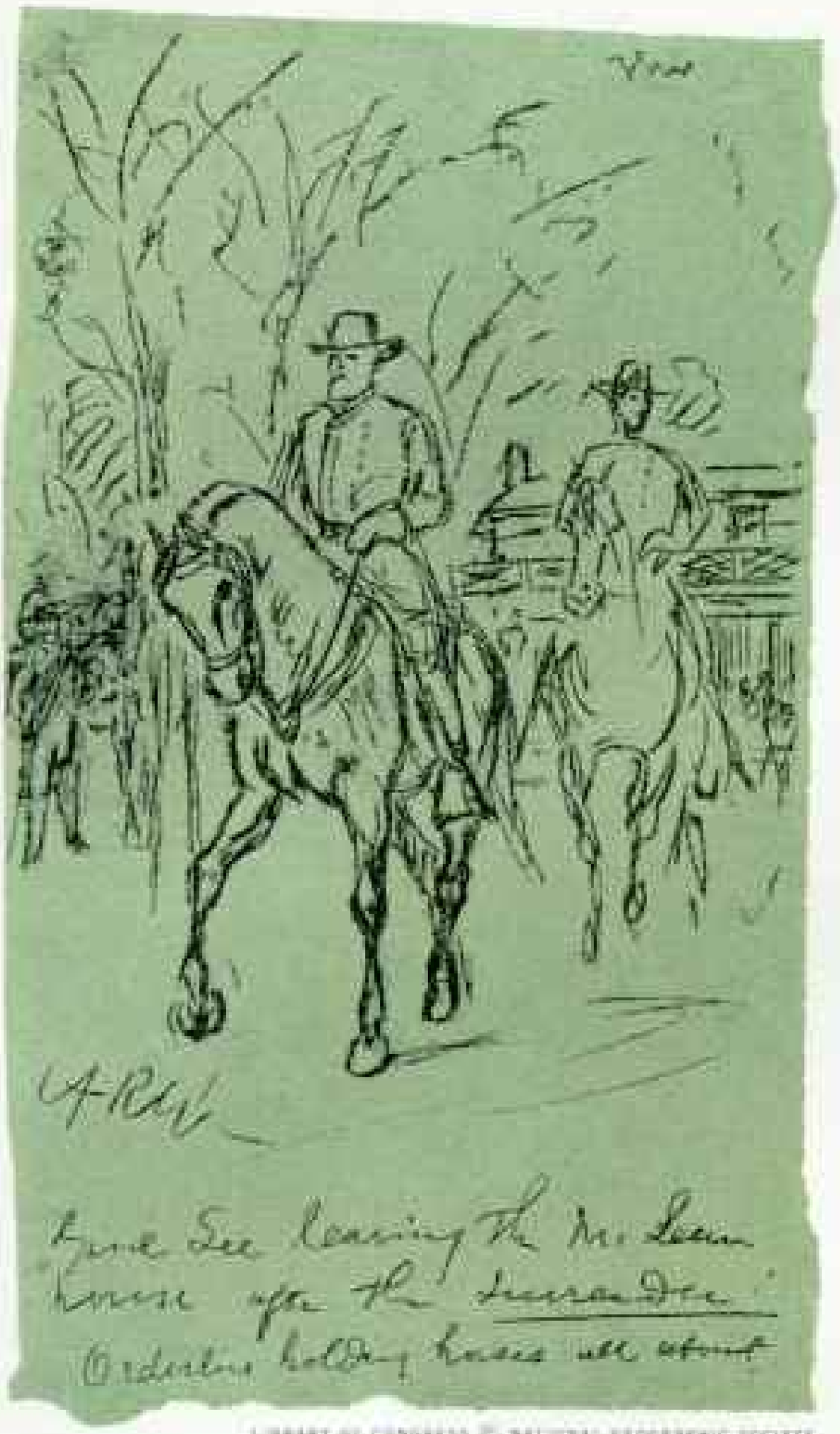
"If the extreme rights of military success had been insisted upon, and had the vanquished been required to pass under the yoke of defeat and humiliation, the war would have ended as a successful war of conquest—the Southern states would have been conquered states, and the Southern people would have been a conquered people, in whose hearts would have been sown all the enmity and ill will of the conquered to the conquerors, to be transmitted from sire to son."

The former Confederate colonel went on:

Lee accepts the surrender terms

Dressed in a new uniform of Confederate gray, Lee accepts the generous terms offered by Grant. At Lee's side stands Lt. Col. Charles Marshall, his secretary. Across the room, in muddy boots and a private's blouse decorated with the three stars of his rank, Grant gazes with compassion on his recent adversary. Behind him, left to right: Maj. Gen. Philip H. Sheridan,

Col. Orville E. Babcock, Lt. Col. Horace Porter, Maj. Gen. Edward O. C. Ord, Maj. Gen. Seth Williams, Col. Theodore S. Bowers, Col. Ely S. Parker, and Maj. Gen. George A. Custer. "We walked in softly," said Porter "... very much as people enter a sick-chamber when they expect to find the patient dangerously ill." Specially commissioned by NATIONAL GEOGRAPHIC, artist Tom Lovell worked from the best—though often conflicting—accounts of the signing. The author considers it "the most accurate painting ever done of the surrender."



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Mounted on Traveller, the splendid gray horse that carried him through the war, Lee leaves McLean House. Alfred R. Waud, a newspaper artist traveling with Grant, captures the sad dignity of the general, who rides to break the news to his men.

"With such an ending there would have been United States without united people. . . Southern military power was exhausted. He [General Grant] was in the position to exact the supreme rights of a conqueror and the unconditional submission of his adversary, unless that adversary should elect to risk all on the event of a desperate battle. . . .

"The question was gravely considered in Confederate councils, whether we should not accept the extreme risk and cut our way through the hosts of General Grant or perish in the attempt.

"This plan had many advocates, but General Lee was not one of them. . . .

"Under such circumstances General Lee and General Grant met to discuss the terms of the surrender. . . They were liberal and honorable alike to the victor and to the vanquished, and General Lee at once accepted them.

"Anyone who reads General Grant's proposal cannot fail to see how careful he was to avoid unnecessary humiliation to his adversary. As far as it was possible, General Grant took away the sting of defeat from the Confederate Army. He triumphed, but he triumphed without exultation, and with a noble respect to his enemy."

Colonel Marshall ended with these words, to which I should like to add great praise for General Lee's wisdom and courage in so promptly accepting the terms offered:

"There was never a nobler knight than the Grant of Appomattox—no knight more magnanimous or more generous. No statesman ever decided a vital question more wisely, more in the interest of his country and of all mankind than General Grant. . . ."

A Grant Returns to Appomattox

I went back not long ago to Appomattox Court House, to see once more this place where the great conflict was resolved, and where our Nation was reborn (pages 458-9).

When we remember the length of the Civil War, the will to win on both sides, the heavy losses suffered both by North and by South —more than 82 percent by the 1st Texas at Antietam, and a like percentage by the 1st Minnesota at Gettysburg—we cannot but be grateful for the nature of the peace that was won. It helped our reunited country rise to prosperity and leadership among free nations.

The sons and grandsons of both Union and Confederate veterans since have fought shoulder to shoulder in four foreign wars.

After the Civil War, I knew, Appomattox Court House had languished. In the 1890's the McLean dwelling was torn down, and the county seat was transferred to Appomattox Station, three miles southwest. For the next half century the deserted town crumbled. In 1940 Appomattox Court House National Historical Monument was established, and in 1954 it became a National Historical Park.

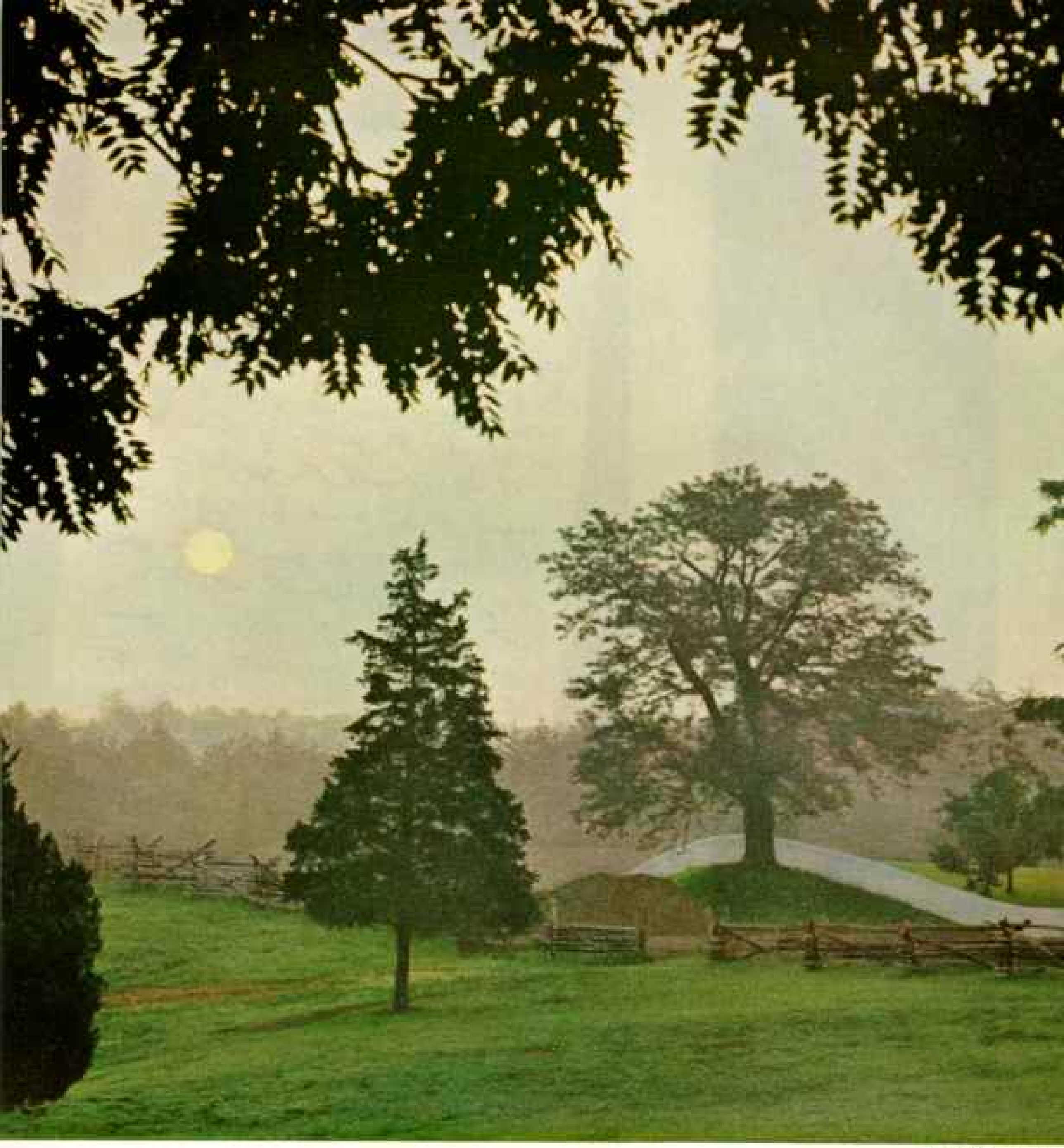
Looking about me, I was gratified at the efforts of the National Park Service to present the village as it was that April day a century past. I paused in the McLean House; in 1950, my last previous visit, Robert E. Lee IV and I had helped dedicate the reconstructed residence. Now I sat in the parlor and considered the history that was made here just 100 years ago this April (page 440).

My grandfather had returned to the place

Sword of defeat—never demanded, never surrendered. Lee's presentation blade, worn when he met with Grant, bears the inscription "Genl. Robert E. Lee. C. S. A. from a marylander. 1863." Its donor is still unknown.

Prescription for peace, the surrender terms helped salve the wounds inflicted by the four-year conflict. Paroling the Confederates instead of making them prisoners of war, Grant showed his understanding of how to alleviate the bitterness of a conquered people. And by including the statement, "This will not embrace the side arms of the officers," he spared Lee the humiliation of turning over his sword. Facsimile of the rough draft in Grant's handwriting shows corrections made by his Seneca Indian secretary, Colonel Parker. The original is believed lost.

GEORGE WASHINGTON UNIVERSITY LIBRARY



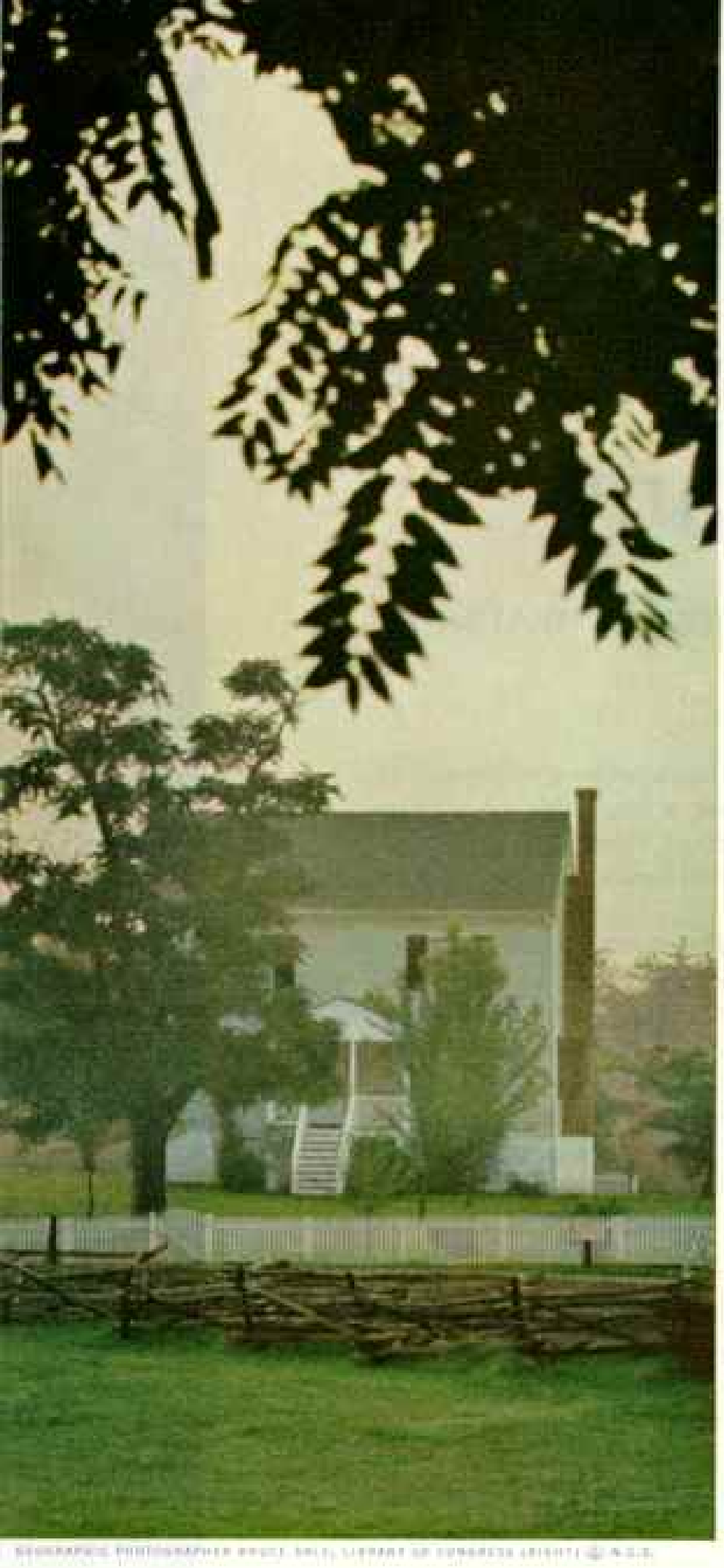
of surrender the day afterward, April 10, to ask General Lee's cooperation in speaking for a general peace between North and South. He spent an hour there and then mounted his horse and rode to Burkeville, up to which point the railroad, destroyed by his men, had been repaired.

But the ground was still soft, and the repairs had been hasty, and the train—which an observer compared to a fly crawling over a corrugated washboard—frequently left the track. It was after midnight the second day when he reached City Point. From there he hastened by boat to Washington to stop the expenses of the war as soon as possible.

My father, Maj. Gen. Frederick Dent Grant, told me something about that slow train ride which seems a fitting epilogue to this account. He had ridden with General Grant during the Vicksburg campaign, as a boy of 12, and was wounded; but he was away in school at the time of Lee's surrender. General Grant later told him this story.

Confederate Soldier Speaks for All

In the railroad car, two or three seats ahead of General Grant and across the aisle, sat one of Lee's soldiers, evidently on the way home.



GEOGRAPHIC PHOTOGRAPHER JOSEPH BATY; LIBRARY OF CONGRESS (BRADY) © N.G.S.

A man—apparently a planter who had not been in the war, dressed in corduroy breeches, boots, and wearing a broad hat—sat down by the Confederate soldier and started a conversation.

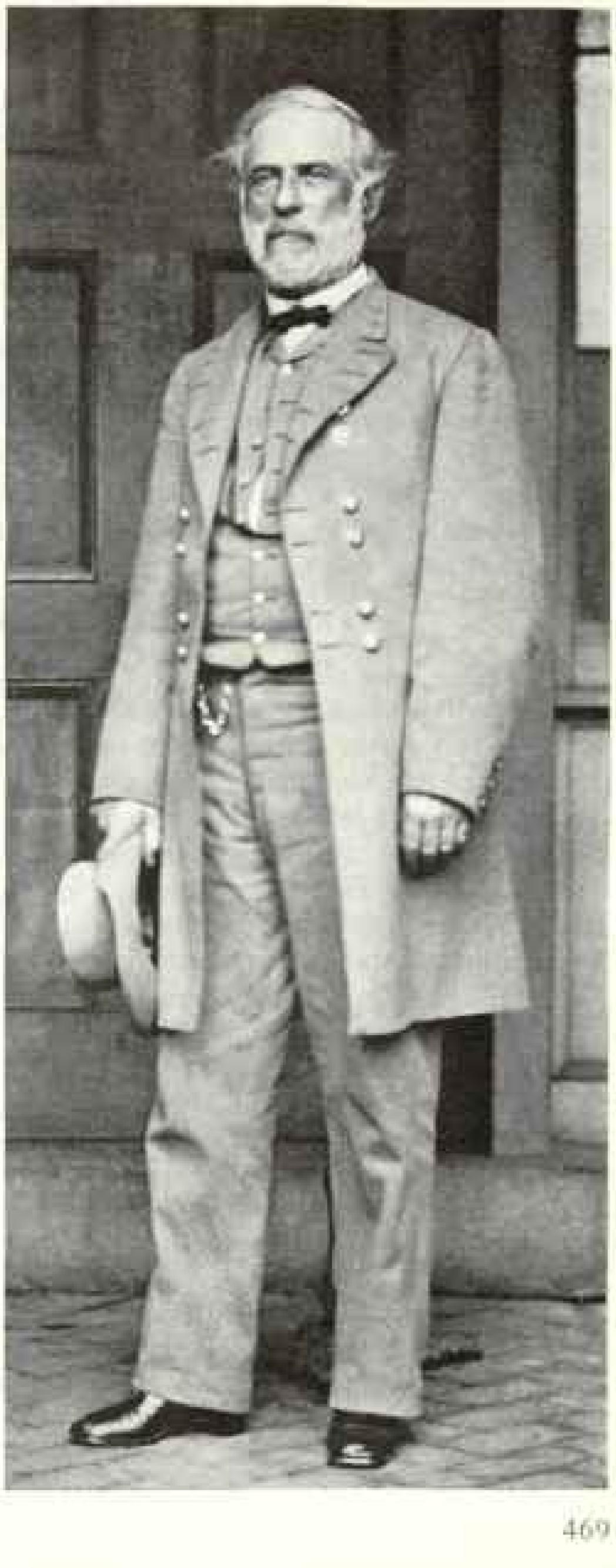
"Well," he said. "So you have all surrendered. Couldn't you have taken to the hills and carried on for a year or more?"

To which the soldier indignantly replied: "Look here, my man. I have been in this war for nearly four long years. I have been in eight pitched battles, innumerable skirmishes, and have been wounded three times—and *I am plumb satisfied.*"

THE END

Final ordeal for Lee's Army of Northern Virginia occurred here at the Surrender Triangle. Along the fence, ranks of Union soldiers snapped to a "present arms" salute. At the sound, the South's Maj. Gen. John B. Gordon wheeled his horse and lowered his sword in response. Honor answered honor, and the Confederate brigades, one after another, stacked their arms and ragged standards. It was done.

Beloved general, whose soldiers wept unashamed as he bade them farewell, Robert E. Lee stands on the porch of his Richmond home a few days after Appomattox. Famed Civil War photographer Mathew Brady took this well-known picture.



Headland of Europe, the province of the Bretons retains its medieval look, its sea-washed air, and its misty light as it harnesses the tides and talks with space

France Meets the Sea in Brittany

Article and photographs by HOWELL WALKER

Assistant Editor

"IF YOU WISH to see the sacred treasure, address the *gardienne*," said the notice. The words were crudely chalked on a blackboard hanging in the 13th-century church of a remote village named Paimpont.

So I knocked on the caretaker's door, and a small somber-clad woman emerged —as if from the Middle Ages.

I followed her into the sacristy, an oak-paneled room as dark and mellow as fine old wine, of which it smelled faintly. Opening a cabinet, she withdrew a small crucifix and placed it close to the window. Soft silvery light—the light of Brittany—set in delicate relief every exquisite detail of the ivory-carved Christ.

"You understand French, monsieur?" the woman asked.

I nodded, waiting for her to tell me about the crucifix. Instead, she turned to a machine, twisted knobs, and flicked a switch. Against a background of Gregorian chants, a tape-recorded voice commented on the carving by an unknown monk, his name lost in the long ago.

Electronics and Prehistoric Monuments

Hearing a tape recorder deep in rural Brittany seemed to me as anomalous as the medieval-looking woman's ability to operate the machine. But Paimpont, like the rest of the province, showed me how surprisingly well the past and present can live together in a region I supposed time had forgot.

Soon enough I realized that my old-fashioned notions of a gray, granitic, sea-warped, somewhat primitive Brittany called for extensive updating.

In this northwesternmost province of France I moved from the prehistoric into the future, never in chronological order. Here stood menhirs and dolmens—those monumental enigmas in granite erected more than 2,000 years before Christ (page 490). Just over the horizon rose satellite-communication antennas that helped inaugurate transatlantic television. And between these extremes I found a wonderful confusion of time and place and change.

Nowhere highly mountainous or widely wooded, the gently undulating land is short on rivers, long on canals, extravagant with villages and churches, thrifty with cities. Summering places and fishing ports, along with commercial harbors

Fresh-plucked *fruits de mer*—crab, oysters, and spiny lobster straight from the sea—compose a gastronomical greeting from Brittany. For such delicacies, ports nestling in rugged coves send forth a fishing fleet of 6,000. Inland, mystic menhirs stare seaward, and lush vegetable gardens that supply all France ring medieval villages. Breton towns, rising from World War II ruins, pulse anew with international shipping and industry.

and naval bases, civilize the sea-wild shores.

Here is a hauntingly beautiful province, enhanced by an atmosphere as subtle as beneficent. Moisture carried by sea breezes pervades the land and everywhere lends a peculiar luminescence to the light of Brittany. It's a mystic light, lovely and illusory.

Less elusive is the air of Brittany. I can still feel it on my face, taste its salt on my lips, smell its freshness. And whatever the air's degree of moisture—mist, drizzle, or downright rainfall—everyone seems to thrive in it.

"We Bretons are like fish," a woman said to me. "We are happy with wetness. Perhaps it is because we live near the sea."

Yet Brittany is not a predominantly maritime province; 42 percent of its people live by farming. Apart from several big shipyards, few heavy industries draw men from the soil and the sea. But tomorrow will tell another story as France's program of industrial decentralization—to stabilize provincial populations and distribute employment more evenly—scatters factories over the landscape.*

Women's Caps Tell Where They Live

Brittany, a rocky peninsula thrusting toward the meeting place of the Atlantic and the English Channel, has some 750 miles of coast—jagged as the teeth of a saw (map, page 474). The province's area roughly equals that of New Hampshire and Vermont combined, but its population of three million or so trebles the total of those two states.

*See "Eternal France," by Walter Meayers Edwards, NATIONAL GEOGRAPHIC, June, 1960.

Lonely vigil by the shore of Paimpol marks the centuries-old role of Breton women: the anxious wait for the return of fishermen. Andrée Perrot wears a *cornette* of starched lace—a coif distinctive of her district—and a shawl imported from India.

Tranquil haven, Le Palais on Belle Ile sees the return of a fishing boat. Men go out for sardines from May through October or, at various times of the year, work deeper, colder waters for tuna, sole, whiting, mackerel, hake, flounder, and lobster.

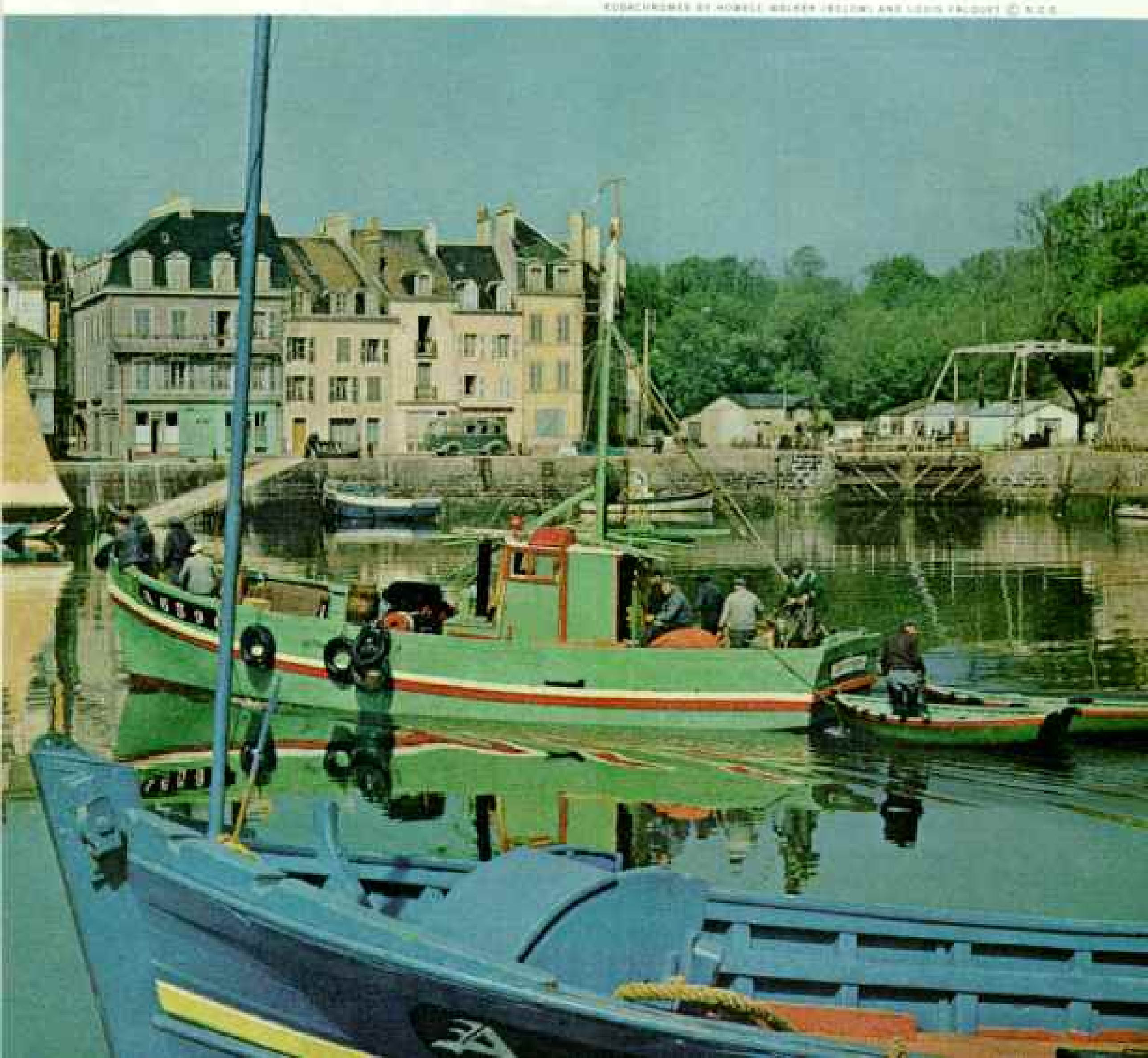
A line drawn north to south through Brittany's center divides it into Upper Brittany on the east, Lower on the west. The easterners speak French and seem more French than the westerners, many of whom still cling to Celtic tongue and Breton traditions.

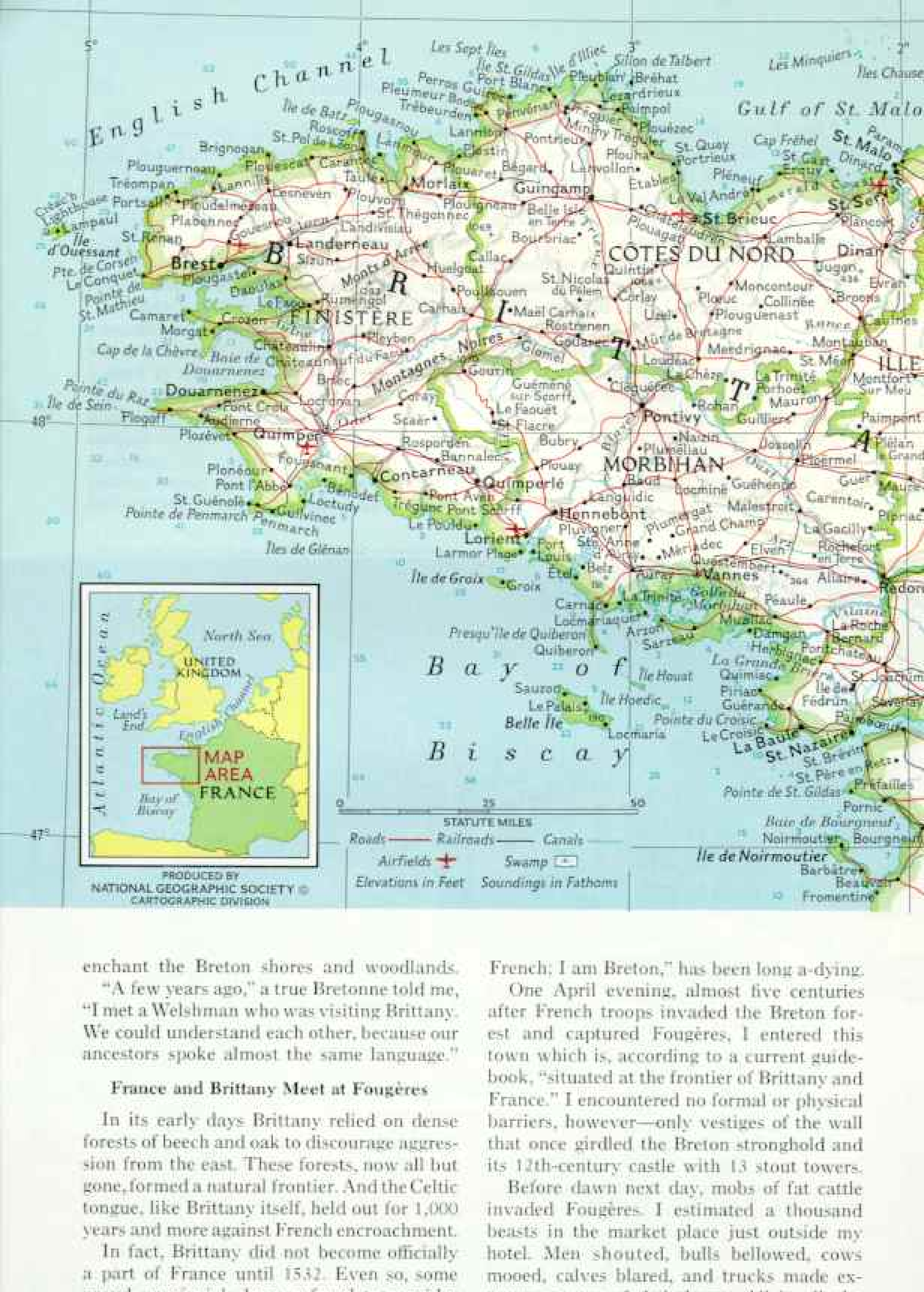
But today's changing attitude is typified by a group of women I found arranging flowers in a country chapel in Lower Brittany. They had been talking in Breton, but courteously spoke to me in French. I asked if everyone in this parish normally speaks Breton.

"Yes," replied one, "but more and more we are using French, especially with our children. You see, we want them to grow up to be French-speaking—to be French."

So the younger generation now speaks French at home as well as in school, and the average man in the west has laid aside his traditional broad-brimmed black hat with ribbons flowing from a silver buckle at the back (page 491). But his black-dressed wife continues to wear the white starched coif that differs in style from district to district. Thus, by a woman's cap can you tell—if you've done your homework—where she comes from (opposite and pages 480, 498, and 499).

The Breton tongue still carries the influence of Celts who left England, beginning in the fifth century, to settle that corner of France known today as Brittany—Little Britain. And as in language, Brittany shares with England many legends: King Arthur and his knights of the Round Table; Merlin the magician; Tristram and Iseult. As firmly rooted as their mother tongue, these romantic characters still





enchant the Breton shores and woodlands.

"A few years ago," a true Bretonne told me, "I met a Welshman who was visiting Brittany. We could understand each other, because our ancestors spoke almost the same language."

France and Brittany Meet at Fougères

In its early days Brittany relied on dense forests of beech and oak to discourage aggression from the east. These forests, now all but gone, formed a natural frontier. And the Celtic tongue, like Brittany itself, held out for 1,000 years and more against French encroachment.

In fact, Brittany did not become officially a part of France until 1532. Even so, some proud provincials have refused to consider themselves anything but Breton, a race apart from the French. The saying, "I am not French; I am Breton," has been long a-dying.

One April evening, almost five centuries after French troops invaded the Breton forest and captured Fougères, I entered this town which is, according to a current guidebook, "situated at the frontier of Brittany and France." I encountered no formal or physical barriers, however—only vestiges of the wall that once girdled the Breton stronghold and its 12th-century castle with 13 stout towers.

Before dawn next day, mobs of fat cattle invaded Fougères. I estimated a thousand beasts in the market place just outside my hotel. Men shouted, bulls bellowed, cows mooed, calves blared, and trucks made extravagant use of their horns. All in all, the cacophony of a carnival.

As a town on the actual border between

Brittany and Normandy, Fougères offers a market for Breton black-and-white and Norman reddish-brown cattle.* Beef-trading Fougères also operates many shoe factories. At one, which produces 2,500 pairs of women's shoes a day, I asked about export.

"To France, chiefly," said a company official from Brittany. "Also to Great Britain, West Germany, Scandinavia, Africa. Maybe to America, one day.

"By the way, I spent a year in Baltimore, teaching French at Johns Hopkins University. Now I stay in Fougères, because I married the boss's daughter."

Today the town turns out a tenth of France's footwear. For almost a century shoe manufacture has ranked as the leading industry of Fougères.

New Industries Spur Suburban Building

Historically, a high birth rate overcrowded Brittany with people for whom no jobs existed. As a result, younger men and women emigrated by the thousands. To curb this exodus, Brittany now campaigns for industries to absorb its youth.

"And this is all right with us," a Breton told me, "because we like to live and work in the shadow of our own church towers."

Rennes, the province's old capital and center of learning, sets an energetic example. Here the Citroën company—makers of some of France's most popular automobiles—recently built two huge plants (page 500). Subsidiary industries producing car upholstery and general accessories have sprung up.

I visited a young couple in one of the new apartment buildings that house the growing number of workers in Rennes; it towered a dozen stories over a nearby 300-year-old farmhouse. Their living-room window faced a similar skyscraper across a courtyard. And a television screen broadened their view.

*The author wrote of Brittany's neighbor in "Normandy Blossoms Anew," National Geographic, May, 1959.

Jagged arrowhead, Brittany pierces the sea where English Channel and Atlantic Ocean meet; its saw-toothed coastline stretches 750 miles. Inland, rolling country rises to bony heights. Julius Caesar conquered the land in 56 B.C., and Romans, naming the region Armorica, founded Vannes, Nantes, and Rennes. British Celts settled here during the fifth to seventh centuries, renaming the peninsula Brittany—Little Britain.

Like walking dolls, Breton youngsters at a folk festival in Quimper parade in traditional costumes of their region.

"How do you like living here?" I asked.
"We've never been happier."

Such young newcomers help make Rennes one of France's fastest growing cities and Brittany's second largest.

Nantes, which ranks first, straddles the Loire River, 35 miles from its mouth. Like its native son Jules Verne, Nantes dreamed dreams that came true: a river harbor for ocean-going ships, a prosperous city despite the catastrophic destruction of World War II, a successful site for heavy industry.

But Nantes doesn't let its preoccupation with business interfere with *la douceur de vivre*—the sweetness of living. The city lies in a fertile valley blessed with Brittany's only vineyards. From the grapes comes a tangy white wine named muscadet, a very happy table companion of the *fruits de mer* for which Breton waters are renowned (page

Quiet as a canal, the Rance River curls beneath the wooded bluffs of Dinan. Visitors often arrive

471). Oysters and muscadet. Lobsters and muscadet. Shrimp, clams, crabs, periwinkles, and muscadet. The sweetness of living.

Through sugar refineries, fertilizer plants, foundries, and forges, I engineered my way to Nantes' shipyards. Here I saw a new type of trawler nearing completion—a 240-foot-long vessel of some 2,000 tons swarming with painters, fitters, and electronics wizards.

The man who showed me around pointed to the foredeck: "Helicopter landing space—to take off sick or injured, if necessary."

We climbed to the wheelhouse, which was equipped with antiglare windows, radar, sonar, and enough other instruments to give even a jet pilot pause. From a swivel chair the skipper could easily reach any of the controls for maneuvering the ship and operating the trawl winch. Clearly the business of fishing had entered the push-button stage.

by boat from St. Malo and climb the hill for a rare glimpse into the town's past (next page).

"But why," I asked, "that old-fashioned wooden wheel in the pilothouse?"

"For an emergency," my companion said. Then, after a moment's reflection, "I suppose the real reason, though, is tradition."

A pleasant drive down the valley put me in St. Nazaire, at the mouth of the Loire, France's longest river. Eighty-five percent destroyed in World War II, the town today stands almost entirely rebuilt. Even the Germans, who occupied it from June, 1940, to May, 1945, would hardly recognize it. Only the mammoth German-built submarine hangar, impervious to repeated Allied bombing, remains as an example of the enemy's grim determination.

After the Americans broke out of Normandy in early August, 1944, the Breton ports of St. Nazaire, Lorient, St. Malo, and Brest became key objectives of the United States Third Army, under Gen. George S. Patton, Jr. Through these ports the Allies hoped to funnel supplies to their forces on the Continent.

General Patton, famed for dashing, slashing attack, sent his troops on a lightning-swift end run across this northwest corner of France. The Americans completely cut off the Germans on the Breton peninsula and liberated most of the province with dispatch.

Pillared arcades and half-timbered houses distinguish Dinan's Place de l'Apport, a thoroughfare little changed since the Middle Ages. In 1357, the town lay under English siege; townsmen still speak with pride of a Breton knight, Bertrand du Guesclin, besting Thomas of Canterbury in single combat.

But after the initial freedom of the Third Army's movement, the Brittany campaign developed into a series of stalemates. Hitler had ordered the fortress ports to hold out "to the last man, to the last cartridge." And the garrisons took their leader literally.

St. Malo and Brest capitulated only after bitter siege, when the ports were in hopeless ruin. St. Nazaire and Lorient did not surrender until the close of World War II.

At St. Nazaire I visited the Chantiers de l'Atlantique, the most extensive shipyards in France. In one corner I saw what looked like an inclined, heavy-bomber runway. This was the slip where the *France*, world's longest liner, took shape and was launched in May, 1960.

During our marathon tour, my guide identified himself only as Aoustin. I'd not heard the name elsewhere in Brittany.

"There are many Aoustins working here," he said. "Most come from La Grande Brière."

A vast marshy region to the north of St. Nazaire, La Grande Brière (the Big Swamp) has supplied the shipyards with labor ever since the days when. . . . But let the story continue in Aoustin's swampy homeland.

At the heart of this marsh lies Ile de Fédrun, an island of thatch-roofed stone homes. Canals slice the reedy area, and smaller waterways lead to the habitations. Each house has its black flat-bottom boat, or *blain*, just as a suburban home has its car.

Boatmen of La Brière Become Shipwrights

For centuries Ile de Fédrun and other communities of La Grande Brière lived in blissful isolation. Poling their blains along the watercourses, Aoustins and their cousins found happy hunting and good fishing. They grew vegetables on the limited dry ground available; kept sheep and a few cows; raised chickens, geese, ducks; and cut turf for fuel.

"Then, about 80 years ago," a resident told me, "hard times [small crops and less game] forced the men to take jobs at the shipyards. But St. Nazaire was too far away for them to go back and forth to work every day. So they'd leave early Monday and not return until Saturday night. Each carried a basket of food to last the week and slept where he could —in homes of friends, in barns, anywhere."

In time, of course, conditions changed, without seeming to change Ile de Fédrun. Nowadays big buses shuttle workers to and from the shipyards. But I saw men still poling blains on the canals; there stood the white-washed thatch-roofed houses of stone; and ducks even more numerous than Aoustins waddled all over the island.

I knocked at a snug house on Ile de Fédrun. Quite frankly I wanted to see the inside of this home that had such a charming exterior, and I admitted as much to the sturdily framed, black-clad woman who let me in.

Like the Ile itself, the dwelling had kept its character: rough-hewn rafters darkened by centuries of smoke from the huge stone fireplace; rustic wooden chairs around an everlasting table; cabinets with carved sliding panels enclosing built-in beds (page 492); faded family portraits on the walls; a large chart firmly nailed up near the front door.

"If you please, madame," I asked, staring at the chart, "what is this?"

"That," she said, "is the official registry of the ducks and geese on the Ile de Fédrun. Nine hundred people live on the Ile. They own many flocks that are permitted to wander at will—no fences.

"But," she continued, "one must keep track of one's own. *Regardez*—in this column are the names of the families, and opposite each is a symbol. Each family cuts its own mark in the feet of its ducklings and goslings. These symbols pass from generation to generation. It's been *comme ça pour longtemps.*"

"How long?" The answer—an eloquent shrug of the shoulders.

Menhirs Mark a Forgotten Past

New highways and bridges now link La Grande Brière with places as different from one another as Ile de Fédrun and St. Nazaire; all lie within easy drive of any Aoustin's cottage. Roads lead to a sophisticated resort called La Baule, basking beside its golden beach; the rustic fishing village of Le Croisic; hilltop Guérande, surrounded by 500-year-old walls; low-lying salt-pan settlements using the earliest method of evaporation under the sun (page 488); and the city of Vannes, inflated with pride in a huge new factory of the Michelin tire company.

West of Vannes I found myself in the far older world of Carnac. At no other place on earth can one see so many menhirs. These prehistoric monuments—blocks of granite weighing as much as 400 tons, some standing 20 feet high—range over long, flat fields and all but entomb little farms in the area. Larks rise and sing, their songs lost on the gray stone wilderness.

According to the official count, a total of 2,935 menhirs orient themselves generally east-west in a two-and-a-half-mile parade formed at least 4,000 years ago. But who marshaled these stony forces? How? Why?

Scholars in this ancient field can only theorize that the stones stand as colossal funerary monuments of a pagan people, possibly connected with sun worship. But most Bretons prefer the heroic legends that really tell more about their own imaginations than about the enigmatic granite boulders.

Among the menhirs, I met a white-haired woman wearing the coif of Carnac, black shawl, and long skirt. Like other local folk, she made a modest living by reciting to visitors the story of these ancient stones. In a voice remarkably rich of timbre, she spoke in the dramatic tones Bretons reserve for the fearful and mysterious subject of death.

Trapped Soldiers Turned to Stone

"It was long, long ago. A mighty army was camped here on the very field where you now stand. One day a rumble as frightful as thunder warned the soldiers of approaching hostile forces, and they prepared for battle. But they could not stay the invasion. So, being well-disciplined troops, they began an orderly retreat toward the sea, in the hope of sailing away to safety.

"Alas! There were no boats. No hope of escape. Then do you know what happened? These brave warriors became so determined to stand their ground they turned to stone."

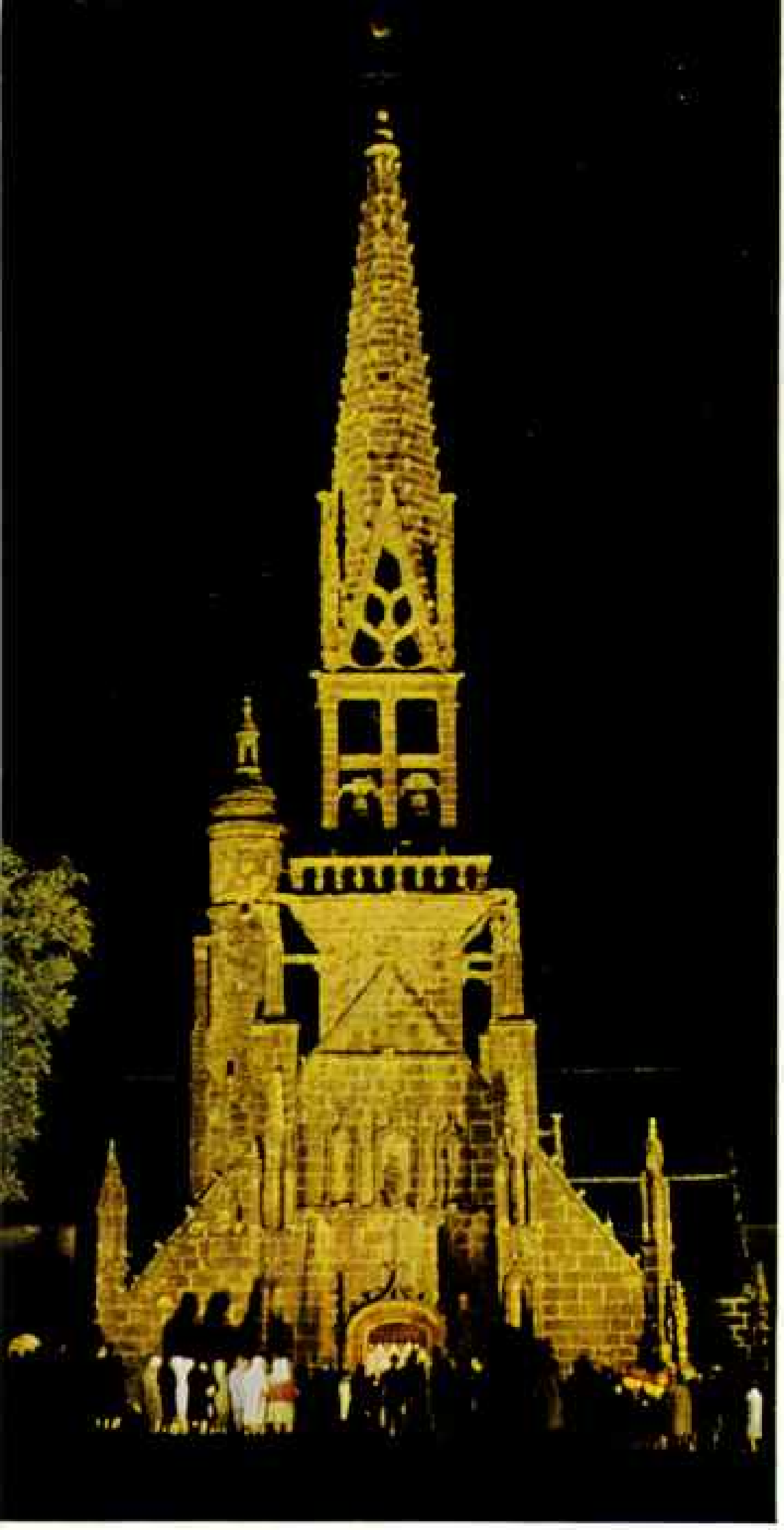
And if you don't believe it, there they still stand like giant soldiers in precise battle array, rank on granite rank (page 490).

In far more recent times, 300 years ago, a site named Lorient was selected as home port and shipbuilding center for the French East Indies Company (pages 494-5). But France's loss of India to Britain in 1763 ended the venture. Even so, Lorient had got its start and its name—L'Orient meaning "the East," the direction in which its early hope lay.

Since then—hope, despair, hope. Lorient's story during and after World War II reads pretty much like St. Nazaire's: Five years of German occupation and large-scale submarine operations; repeated bombings by the Allies; utter devastation of the town now 85 percent rebuilt.

Today, the new city of 80,000 inhabitants

Dancing on air, a Bretonne adds to the gaiety of Quimper's festival. Such leaps give the dance its name, *Les Pattes en Haut* (The Feet on High). An embroidered design inspired by the fleur-de-lis decorates the girl's St. Brieuc costume. Male attire, velvet-trimmed suit with metal buttons and beribboned hat, copies 17th-century garb.



Golden flame in the night, the old church of Rumengol lights the eve of the Trinity Sunday *pardon,* one of the province's many religious fetes. Bretons fervently attend pardons to seek saints' blessings or to make vows.

Emblazoned banners and shining crosses bob above the road as foot-weary pilgrims trudge from Locronan. The long march to hillside shrines celebrates the Pardon of St. Ronan, the patron who warned ships away from reefs by ringing a hand bell. The boy heading the procession carries such a bell in his right hand.

PHOTOGRAPHS BY HELÈNE JEANBRAU AND HER DAUGHTERS (DEPICTED) BY HOWELL WALKER © N.G.S.

Magnificent sculptures in wood adorn even the humblest of Breton church interiors. This lacelike Late Gothic carving forms a screen in the Chapel of St. Fiacre. Fashioned in 1480 but not painted until a century and a half later, it details the agony of the thief who scoffed at Christ on the Cross, and it shows Adam and Eve standing beneath the Tree of Knowledge. Such flamboyant work of those days characteristically established links between the Old Testament and the New.

King and Christ, a foot-high carving in medieval style, came from the shop of a present-day Breton craftsman.

prospers as a shipbuilding center (prefabrication of naval vessels on the very site where the East Indies Company assembled its fleet); as a commercial harbor trading with the world; and, after Boulogne sur Mer near Calais, as France's second most successful fishing port, annually handling 50,000 tons of 60 different varieties.

On Brittany's Atlantic coast I moved along an endless chain of fishing ports, stopping now and then to talk with fishermen dressed in faded blue or lobster-colored stuff as tough as canvas. And when I reached the harbor of Concarneau, with its medieval island stronghold, I could no longer resist a fishing trip.

Sardine Boats Rely on Sonar

"Come to the quay at four tomorrow morning," said Pierre Cossec, a friendly Breton who owned and skippered a sardine boat named *Notre Dame de Rennes*.

It was still dark when "Our Lady" and a dozen others of Concarneau's fleet of 150 sardine boats filed through the harbor gullet toward the Atlantic. For a while the vessels hung together like ships in a wartime convoy. At length they fanned out, each relying upon its sonar fish-finder.

Daybreak. Sunrise. Captain Cossec at the graph that registered the sonar's findings. The 14-man crew smoking, joking, waiting for the skipper's order.

Action. One of two dinghies went over the side, and two men boarded it. Then the second dinghy, also two men. The rest of the crew readied the net.

The *Notre Dame* slowly made a wide circle to set the 500-foot-long net around the dinghies, which were scattering bait—chopped cod in peanut flour. This tempting mixture brought the school of sardines to the surface. The net closed about them, and the deck crew began hauling it in. Cossec left the wheelhouse to help his crew raise the treasure—myriad slivers of living silver, packed, of course, like so many sardines.

So *Notre Dame* fished throughout the morning. Sometimes a rich haul, sometimes poor, once or twice nothing at all. By noon the skipper estimated that he had netted more than a ton of sardines. He headed back to port.

Giving the wheel to a crewman, Pierre Cossec sat beside me on the foredeck. At 30, he had thick black hair just beginning to gray. I had to urge him to speak of himself.

"Well, yes, I've always been a fisherman," he said. "That is, ever since I was 13. I got to be skipper at 24 [a precocious achievement among weathered veterans]. But then I believe in sardines—believe Brittany's are the best in the world."

Bending to superstition, a pretty Bretonne at the Pardon of the Poor follows a custom of lost religious significance. She ducks under an altar tomb in Minihy Tréguier, the birthplace of St. Yves, "the poor man's counsel" and Brittany's first canonized saint.

Bought as soon as they hit the Concarneau quay, sardines go straightway to local *conserveries*, or canneries. Canning is one of Brittany's most remunerative industries.

So much for sardines. Bigger fish literally held the floor of Concarneau's enormous market. Here I watched boats begin unloading their catches at midnight, as oilskin-aproned women wearing rubber gloves sorted the fish according to variety. With the accuracy of a big-league pitcher picking a runner off base, any one of these women could peg her fish 15 feet or more into its proper box. They kept up a spirited chatter, and fish flew through the air even faster than the banter.

The daily auction started at 7 a.m., and within several hours most of the fish were

well on their freezing way in refrigerated trucks and railway cars to Paris and other cities. As the second busiest fishing port in Brittany, Concarneau markets close to 50,000 tons a year—almost as much as Lorient.

On the other hand, a single fish made history in Quimper (pronounced camp-air). This cathedral town's first bishop, St. Corentin, nourished himself on a unique and miraculous fish. After eating half of it one morning, he tossed the remainder back into a fountain. Next day the half-consumed creature, having become whole, appeared again on the bishop's plate. How long the saint continued to breakfast in this mysterious fashion, Quimper's religious archives do not reveal. After all, the fish tale dates from the sixth century.

Finistère: Wind and Sea and Stone

Antique Quimper's age shows in its cathedral, streets, houses, and nostalgic revivals of days long gone. To its fetes and fairs flock thousands of Bretons, many in provincial costume (pages 475 and 480). And they in turn

Pattern for recovery. Demolished by four years of bombing during World War II, Brest is back in business as a modern metropolis and naval base. Europe's longest drawbridge, spanning the Penfeld River, links the new city and a rebuilt suburb of massive apartment houses (left). Towered fortress (right), now a naval headquarters, has guarded the estuary since the 13th century. It replaced a Roman fort.

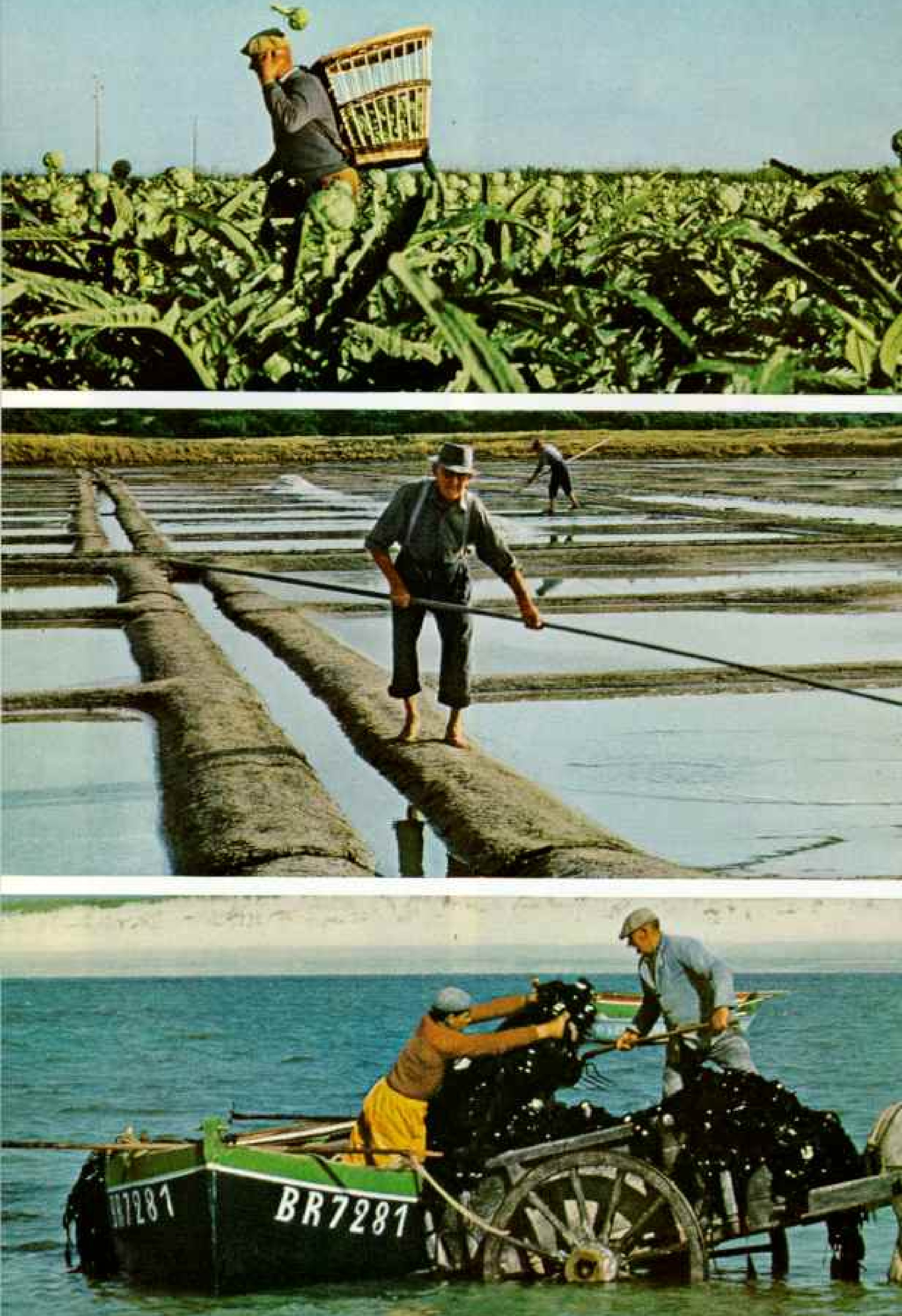
Schoolboy with bread—a familiar scene anywhere in France. Young Breton carries loaves for his family table in Quimperlé.

draw thousands of visitors, who consider Quimper and its gaily painted ceramic art the epitome of the quaint in Brittany.

I left Quimper to its carnival crowds and lost myself in the coastal loneliness of the French department called Finistère. Here lay the Brittany of my earliest notions: stark, windswept, granite gray, sea bitten. A lighthouse. A solitary church. A fisherman's simple home. A rough stone wall. Gray waves breaking on the gray shore.

I've never looked at old pewter through tears, but the effect, I'd guess, must be something like seeing this land in its misty, melancholy light. And yet I felt a strange pleasure in its wild remoteness. Here was Finistère, literally land's end. At its western reach I stood on windy Pointe du Raz and gazed still farther west toward the Ile de Sein, riding as low as a raft on the Atlantic.

I sailed out to the mile-and-a-half-long, treeless Ile de Sein in a boat carrying two calves, tinned foods, mail, and a dozen passengers. We landed at the only village of the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low-lying isle—lying so low, in fact, that high seas have twice flooded it. A quorum of its 1,100 inhabitants waited on the quay.

Village streets barely wide enough for a wheelbarrow give islanders some protection from unceasing, often violent winds. Where the houses end, a few potato plots and an occasional cow find shelter behind wandering stone walls. A lighthouse, braving the gales, towers over the little island.

On surrounding reefs countless ships have foundered—not to the disadvantage of Ile de Sein. Nowhere else off the coasts of France has the business of picking up the pieces continued for so long or with more success. Salvaged material furnishes the island homes, provides fuel and building timber. Apart from capitalizing on wrecks, though, selfless men of the local lifeguard station have staked their lives to save many a crew.

Understandably such a poor, storm-lashed isle makes the best of a shipwreck. But what occupies the people in fair weather? The men fish. The women, dressed and hooded in black like characters in Renaissance sketches, do manual work, including hard labor. It was the women who carried stones on their heads to build the island church.

During World War II every able male on the island answered the call of Gen. Charles de Gaulle. More than 500, some as young as 14, sailed to England to join the Free French.

After the war General de Gaulle personally awarded the Cross of Liberation to the island, with this citation: "Ile de Sein: in the face of enemy invasion, refused to abandon the battlefield that was hers: the sea. [She] sent all her sons into combat under the flag of Free France, thus becoming the example and symbol of all Brittany."

Over-the-shoulder shot seldom misses the basket during artichoke harvest in St. Pol de Léon. The Finistère department annually sends 70,000 tons of artichokes to market.

Barefoot Breton scrapes a pan of Atlantic water for the sea salt left by evaporation.

Ocean-going cart at Tréompan takes on a load of seaweed gathered by the boatman with a long-handled sickle. It goes to farms for fertilizer or, dried near the beach and bagged, to factories for conversion into a powder used as gelatin. A finer variety of the weed, collected at low tide, is spread in the sun to bleach and lessen decay; it may end up in cosmetics, medicine, or ice cream.

PHOTOGRAPHS BY ROBERT W. MADDEN © N.G.S.

On the mainland once more, I headed for Brest, less than a three-hour drive away. But it took me several days to make the trip—because I went to a *pardon* in Rumengol.

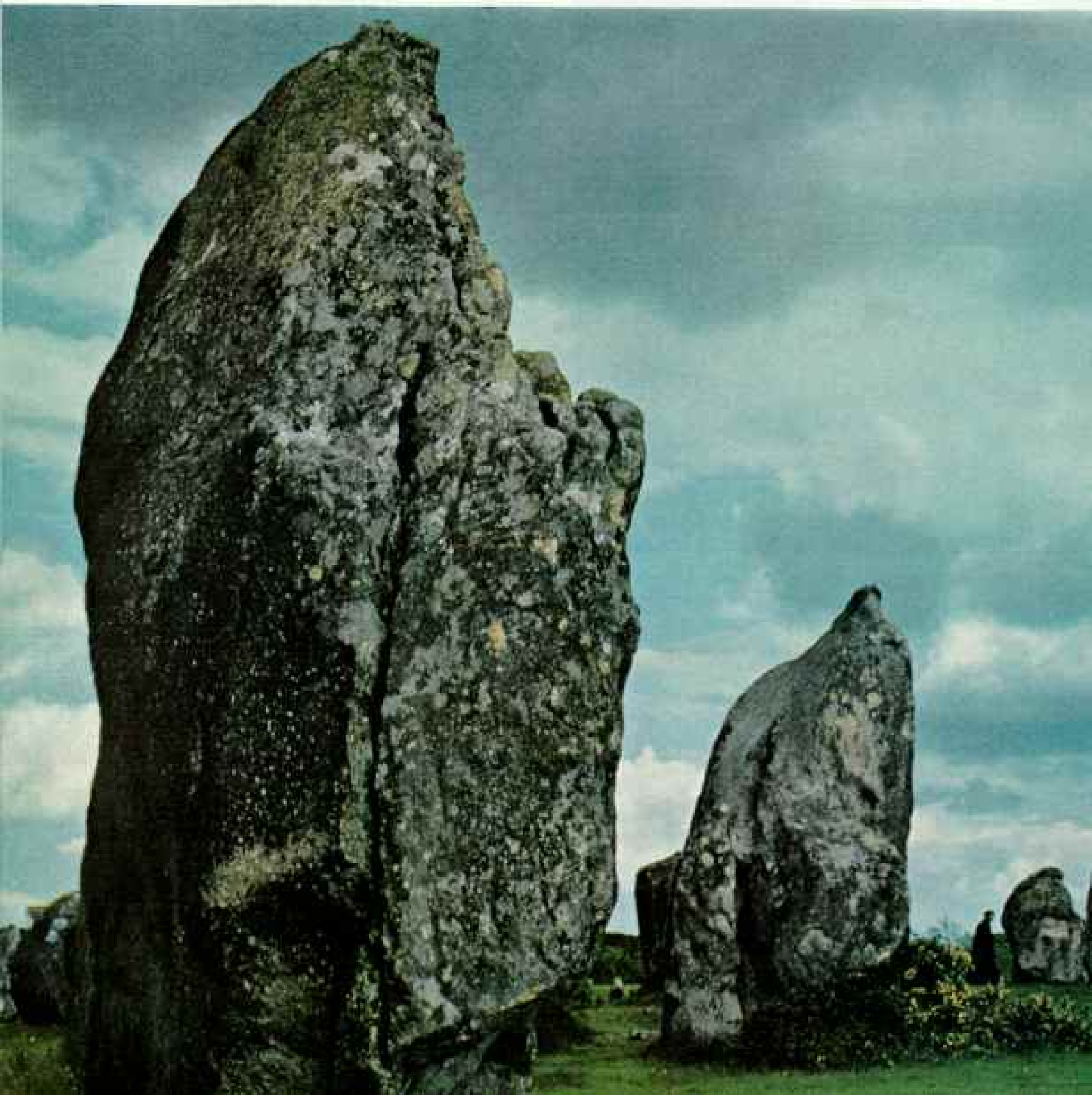
Footsore Pilgrims Attend a *Pardon*

A pardon, in addition to its obvious meaning, takes on special significance in Catholic Brittany. It's the name for a religious pilgrimage attended by those who seek to find forgiveness of sins, to make vows, or to ask favors. Many villages in the province observe pardons (pages 482-3). It's a provincial tradition almost as old as Breton Christianity.

At Rumengol, a minute village, pilgrims began arriving on the eve of Trinity Sunday. Men, women, and children—many on foot—came from points scattered over northwest Brittany. I watched a group, weary from plodding all day, sink with relief upon the grass outside the church. One man removed his shoes and socks to rest aching feet.

As darkness fell, scores of pilgrims assembled on a meadow just west of the church. Each carried a flaring torch. Chanting in unison, they filed slowly over the meadow, around a wood, and past the cemetery to show that the dead and the living are together in Christ. The procession ended in the church, where Mass was sung.

Next morning, the pilgrims were pacing the required seven circuits around the church in expiation of the seven deadly sins. In the crowd I saw women so frail with age they



could barely hobble; they wore long black dresses and the caps of their parishes.

Pilgrims completing the seven rounds moved inside to Mass, and new arrivals replaced them in the expiatory circle. Overflow crowds attended services at an outdoor altar, singing hymns to their patron Lady:

O Rumengol, pell amzer zo,
C'houi eo boked kaera hor bro;
Peb rozenn goant, peb lilienn
A zo disliv enn ho kichen.

[*O Rumengol, after so long a time,*
You are the most beautiful flower
of our land;
A lovely rose, a lily
Are without color compared to you.]

If I understood little else, I could sense the humility, simplicity, sincerity of these devout Bretons.

On to Brest. During World War II the Germans used this strategically located port for their submarines and other warships preying on Allied convoys. Like St. Nazaire and Lorient, Brest had to rebuild from the rubble up.

Here now I found a city called the most modern in Brittany. Public buildings, shops, and hotels lined handsome wide streets. Among the civilian crowds bobbed bright red pompons on French sailors' flat white caps.

Walking across Pont National, Europe's longest drawbridge, I looked over a naval port entirely restored and still expanding (page 486). I saw warships building, arriving,

REDSCHROME (LEFT) AND 4X EKTACHROME BY HOWELL WALKER © N.G.S.

Ruddy-faced artisan chisels a slate sundial at Pleyben. Alain Faucon-Dumont wears the old-fashioned Breton hat, rarely seen today. Ribbons flow from a silver buckle at back.

Lichen-splotched menhirs loom in ranks 3,000 strong in a 2½-mile parade near Carnac. Legends abound, but no one really knows who erected the colossi more than 4,000 years ago, or why.

revictualing, departing; tugs, lighters, tankers; sailors everywhere; and still more ships in the roadstead, which is large enough to hold all the war fleets of Europe.

Apart from its naval importance, the harbor thrives on commerce: the import-export of agricultural produce and heavy-industry cargoes from and to all parts of the world.

How much traffic? I got a fair idea during my visit to the off-lying Ile d'Ouessant. On the lofty gallery of the lighthouse called Créac'h, I talked with one of the keepers.

"About 40,000 ships pass by this lighthouse in a year," he said. "Sometimes you can see 20 at once."

I could also see the need for this lighthouse near the Ile's west end, as well as another at the northeastern tip and two more rising from insidious shoals and rocks in the surrounding waters. Indeed, the reefs, currents, and fogs have heaped sinister fame upon Ouessant; they have caused too many shipwrecks down through the years for maritime annals to count. And this "isle of tempests" inspired the Breton saying, "Who sees Ouessant sees his blood."

But Ouessant makes a brighter claim: The Créac'h lighthouse is the world's most powerful, with a normal range of 24 miles. Coordinating with a beam from Land's End in England, it guides ships in the night to the entrance of the English Channel.

My lighthouse view ranged over the five-mile-long island

Country couple enjoys a quiet meal in Mériadec's late-afternoon sunshine: tangy cider to quench the thirst and mellow cheese and crusty bread to satisfy the stomach.

Built-in *lits clos*, like Pullman berths, keep the Jean Chapalains snug at night in the living room-bedroom-kitchen of their home near Penvénan. Holes in hand-carved, lovingly-polished chestnut panels provide ventilation.

PHOTOGRAPHED BY HÉLÈNE JEANNEAU (ABOVE) AND HOWELL WALKER © N.G.S.

shaped like a crab's claw. Only a fraction—one-fiftieth, to be exact—of the treeless land is cultivated. Everywhere else sheep graze, tethered in pairs, black and white on a gray expanse. And the wind persists in howling—*ooowesssaaan . . . ooowesssaaan. . . .*

Ouessant, whose name comes from the Gallic name Uxisama, "the Highest," is eerie at night. Lighthouse beams radiating into black infinity brush cottages with swift strokes and sweep the fields like the wind, briefly touching huddled bundles of fleece.

Always outdoors, the sheep shelter from gales in nooks of stones piled four feet high in the shape of crosses. From whatever quarter a storm comes, the animals find protection.

About 2,000 people live on the island. Women work the little plots, raising potatoes, barley, wheat; they care for the sheep and milk the cows. Men go to sea as sailors in the navy or merchant marine.

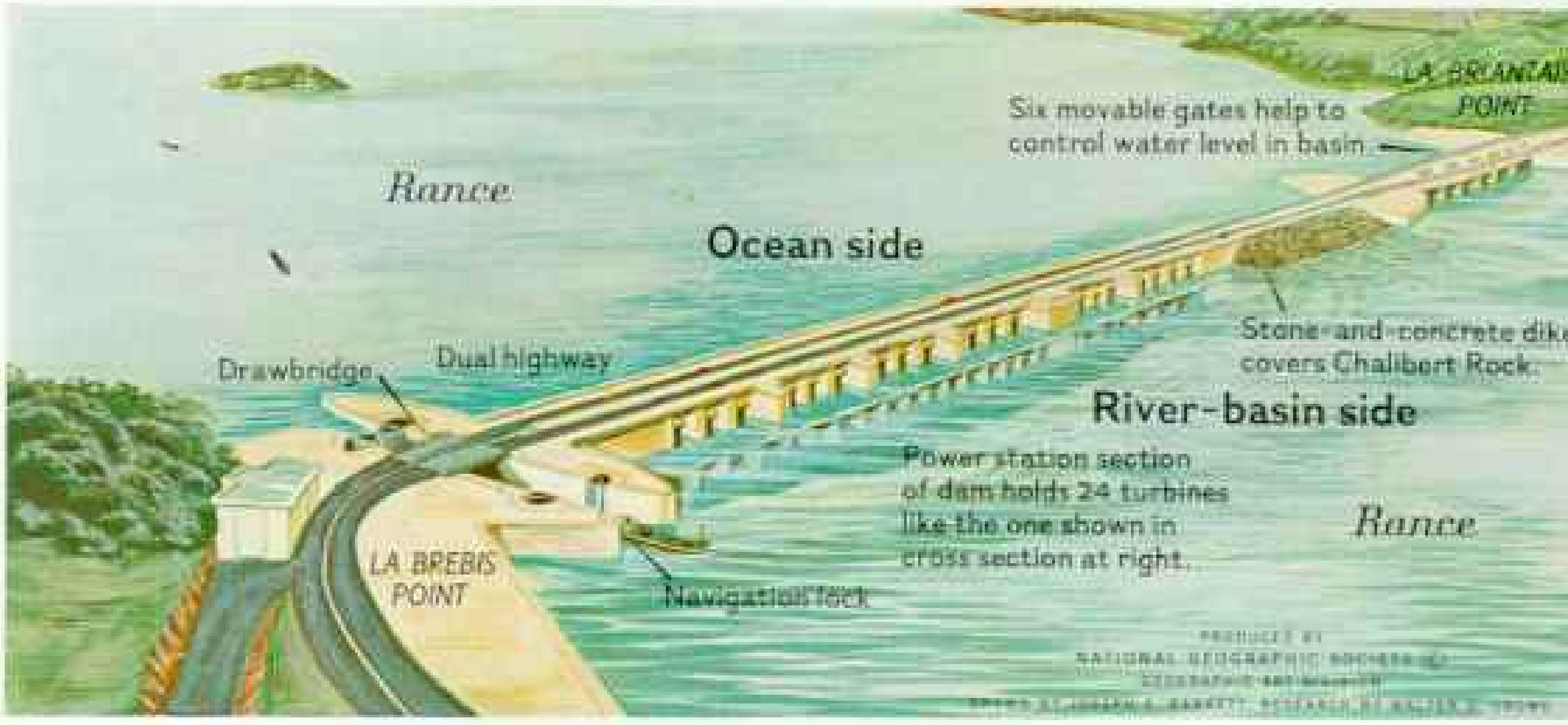
At the isle's one village of Lampaul, population about 350, I failed to find hotel accommodation. But an elderly widow, Mme. Jeanne Scoarnec, offered me a room in her home—a small house with all the charm of an old-fashioned dwelling.

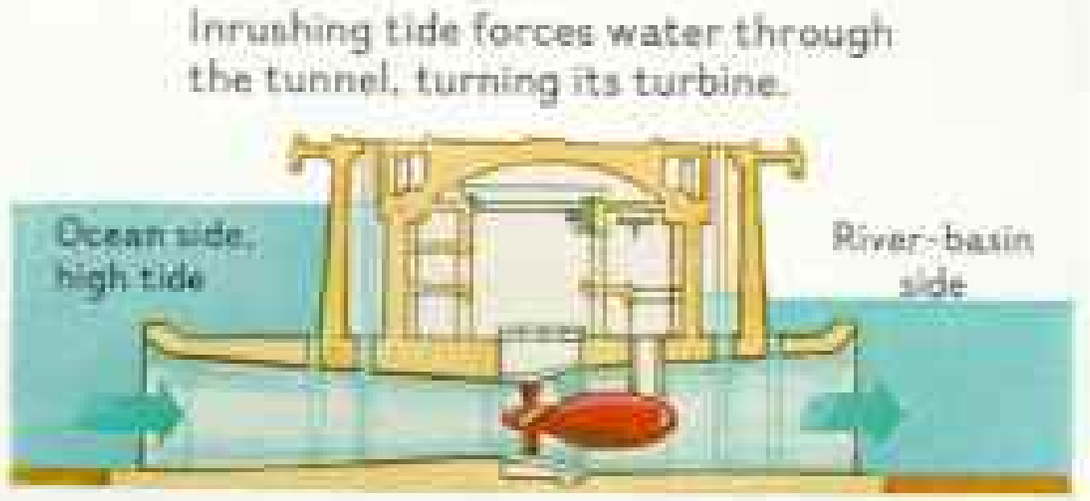
Madame Scoarnec clung to the traditional dress of Ouessant women. Beneath a black-bowed bonnet her plaited silver hair fell to a velvet bodice pinned, not buttoned, in front. Full skirt and heavy shoes completed her all-black costume.

"Without Bretons . . . No French Navy"

Black. Always black. Are the women in perpetual mourning? Unquestionably, the people of Ouessant never forget their dead; they consider the deceased still part of the living family. For those lost at sea the islanders hold especially solemn ceremonies.

When a sailor disappears, his family places a small symbolic cross of wax—the object of a funeral service—in the village church.


Six movable gates help to control water level in basin
LA BRIANTAIS POINT
Rance
Ocean side
Stone-and-concrete dike covers Chalibert Rock.
Drawbridge
Dual highway
River-basin side
Power station section of dam holds 24 turbines like the one shown in cross section at right.
Rance
LA BREBIS POINT
Navigation lock



Harnessing the tides, a 2,460-foot dam on the Rance River estuary will produce enough electricity for 125,000 French homes when turbines start humming in 1967. Here the tides average 28 feet of rise and fall; they sometimes rise 40½ feet, sending six billion cubic feet of tidal water through the river's mouth. The Rance project will be the first tidal plant in the world to produce electricity on a commercial scale. Engineers are studying proposals for a similar dam in Passamaquoddy Bay, between Maine and New Brunswick, Canada.

Tide-soaked pilings stand like gravestones at Lorient—reminders of a French venture in the East Indies trade. Ship timbers were stacked to season in salt water between the piles, driven in 1704.

From here the cortege formed by the entire island populace moves to the cemetery, where a priest lays the wax cross to rest in a granite chapel dedicated to lost mariners.

Of Breton sailors, author Anatole Le Braz wrote:* "It is always among this race that France recruits the largest and best of crews for her fleet. Without Bretons . . . there would be no French navy.

"The rude sea, to which they are born consecrated, is for them in every case a daily school of endurance, of courage, of denial. They live by its favors only on condition of being constantly ready to pay for these with their death, and they excel at dying in beauty."

Products From Seaweed: Soap and Ice Cream

Breton farmers, too, live by the favors of the sea. For example, seaweed has fertilized their fields since time unremembered.

But that is only the beginning of the usefulness of seaweed, now processed for livestock food, toothpaste, paper coating, soap, medicine, paint, ice cream, and beauty creams.

More fascinating to me than these final products was the gathering of their raw material along the coast. Near Trëompan, at the northwest tip of Brittany, I watched open boats at work not far offshore. Using an implement like a sickle with a 12-foot-long handle, a boatman cut the weed, twirled it as one winds spaghetti around a fork, and hauled the dark soggy mass aboard.

A horse splashed into the surf drawing a cart; the boatman transferred his cargo, and it rolled ashore to dry in a grassy field nearby (page 488). Crammed into gunny sacks, the dried weed left the fields aboard horse-drawn wagons.

One factory I visited converts this raw material into a fine-grained powder used as gelatin. Manager Jacques Richard showed me how the weed is crushed, cooked in chemical solution, dried by evaporation, and turned to powder.

M. Richard waved toward a mountain of seaweed. "It looks like a lot, *non*?" he said. "But 25 tons of wet weed will weigh only five when dry. And we use five dry tons to produce one ton of powder."

As fertilizer, this marine crop helps Brittany raise half of France's cauliflowers, 38 percent of its peas, and a third of its artichokes. In fact, the district around St. Pol de Léon surpasses any other in the nation in crops of cauliflowers and artichokes.

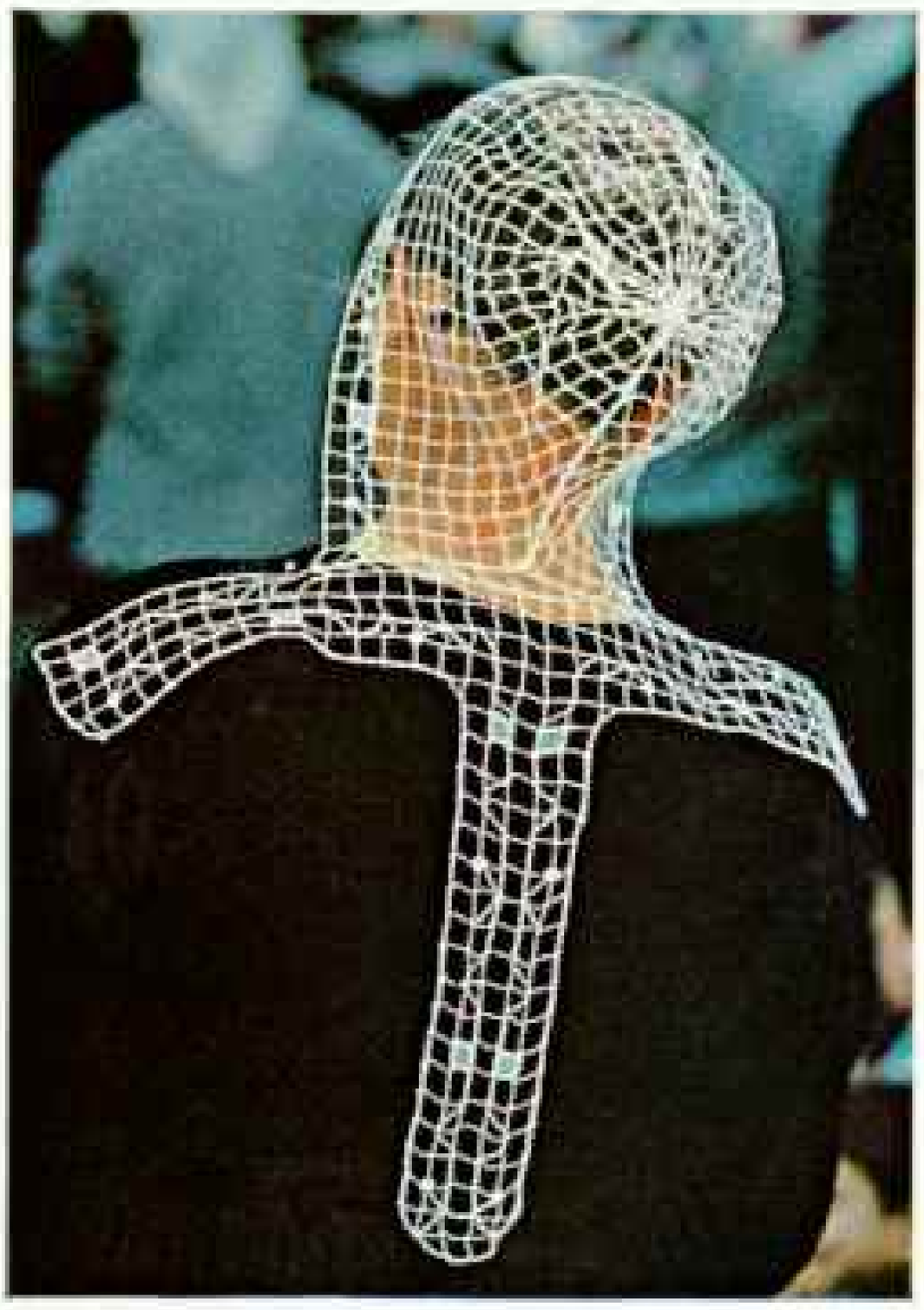
**Bretagne* (Les Guides Bleus), Librairie Hachette, Paris. Copyright © 1953.

Rugged granite ramparts, some as old as 700 years, squeeze little St. Malo, the "City of Corsairs" from which daring sailors have embarked for centuries. Occupying Germans made a fortress of the town in World War II, when it still looked as it did in the August, 1929, issue of NATIONAL GEOGRAPHIC (inset). Fort National crowns the offshore isle where Germans kept hostages during the war. In August, 1944, as American infantry moved close, the enemy fired St. Malo and left it in ruins. Undaunted, the Malouins rebuilt, scrupulously recapturing the old-time aspect. Through it all, Jacques Cartier, the discoverer of Canada's St. Lawrence River, has kept his place atop a pedestal on a rampart terrace (lower left). 497

COMPAGNIE RÉPUBLIQUE FRANÇAISE, RÉALISÉE PAR PHOTO HACHETTE © N.G.S.

Starched, convoluted, whorled, or scalloped, Breton coifs vary from region to region. Made from lace or eyeleted muslin, the headgear changes as new generations add embellishments. This lass lives in Rosporden.

Spider-web network of a coif at Ste. Anne d'Auray mantles head, shoulders, and back of a woman from Baud, 12 miles north.



"Mais non!" *"Mais oui!"*—"No!" "Yes!"

These vegetables seem to monopolize every acre. They press right up to village churches and surround towns. Cartloads flow through the streets and flood market places.

If the farmers do not like the prices, no sale—absolutely no sale. They will dump their harvest knee-deep in the streets rather than sell at an undignified figure. That, however, happened but once while I was in the province.

Normally, St. Pol's market is a happy, impressive sight, the friendly meeting place of farmers and buyers. Here one feels that Brittany is a land of plenty. I certainly felt it, and said so to a woman shopkeeper in St. Pol.

"Yes. St. Pol is a nice place," she sighed, "yet the people are not content."

"Why not?" I asked incredulously.

"Because," she said, "they're too happy."

"Afraid I don't understand."

"They have it too easy," she explained. "Good climate. Good soil. Good crops. Plenty to eat. Plenty of money." At this point the

PHOTOGRAPHS BY HOWELL WALKER (ABOVE) AND KELVIN JEANNERET © N.G.S.

Thus the news travels at Minihy Tréguier as devotees of St. Yves attend the Pardon of the Poor.

woman leaned toward me over the counter, on the brink of confidence. "Do you know what a hectare is worth in this region? No? I'll tell you. Two million old francs, *alors!*"

At the current rate that meant $4,000 for about two and a half acres, or $1,600 an acre.

I walked across the central square to St. Pol's old cathedral to think about people too happy for contentment.

Churches Symbolize Breton Faith

Any Breton church, I supposed, would be an ideal place to meditate. But thoughts wander with one's gaze over aged stained-glass windows, frescoed walls, rustic beams, chiseled pulpit and choir stalls. Candles flicker in a corner; a solitary woman, too old to kneel, sits like Whistler's mother, praying or perhaps meditating.

When accustomed to the dim light, my eyes found niches holding saints crudely but lovingly carved from oak hundreds of years ago. And rare the chapel without the sculptured figure of St. Yves, Brittany's favorite saint, almost always shown standing between rich man and beggar.

Rich and poor alike pooled wealth and effort to build Brittany's granite churches, from modest parish chapel to city cathedral. All reflect the common religious fervor of the province; some show that the faith of the smallest and poorest Breton communities has, in an architectural sense, worked miracles.

More recently another sort of miracle has brought the heretofore little-known Breton village of Pleumeur Bodou astounding fame. Here on a windswept plateau in a rather indifferent farming region, France installed a space-telecommunications center—the first contact point for the Continent's space relations. This French station, in July, 1962, tuned in on the U. S. satellite Telstar* for

*See "Telephone a Star," by Rowe Findley, NATIONAL GEOGRAPHIC, May, 1962.

PHOTOGRAPHED BY HOWELL WALKER (ABOVE) AND FILIP SCHALEK © N.G.S.

Gothic chateau at Josselin broods over its former glory. Only partly restored, it once boasted nine towers. When Richelieu's men razed five of them, says a legend, the ironic cardinal told the castle's owner, enemy Huguenot leader Henri de Rohan: "Sir, I have just bowled a good ball among your ninepins."

Shining Armor Hangs Ready for Modern Knights of the Road

Auto bodies stand in ranks at the Citroën plant near Rennes as one begins its trip to the assembly line. The first car rolled from the line in 1962, but now 600 Ami-6's come off each day. Citroën built in Brittany as part of a movement to decentralize industry from Paris. Workers live on nearby farms or in new apartments.

the first exchange of live television programs across the Atlantic.

From the complexity of electronics installations, I retreated to the natural simplicity of a little village called Port Blanc, on Brittany's north coast. There one day I met François Bernard, a hearty boatman who agreed to take me out to two islets off Port Blanc.

We headed first for Ile St. Gildas to visit an unusual monastery—unusual because the brothers make no vows, wear no habits, and stay as long or short a time as they choose.

There were only half a dozen of these lay monks when I was there. They live by farming, selling their produce on the mainland. They keep horses, cows, sheep, and goats. And they make excellent goat cheese.

Isle of Opera and Champagne

Leaving this isle to its solitude, to its heady pines and sweet-smelling hay fields, we ferried a short distance to the Ile d'Illiec. We walked up to the island's only home, a three-story gray stone Breton manor. In this house Ambroise Thomas composed the opera *Mignon;* Henryk Sienkiewicz wrote *Quo Vadis?;* Col. and Mrs. Charles A. Lindbergh once sojourned. And here now was the summer residence of Charles Jean Heidsieck, maker of a famed champagne.

Heidsieck's vivacious daughter Ingrid asked us into the house, and almost before you could say "pop," she opened a bottle of champagne—Heidsieck, of course. The boatman François held his glass up to the light and licked his salt-dry lips. Ingrid questioned me about New York and California, but I was really thinking about these two little islands off the Brittany coast.

Lovely isles—St. Gildas and Illiec. As different as goat cheese and champagne. As alike as tiny isles with pines on them and rocks rimming them in—in to themselves and their separate worlds.

My problem at Port Blanc was how to tear myself away from this friendly village. But then I could say almost the same of any place I stayed in Brittany.

Along the Emerald Coast—between Le Val André and Dinard—I passed from one lighthearted resort to another. The very configuration of the shore lifted one's spirits: sheer cliffs, creeks, coves, sandy beaches, massive capes plowing out to sea—a deep-blue sea exploding into pillars of spray and drifting away with the salt wind.

And so I came to Dinard, the largest, most popular, most chic of summering places on

Brittany's north coast. Casino, hotels, cafes, villas, and gardens bordering the broad sand beach invited holiday throngs from all over France, England, and America.

Only the mile-wide estuary of the Rance separates Dinard and St. Malo, yet these towns seem oceans apart.

From a distance, St. Malo appears to float on the water like a mirage. But the airy illusion turns to granite-hard reality when you enter the island stronghold behind its massive ramparts (pages 496-7).

While World War II left much of German-occupied St. Malo in smoldering ruins, the ramparts remained largely intact—astonishing when you consider that the earliest sections date from the 13th century. And restoration followed the old architecture faithfully, from the steep-pitched shingled roofs down to the paving blocks in the narrow streets.

New Dam Will Tame the Tides

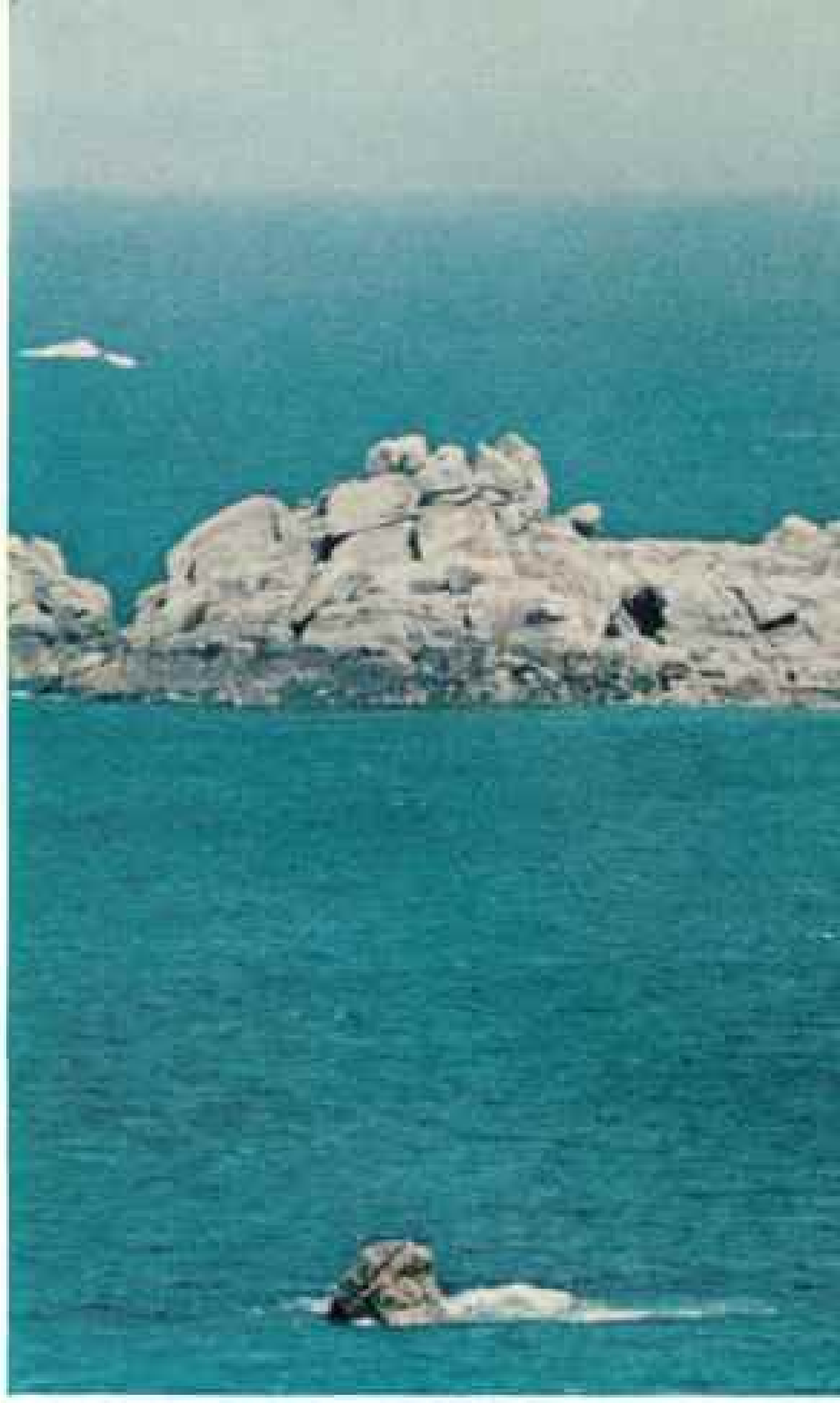
Through these byways strode early explorers, pirates, men of letters: Jacques Cartier, discoverer of Canada's St. Lawrence River; Samuel de Champlain, founder of Quebec; René Duguay-Trouin and Robert Surcouf, corsairs courageous; François-René de Chateaubriand and Félicité de Lamennais, writers as bold as any pirates.

The names, of course, belong to a bygone era; yet the spirit of those adventurous times persists today in this "City of Corsairs," as Malouins call their town. For one thing, St. Malo is the only port in Brittany that still sends a cod-fishing fleet to the frigid waters off Greenland, off Newfoundland, and north of Scandinavia.

St. Malo's industries will most likely expand with completion in 1967 of a unique project not far upriver. I went to the site, where men were building a dam across the Rance, about half a mile wide here. The dam would serve as an automobile bridge and contain a lock for water traffic. But at the heart of all this construction, a hydroelectric plant was shaping up to harness the big difference between high and low tides—as much as 40½ feet.

The incoming tide will turn turbines as it fills the basin behind the dam. Then, when the tide recedes, water from the reservoir will flow back through the turbines. Thus, the coming and going of the sea will produce 544 million kilowatt-hours a year and make the Rance River hydroelectric power plant the first of its kind in the world (pages 494–5).

Still farther up the Rance, I entered medieval Dinan—another town where I thought all



Jagged, rock-strewn coast and perilous inlets of Brittany call for superb seamanship. This fishing boat makes a passage near Pointe de Corsen, westernmost promontory of mainland France.

I need do was relax and enjoy it. Impossible. The temptation to explore the castle, ramparts, churches, and every little alley between centuries-old houses overpowered me (pages 476-9). I was up with the sun to watch mist rise from the Rance and unveil a humpbacked Gothic stone bridge. I was out in the night, walking and forgetting time.

On one evening stroll I returned the greeting of a man I thought a guide. He joined me, and we continued the promenade. He led me along twisted, hilly, cobbled streets weirdly fascinating in the dim glow of lamplight. And all the while he unraveled the history and legends of Dinan.

When at last we reached the square in front of my hotel, I tried to give him what I considered fair payment for the tour.

"But, monsieur," he said as the unaccepted note fell from my hand, "this disturbs me. I

Transistor radio, dispelling the loneliness of an ancient calling, keeps a shepherd company on polders near Le Mont St. Michel. The briny grass gives lamb its prized flavor and its name, *pré-salé*, for sheep fattened on salt meadow.

don't want your money. I am no guide; I work in the post office. It pleased me to be with you. That is my reward."

Embarrassed beyond telling, I stooped, picked up the note, and suggested we refresh ourselves at the nearest cafe. An hour later we parted, friends.

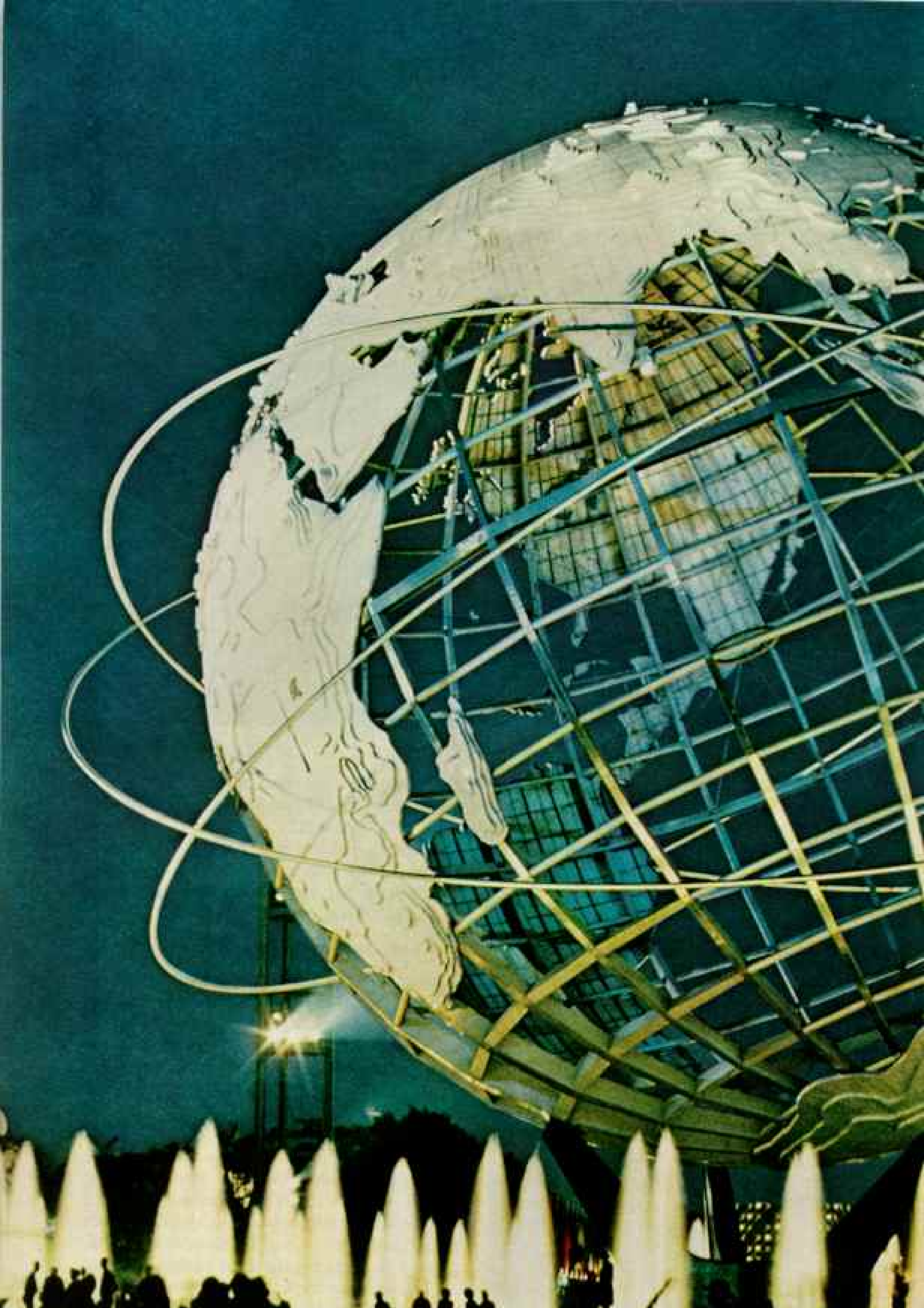
Shepherd Carries World With Him

Then came the day when I had to drive away from Dinan and from Brittany, but not without a last look at the Breton coast. Rounding a headland, I caught a breath-taking view of distant Mont St. Michel. It rose like a fairy-tale castle in insular splendor off the shore of neighboring Normandy.

Between the Mont and me, I saw a shepherd watching his flock on the salt meadows. I stopped to photograph the scene—a scene as old as the 11th-century abbey crowning the isle in the background. The shepherd gave me a friendly wave, and I walked over to him, pleased to delay my departure from Brittany.

"Just in time for the latest news," he said, tuning his portable transistor radio.

THE END

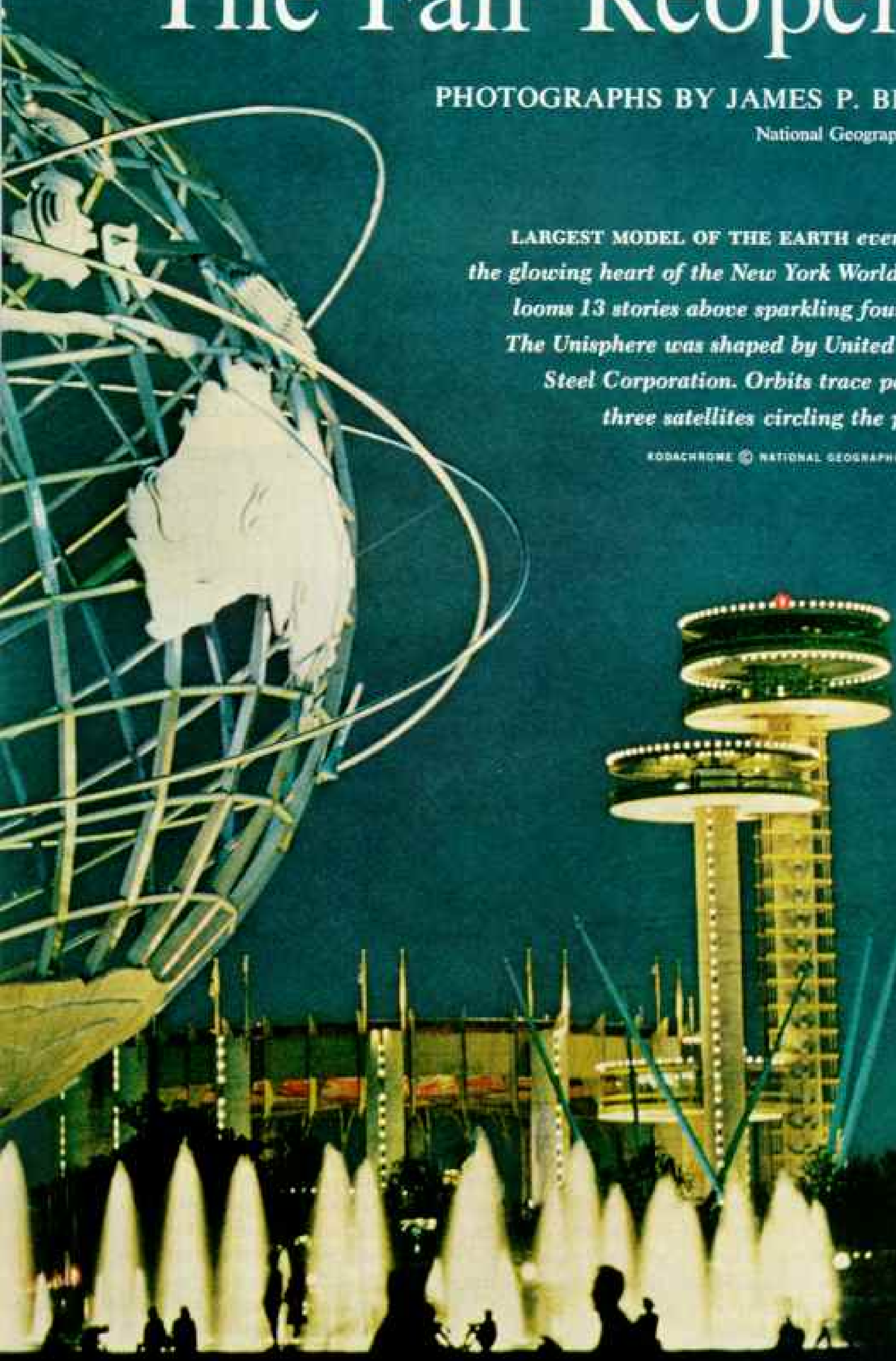


The Fair Reopens

PHOTOGRAPHS BY JAMES P. BLAIR

National Geographic Staff

LARGEST MODEL OF THE EARTH *ever built, the glowing heart of the New York World's Fair looms 13 stories above sparkling fountains. The Unisphere was shaped by United States Steel Corporation. Orbits trace paths of three satellites circling the planet.*



CLASSROOM IN A CARNIVAL. A journey round the world. A look back in time, and a window on the future. A treasure house of religious faiths. A procession of products. And a dream of "Peace through Understanding."

This is the New York World's Fair of 1964–1965. Here you can see how atoms collide in the first public demonstration of controlled nuclear fusion, at General Electric. Listen to the rustle of stars as picked up by a radiotelescope at Ford. Take a journey into space, booked by the Martin Company in the Hall of Science. See how your voice "looks" on TV at the Bell System (page 515).

Sample the sights, sounds, and smells of faraway lands in the pavilions of 66 nations. Admire masterpieces: El Grecos and Picassos at Spain; Michelangelo's "Pietà" at the Vatican Pavilion.

We met by accident over delectable ham sandwiches in the Danish Pavilion. Dr. Robert Fernie and his wife, from Hutchinson, Kansas, had just seen the "Pietà," and we discovered a shared reverence for the sculpture. The marble statue of Mary holding the body of her son, the Christ, looked like the finest porcelain in the Jo Mielziner setting of blue drapery and lights. "But the body of Christ is the marvel," said Dr. Fernie. "The anatomy is perfect; as a doctor, I know."

See an automobile assembly line in action at Chrysler. Watch the Nation's population grow at Equitable Life Assurance. Rest in the Garden of Meditation or find inspiration in the music of the Mormon Tabernacle Choir.

See children playing in Denmark's model of the Tivoli Gardens or wondering at people disappearing in General Cigar's Hall of Magic. Watch a Japanese troupe dance to exciting new rhythms combining traditional music and jazz.

Walk down a street in Hong Kong at Coca-Cola. Dine in a tree house on dishes from Africa. Thrill to Polynesian fire-dancers or Mexican flyers (page 512). Sip Irish coffee in the House of the Emerald Isle.

In the entrance court of the Pavilion of Ireland, I paused before a huge map splashed at their counties of origin with the names of Irish families. A mother, father, and two small sons stood by in rapt attention as a voice boomed name after name in the inimitable accent of Ireland. When the name McCarthy was called, the mother spoke: "Now you've heard it, we can move on." Clearly, the McCarthy family had just passed by.

Pick up the name of a pen pal from the Parker Pen Pavilion; study the history of life on earth and the progress of man in the dioramas at Travelers Insurance; test your driving skill at Socony Mobil.

Catch a new vision of the wonder of life in a film at Johnson's Wax. Feel at home with the dinosaurs at Sinclair Oil. Savor the flavor of France with the naughty puppets, "Les Poupées de Paris." Stroll through the recreated Belgian Village. Plunge down a roaring cataract in the Log Flume Ride.

Hi! Ho! Come to the Fair.

CAROLYN BENNETT PATTERSON

Spirit of Spain—dignity, tradition, color—fills the theater of the Spanish Pavilion where dancers, guitarists, and opera stars perform. Here Antonio Gades and Curra Jimenez dance the flamenco. In the spacious stone pavilion, cool patios open onto galleries of priceless paintings by Goya, Velázquez, Dali, and Miro. The battle sword of El Cid hangs outside a hall of documents relating to Columbus's voyages. The pavilion's Toledo and Granada restaurants rank among the best at the Fair.

RETACHROME (ABOVE) AND KODACHROME © N.G.S.

Twirling aloft, Ferris wheel accommodates 96 passengers, four to a cab, and lifts them 80 feet above the Fair. United States Rubber produced this gigantic whitewall tire of polyester resin reinforced with glass fiber. The first Ferris wheel highlighted the World's Columbian Exposition in Chicago in 1893.

NEW YORK WORLD'S FAIR 1964-1965

Father of the Fair, Robert Moses planned the one-billion-dollar spectacle in Flushing Meadow and serves as its president. On the map, opposite, *National Geographic* artists portray 144 of the exposition's attractions. Inset serves as a guide for visitors bound to the Fair.

GATE 1	MAIN GATE	4	B
GATE 2	NEW AMSTERDAM GATE	6	C
GATE 3	PETER STUYVESANT GATE	7	D
GATE 4	HENRY HUDSON GATE	5	F
GATE 5	MEADOW LAKE GATE	2	G
GATE 6	RIVER GATE	1	F
GATE 7	RODMAN GATE	1	C
GATE 8	LAWRENCE GATE	1	B
1	AERIAL TOWER RIDE AND WAFFLE RESTAURANT	2	E
2	AFRICAN PAVILION	4	D
3	ALASKA	4	E
4	ALL STATE PROPERTIES AND MACY'S	3	C
5	AMERICAN EXPRESS	4	B
6	AMERICAN-ISRAEL AND CAFE ISRAEL	3	D
7	AUSTRIA	3	C
8	AUTO THRILL SHOW	5	F
9	AVIS ANTIQUE CAR RIDE	6	D
10	BELGIAN VILLAGE	3	E
11	BELL SYSTEM	2	B
12	BERLIN	5	C
13	BETTER LIVING CENTER	1	C
14	BILLY GRAHAM PAVILION	4	B
15	BOURBON STREET	3	F
16	BOY SCOUTS OF AMERICA	1	C
17	BRITISH LION PUB	5	C
18	CARIBBEAN PAVILION	4	D
19	CENTRAL AMERICA AND PANAMA	4	C
20	CENTURY GRILL	7	D
21	CHRISTIAN SCIENCE PAVILION	3	E
22	CHRYSLER	6	E
23	CHUN KING INN	2	F
24	CHUNKY CANDY FACTORY	2	E
25	CLAIROL	2	C
26	COCA-COLA	3	C
27	CONTINENTAL CIRCUS	3	F
28	CONTINENTAL INSURANCE	3	C
29	DANCING WATERS	2	F
30	DENMARK	4	C
31	DU PONT	3	C
32	DYNAMIC MATURITY	3	D
33	EASTERN AIR LINES	7	D
34	EASTMAN KODAK	2	D
35	EQUITABLE LIFE ASSURANCE	2	B
36	FESTIVAL OF GAS	2	B
37	FIRST NATIONAL CITY BANK	2	C
38	FLORIDA	2	C
39	FLUME RIDE	2	E
40	FORD	6	D
41	FORMICA	2	B
42	FRANCE	2	E
43	GENERAL CIGAR	3	C
44	GENERAL ELECTRIC	3	C
45	GENERAL MOTORS	4	F
46	GREECE	4	D
47	GREYHOUND	5	F
48	GUINEA	3	D
49	HALL OF EDUCATION	2	B
50	HALL OF FREE ENTERPRISE	3	E
51	HALL OF SCIENCE	7	D
52	HAWAII	4	E
53	HELIPORT	6	E
54	HOLLYWOOD, U.S.A.	5	D
55	HONG KONG	4	C
56	HOUSE OF GOOD TASTE	4	B
57	IBM	3	B
58	ILLINOIS	5	C
59	INDIA	5	C
60	INDONESIA	4	C
61	INTERNATIONAL PLAZA	3	C
62	IRELAND	3	C
63	JAPAN	3	D
64	JAYCOPTER RIDE	1	E
65	JOHNSON'S WAX	3	C
66	JORDAN	3	D
67	JULIMAR FARM	2	C
68	KIDDYLAND	2	F
69	LAKE CRUISE	2	F
70	LEBANON	4	D
71	LES POUPEES DE PARIS	2	F
72	LONG ISLAND RAIL ROAD	6	C
73	LOWENBRAU GARDENS	5	D
74	MALAYSIA	3	D
75	MARYLAND	5	B
76	MASONIC CENTER	4	C
77	MASTRO PIZZA	3	B
78	MEDO PHOTO SUPPLY	2	D
79	MEXICO	4	D
80	MINNESOTA	3	E
81	MISSOURI PAVILION AND SNACK PATIO	4	E
82	MONORAIL STATION	3	F
83	MONTANA	6	C
84	MORMON PAVILION	4	B
85	MOROCCO	3	D
86	MUSIC HALL	1	F
87	NATIONAL CASH REGISTER	4	C
88	NATIONAL MARITIME UNION PARK	5	F
89	NEW ENGLAND STATES	5	D
90	NEW JERSEY	4	D
91	NEW MEXICO	4	C
92	NEW YORK CITY PAVILION	5	D
93	NEW YORK STATE	4	E
94	OKLAHOMA	5	C
95	OREGON	3	B
96	PAKISTAN	4	D
97	PAN AMERICAN HIGHWAY GARDENS	2	D
98	PARKER PENFRIEND PAVILION	2	C
99	PAVILION OF AMERICAN INTERIORS	3	B
100	PAVILION OF FINE ART	4	C
101	PEPSI-COLA	2	D
102	PHILIPPINES	4	D
103	POLYNESIA	4	C
104	PROTESTANT AND ORTHODOX CENTER	4	C
105	RCA	4	B
106	REPUBLIC OF CHINA	4	D
107	REPUBLIC OF KOREA	4	C
108	RHEINGOLD'S "LITTLE OLD NEW YORK"	2	C
109	RUSSIAN ORTHODOX GREEK CATHOLIC CHURCH	1	C
110	SANTA MARIA	2	G
111	SCHAEFER CENTER	2	D
112	SCOTT PAPER COMPANY	2	C
113	SERMONS FROM SCIENCE	3	D
114	SEVEN-UP	3	C
115	SIERRA LEONE	3	D
116	SIMMONS	3	B
117	SINCLAIR DINOLAND	5	B
118	SINGER BOWL	5	B
119	SKF	5	B
120	SOCONY MOBIL	5	F
121	SPAIN	3	C
122	SUDAN	3	D
123	SWEDEN	3	E
124	SWISS SKY RIDE	3	D
125	SWITZERLAND	3	D
126	THAILAND	4	C
127	TIPARILLO BAND PAVILION	2	C
128	TOWER OF LIGHT	2	C
129	TRANSPORTATION AND TRAVEL PAVILION	6	B
130	TRAVELERS INSURANCE	2	B
131	TWO THOUSAND TRIBES	4	C
132	UNDERGROUND WORLD HOME	6	C
133	UNISPHERE presented by U. S. STEEL	4	D
134	UNITED ARAB REPUBLIC	3	D
135	UNITED STATES PAVILION	5	C
136	U. S. RUBBER	5	D
137	U. S. SPACE PARK	7	D
138	VATICAN	3	E
139	VENEZUELA	4	C
140	WALTERS WAX MUSEUM	2	F
141	WESTINGHOUSE TIME CAPSULE	4	B
142	WEST VIRGINIA	6	C
143	WISCONSIN	4	B
144	WORLD'S FAIR PAVILION	4	B

SCALE IN FEET
0 400 800

Blue, orange, red, and green lines show Greyhound routes inside the Fair. Direction of bus service and stops indicated by arrows and colored boxes.

▲ BRASS RAIL RESTAURANT
● SOUVENIR HAT STAND
✚ INFORMATION BOOTH
■ BABY STROLLERS

VAN WYCK EXPRESSWAY

FLUSHING RIVER

MEADOW LAKE

LONG ISLAND EXPRESSWAY

GATE 1 GATE 2 GATE 3 GATE 4 GATE 5 GATE 6

BELL SYSTEM

BETTER LIVING CENTER

EASTMAN KODAK

GARDEN OF MEDITATION

POWER OF LIGHT

COURT OF THE UNIVERSE

POST OFFICE

ATOMIC INDUSTRIAL FORUM

FIRST NATIONAL CITY BANK

HOOVER PAVILION

IBM

VATICAN

COURT OF NATIONS

AMPHITHEATER

GENERAL MOTORS

FORD

UNITED STATES PAVILION

KINGS ROAD

GRAND CENTRAL PARKWAY

TRANSPORTATION

NEW YORK

AVENUE

COMMERCE

AMERICAS

SHEA STADIUM

NORTH

PRODUCED BY
NATIONAL GEOGRAPHIC SOCIETY ©
GEOGRAPHIC ART DIVISION
DRAWN BY SHELDON STEPANSKY, RESEARCH BY GEORGE W. SCHUTZ

Belgian waffle, a cake topped with whipped cream and fresh strawberries, proves a gastronomical sensation.

Dangling from cables, cars of the Swiss Sky Ride drift a hundred feet above the ground. Other Fair high points for panoramic views: the Monorail ride, the Top of the Fair restaurant and heliport, the New York State towers (page 524), and United States Rubber's Ferris wheel (page 507). On clear days, the scenery includes the skyscraper forest of Manhattan, 10 miles away.

Hot-rodder "speeds" at four miles an hour in an Avis antique car, a one-cylinder model, five-eighths actual size.

THIS PAGE FOLDS OUT

Flying Eagle of Papantla climbs to his eyrie atop a 114-foot pole at the Mexican Pavilion. Tied to ropes and hanging upside down, he and three companions vault into space and spin earthward in ever-widening circles. The Veracruz Indians dedicate each death-defying flight to Tlaloc, the rain god.

Smug celebrity, a Peruvian llama, tours the Fair to lure visitors to the World of Ancient Gold, a $3,000,000 exhibit of handwrought Latin American treasures in the Transportation and Travel Pavilion.

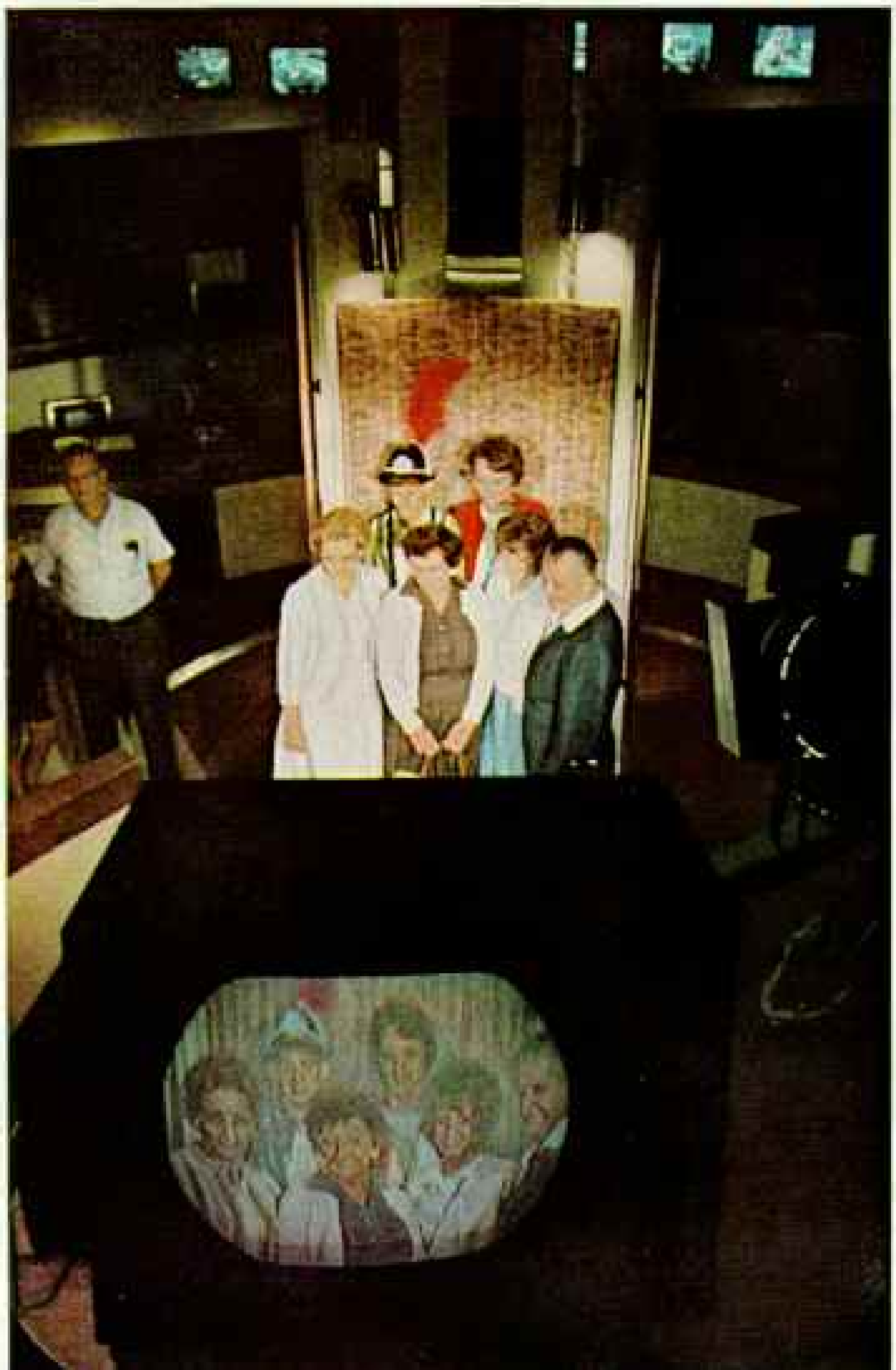
PAINTING BY JAMES P. BLAIR © NATIONAL GEOGRAPHIC SOCIETY

Lunar landscape roofs the Eastman Kodak Pavilion. Spires, mounds, and craters of an imaginary moonland create odd angles and shadows to challenge the visiting cameraman's artistry. World's largest outdoor color photographs—30 by 36 feet—ring the tower.

Science's wealth of wonders

SOME 7,000 visitors file through the RCA Pavilion each day to see themselves on color television (below, left) and hear a backstage briefing on the technological magic that splashes rainbows on their living-room screens. On the same site 26 years ago, RCA introduced black-and-white television to the United States. Official color TV center for the Fair, RCA telecasts news announcements, interviews with visiting dignitaries, highlights of other exhibits, and special events—more than 2,000 program hours from April to October. The pavilion also helped reunite families last year by showing lost children on some 200 television sets in buildings throughout the grounds.

At the Dupont Pavilion, science joins showmanship (center). Here colorless liquids mixed in flasks shine with intense blue light in a demonstration of chemiluminescence—the same phenomenon that makes fireflies glow. In Dupont's production, "Wonderful World of Chemistry," live actors sing, dance, and talk with life-size motion-picture images on movable screens. One scene shows a live performer blowing out candles on a filmed birthday cake and spraying another actor with frosting. Eight different troupes, working simultaneously in two theaters, present the Dupont show 48 times daily.



Cooling pool around the Unisphere soothes foot-weary fairgoers. This is the Fountain of the Continents, set in one of 35 parks that dot the grounds.

Voices of children appear as patterns on a TV screen in a demonstration of the Visible Speech Translator at the Bell System Pavilion. This device has been used experimentally to teach deaf children to speak by duplicating the televised images of instructors' voices. Alexander Graham Bell, the inventor of the telephone, devoted much of his life to helping the deaf.

"IT'S A SMALL WORLD,"
sing animated figures of children from 26 lands in the Pepsi-Cola exhibit. In this Walt Disney creation, voyagers glide past the changing of the guard at Buckingham Palace, beneath English carolers on a crescent moon, and amid tulips and windmills of Holland.

KODACHROME © N.G.S.

Monsters, motors, and moon men

TIME TURNS BACK on the Ford Motor Company's Magic Skyway. Riding new-model convertibles, whose radios play the script in four languages, spectators thrill to the savage world of prehistory. Life-size dinosaurs lumber through swamps, crane necks, and fight as if to death. A Walt Disney technique known as Audio-Animatronics gives them sound and movement. Centuries slip by and cave men appear, make fire from the friction of sticks, hunt animals, paint on cave walls, and invent the wheel. Leaping into the future, Ford creates a gleaming Space City and sends the riders sailing above it like astronauts.

General Motors' Futurama (below) begins and ends in the "near tomorrow." Seated in moving sound-equipped lounge chairs, guests fly to the moon. Here a lunar crawler on globular wheels rolls toward a fluted communications center. Other Futurama scenes show man using a year-round harbor in the Antarctic ice, cavorting in an undersea resort hotel, and felling trees in the jungle with a searing laser beam.

City of tomorrow

"THE STRIVINGS OF MAN—his ambitions, his achievements, his aspirations—all are mirrored in the face of his cities," proclaims General Motors'

KODACHROME BY JAMES P. BLAIR © NATIONAL GEOGRAPHIC SOCIETY

Futurama in offering its prophecy of things to come. Here plazas, parks, and skyscrapers rise above freeways where electronically paced cars travel swiftly and safely. Moving sidewalks link shopping centers, and underground conveyor belts carry freight.

United States Pavilion

"AMERICA is never accomplished," announces the inscription at the entrance to the Federal Pavilion (right). And the huge fiberglass-walled structure, "floating" 18 feet above the ground on four steel columns, offers exhibit after exhibit in proof of a Nation in the turmoil of growth. The theme, "Challenge to Greatness," acknowledges the problems of the land and shows how they are being met: Urban renewal revitalizes a blighted city; new highway networks speed the ever-increasing flow of traffic. "Voyage to America," a film, illustrates the contribution of immigrants. For a second film, "The American Journey," moving grandstands carry passengers through the Nation's history by means of 120 screens.

Totem poles of dolls in the U. S. Pavilion illustrate the population explosion. Shortest pole represents the year 1800, when the world census totaled only 906,000,000. Loftiest pole denotes the estimated population in 2000, when at present rate of growth nearly seven billion people will dwell on planet earth.

Mankind in film and fact stands face to face at a Federal exhibit on People-to-People, a citizens' organization that promotes international understanding. NATIONAL GEOGRAPHIC photographers made many of the pictures on their global travels. Words of Dwight D. Eisenhower appear above the prints: "Given a chance, people will make friends across, around, over, and under all the natural and man-made boundaries that separate them."

Night with the magic of light transforms the Fair into a fantasy. Beyond the Fountain of Planets, aluminum prisms shape the Tower of Light, sponsored by electric utility companies. Bubble roofs distinguish Brass Rail restaurants. An observation tower of the New York State Pavilion rises 226 feet.

Legacy: A.D. 6939

VARIED as the myriad products of today's technology, the contents of the Westinghouse Time Capsule will tell our descendants five millenniums hence of changes that have occurred in the fateful 25 years since the original Time Capsule was buried at the close of the 1939 World's Fair.

Dr. Leonard Carmichael, your Society's Vice President for Research and Exploration (right), chaired a committee of distinguished scientists, artists, and scholars who selected the capsule's historic freight. The Bible, a piece of heat shield from a space craft, a *National Geographic Atlas of the World* in microfilm, freeze-dried food, a bikini bathing suit, and a popular recording by the Beatles comprise a portion of the material that also includes microfilmed writings totaling 20,000,000 words of text.

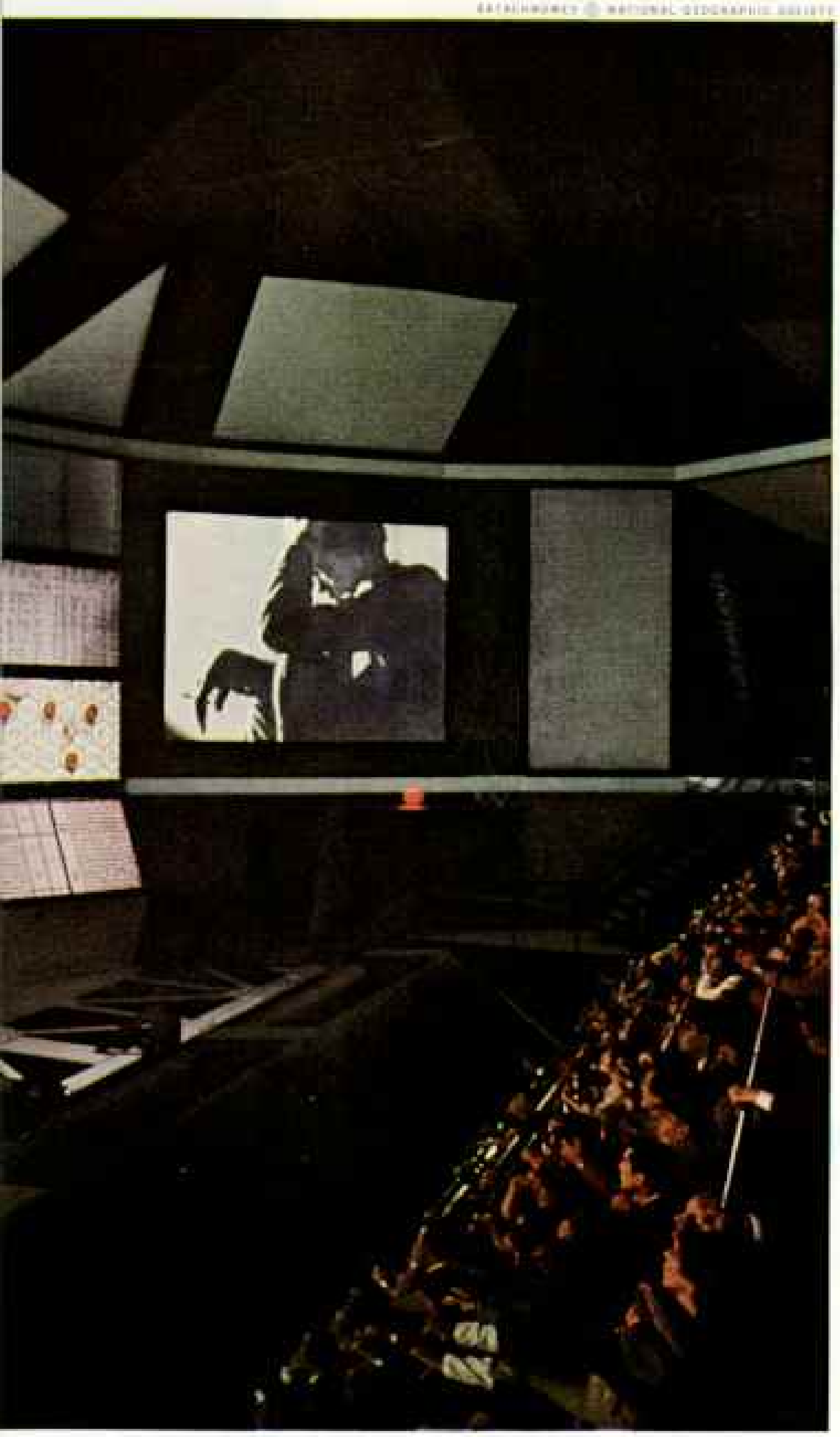
The gleaming torpedo-shaped 1964 capsule (below) will rest under a granite marker only a few yards away from its 1939 predecessor. An inscription enjoins finders to leave the capsules undisturbed until the full lapse of 5,000 years.

ENTACHROMES BY JACK WEIMART (BELOW) AND NATIONAL GEOGRAPHIC PHOTOGRAPHERS GEORGE F. MOBLEY AND EMORY KRISTOF © N.G.S.

Sea of steel, acre of people

BY NOON of a summer's day the Fair's four parking lots swarm with cars. As many as 200,000 visitors a day thronged the grounds last year, and officials now brace for similar invasions.

At the IBM Pavilion rust-colored metal trees hold aloft a white egg-shaped dome. The egg is a theater, but a theater without seats. Spectators file into a steep grandstand at ground level. Then this "people wall" ascends into the theater, where rapt audiences watch a 12-minute show projected on 16 separate screens. The theme:



How electronic computers copy human reasoning to solve great and vexing problems.

IBM's ingenious kaleidoscope, a sampling of life and living, lets viewers probe the mind of a racing-car driver speeding at 120 miles an hour, share the problems of scientists gathering weather data throughout the world, watch a football play analyzed by the coach on a blackboard and run by the team, and explore a woman's mind as she plans the seating of a dinner party. Having witnessed the method in the thought processes of these decision-makers, spectators thus can better understand the methods that "information machines" follow.

The states: pride on parade

NEW YORK STATE's Tent of Tomorrow, 2,000 tons of laminated fiberglass and steel (right), covers a 130-by-166-foot terrazzo version of a Texaco road map of the Empire State (below). Here an audience gathers for a performance of amateur talent. On the mezzanine, visitors may write a law to be forwarded to Albany, the state capital, for study.

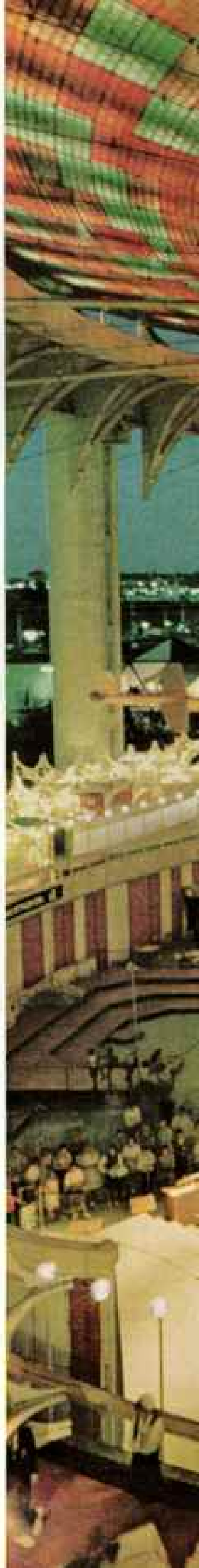
Pavilions of the 20 other states represented at the Fair compose a hymn to the Nation's diversity. Illinois houses a life-size talking Lincoln. West Virginia's artisans make banjos one month, quilts the next. Florida stages a porpoise aquacade. At the Wisconsin Pavilion, an angler may fly-cast for trout and see his catch cooked. Oklahoma displays a map on which a toy barge moves along a proposed ship canal leading to the Gulf of Mexico.

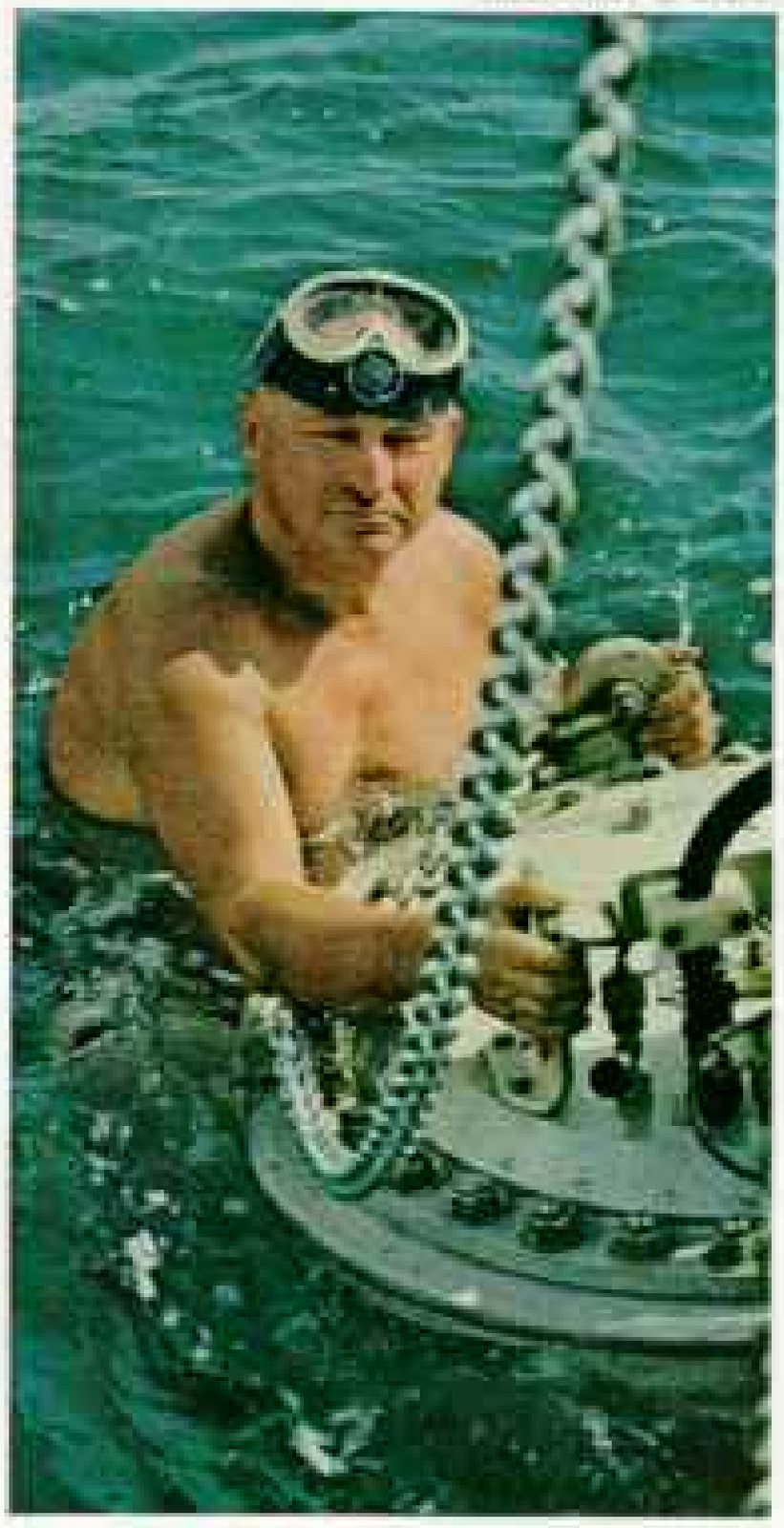
At the Maryland Pavilion visitors stroll a wharf, eat crab soup, and watch a model of the *Constellation* float in a miniature Chesapeake Bay. Montana, the Big Sky Country, shows off a million dollars in gold nuggets. New Jersey hatches chicks and displays the inventions of Thomas A. Edison. Louisiana's Bourbon Street swings with jazz hands. The swish of hula skirts accompanies guitar and ukulele music at the Hawaii Pavilion.

Minnesota sponsors a restaurant with such dishes as venison and duck. Alaska inhabits an igloo-shaped pavilion and entertains with dances by Eskimos and Indians. Missouri remembers Charles A. Lindbergh with a replica of his plane, *The Spirit of St. Louis*. New Mexico re-creates an adobe village and fills it with Indian handicraft. And the six New England states, Massachusetts, Connecticut, Rhode Island, Maine, Vermont, and New Hampshire, band together to offer a Country Store, a Village Green, and a Liberty Tree hung with historic documents.

The land and its people stand exposed in the pavilions of these United States. Yet, what does it all mean?

Only what the Fair itself proclaims: that the earth is small and its peoples forever intertwined. Lindbergh flew to France; New York's law evolved from concepts in Rome; Hawaii draws strength from Polynesian origins; all New England owes a debt to Great Britain. Thus is fashioned the unbreakable chain that binds all mankind.





Outpost Under the Ocean

By EDWIN A. LINK

Illustrations by National Geographic photographer BATES LITTLEHALES

CALL IT the deepest long dive. Call it the longest deep dive. Both definitions describe our goal beneath the bright water of the Bahamas.

With the support of the National Geographic Society, including a substantial grant of funds through its Committee for Research and Exploration, we had come to put two men a long way down for a long time—more than 400 feet for more than 48 hours—and thus to probe beyond the limits of human experience.

Why? To prove that men can live and work in the untried depths that cover the vast unexplored part of earth called the continental shelf. For that they must be able to go deep and stay there—for days, weeks, even months. And they must do it not as surface dwellers sheltered in the steel cocoon of a submarine, but as creatures of the deep, exposed to pressures many times greater than man was meant to endure.

We had spent more than a year, working closely with a medical life-sciences team from the University of Pennsylvania, to extend our Man-in-Sea Project farther into unknown reaches of the ocean, yet with complete safety to the divers.* Now, as our ship *Sea Diver* rode the swells off Great Stirrup Cay, 140 miles east of Miami, the long wait was ending.

The SPID: Divers' Undersea Home

"All anchors are set," shouted the radio receiver in *Sea Diver's* wheelhouse. And the voice from our U. S. Navy support vessel, *Nahant,* added: "You'll be making the dive at 430 feet."

Tomorrow we would moor *Sea Diver* between four anchored buoys set by *Nahant.* We would lower our inflatable rubber house, the SPID, to the sea floor (opposite). Then the divers would be delivered to the door of their deep-lying home by the SDC (submersible decompression chamber), serving as an undersea elevator (page 536).

The inhabitants-to-be of these strange containers grinned in anticipation. After seemingly endless rehearsals and practice dives, they were to be freed at last from the "surface tension," as one wag put it, that would plague me and other top-siders for the next few days.

Robert Sténuit, our chief diver, had successfully carried out a 200-foot, 24-hour dive from *Sea Diver* off Villefranche, France, in 1962. Jon Lindbergh, Sténuit's co-diver, brought wide underwater experience to the project, together with a quiet courage reminiscent of his famous father.

I watched these two remarkable young men

*See, in the NATIONAL GEOGRAPHIC, "Our Man-in-Sea Project," May, 1963, and "Tomorrow on the Deep Frontier," June, 1964, both by Edwin A. Link.

Deepwater tent, SPID (submersible portable inflatable dwelling) undergoes tests off the Bahama Islands prior to the long dive to 432 feet.

Author Link (above), inventor of aviation's Link Trainer, turned to undersea technology after retiring as an industrial executive in 1959. An expert diver, he personally checks all equipment used in his Man-in-Sea Project, a research program aided by the National Geographic Society. Here he inspects his SDC (submersible decompression chamber).

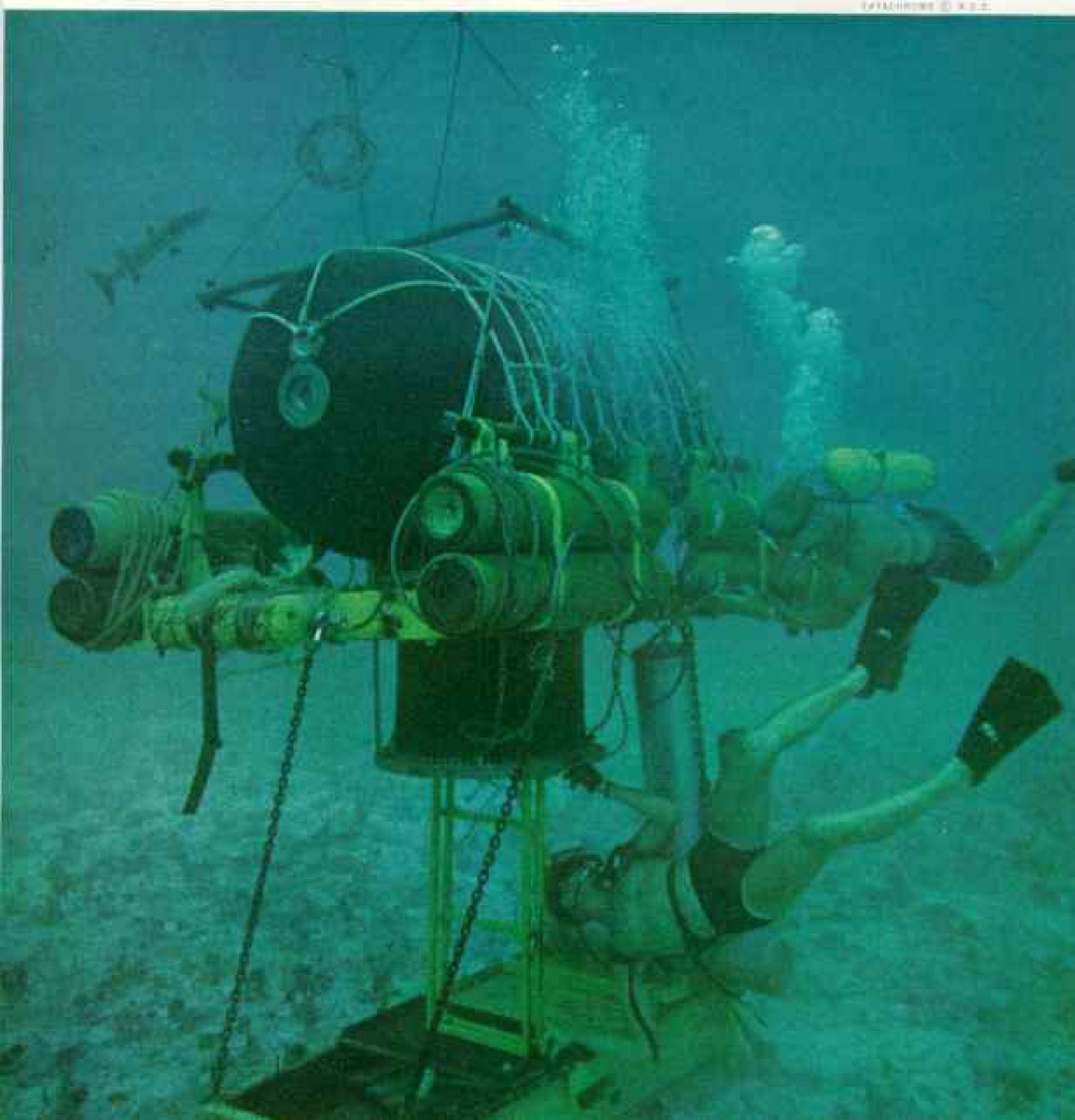
and began again to wonder and worry. There is risk in all pioneering, and none greater than that which faces men who venture beyond their natural environment. Stënuit and Lindbergh would experience, as no one ever had before, the combined effects of the two crucial dimensions of diving: depth and time.

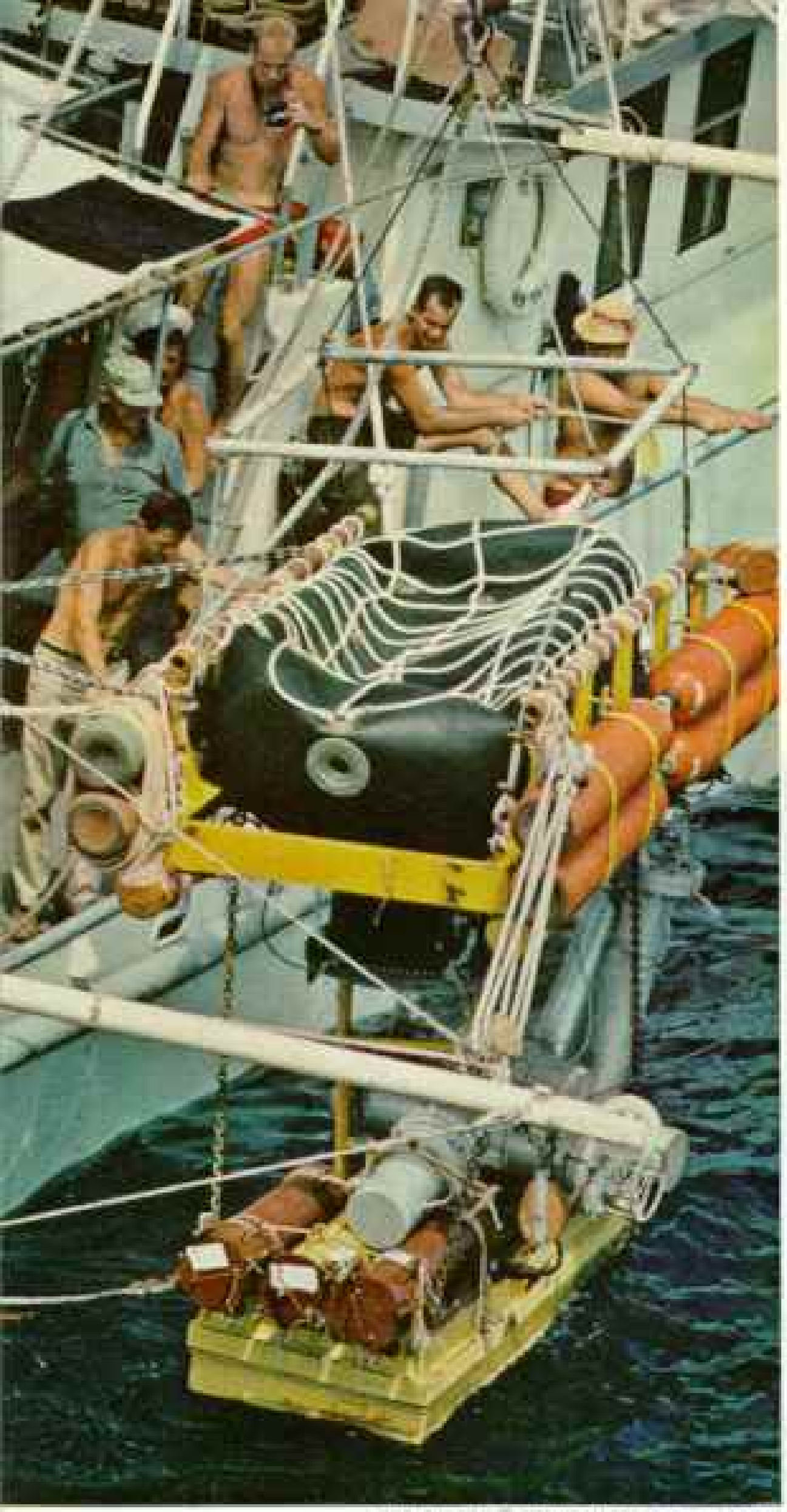
A very few men had dived, unprotected against pressure, to depths beyond 400 feet. Navy "hard-hat" divers—helmeted figures linked to their surface craft by lines and air hoses—had occasionally touched 500. The Swiss mathematician Hannes Keller had descended to 1,000 feet inside a pressure chamber, swimming out briefly, then returning. But these had been "bounce" dives, limited to a few minutes at depth.

A few men, too, had lived longer under water than our divers would. French Capt. Jacques-Yves Cousteau had put men 36 feet down for one month, and 90 feet down for seven days.* In the U. S. Navy's Project Sealab, preparations were being made to put four men at 195 feet for a week or more.

But for Stënuit and Lindbergh, the 400-foot depth would introduce one clear-cut additional hazard: They would be on their own, beyond reach of divers from the surface.

*See "At Home in the Sea," by Capt. Jacques-Yves Cousteau, NATIONAL GEOGRAPHIC, April, 1964.





KODACHROME © NATIONAL GEOGRAPHIC SOCIETY

Like a limp blimp, SPID swings from *Sea Diver.* Once submerged, the rubber house will balloon (opposite) with a breathing mixture of oxygen and helium pumped from the ship. During the descent, gas pressure will be kept equal to outside water pressure.

And no one could be positive just how they would react to a sustained pressure of 200 pounds on every square inch of their bodies.

We had had to devise and design ourselves almost all the equipment needed. Standard scuba gear, for instance, was useless to us; for a dive of the length and depth we planned, a diver would have to wear tanks the size of tank cars. So we designed a system which would permit him to breathe the same gas over and over again (opposite).

But, in a rebreathed mixture, oxygen must be measured and replenished, and carbon dioxide must be filtered out to keep the diver from dying of his own exhalations. So we engineered special analyzers to measure oxygen and carbon dioxide at high pressures.

Air itself is deadly in the depths. Its 80-percent nitrogen content becomes narcotic and numbs the diver's mind. So we made up a mixture of gases in which helium, a nonnarcotic gas, replaced most of the nitrogen.

But helium causes complications of its own. It distorts a diver's speech. Therefore we added a little nitrogen to the mix, devised a helium-speech unscrambler, and installed closed-circuit television (page 341) to guarantee vitally important communications by chalked messages or sign language.

Then, too, helium excels as a conductor. It saps a man's body heat. The regular "wet suit," whose bubble-filled rubber keeps shallow divers comfortable even in freezing water, is compressed and worthless as insulation at 400 feet. So we developed a cellular rubber material which could be kept inflated at depth by compressed air.

Man Can Conquer Continental Shelf

Finally, the sea itself imposed difficulties. Its wetness and coldness had to be countered with a dry and warm refuge. Its pressure, from which gas-saturated divers can escape only gradually, made necessary a special vehicle to transport them to the surface, and a pressure tank to contain them once they got there. So we had provided the SPID and SDC and a shipboard decompression chamber.

These and many other problems had confronted us. I felt we'd dealt with them successfully, that our divers would be safe. But had we thought of them all?

On the afternoon of Tuesday, June 30, 1964, Sténuit and Lindbergh signaled their arrival on the bottom. Forty-nine hours later they were back aboard, healthy, triumphant, and with a tale to tell (page 534). It would be 92 hours before they could leave the deck decompression chamber, but they were home safe.

Our mission was accomplished. It proved that humans can adapt to the inhuman conditions of the deep sea. It suggested that they can live there for extended periods.

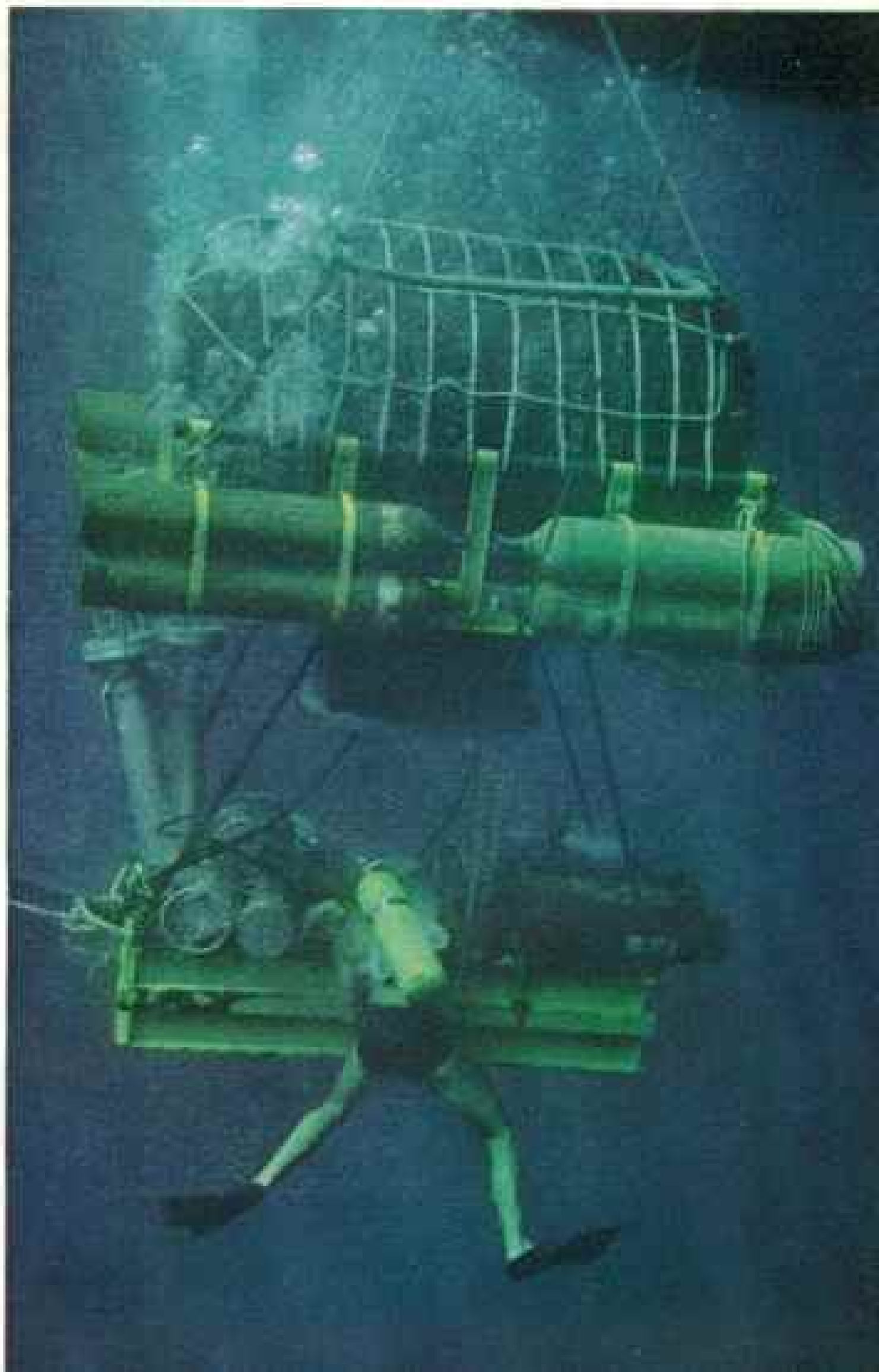
Our next step, maintaining the closest collaboration between engineering and life-support specialists, between basic and applied sciences, will be to perfect our equipment, then try for 600 feet, then 800, then 1,000. When we have done that, no part of the great and rich continental shelf will lie beyond man's working reach and his urge to conquer.

* * *

To sink the wallowing SPID, a crew member pours lead pellets through a funnel and hose into its ballast tray. Five and a half tons of metal push the dwelling to the bottom.

Bubbles trail the SPID as it descends below *Sea Diver's* dark hull. A diver checks watertight cases of equipment riding the ballast tray.

Unique underwater lung, specially developed for the deep dive, permits Robert Sténuit to breathe and re-use a mixture of oxygen and helium through a purifying and recirculating system.



THE DEEPEST DAYS

By ROBERT STÉNUIT

I AM SITTING on a bunk, eating steak. My wife stands three feet away, watching me. I wave. She smiles. A sun I cannot feel brightens her hair. A sea breeze I cannot savor ruffles it. I wish I could join her, for I have returned from a strange journey into an alien world.

Unhappily, I cannot. If I step out on deck to greet Annie properly, I will die, quickly and painfully. That undersea realm I have visited is exacting its price of admission. Living in the depths, I have become in certain ways a creature of those depths, adapted to their pressures. Now the human environment is temporarily intolerable to me.

I need pressure. Without it, the gas my tissues have absorbed would turn to bubbles. And so I must wait inside this lifesaving prison of a decompression tank until I have been slowly weaned from pressure and made once more fit to live on earth. The process takes more than three days. There are still hours to go.

A long wait. But fortunately I have not been alone. I glance at my partner, Jon Lindbergh, relaxing on his bunk. He winks; he understands. It comes to me that Jon's adventure under the sea is like that of his famous father in the air; both ventured beyond the boundaries of their day.

Time creeps. Well, nothing to be done about it. I eat my steak. I wait. I think back. . . .

The affair has finished well. Two divers recovered safely, all equipment back on board—our success is complete. But two and a half days ago on the bottom, 432 feet below the surface, things were going rather badly. We were panting from exertion, Jon and I, and the gas we breathed was turning toxic. Our hearts beat heavily against our ribs. As for me, I was asking myself how I had gotten into such a situation.

I had done so naturally. My 24-hour, 200-foot dive off Villefranche in 1962 for Edwin Link had been the start, the first step.* Later, at a world convention on undersea activities held in London, Ed spoke of sending a man to 400 feet. All heads turned to me.

Four hundred feet! The very idea made my insides itch. Did I really want to descend to that awful depth, to shiver night and day, and perhaps to furnish headlines for the journals that specialize in catastrophe?

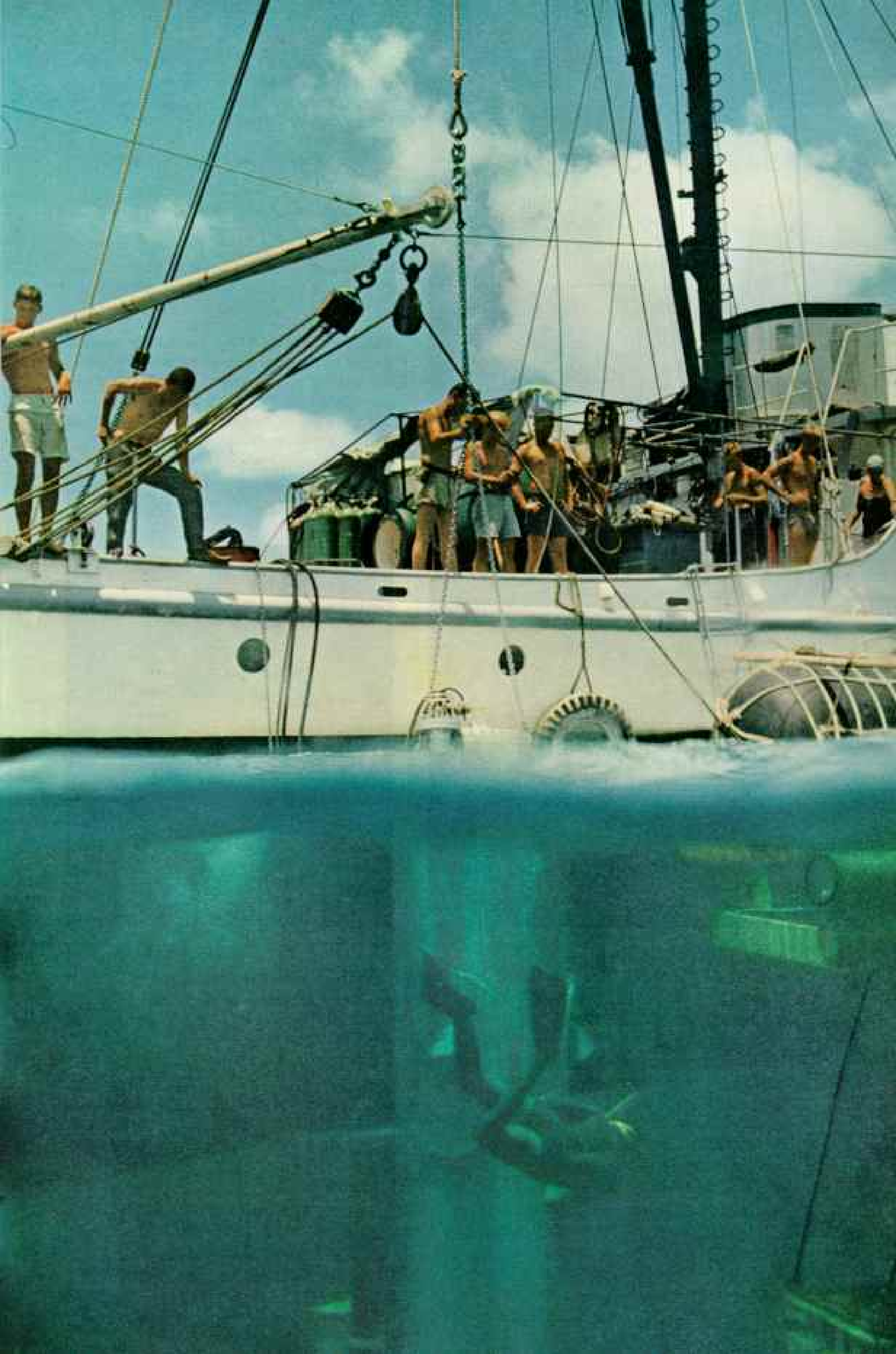
I really did. Always I have found joy in danger lucidly accepted and prudently overcome. And when a reporter put the question to me, I heard myself answer: "Of course, yes!"

I was committed. I needed now only to get used to the idea of being very cold and very uncomfortable and not very reassured for a period of days. Then I could go under the water like a man going to his office.

Project Man-in-Sea has been part of my life ever since the Link diving

*See "The Long, Deep Dive," by Lord Kilbracken, NATIONAL GEOGRAPHIC, May, 1963.

In final hours before the plunge, a diver checks the undersea elevator known as SDC (submersible decompression chamber), center, that will take author Sténuit and Jon Lindbergh down and up. SPID, right, will shelter them during the two-day trial underwater. *Sea Diver*'s crew stands by to safeguard and support the pair while they are below.



Extraordinary journey begins as Jon Lindbergh enters the diving chamber (SDC) for the long drop. Portholes point down so divers can see their approach to the bottom. Line leads to SPID, anchored 432 feet below.

Swimmers escort the SDC as it plunges almost out of sight with Sténuit and Lindbergh inside. Clayton Link (top), the inventor's son, and Dr. Joseph B. MacInnis follow as far as they can without scuba gear.

Cramped inside SDC, Lindbergh watches the pressure gauge over his head as it registers the start of the descent. Tubular device just behind his face analyzes the SDC's atmosphere, warning against lack of oxygen or excessive carbon dioxide.

ATTACHMENTS BY ROBERT STÉNUIT (BELOW) AND BATES LITTLEHALES © N.G.S.

cylinder received its baptism in the calm water off Syracuse in Sicily. There I had helped Ed fetch up from the bottom, and present to the town, a carved marble altar shipped from Greece in sections and shipwrecked in the sixth century. Once this delivery had been accomplished, after a delay of 1,400 years en route, Ed busied himself with his cylinder, newly arrived from the United States.

Two hundred people crowded the quay to observe the singular American who played in the water with a colossal tin can. The American dived and did not come back. The can sank. Then it shot out of the water like a torpedo, only to plunge again for the bottom.

I watched these submergence and surfacing tests of the SDC with different eyes. I knew what Ed had in mind: To live, eat, sleep, and work in depths so far unreachable by free divers, and in so doing to take a long step toward the conquest of the continental shelf. To me it was the most extraordinary adventure of which a diver might dream. My answer was ready when Ed asked me if I would like to spend a deep-down day or two in his shiny new can.

The 200-foot Villefranche dive proved that Ed Link's cylinder and its occupant could function as planned. Then the long preparation for the 400-foot dive began.

I next saw *Sea Diver*, Link's research vessel, lying under the muzzles of old cannon in

the Navy Yard at Washington, D.C. Ed waved me aboard, pulled aside a tarpaulin, and showed me a big formless rubber bag. He waited for a reaction.

There was none. I had no idea what the flaccid black sack could be.

"That," said Ed, "is your future house, the SPID." He went on enthusiastically to introduce me to the submersible, portable, inflatable dwelling. Two weeks later, when I saw it anchored 30 feet down in Chesapeake Bay, it was another animal entirely. Fully inflated to eight by four feet, its sausage shape looked funny, but functional (page 531).

I dropped my scuba gear and climbed in through its underside opening in which the water stood below floor level, held back by the air pressure inside. An ingenious idea, this undersea tent, but . . . rubber? Was that not rather fragile? I felt like a goldfish in a carry-home bag. What if the bag burst? I was afraid even to draw my diving knife, and I thought dismally of great fish with sharp bills.

Sea Diver sailed for Key West in January of 1964 to continue preparations in warmer waters. There alongside the ship we set SPID on the bottom, 30 feet down, and fish of the harbor installed themselves around it. A hopeful remora hovered near, seemingly waiting for what it considered a fat black shark to get off the bottom and start hunting.

We furnished the SPID and spent two months learning to live in it. In general, our undersea efficiency apartment functioned well, but my earlier worries about the thinness of its skin proved justified. An overlooked bottle of milk fermented and burst one day, when no one was at home, and made three holes through which air bubbled gaily. And once, while bobbing inflated on the surface, it burst like a balloon. As a result, we ordered a new, sturdier, heavier shelter reinforced with nylon fabric.

Test Dives Perfect Teamwork

I have other memories of the Key West test period: The cormorant that swooped by me 30 feet down, fascinated by my bubbles; the day when I laid out 400 feet of hose on the dock, then looked back (Good Lord, how long 400 feet is!); and the coming of my diving companion, Jon Lindbergh.

The selection of the man who would share my sojourn under the sea was of the greatest importance to me. I could not carry out this dive alone—too much equipment to manhandle, too many hours to stay awake watching instruments on which life would depend.

The problem here would be a human one. Two men sharing a small space under difficult circumstances can become intolerable to each other. But I knew as soon as Jon Lindbergh and I began running test dives together that I could not have asked for a better partner than this big, dark, smiling lad, so thoughtful and courteous.

By the time we reached our test site in the Bahamas, Jon and I had become a team that was better than either of us. We were too busy learning to live on the bottom to keep a diary, but by assembling odd notes that I scribbled on the sides of the cylinder, on the wall of the SPID, and on the tops of cartons, I have been able to put together a moment-

by-moment montage of the deepest days yet spent in the sea.

June 30, 0945: The sea is calm, almost as blue as the sky. Ed Link shakes hands with us—"Good luck to both of you." Marion, his wife, waves. It is my last sight of the surface.

We go under and swim to the bottom of the cylinder, which stands vertically in the water alongside *Sea Diver*. Jon opens hatch A, swinging it outward (page 536). We climb in. I close hatch A to prevent water from getting in, then the second hatch, B, which opens inward and prevents inside gas pressure from getting out. With both shut we have locked our doors against the outside world. For six days we will not again breathe God's fresh air.

Helium Turns Voices to Quacks

1045: At the control panel aboard *Sea Diver* Dr. James G. Dickson, of the University of Pennsylvania Schools of Medicine, slowly increases our interior pressure to that of 150 feet of sea water. We will hold that pressure all the way to the bottom. Now we are breathing 77 percent helium, and it shows its effects: When we speak, we quack. Jon handles the telephone; a Donald Duck voice will be more easily understood topside without my French accent.

1150: The depth indicator shows 60 feet. Through the port I see a diver working on one of our electric cables. It is Ed Link. From first to last he has insisted on checking everything himself (page 530).

1215: Our descent is so slow that only the creeping depth-indicator needle reveals it. We have been ballasted slightly heavier than water so that we will sink. Braked by a safety line from the surface, we slide down a nylon guide rope that angles gently to the SPID. When the anchor hanging below us touches the bottom, we will come to rest, floating upright six feet off the sand.

1230: Three hundred feet. The water is limpid, but it grows dark. Dr. Joseph B. MacInnis phones: "We'll be taking samples for a few minutes to check your gas mixture."

Even though our cylinder is autonomous (we have our own gas analyzer, carbon dioxide remover, and oxygen supply), a backup system can feed us gas and control pressure through hoses from above. The doctors test our breathing mixture periodically (page 540).

1234: "The SPID!" Jon has sighted it at last, well placed on an even bottom. It warms the heart, this view of our little house set in a landscape that is more lunar than terrestrial.

1300: "On the bottom!" A big smile lights Jon's face as he reports our arrival. The depth gauge at the top of the cylinder reads 415 feet. Add 11 feet, the height of the cylinder, and six for the chain between the cylinder and the anchor: 432 feet. The captain of the *Nahant* has been generous with his depth!

1315: Through the long "umbilical cord" that connects us to *Sea Diver*, the doctors send us helium to increase the pressure in the cylinder to 14 atmospheres—the pressure of the water outside. Then we will be able to open our double doors easily. In perfect balance, gas and water will meet at the entrance to the cylinder.

Our breathing mixture is now a cocktail of 3.6 percent oxygen, 5.6 percent nitrogen, and 90.8 percent helium. The helium, under these pressures, prevents us from producing intelligible conversation. I scribble messages to Jon on the wall.

Pressure Flattens Diving Suits

1330: Our diving suits are flattened and wrinkled like old parchment. I blow them up with a flask of compressed air.

1345: Word comes from the surface: "O.K. to open hatches." I pull hatch B upward, push hatch A downward. There is the Atlantic, a circular patch of clear blue lapping at my feet. I let myself slide into it, and shiver. It feels cool, even at 72° F. Visibility is more than a hundred feet, despite the twilight gloom at this depth.

I glance around, looking for the big sharks that we have been told to expect. Nothing in sight. Our outside spotlights pierce the gray water with two emerald beams and awaken glimmering splashes of sleeping color on the sand. Our shelter looks all right. Its hoses and cables soar upward toward the hidden surface. But it is a bubble in the immensity

In the gloom of 432 feet, Lindbergh and Sténuit swim freely in and out of their rubber house, taking pictures and collecting specimens. Their flash photographs are the deepest ever made by free divers. Roiled sediment and plankton reflect blobs of light. Grouper in foreground followed the men about like a pet during their more than 48 hours on the bottom. When Lindbergh dangled a toothbrush on a string, the fish grabbed it.

PHOTOGRAPHS BY ROBERT STÉNUIT © NATIONAL GEOGRAPHIC SOCIETY

of this foreign place. The old sailor's prayer comes to my mind in new form: "O Lord, our SPID is so small and Thy sea is so big."

It is only 15 feet away, close enough for us to swim to it without breathing gear. I glance upward. At this depth we could not hope to struggle to the surface alive. But we have a return-trip ticket. The cylinder waits to take us home.

Seen from below, the water surface inside the entry shaft of the SPID is a mirror of fluid silver. My head breaks through it. The gas of the interior tastes like fresh mountain air. I climb the ladder. At last, at last, I am here. Six months of delays, of dogged effort, but now I am here. What calm there is in this other world. What silence. What peace. I shake myself. I must act quickly.

My first task is to connect the gas analyzer to its waterproof batteries. The little black needles come alive: oxygen, 4 percent; carbon dioxide, 0.025 percent. All is well.

To avoid damage in case the SPID should be flooded during its descent, all the instruments, the electrical connections, and the interior equipment have been enclosed in waterproof containers attached to the ballast tray beneath the chamber. We must get them unpacked and installed.

1405: Jon has joined me. First he hooks up the wires that will establish contact with the surface. Afterward he connects the light. The light bulb glows, burns five seconds, and goes out. We look at each other in consternation. Is it the light bulb or the current?

Depth Takes Its Toll

We continue to work in the light of a diver's hand lamp. A noise like a gunshot slams against our eardrums. The sealed-beam bulb has imploded, spraying the side of the SPID with thousands of sharp fragments. Happily, we still have flashlights.

I plug in the radiator. Nothing. Without heat for our atmosphere and our food, things present themselves somewhat poorly.

1410: Standing up in the narrow access well with water up to my waist, I wrestle with a four-foot aluminum cylinder. It houses a machine that will filter the gas in the SPID and remove the excess carbon dioxide. At last I get its top out of water and open the equalization valve.

This valve allows pressure inside the container, sealed at sea level, to equalize with the 14-times–higher pressure inside the SPID. When the valve is opened, gas should rush into the container with a loud *pssst*. Only then can the lid be removed.

I turn the valve, but nothing happens. The container is full of water. Catastrophe! Our situation is definitely not brilliant; that apparatus is vital to us.

I glance at our analyzer and see that the carbon dioxide level has risen to 0.1 percent. Our minutes here are numbered. Quickly we fetch the spare filter. It seems to weigh a ton as I thrash around on the bottom trying to drag it behind me.

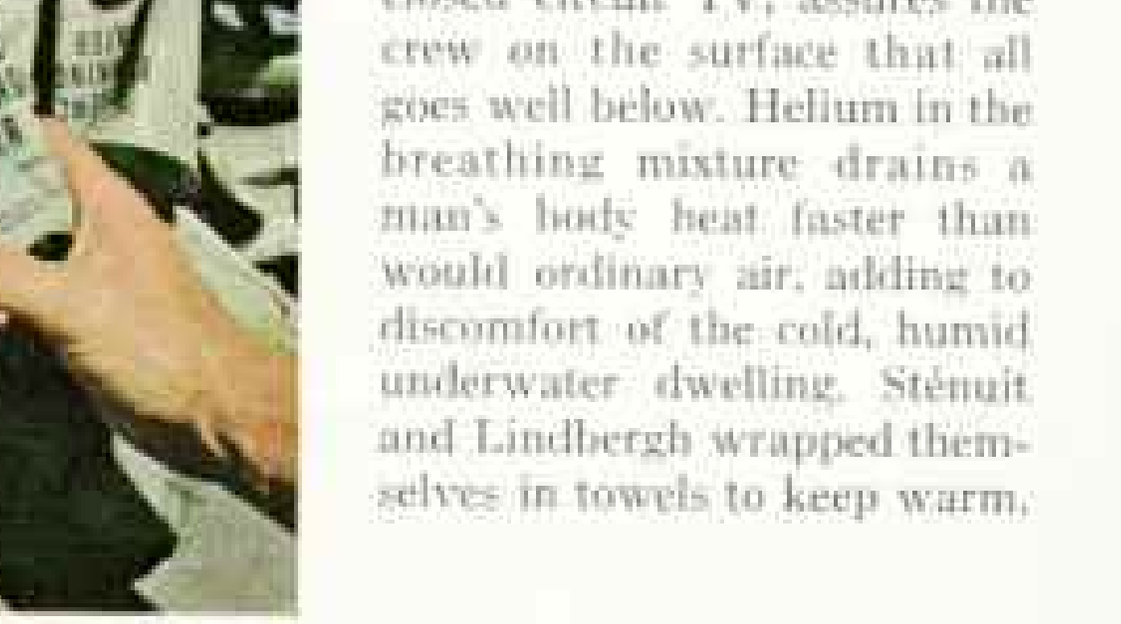
Jon hands me a line. I push and he pulls; I lift and I pivot and I maneuver. I come back to the entrance well to breathe more and more often, more and more heavily. At last the monster is in place, but I am completely out of breath. Our furious efforts have raised the level of carbon dioxide to 0.17 percent.

Now we discover that this container has no pressure-equalizing valve. The surface people have put on the wrong cover. I calculate rapidly: About four tons of pressure hold that cover on. No use trying to force it off.

Can we pry it open enough to let air in under the edge? No luck. I break a screwdriver, and Jon snaps a scissors blade. A glance at the analyzer shows 0.2 percent carbon dioxide. We are panting now, breathing too fast. The heavy pounding of my heart resounds through my whole body. I make a sign to Jon: Get out. And we return to the cylinder, to the sure refuge.

1430: I consider our condition. Without an air purifier, without light, without heat,

Round-the-clock vigil on *Sea Diver*: Dr. MacInnis, a life-support scientist, checks living conditions of the men below. Large dials register pressures in rubber house and diving chamber. TV receiver at left monitors Stënuit and Lindbergh at all times. Dr. MacInnis and Dr. James G. Dickson belong to a University of Pennsylvania medical team, under Dr. C. J. Lambertsen, that works closely with the Man-in-Sea Project.



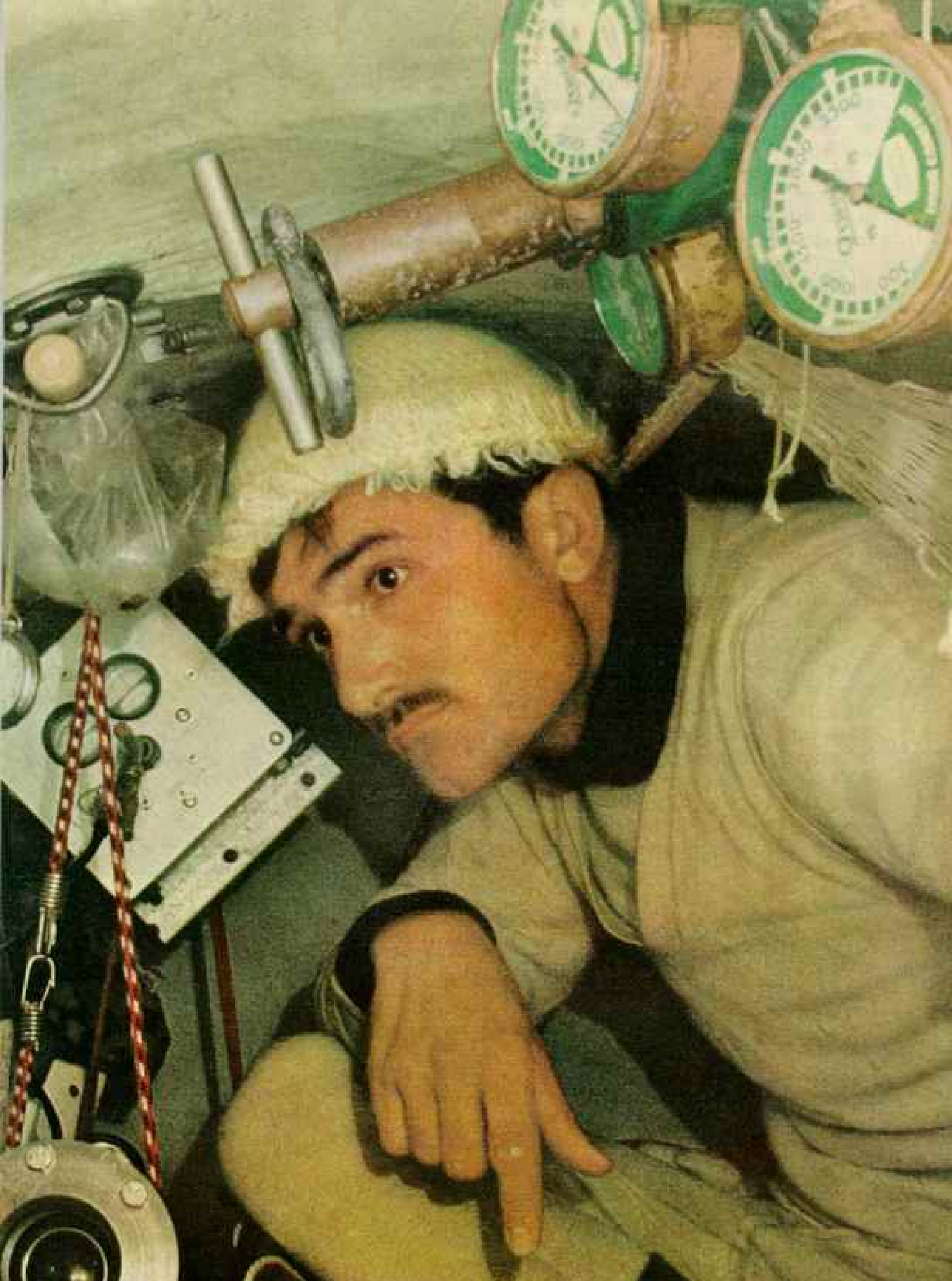
Ghostly image of Jon Lindbergh 432 feet down, seen on closed circuit TV, assures the crew on the surface that all goes well below. Helium in the breathing mixture drains a man's body heat faster than would ordinary air, adding to discomfort of the cold, humid underwater dwelling. Stënuit and Lindbergh wrapped themselves in towels to keep warm.

Crushing force of the deep squashes cans of emergency water rations that hold small amounts of air sealed in at normal pressure of one atmosphere. During the dive the cans crumpled under squeezing stress 14 times as great as at the surface.

ISOLATED IN THEIR FRAGILE COCOON, *the divers rest, cramped but safe, at the greatest depth ever endured by man for so long a time. During two days at 432 feet, Sténuit (right) and Lindbergh freely leave their sunken home like fish, unaffected by the massive pressure of sea water above them. The gravest danger lies in coming quickly to the surface, where, without controlled decompression, the men would die in minutes.*

ESTABLISHING AT HABITAT ② U.S.N.

542



perhaps without any electricity at all, it is discouraging. I write with a grease pencil on the side of the cylinder: "In any case we will stay here 24 hours."

From the level above me, Jon signals his agreement. An entire day spent below 400 feet in the cylinder would be at least a halfway success.

We report our predicament to the surface in Morse code. Link answers efficiently, as always: "We are sending you a line. Attach it to the flooded container. We have an exchange motor. We will repair and return."

Replacement Part Arrives From Above

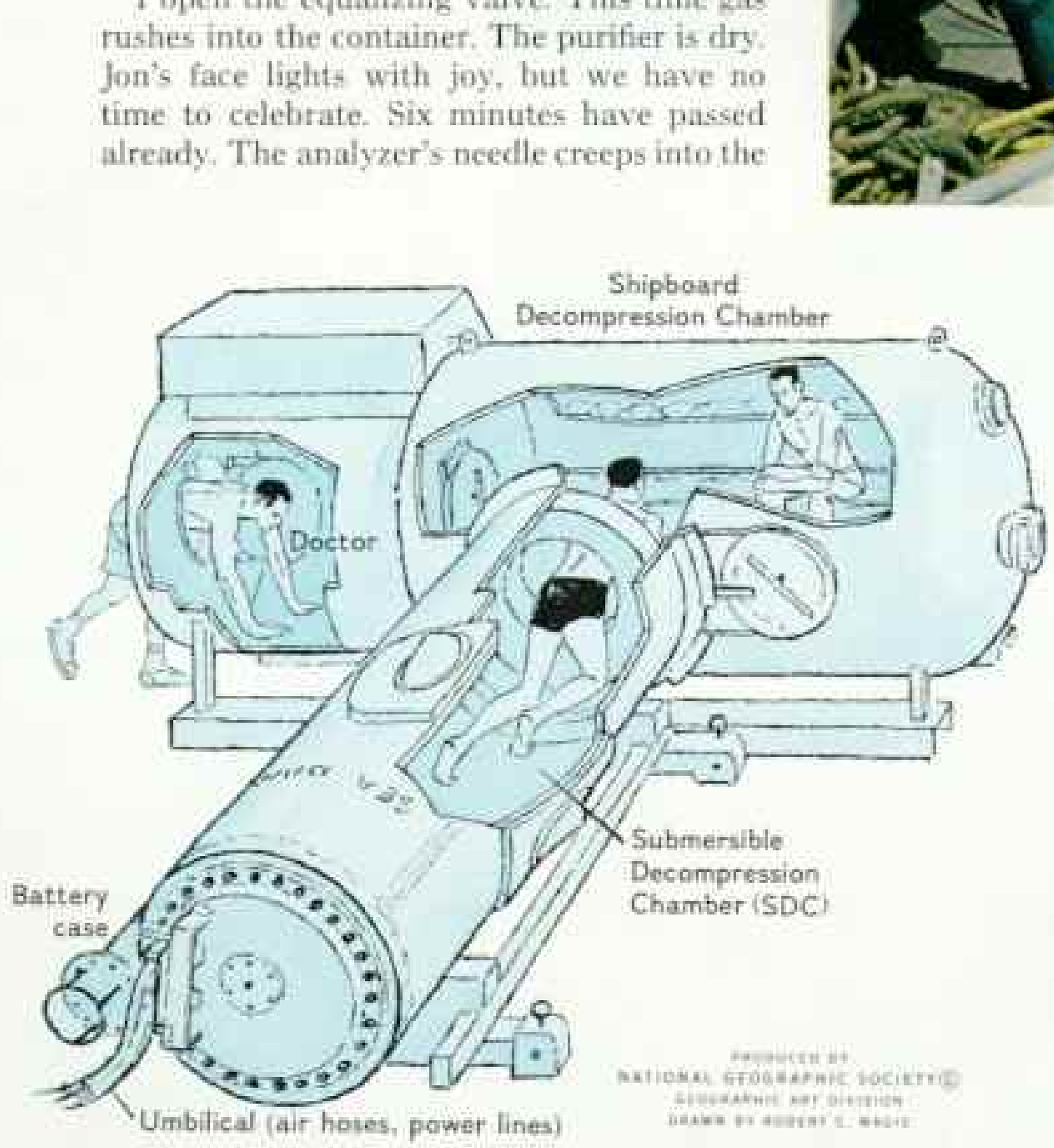
1600: We wait. Dr. Dickson calls us. "According to my instruments, there is now more than 0.2 percent carbon dioxide in the SPID. You have a maximum of 15 minutes inside."

When we re-enter the place, the carbon dioxide level will climb very quickly. Above 0.5 percent its toxic effects will be severe, and here no rescue is possible. Those 15 minutes will decide the success of the entire operation.

1700: We wait. It is growing dark.

1825: Something clangs against the cylinder. The new air purifier has arrived. I leap into the water, shivering, and drag it over to the SPID. Inside, the gas seems heavy and thick, sticky in the mouth.

I open the equalizing valve. This time gas rushes into the container. The purifier is dry. Jon's face lights with joy, but we have no time to celebrate. Six minutes have passed already. The analyzer's needle creeps into the



Tense moment of recovery brings all hands topside to help swing aboard the SDC with its two divers inside. As shown in the sketch at left, the cylinder couples with the shipboard decompression chamber, and the divers climb through. The men must stay there nearly four days, gradually being returned to sea-level pressure. Dr. MacInnis enters through an air lock at left.

Like the SPID, the deck chamber contains bunks for sleeping. Length of decompression time increases with the duration and depth of a dive; but once a diver reaches the saturation point for a given depth, the process takes no longer for a week underwater than for one day.

PHOTOGRAPHS BY NATIONAL GEOGRAPHIC PHOTOGRAPHER BATES LITTLEHALES © N.G.S.

danger zone. We take off the cover, wrestle the machine into its cradle, and plug it in. The motor purrs. The gas circulates. We have won.

1930: We are installed in SPID. Tonight's dinner: carrot juice and corned beef, canned water, fruit salad. Pressure has crushed and twisted the cans (page 541); they whoosh when opened, but their contents are intact.

Chilly Vigil Begins in SPID

2300: I have taken the first watch of our first night at 432 feet. I keep my eye on the instruments and the level of water in the entryway. The radiator does not work, and Jon shivers on his cot in three sweaters.

On the surface the medical team keeps vigil in relays, scanning their gauges and observing us through the closed-circuit television. "Big Brother" is watching.

0200: I lean over the well, and my heart suddenly rises. A huge black silhouette moves slowly against the ladder. A shark? No, it is a peaceful grouper, as big as a boar (page 539).

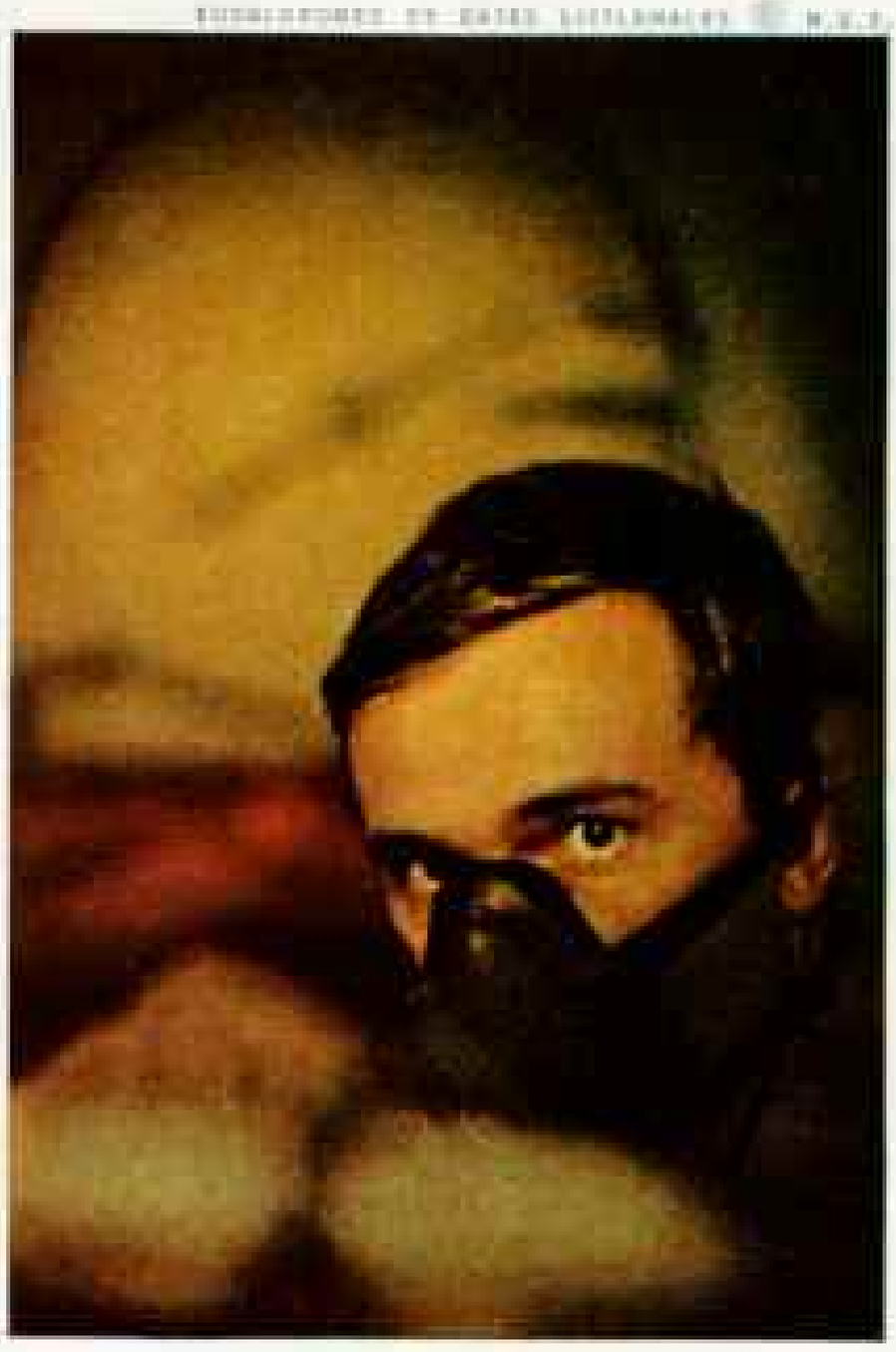
0900: Breakfast. As soon as we move, the temperature becomes bearable.

1000: To work. We drop down through the well and into the open sea. We test our breathing apparatus. We have no back tanks, for they would last only moments at this depth. Instead we use a "hookah," a 50-foot double tube which feeds us breathing mixture from the SDC and carries off our exhaled breath for purification.

Jon swims around at the end of his hose, exploring the coarse sand bottom. We see life everywhere: sponges, worms, anemones, octopuses, and minute royal-blue fluorescent fish which I would like to catch and make into rings or earrings.

The big grouper follows us everywhere, nibbling at my feet when I come down out of the access well. He accepts all our caresses.

Smiling encouragement, Annie Sténuit greets her husband through a porthole of *Sea Diver*'s deck chamber during the final stages of decompression.



Breathing pure oxygen, Sténuit returns his wife's hello. Danger of the deadly bends keeps him in the decompression chamber for a total of 92 hours.

1800: Jon has repaired the radiator and dehumidifier. After hours in the water, it is pleasant to return to a warm and dry haven.

2200: We try an experiment with voice communication. Question: Below what percentage of helium can we make ourselves understood at this depth? Jon breathes three deep gulps from a bottle containing 25 percent helium and 75 percent air. His voice remains nasal and deformed, but I understand him clearly and the surface does, too.

He dictates telegrams to his four children: "We are in a small rubber house on the bottom of the ocean. Hundreds of little fish are swimming outside the window. . . . Two little octopuses were playing on the bottom under us yesterday. They would glide into a hole and then jump out at the fish. The fish darted away, but always came back to watch the octopuses. Then we swam out, and they all ran away. . . ."

The radio on board *Sea Diver* relays to the four children a fairy story become a reality.

Charging Grouper Interrupts Sleep

Now it is my turn. I try three deep breaths of pure compressed air. The air is so dense that I can see it flow out of the regulator like a thick fog. My voice takes on human tones, but at the third gulp the SPID begins to undulate. I feel my face twisting into ludicrous grimaces. I am drunk. I let go of the mouthpiece. I can do without nitrogen narcosis.

2315: Our last 1,000-watt exterior spotlight, which burned night and day, goes out. Our interior light brightens immediately. Ten seconds later the water in the access well is boiling. All the little fish attracted by the big light have now come around to the lesser one. They twist and turn and jump out of the water like mad creatures. At once I see why. The water is alive with tiny shrimp.

2335: A heavy blow shakes the SPID. Jon wakes up, startled. What is happening? Another shake. We hold on to the cots. It is the giant grouper, charging the fish in the well with his enormous mouth wide open. Ten times during the night he awakens us.

July 2, 1000: We go out to spend three hours in the water. I take pictures of Jon working on the SPID. The light of my flash attracts half a dozen giant groupers, but I cannot photograph them. They press against me, nudge the lens, bump into my legs, fill the entire field with their bovine bodies, and stir up sand with fins like ping-pong paddles.

I tore my diving suit yesterday from shoulder to waist, and now my teeth chatter helplessly. But I must continue, frozen or not. If I succeed, my pictures will be the deepest pictures ever taken by a diver. When I cannot stand it any more, I return to the SPID and greedily swallow six big spoonfuls of sugar. Thirty seconds later I stop shivering.

1320: The surface is calling us: "You have spent two days and two nights at 432 feet, and all our tests have succeeded. Bravo! We will gain nothing more by extending your stay. Prepare to come up."

We look at each other. Now that we are installed and well organized and have made friends, we would willingly stay a week in

our little house. It is the voice of reason, however, and we obey.

After that comes the routine of going up again: the elevator sealed, the needle of the depth indicator coming down across familiar figures, the water growing lighter. Then the cylinder dances on the surface, and we are hoisted aboard (pages 544-5).

Happy faces peer in at us through the portholes. The cook announces a steak dinner to celebrate our return.

Our cylinder is joined to the larger deck decompression chamber with its two cots and its air locks that permit supplies to be passed in to us—and a doctor, when necessary (page 544). Then we drink our first iced drinks, eat our steaks, and crawl into our cots. I stay in mine so long and return so often that someone suggests changing the name of our project from "Man-in-Sea" to "Man-in-Bed."

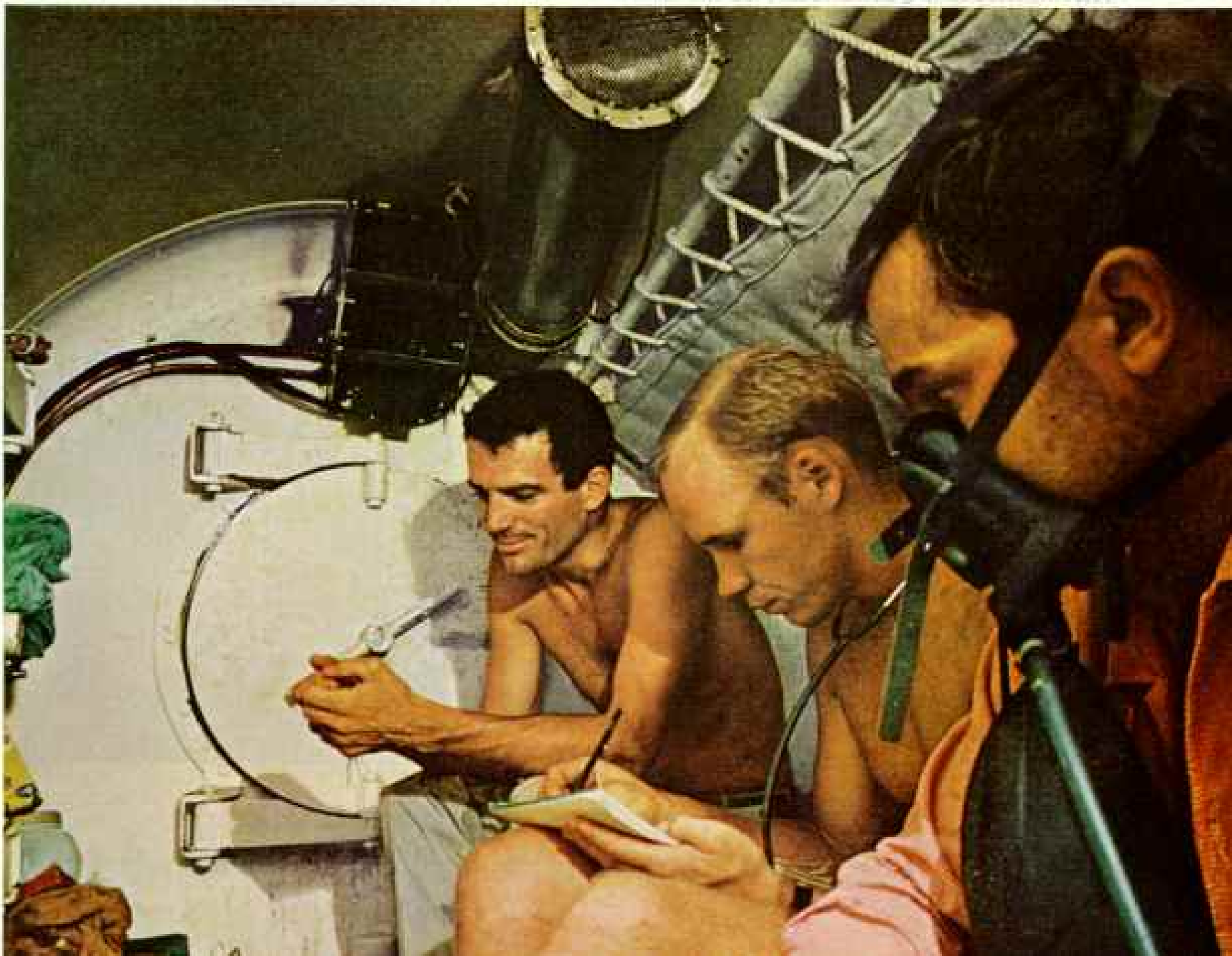
Project Man-in-Sea goes well. Ed Link has triumphed again. We have stayed, Jon and I, longer at greater depth than anyone before us. We have set a new record. But what is more senseless under the sea than a "record"?

Key to Success: Useful Undersea Work

What we have accomplished is something else. We have lived in the depths—in questionable comfort, but at least in security. We have gone out and worked. To be sure, we paid for our two deep days with four days of decompression. But if we had stayed two weeks or two months, the decompression time would have been the same.

Our successors will stay in the depths that long and longer. They will colonize the sea floor, cultivating its resources instead of pillaging them. Tomorrow the colonist will survey his bottom land through the porthole of his sea-ranch kitchen while a coffeepot simmers on the stove. THE END

Only a few more hours to freedom. Lindbergh (left) and Sténuit (right) answer Dr. MacInnis's questions about their experiences. At this moment pressure in the chamber equals that of 30 feet of water. Thus Dr. MacInnis can enter and leave freely without undergoing decompression. Not so the divers, who must complete the process to rid their bodies of all the gases dissolved under pressure in their blood.



Emperor of Ethiopia, 72-year-old Haile Selassie earned acclaim as a champion of freedom in World War II. In his youth an absolute ruler, in maturity he voluntarily granted a constitution to his people. Now he seeks to lead his ancient Christian empire into Western ways.

Spurring his stallion, an Imperial Bodyguard in lion-mane cape pounds after a foe in the traditional warrior's game of *gukz*. He will hurl his bamboo lance at the fleeing rider ahead.

ETHIOPIAN ADVENTURE

By NATHANIEL T. KENNEY

Photographs by JAMES P. BLAIR

Both National Geographic Staff

WE HAD COME TOGETHER by chance at the Ras Hotel in Addis Ababa, the city where travelers in Ethiopia usually cross paths. And Ethiopia being the kind of country it is, we naturally started swapping yarns.

"Yesterday," said a bush pilot with the dust of the desert still paling his jacket, "I was in Eritrea watching a fellow dragging ten-foot rock pythons out of their dens by their tails. That's how he makes his living—selling pythons."

"I've been down to the southern jungles trying to take medicines in to a primitive tribe," said a missionary. "The only thing known about them was a report that they had been hard hit by yellow fever. All I saw of those people was a shower of little arrows. I thank God I'm here now to tell about it."

"Night before last, south of Jimma, we slept in a Land-

Out of the Middle Ages moves the Tibet of Africa

EKTACHROME (OPPOSITE) AND KODACHROME © N.G.S.

. . . . with adventure waiting at each bend in the road

Ethiopia's faces reflect a bewildering variety of cultures. Her peoples speak 70 different languages and follow many creeds. Fusion of this diverse citizenry into a nation began centuries ago, but the land's rugged nature still hinders the process.

Turbaned Christian holy man (left), his Coptic cross respectfully

Rover mired in a swamp," said Jim Blair, my companion during four months of roaming Haile Selassie's wondrous empire on the Horn of Africa.* "We heard something coughing in the darkness outside. Next morning we flushed a leopard a hundred feet away."

A highway engineer just off the plane from Europe had been listening at the next table. He spoke up: "Sounds like I've come to the land of adventure."

And that, I think, is the best way to sum up a country so spectacularly varied that blazing desert wastes lie 15 minutes by air from cool 10,000-foot highlands; that an easy drive from its neon-lighted capital, Addis Ababa, puts you among tribesmen carrying spears and hippopotamus-hide shields.

Adventure, in the best sense of the word, comes in many forms these days. For Jim Blair and me, it was swimming with sharks in the Red Sea and with crocodiles in a brown river. It was walking among hawk-eyed Danakil tribesmen—and there are no fiercer desert warriors on earth. It was stepping around hyenas scavenging the dark streets of the old walled city of Harar.

Also it was worshiping in 800-year-old Coptic churches hewn from mountain rock. It was watching doctors conquering the ancient scourges of leprosy and elephantiasis, and engineers bridging with steel and concrete the great gulf between Old Testament life and the world today.

Above all, it was meeting humans who dwell on the far side of distance and time and culture from one's own environment, and finding them much like one's own neighbors.

High, Rocky Heart of an Empire

Our travels in Ethiopia, ancient Christian island in a Moslem sea, began on the high road from Addis Ababa to Aksum (map, page 554).

*See "Safari From Congo to Cairo," by Elsie May Bell Grosvenor, NATIONAL GEOGRAPHIC, December, 1954.

wrapped in cloth, is an Amhara. This sensitive and intelligent people has guarded and nourished the unique Ethiop civilization from Old Testament days to the present.

Blood of the Gallas, biggest Ethiopian population group, runs in the veins of the Moslem girl in shawl and jewels. Descendant of slave traders, she lives in the walled, byena-infested city of Harar in the highlands fringing the eastern deserts.

Eyes yellowed by malaria, an Anuak girl (below) hails from the Baro River country of the jungled southwest. Negro blood makes her clan a minority in Ethiopia's largely Cauca-soid population of some 22,000,000. She worships pagan gods.

Beni Amer boy of western Eritrea follows Islam's teachings. His people live in the ageless ways of desert nomads as keepers of camels and goats. Mud-stiffened ringlets and flashing smile belie the toughness of a youth whose forebears peopled the warlike kingdoms of Nubia in ancient times.

High road, I said. I mean it literally. Both the new and the ancient capitals lie on the 7,000- to 10,000-foot central plateau, where one finds most good Ethiopian land and the most comfortable climate.

The plateau juts from all-but-encircling plains like a huge rock fortress, a sort of inner sanctum within the empire. The plateau's eastern escarpment rises nearly sheer; the rampart is, in fact, the west bank of the Great Rift Valley.

The tabletop is far from smooth (page 550). Old rivers carve the volcanic rock into a fantastic jumble of gorges, some rivaling the Grand Canyon of the Colorado in size. Travel thus is mostly up and down. Abebe Bikila, twice Olympic marathon winner, once told me he owed his leg muscles to unavoidable boyhood walking in such a land.

Baboons dwell in the gorges, and the gentle colobus monkeys, hunted—illegally—for their long black-and-white fur, swing from tree to tree. Leopards and rock pythons prey on the baboons.

The Blue Nile, where it separates Ethiopia's Gojam and Shoa Provinces, has gouged a spectacular canyon a mile deep.

On the way to Aksum I stopped on the Shoa side one evening. A hail in Amharic, Ethiopia's official language, drifted across from Gojam: *"Ten-as-ta-lign!"* "Greetings!"

"Friend of yours?" I asked a Shoan passer-by who spoke Italian.

"Oh, no," he replied, halting his mule. "No man can cross here. We can see the Gojam people and speak with them when the wind is still, but we have never shaken their hands."

As if not satisfied with the grandeur of the gorges, nature scattered mountains randomly atop the plateau. From hundreds of them time has sliced the tops, forming the characteristic mesalike *ambas* of the Ethiopian high country. These have strongly influenced history, providing isolation for monasteries of the

Ethiopian Orthodox Church and sheltering rulers in times of danger. A dozen independent kingdoms, which rose and fell with the fortunes of war and intrigue, gradually evolved into the country's present 14 provinces, now called governates general.

Atop the plateau, not all Ethiopian mountains look high. But Ras Dashan, 15,158 feet above the sea, ranks as Africa's fourth tallest peak. Most altitudes are uncertain, however; Ethiopia still awaits accurate mapping.

Aksum Gave Rise to an Empire

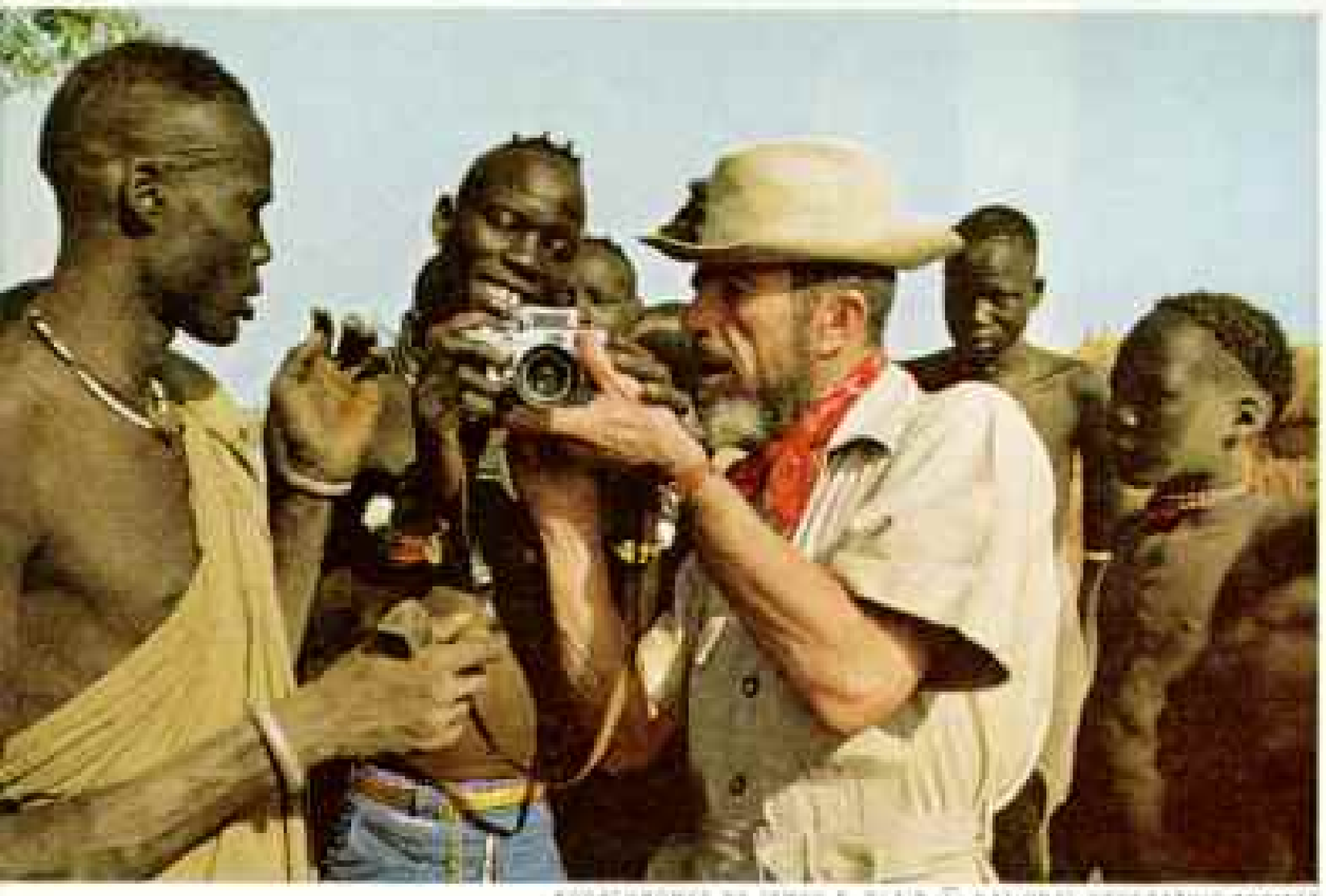
North of Ras Dashan we drove into Aksum in its bowl of rounded hills pockmarked with the dwelling caves of jackals and hyenas. The centuries have faded Aksum, as old as Christianity, but the once-splendid city gave birth to the Ethiopian culture and to the dynasty of Emperor Haile Selassie's forebears.

Goats roam the sleepy city's stony lanes, and fox-faced tan dogs, and humped gray cattle. Not sparing the long staff, the lean Ethiopian men drive laden donkeys; old women carry water in classic earthenware amphorae. Ragged, handsome children play games before the school—a new school, representing the country's budding thirst for learning.

The weaver works into the dusk at the long loom in his stone-fenced yard. His wife cooks in the *tukul*, the thatch-roofed house of all rural Ethiopia, and the smoke of her eucalyptus fire seeps through the straw as best it can.

Lights wink on in the comfortable European-style Touring Hotel. Workmen building a gas station lay down their tools for the day.

Aksum is little more now than a typical big village of the Ethiopian high country, despite the new electricity and the improved road to Addis. One needs imagination to see her in the long ago, when Egypt sent emissaries to the courts of her powerful kings.



Introduction to the unknown brings the author face to face with Abigar tribesmen and the Abigars with a camera. Moments later, author Kenney further baffled the Baro River nomads when he keeled over with sunstroke, a malady as mysterious as the Leica to the heat-hardened Abigars.

Cross-country Land-Rover with special stove, bunks, and winch to free the car from mud and sand carried Mr. Kenney and photographer Blair into every section of Ethiopia. "Sometimes we found smooth roads, like this dusty main highway to Jimma, alive with donkeys and humped cattle," the author reports. Sometimes there were vague trails, or trackless savannas of high grass hiding termite mounds and wart-hog dens. Often Mr. Blair tried to film fleeing game from the roof, but the violent jouncing blurred all his film.

and Mediterranean travelers brought the language of Homer up from the Red Sea shore.

To modern Ethiopia, the Aksumite Kingdom bequeathed two precious legacies: Orthodox Christianity and the Solomon and Sheba story. Both have served down the centuries as rallying points for the allegiance of disparate, fiercely independent peoples.

Dynasty of a Fabled Queen

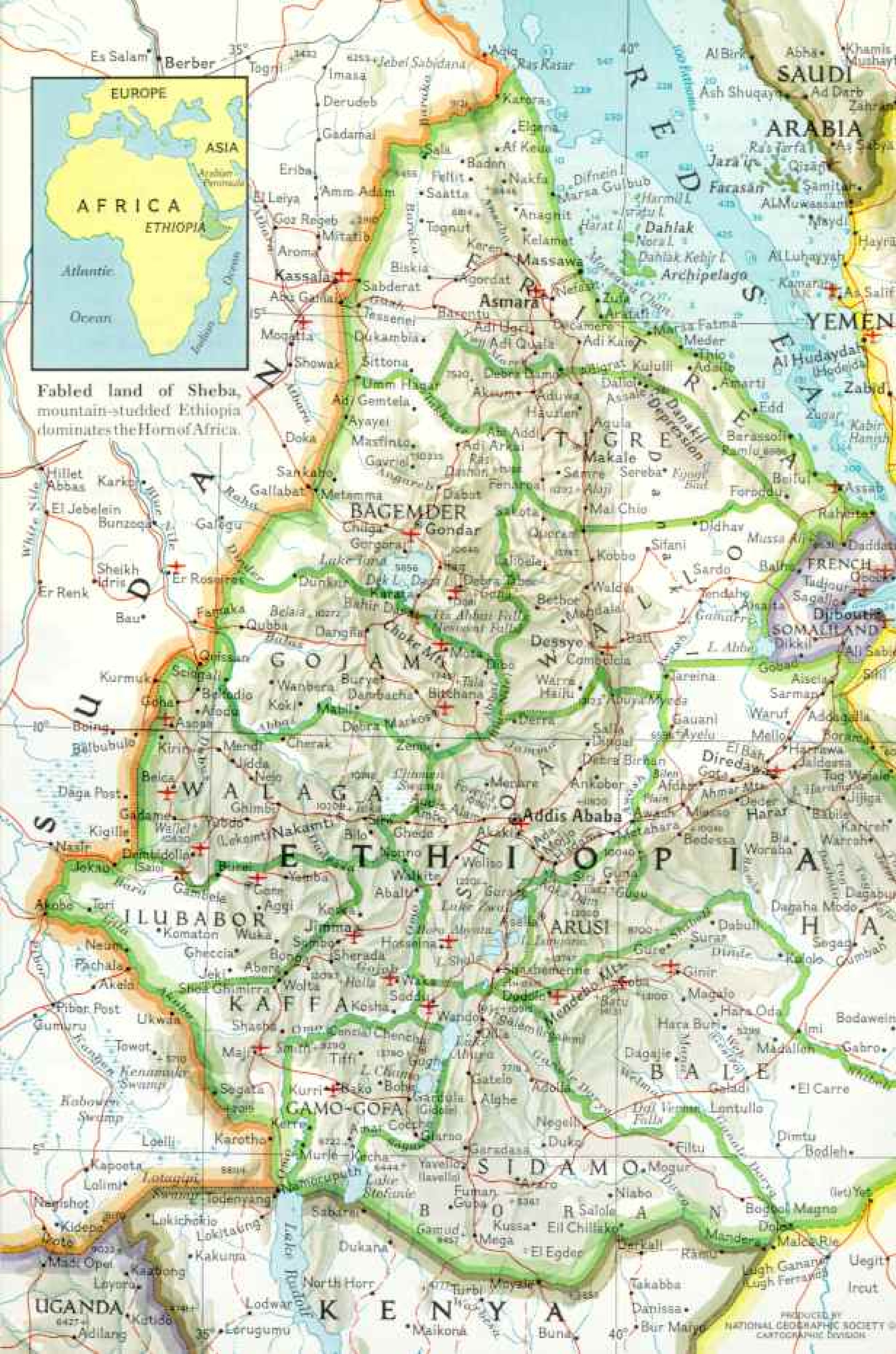
The story holds that Aksum was Sheba, that its Queen Makeda visited King Solomon in Jerusalem, and that Menelik, son of their romance, went to Aksum and became the first Ethiopian emperor. From him most later rulers of Ethiopia, including Emperor Haile Selassie, have claimed descent.

While much early Ethiopian history is shrouded in mystery, Aksum in the time of Solomon was not yet large enough to have had a ruler of such wealth and power as the queen of the story. There could have been, however, such a Queen of Sheba in the Yemen, the southern part of the Arabian peninsula.* Since the Ethiopians largely descend from southern Arabian emigrants, one cannot discount the Sheba story entirely.

Christianity came to Aksum in the fourth century. Two stranded voyagers converted King Ezana to a Christianity akin to the beliefs of the Coptic Church of Alexandria, Egypt. Ezana proclaimed the new faith the state religion, and it remains so to this day.

The city's most impressive relics, however, date from the earlier pagan civilization. They are huge columns of solid granite set upright like obelisks. Looking at the largest one still standing, a massive 70-foot shaft, I wondered aloud how the ancients dragged it to the site and stood it on end (page 559).

*See "Behind the Veil of Troubled Yemen," by Thomas J. Abercrombie, NATIONAL GEOGRAPHIC, March, 1964.



Fabled land of Sheba, mountain-studded Ethiopia dominates the Horn of Africa.

ETHIOPIA

RINGED by militant Islam, Christian Ethiopia isolated herself from the outside world for nearly ten centuries. Now Emperor Haile Selassie I leads his ancient land to modernity; the pace is slow but steady.

Dark-skinned, mostly non-Negroid peoples populate this African empire the size of Texas, New Mexico, and Oklahoma combined. The economy is agricultural, and will remain so until adequate roads weld the country's remote highlands and sun-seared deserts into full nationhood.

An ever-growing flood of travelers is discovering Ethiopia, home of primitive peoples and unparalleled wild game only short air hops from modern hotels. Americans in particular meet with warm welcomes, for Ethiopia has aligned herself firmly with the non-Communist West.

OFFICIAL NAME: Ethiopia. **GOVERNMENT:** Nominally constitutional monarchy; in fact, a benevolent autocracy. **AREA:** About 460,000 square miles; an accurate survey is now in progress. **POPULATION:** Perhaps 22,000,000. Ethiopia has never had a national census. **LANGUAGES:** Officially Amharic, plus English and some 70 others. **RELIGION:** Ethiopian Orthodox Christian, with many Moslems and pagans. **CAPITAL:** Addis Ababa. **CLIMATE:** Equatorially hot in the lowlands, temperate on the heights.

"They melted the stone and poured it into a wooden mold," said a young villager in perfect seriousness. (Like many younger Ethiopians, he spoke English, the country's second language.) I could hardly contradict him. Nobody really knows the truth.

Pagan artisans carved this stele to resemble a multistoried building. The model, say the experts, could only have been the adobe skyscraper of southern Arabia.

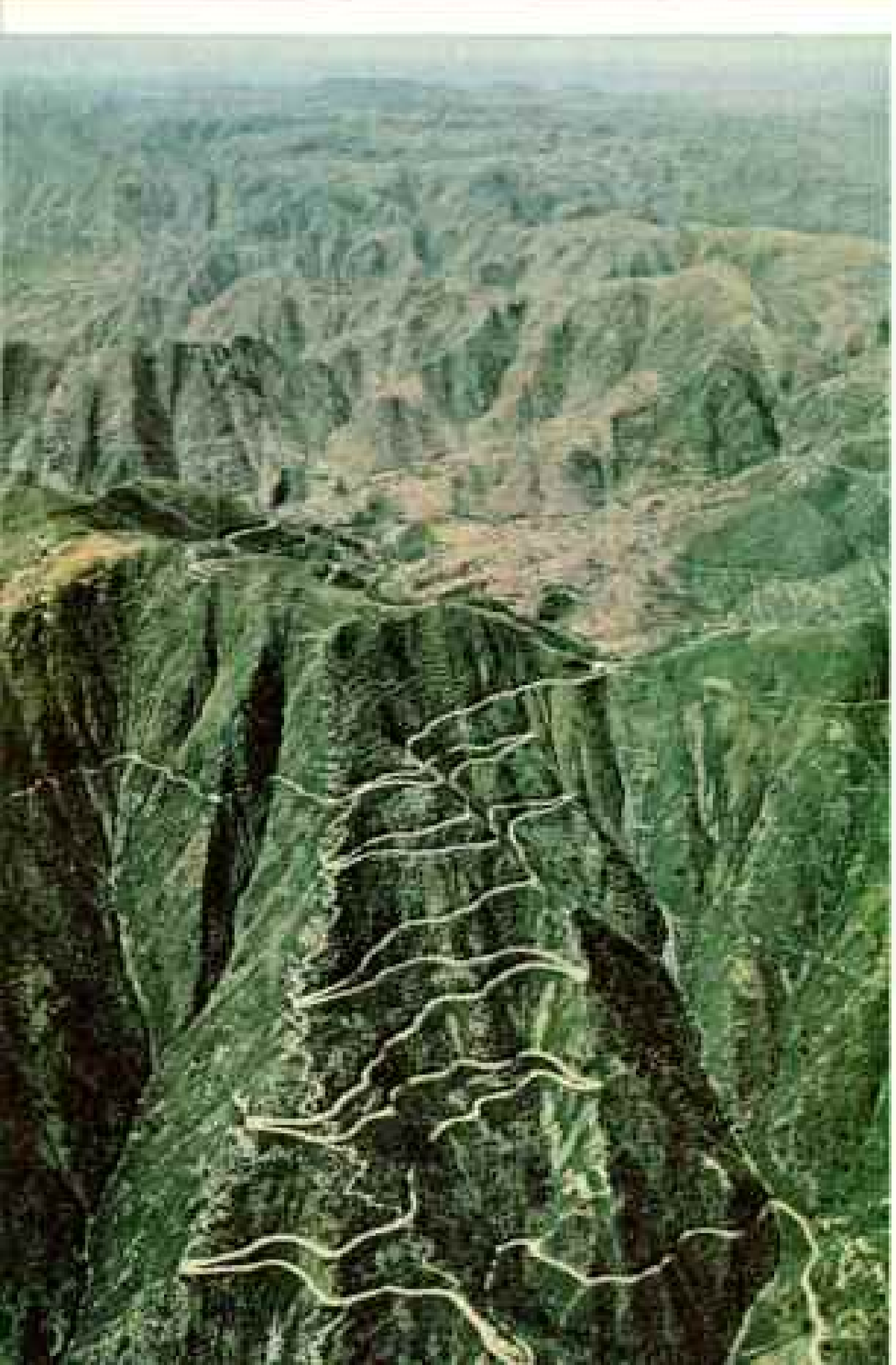
We visited Aksum's Mariam (St. Mary of Zion) Cathedral. Here most of the Ethiopian emperors were crowned. Haile Selassie, however, ascended the throne in Addis Ababa.* Only St. Mary's foundations are ancient. A pagan Princess Judith, says the story, destroyed the original building, and the Moslem conqueror Ahmed Gran, "the Left-handed," leveled its successor in the 16th century.

Hidden from the invaders by priests, the coronation crowns of the emperors still remain in custody of the church (page 559). For us and a party of tourists, the chief priest ordered the diadems brought outdoors. White-turbaned assistants carried them, shaded by acolytes bearing embroidered umbrellas.

*W. Robert Moore wrote of "Coronation Days in Addis Ababa" in NATIONAL GEOGRAPHIC, June, 1931.

BY JAMES P. BLAIR © NATIONAL GEOGRAPHIC SOCIETY

Emperor and GEOGRAPHIC editor meet in the Society's Washington headquarters in October, 1963. Haile Selassie signs the guestbook in Amharic. The Emperor particularly asked to visit the map division. He has since been elected an honorary life member of the Society.



One especially beautiful gold crown had belonged to Emperor Fasil, or Fasiladas, who built the present St. Mary's. Fasil's crown particularly interested me, for on the way from Addis Ababa to Aksum I had met the gentleman personally—or as personally as one can meet a man who died in 1667.

Breaking the land trip with a cruise on Lake Tana, largest of Ethiopia's many lovely lakes, I had visited St. Stephen's Monastery on Daga Island. In a storage hut the monks had shown me the remains of Fasil. A smaller mummy lay in the same coffin.

"Fasil's seven-year-old son Isur," a monk said. "He ruled for six hours after his father died. Then he was smothered in a crush of people come to pay him homage."

In this holy place the monks talked and laughed freely. They meant no disrespect. Ethiopian Christians view their religion as part of their daily lives and approach it without special formality.

Churches Hewn From Living Rock

The Ethiopian Orthodox Church reached its peak of splendor in the hilly, north-central village of Lalibela. Here 12th-century artisans hewed 11 incredible churches out of solid rock, freeing rectangular blocks of stone by trenching around them. Burrowing into the blocks, they chiseled interior arches, windows, columns, and rooms (page 562).

Lalibela is named for the emperor who built its churches and made it his capital. So

"Work—or die," demand Ethiopia's deserts, roaring rivers, mountain barricades, and fertile but stubborn soils. For thousands of years her people have accepted the challenge, toiling amid some of earth's most majestic scenery.

Stupendous Blue Nile gorge (upper left) surrendered to modern bridgebuilders less than twenty years ago. Wheeled traffic crosses from progressive Shoa Province at right to ancient, long-isolated Gojam.

Earth's inner fires burble beneath the Danakil Depression (upper right), painting the sands in many hues and tainting the air with brimstone. Vast potash deposits here await mining.

Road from Asmara to Massawa (lower left) writhes incredibly down a sheer escarpment, Ethiopia's age-old guarantee of independence. Only three foreign armies—Ahmed Gran's Moslems of four centuries ago, Queen Victoria's British, and Mussolini's Fascists—successfully scaled the citadel, and none stayed for long.

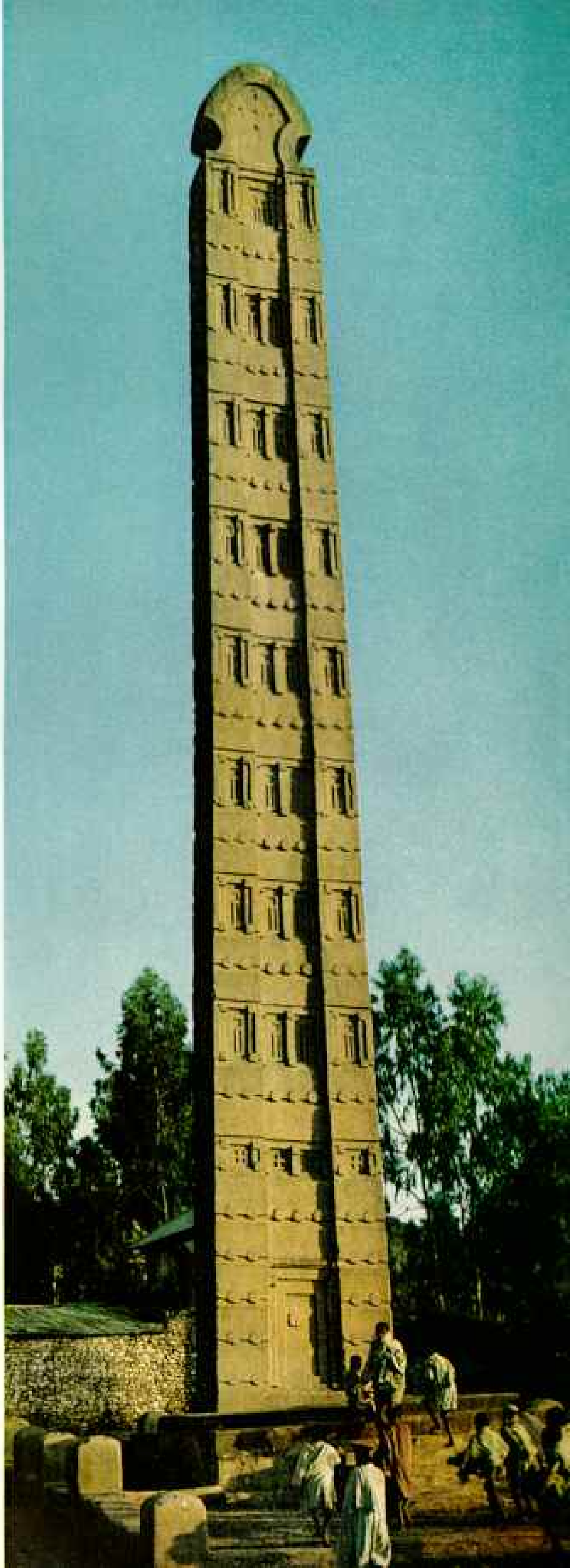
Mosaic fields of the high country north of Addis Ababa (lower right) could one day feed most of East Africa with the use of sufficient farm machinery.

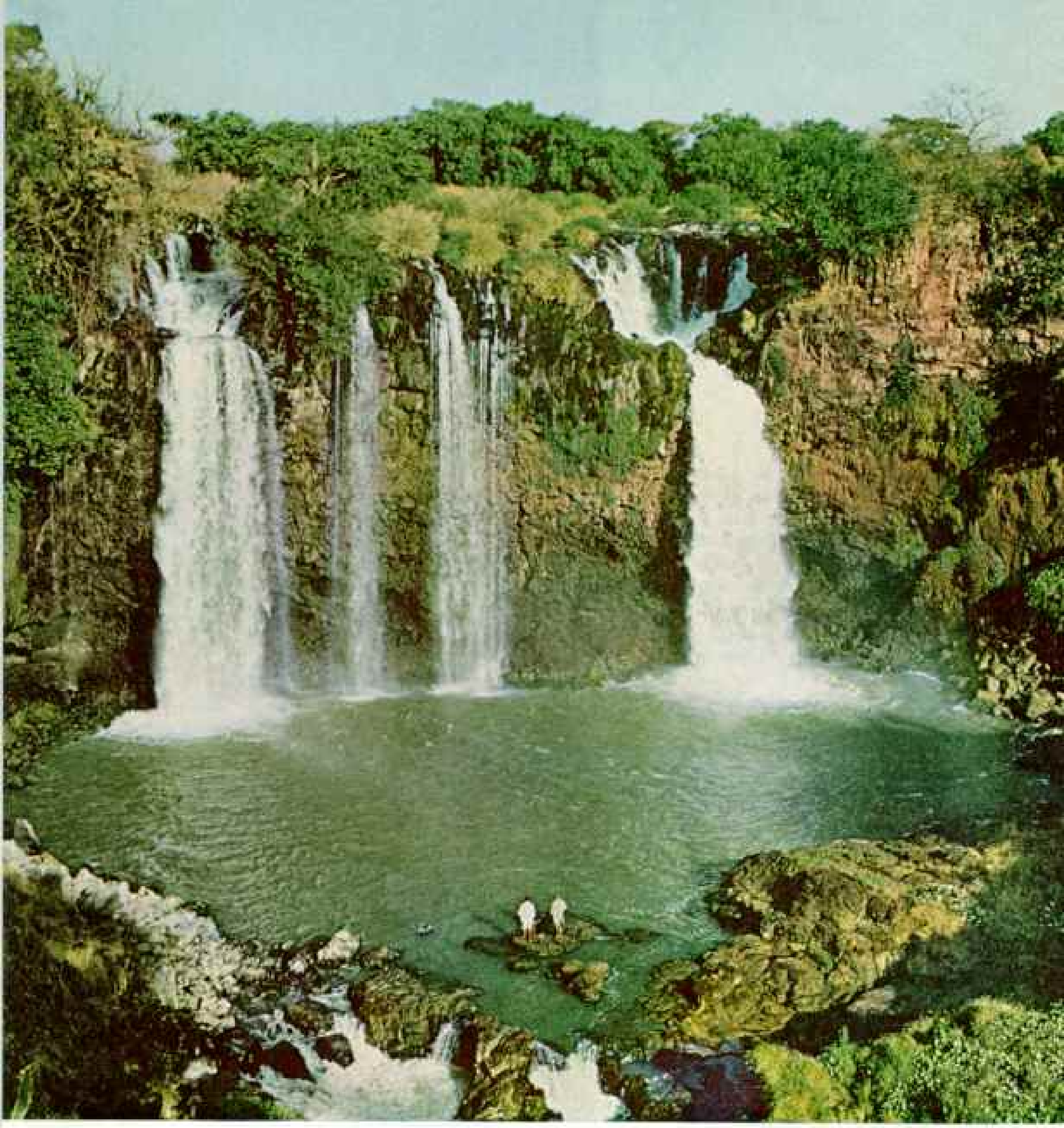
Everlasting wind of the heights separates wheat from straw for a farmer on the Tigrean plateau. Men of Solomon's day harvested as he does. His family reaps, his oxen thresh, and he winnows with a wooden fork. Predominantly agricultural, Ethiopia produces coffee, hides, and oilseeds for export, vegetables and grains for domestic consumption.

Splendor of Gondar, once capital of Ethiopia, still haunts the turreted castle of a 17th-century king. Fasil, its owner, isolated his country from the outside world, yet may have used Portuguese artisans to build the stronghold. Time and civil wars reduced it to ruin. Italian invaders tastefully restored the bastion, installed electricity, and used it as a headquarters during a five-year occupation.

Solid granite column at Aksum poses a riddle. Archeologists believe pagan artisans carved the stele before Ethiopia accepted Christianity in the fourth century, but they do not know how the block was quarried and set upright. Nonfunctional door and windows resemble those of southern Arabia's earthen skyscrapers. Seventy feet tall, the shaft may mark an unexcavated royal tomb.

Tall golden crown weighted the brow of Emperor Menelik II at his coronation in 1889. Menelik, named for the first Ethiopian emperor, legendary son of Solomon and the Queen of Sheba, added the jungled south and west and the desert east to his domain. He dealt ably with European rulers and built Addis Ababa. Soft gold of his crown—one of a fabulous, little-known collection in St. Mary of Zion Cathedral at Aksum—may have come from the storied mines of Ophir.





isolated is it that we went in by helicopter. A young woman in Western sports clothes stepped out of the crowd ringing our schoolyard landing field.

"I'm Hirut Desta," she said, extending her hand, and we knew her to be one of the Emperor's granddaughters.

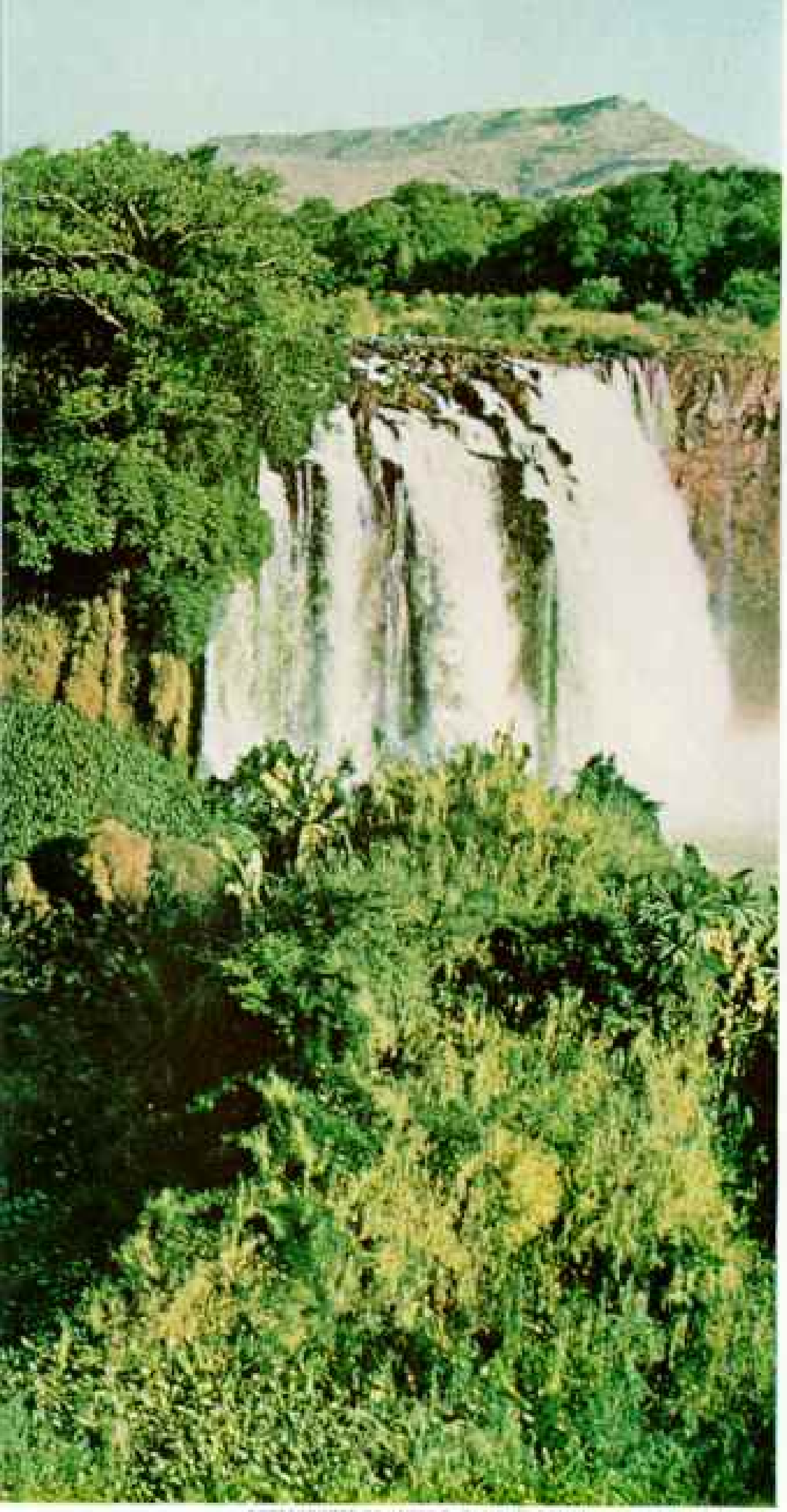
During our Lalibela stay we often saw this trim, most democratic of princesses. She was building a modern hotel against an expected flood of tourism, and she was not above grabbing a tool from a workman, I suspect, and showing him how to use it. Once, when our chartered helicopter came to fetch us from outside the village, we saw that it had a passenger. Out stepped the *lielt* (princess).

"I hope you don't mind my hitching a ride," she said. "It's fun to fly."

"What could a man do?" said our French pilot. "Not only is she a princess, but she has such beautiful eyes."

Princess Hirut had a Land-Rover, one of those sturdy English vehicles built for rough cross-country travel.

"You must have had it flown in a piece at a time," I remarked, for although we, too, used a Land-Rover, a special one with bunks, cookstove, and a winch for pulling itself out of mud (page 553), we had not dared tackle the rugged road to Lalibela.



Thundering cataracts of the Blue Nile tumble into pools near the river's source in Lake Tana. Ethiopians call the falls Tis Abbai, or "great river smoke." Birds nest behind the feathery streamers; monkeys steal their eggs.

Papyrus boat, like those of ancient Egypt, plies Lake Tana. The buoyant *tanqua* quickly becomes waterlogged and must be dried often.

"My chauffeur and I drove it here," said the princess. On the way she had made useful notes on how to turn the awesome backcountry track into a decent road.

Priests Beat Symbol of Judas

Our visit to Lalibela fell in Lent, and we attended Good Friday services.

On this holy day the priests spread rich ecclesiastical robes and multicolored rugs on the floors around the sanctuaries that are the inner shrines of Ethiopian churches. In the gathering dusk, in the sunken courtyard of the largest church, they carried a covered log, representing Christ's body, in procession around the walls; a candelabrum served as a symbol of Judas.

Suddenly the priests all fell upon the betrayer's symbol and with sticks and fists smashed it to the ground. In the melee we almost lost our friend Getachew Desta.

Getachew (pronounced geh-*tah*-cho) is a young Radio Addis Ababa disc jockey whose programs of Amharic popular music have brought him fame through all East Africa. He is no relation to the imperial family, although he shares the second name Desta—"happiness"—with the Emperor's granddaughter.

Armed with saxophone, guitar, and tape recorder, Getachew traveled with us first as

interpreter and guide, soon as a warm personal friend. Always ready with a helping hand, Getachew had come forward with his cigarette lighter to fire the Judas tapers and was still at the task when the onslaught came.

"Next time I'll wear my football uniform," he grumbled as he picked himself up.

To an outsider like myself, the episode might have seemed bizarre, but sometimes in Ethiop churches acolytes beat huge drums, priests shake rattles, and there is solemn dancing. These practices may be vestiges of paganism and ancient Judaism.

Magdala Falls to Elephant-borne Guns

On the flight back to Addis Ababa, the pilot had pointed to the rugged country below and said, "On top of one of those ambas is a gun so big a hyena could live in it. It belonged to Emperor Theodore."

I had read of Theodore, who unified Ethiopia for the first time in modern history. Western historians, conceding his patriotism and ability as a warrior, picture him as a megalomaniac who threw thousands of countrymen over cliffs or burned them alive. Ethiopians nevertheless respect him and excuse his cruelties as part of life in his era.

When Theodore chained and imprisoned a British consul in 1864, Queen Victoria ordered Sir Robert Napier of the Bombay Army to the rescue. Napier led 30,000 men, with their artillery on elephants, more than 400 savage miles from the Red Sea to Theodore's fortified mountain capital of Magdala.

There he defeated the few Ethiopians who had not deserted their emperor, and demolished the frowning citadel. Theodore committed suicide as the British gunners stormed the last gate. Napier marched away, leaving the headless empire in chaos.

Theodore, it was reported, had fired upon the British with a 70-ton cannon cast for him by German expatriates and dragged up to Magdala by 500 men. The first shot was its last; it burst at the breech.

Traditional dinner of fiery stew and barley beer spreads before the author, who was invited to the home of a family in Lalibela. Kneeling hostess serves the meal. Musicians play *washint* and *masinko*, a flute and one-stringed violin. An isolated village of rock-hewn churches, Lalibela is one of Ethiopia's holiest places.

Carved out of solid rock, Lalibela's churches have endured for eight centuries. Today, Medhane-Alem—Saviour of the World—has a leaky roof and wears a temporary metal one. Mariam Church stands at center; Golgotha-Mikael at lower left.

Soothing his cattle with song, a Beni Amer herder at Tessenei near the Sudan border plucks music from a five-string *krar*. Melted butter holds hairdo in place.

Myrrh and frankincense laden camels plodding to Aksum's market from the barren east. Foreign factories made the road-building machinery. Like all country Ethiopians, men of Tigré shoulder sticks; they use them to ward off roving hyenas at night.

Could we find the emperor's great weapon? Taking off from Combolcia, where Mussolini's Fascist invaders built a good airfield during their five-year occupation, our helicopter whirled away for a mountaintop that Ethiopia has tried hard to forget.

People of the roadless mountains beneath us apparently had never seen a helicopter before. They fled their tukuls as we passed above. Herd boys ran in circles and covered their heads with blankets. To avoid frightening others, we flew as high as possible.

Because our map was inaccurate, we had to land time after time to ask the way. Sometimes we looked nervously into the muzzles of rifles when we emerged from the aircraft.

Once an entire village hid in the gorges. After ten minutes the women came to us, fell prostrate, and kissed our feet. Lacking an interpreter, we never found out why they did this, but I think it was a gesture of welcome to people they considered of high rank. The village women brightened at the picture of a cannon we drew in the dust and pointed to the next amba. And there we found it.

It was not the long gun we had expected, but a monstrous howitzer, perhaps two-and-a-half feet across the muzzle. It lacked a carriage, and I doubt if it weighed 70 tons, but the giant was so heavy it had sunk several inches into the hard earth.

I can confirm its self-destruction. The firing chamber was badly split. The bronze muzzle bore the marks of two rifle bullets and a cannon ball.

Back in Addis Ababa, we planned a week of rest. But then Hapte Selassie sought us out at the Ras Hotel. Like Getachew Desta, this energetic head of the new Ethiopian Tourist Organization is no relation to the Emperor.

"Selassie"—you can spell it several ways as you transliterate Amharic into English—means "Trinity"; it is a common Ethiop name.

"I've booked us on tomorrow's flight to Gambela in Ilubabor Province," said Hapte. "It's primitive country; few Americans have ever seen it."

Airline Opens Roadless Interior

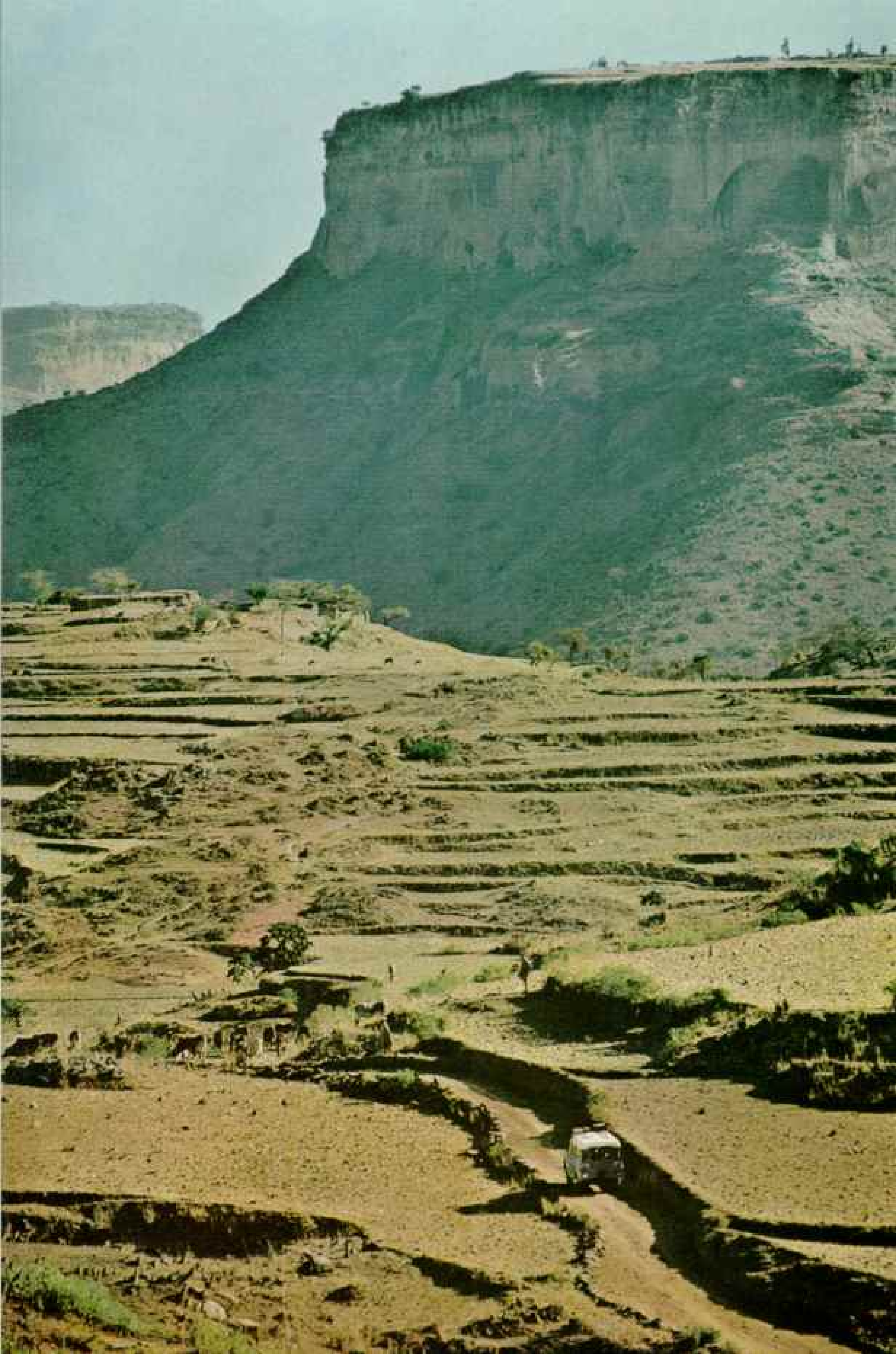
We took a regular Ethiopian Airlines plane to Gambela. This amazing airline has been the chief factor in opening up the all-but-roadless Ethiopian hinterland. It flies the latest jets internationally (page 576), and in the domestic service it uses everything from propeller-driven Douglas DC-6's and DC-3's to helicopters and small "grasshopper" planes.

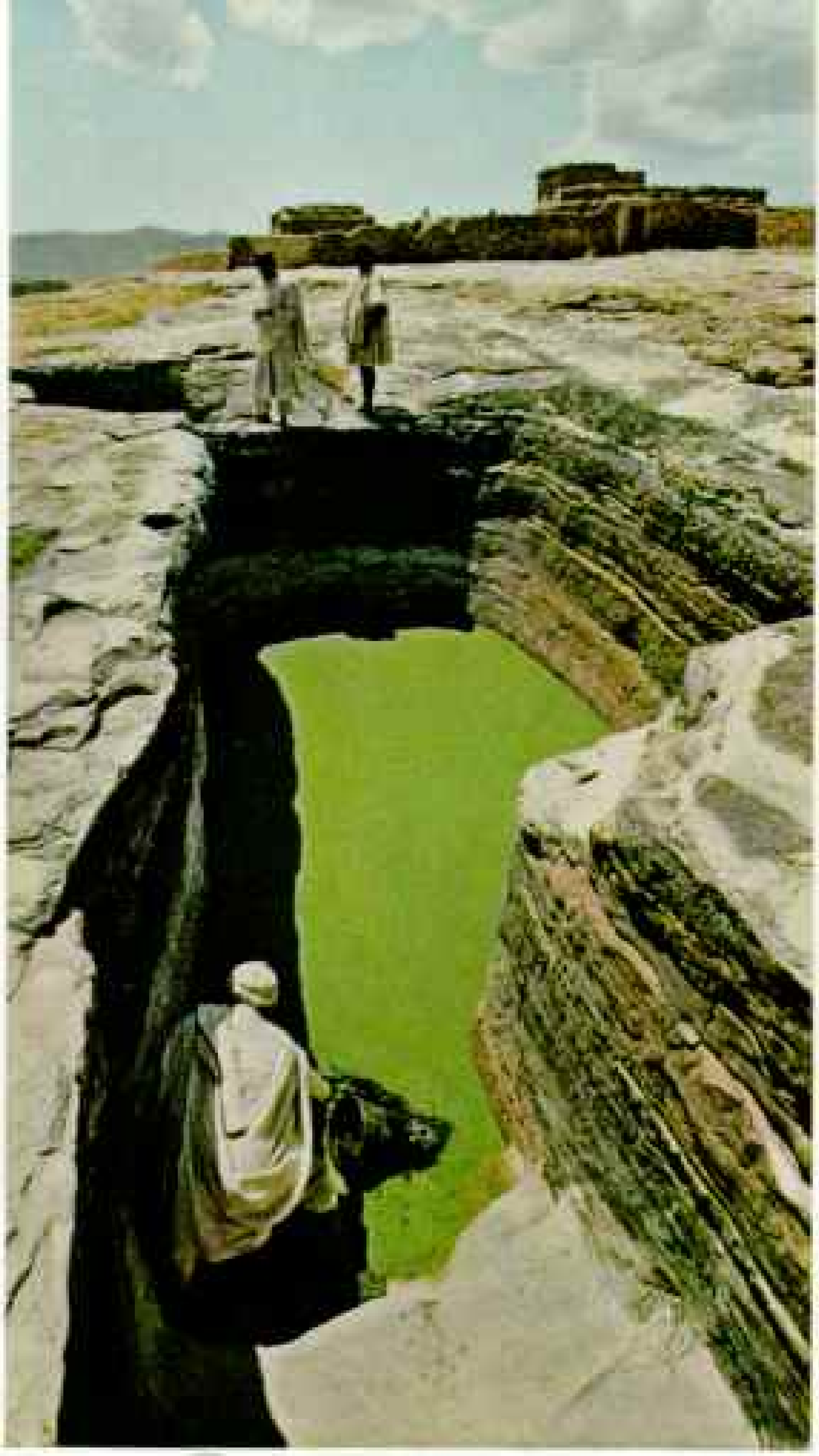
"From the ground, you can reach some of our 30-odd airports and airstrips only by foot, mule, or four-wheel drive," said then general manager Jack B. Asire. "We move even bulk cargo, like the cattle and goat hides you'll find in the plane, back to Addis from Gambela. You won't like the smell, but we do: it's revenue."

Ilubabor Province lies in Ethiopia's southwest and juts well into the Sudanese Republic. Through it runs the Baro River on its way to swell the White Nile. Gambela is a lively river port when the water is high and boats can come in from the Nile.

The Yugoslav brothers Tom and Bücko Mattanovitch met us at the airport and took us to a metal-roofed store for supplies. Here a trader known as Alex the Greek deals in leopard and crocodile skins, the tail hairs of giraffes for making necklaces, and ammunition for guns the police wish the wild people of the province did not have.

The primitive tribes of western Ilubabor





EKTACHROME (ABOVE) AND KODACHROMES © N.G.S.

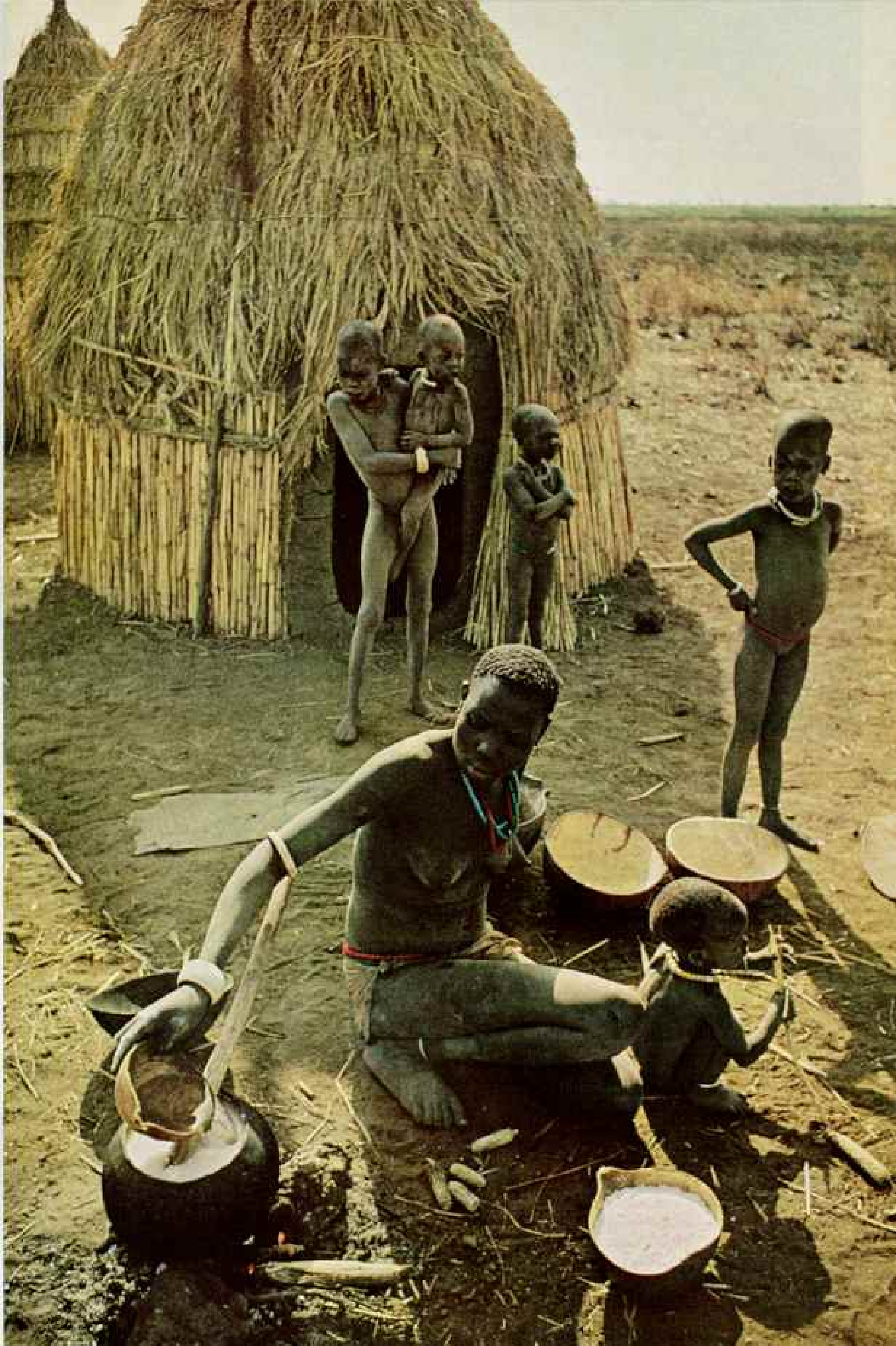
Citadel of serenity

Christianity has helped bind Ethiopia together since the fourth century A.D. It also led to her "discovery" a thousand years later by Portuguese explorers following up reports of a Christian kingdom ruled by a legendary Prester John.

Monasticism plays a prominent part in Ethiopian Orthodox Church life. Founded in the early Middle Ages, Debra Damo monastery perches on a mesalike *amba* overlooking the Tigrean plateau (left), accessible only by a stout leather cable up the steep cliff (right). No females, human or animal, may ascend.

Here Ethiop kings once exiled ambitious princes lest they topple thrones. Here monks and priests hid church treasures from Ahmed Gran's 16th-century Moslem hordes. Photographer Blair found the courage to climb the rope. "I discovered a community of 200 worshiping in Ethiopia's oldest church, catching rainwater in deep rock cisterns [above], and raising crops and oxen like any other villagers," he reported.

"*Memhir*—chief priest—Gebregiorgis Desta welcomed me in his saffron robe [upper right]. This wonderful old man with eyes of the true mystic told me that few foreigners climbed to Debra Damo."



are of Negroid stock—a minority in Ethiopia. The Ethiop majority is Caucasoid, with finely chiseled features, dark complexions, and curly black hair that tends among the men to grow well back from the forehead.

Most Ethiopians wear the *shamma*, a robe of white muslin bordered with colored embroidery and draped from the shoulders. And they eat *injera*, a sort of giant pancake made of *tef* (a millethke grain) along with *wat*, a stew of meat, or chicken, or of vegetables alone.

You could not mistake the tribes of Bubabor for highland Ethiopians. The Anuaks of the Gambela area, wearing the beads of black Africa (page 571), eat bread made of kaffir corn and speak their own language. The Abigars along the Baro wear few clothes, live on milk and meat, and speak a somewhat different tongue, out of some 70 in Ethiopia.

We wanted very much to meet the Abigars, nomads who migrate every year between high plateau and the Baro Valley to pasture their herds of cattle. In a long dugout canoe, stable if you sat quietly in the middle, we set off downriver to find them.

Night fell. Fires burned holes in the blackness—village cook fires and distant conflagrations where the Abigars set the dead savanna grass alight to make way for new. Laughing Anuak women bathed by the banks.

Something struck the canoe a tremendous blow, almost upsetting it. River water cascaded over us. We had run onto a surfaced crocodile. It made off as fast as it could go.

And yet the following day we swam in the Baro. I figured that without the cooling river, sunstroke was certain, whereas crocodile attack was not. The Mattanovitch brothers took the same chance, and they are professional croc hunters.

It was nevertheless disconcerting to listen to their stories while all of us floated about in the middle of the stream.

"That 19-footer we shot last night," remarked Bücko, "had a bellyful of the best kind of blue Abigar beads."

"Use them for swapping with some tribesman who's rounding up a bride price," said Tom. "Good beads are hard to find."

Abigar Tribesman Wears Only Ashes

In the early morning we met our first Abigar. Making ready to bathe in the river, he was stark naked and ghostly white except for black circles around the eyes and mouth.

"Only the black is real," said Bücko. "The rest is ashes. They sleep in their dead fires to keep the mosquitoes off."

The Abigars were friendly and polite and unusually tall. They thought our cigarette lighters and tape recorders some sort of magic. But civilization is catching up to them. Several of the men, who usually wear nothing,

Five hungry children await a dinner of kaffir-corn meal, prepared by their Abigar mother. She bartered with settled Anuak neighbors for both the corn and the stalks walling the hut. All wear ashes to repel insects. When the Baro River floods this game-rich plain, Abigars move to the hills.

Dressed only in ivory ornaments, Abigar boys water a calf, staked near the huts to keep it safe from hyenas and leopards. When they are older, the youths will take grown animals out to graze. Children of roaming tribes like the Abigar, that need everyone's labor to survive, rarely attend school.

hastily donned ragged undershirts and shorts at the sight of strangers.

This group, one told us, used to migrate into the Sudan until Sudanese frontier police began shooting at them with rifles.

The Baro country in which they now seek grass is one of the last undisturbed haunts of African big game. In Ethiopia, hunters stalk the Grévy's zebra and the mile-long strings of oryx on the Bilen Plain of Harar Province. They shoot the elephants of the Akobo Valley in Kaffa; the giraffe and the rhino of Sidamo; the ubiquitous dik-dik and Soemmerring's gazelle, the handsome cheetah and leopard.

But only a handful of outsiders have ever seen the beautiful roan antelope herds along the Baro, and the buffalo, and ostriches so tall I could scarce believe my eyes.

Menelik's Legacy: Eucalyptus Trees

In the plane that Jack Asire had warned us would be carrying redolent hides—and was—we winged back to Addis.

Addis Ababa means "new flower," and, in truth, Ethiopia's capital is not the old city most foreigners believe it to be. Emperor Menelik II began its construction in the late 1800's, shortly before his armies bloodily repulsed at Aduwa the first serious Italian assault upon Ethiopia's independence.

Thousands of Australian eucalyptus trees give Addis a distinctive look. Menelik imported them to replace native forests long vanished into cook fires and house frames, little dreaming he was creating the finest memorial any emperor could have.

Addis Ababa, awaiting an accurate census, may hold more than 500,000 people, if one includes not only permanent residents but also those passing through, like the long-haired holy men on pilgrimage to Moslem shrines (page 578). Yet it remains a city of open spaces. Fine modern buildings—Parliament House, the tourist hotels Ethiopia and Ghion, the Stadium, Commercial Bank, and the new Municipality—rise above vacant lots, broad boulevards, and rocky side streets where metal-roofed huts jostle European-style homes of office and government workers.

An architectural partnership of an Ethiopian and an Israeli designed the Ministry of Foreign Affairs building (page 572). An Italian won the competition for the architecture of Africa Hall, which houses conventions for newly independent neighbor nations (page 575). And therein lies a heartwarming story of forgiveness and tolerance.

Mussolini's airmen bombed barefoot Ethiopians with mustard gas. His soldiers shot helpless hostages. Yet one of Haile Selassie's first acts after regaining his throne was to forbid retaliation against the defeated enemy. As a result, several thousand Italians live in Ethiopia today, aiding its march to modernity.

Addis Ababa is cosmopolitan. Americans, Asians, Africans, Europeans of every nationality daily descend from the jets at the new airport. They come as teachers, as tourists, as salesmen of electronic marvels, as builders of highways. This past February, Queen Elizabeth II came on the first state visit to Ethiopia ever made by a British monarch.

Addis has the biggest, most colorful marketplace in the land. In teeming New Market you can buy a Japanese radio or a pair of Italian shoes, a Paris dress, or an American sport shirt. One stall sells the herbs that flavor the *talla* beer, the barley drink favored by Ethiopians along with the far stronger *tej*.

Here, too, you will find vendors of the same myrrh and frankincense the Wise Men took to the infant Jesus. If a youth offers a leopard pelt for a few dollars, you can be sure it is merely serval cat. Also look askance at live owls. They bite.

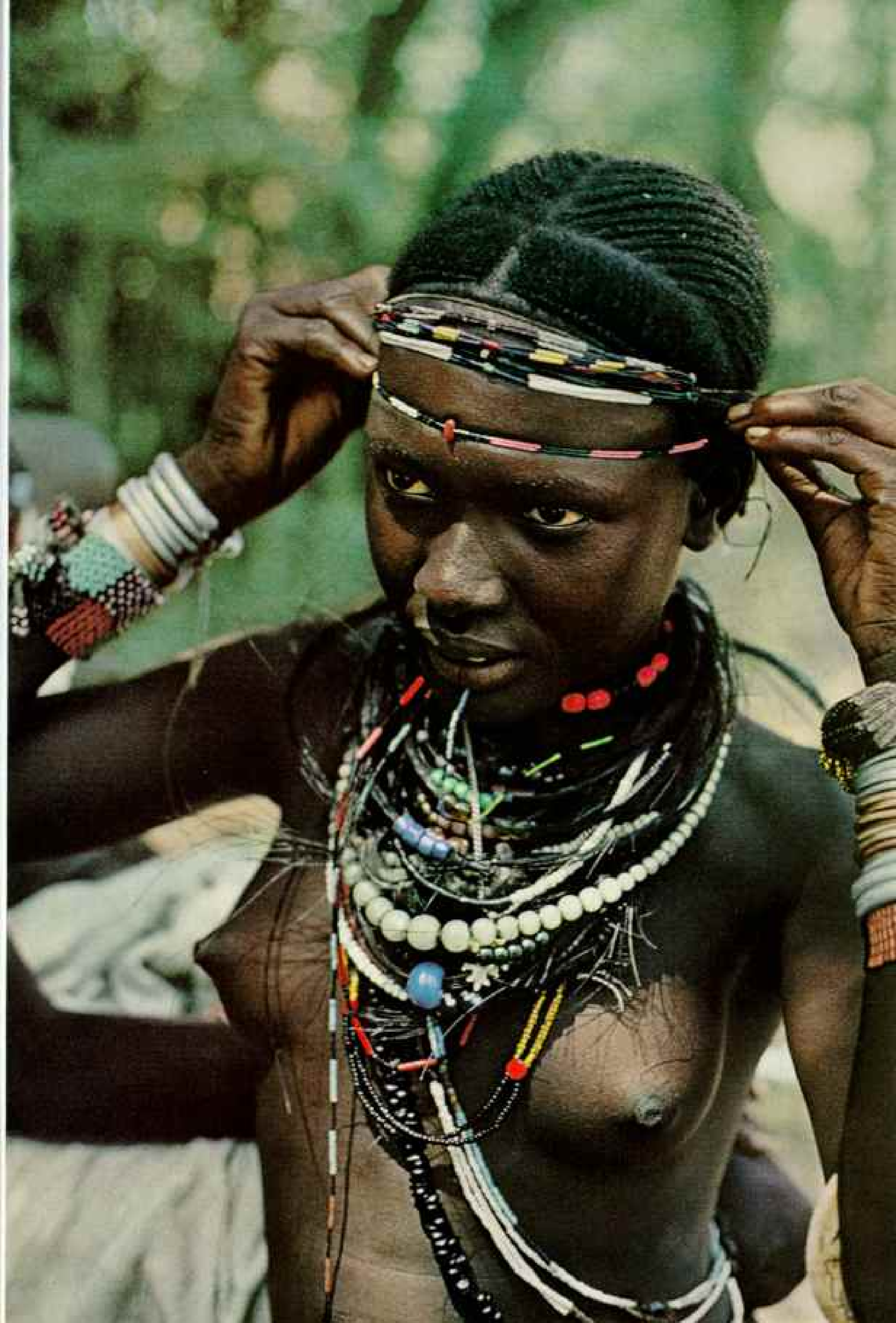
Scientists Study Hot-water Creatures

The Emperor gave one of the imperial palaces at Addis Ababa for the campus and buildings of Haile Selassie I University (page 576). It houses an important seismological laboratory. University scientists are also studying microscopic animals that can live in water close to the boiling point.

Hot waters underlie much of Ethiopia. In Addis Ababa and in many other places they burst to the surface in mineral springs and are piped off into public baths.

Like New Yorkers, many Addis Ababans began life in the countryside. Men of Tigré

Ivory and hair of giraffe tails adorn a young Anuak wife. Beaded gewgaw pierces her lower lip. Her girl friends spent an afternoon weaving the tiny plaits of her coiffure, while she played with a pet baboon. "I was born," she told the author, "the year my father killed the black leopard." Few Ethiopian country girls know their exact age, but sophisticates usually say seventeen.



Honeycomb design distinguishes Ethiopia's new Foreign Ministry in Addis Ababa. Architects Zalman Enau (left), an Israeli, and Ethiopian Mikael Tedros inspect the building's plans.

Saber-waving patriot leads a delegation to the Emperor's palace during border conflicts with neighboring Somalia in the spring of 1964.

Gleam of modernity imbues Addis Ababa, where hyenas scavenged the streets only five years ago. Emperor Haile Selassie I was crowned in tree-circled St. George's Cathedral. The new Municipality, or city hall, just above it held a glittering banquet for Queen Elizabeth II of Great Britain during a state visit to Ethiopia this past February.

Province drifted in from the north and gained a virtual monopoly of the goldsmith trade. Moslems from the east and south opened small stores. Girls of the widespread Galla people, barefoot and laden with bead ornaments when they arrived, soon donned Western frocks and high heels and went to work at perfume counters.

Amharas, though a numerical minority, dominate the capital and the surrounding Shoa Province, which is not surprising. Far back in history, immigrants from Arabia came to Ethiopia in tribal waves. Each wave fought its predecessor, and the Amhara people emerged to build the empire.

Modern Amharas, however, insist they no longer dominate the entire country.

"Vigorous people like the Guragés and the Tigreans have even forced us into competing as businessmen," Hapte Selassie told me. "Fifty years ago no Amhara would have dreamed of being a merchant or salesman."

I visited Addis Ababa five years ago.* But seeing it again last year, I was astonished at the changes. Gone were the hyenas that once roamed the night streets; new neon lights chased them away. Telephones work every time now. No longer does business halt because the electric light has failed. Faced with an explosion of automobile traffic, the police outlawed the two-wheeled, one-thin-horse gharries; swarms of tiny taxis replace them.

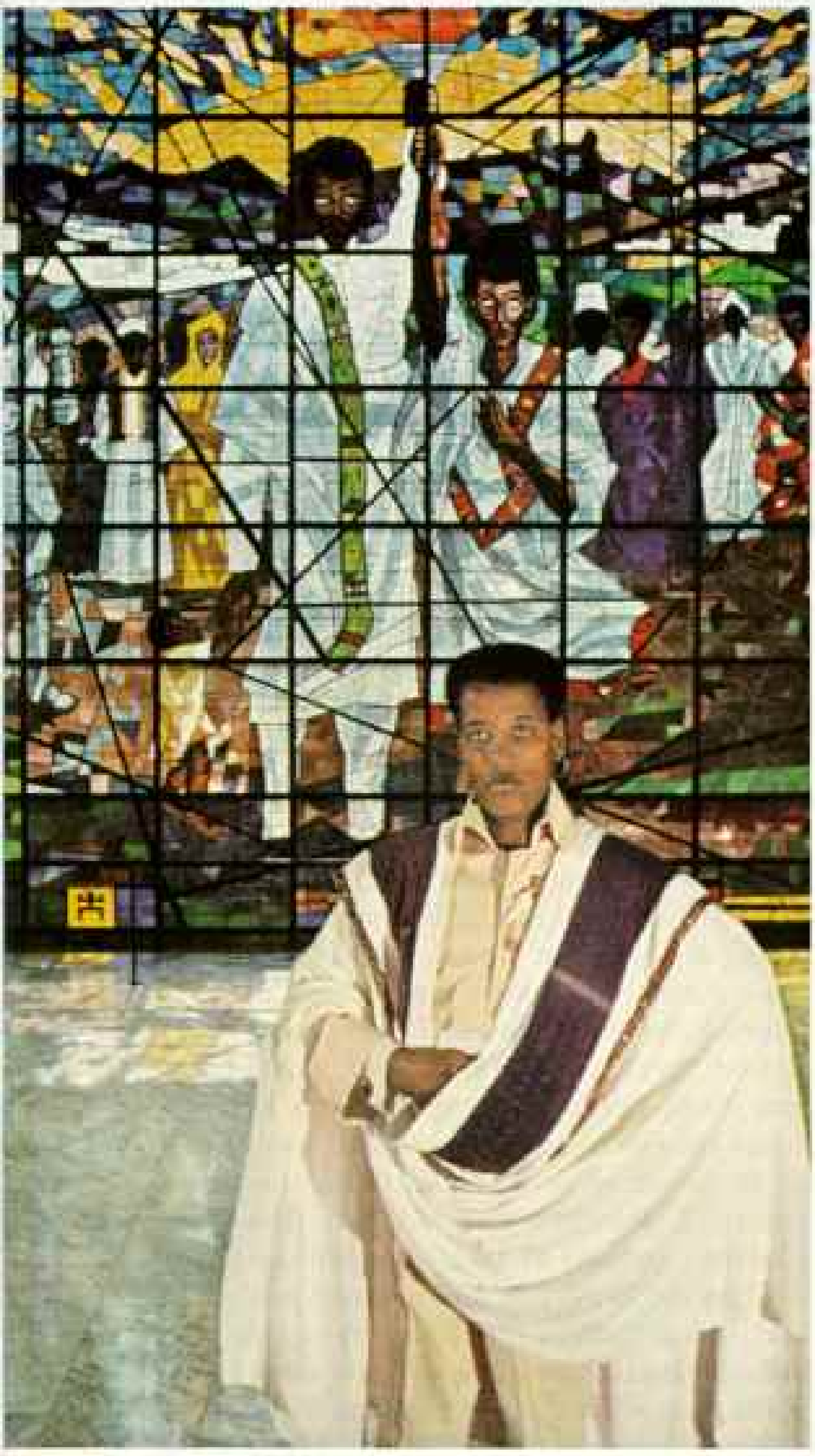
I like Addis Ababa. I like its sun and wind and white clouds, the pleasant people, the little pleasure lakes nearby, the glow of its lights seen from the surrounding heights.

*See the author's "Africa: The Winds of Freedom Stir a Continent," NATIONAL GEOGRAPHIC, September, 1960.

But I find Addis Ababa an island. The New Flower, with its look of a modern metropolis, floats in a rural, largely primitive sea—as do Ethiopia's few other true cities.

Industry has been slow in coming to a land whose natural resources have been little exploited and whose roads are still a-building. Farmers and herdsmen need no cities; even most Ethiopian provincial capitals are but overgrown villages around market squares.

Asmara, second city of the empire, has an Italian look. Why not? Italians laid out its streets and erected its buildings. Diredawa, with its streets of flame trees, has a French look: French builders of the railroad between Addis and Djibouti in French Somaliland constructed much of the city. Harar, behind its Arab-built wall, is a bit of Islam.



Assab and Massawa, the empire's two seaports, impart the Eastern flavor of sun-baked Red Sea cities. Russians are building Ethiopia an oil refinery at Assab.

In Massawa we explored the port (page 580). We toured the academy where Ethiopia trains officers for its new, tiny navy. We saw salt extracted by sun heat from sea water pumped into shallow, diked ponds.

Well-fed Sharks Spurn Swimmers

One day Roberto Barattolo, an Italian who owns a modern cotton mill at Asmara, invited us to go fishing in the Red Sea. Who could decline when the temperature ashore is 110 degrees in the shade?

In Roberto's luxurious motor yacht, *Difnei* (page 581), we sliced east across the Massawa Channel toward Ethiopia's Dahlak Archipelago; *Difnei* is named after one of its 126 islands. Low, sandy, and blazing hot, they served a busy Red Sea trade in olden times. Only a few fishermen live there now; pearling boats come from Yemen in season.

Threading the channels between islands, we put trolling lines over the stern. Soon tuna and mero and barracuda and dolphin lay flopping on the deck. Then, donning masks and snorkels, we swam down through the crystal-clear water to meet the fishes in their own world of waving sea fronds and rippled yellow sands.

Later Saleh, the helmsman, told us he had seen huge sharks nearby. I asked him why he had not warned us.

"There are enough fish for them here so they do not eat people," he said.

We had traveled far when Haile Selassie I, Emperor of Ethiopia, King of Kings, Elect of God, Conquering Lion of the Tribe of Judah, received us in private audience in Addis Ababa. He had been following our progress, we knew, and frequently had smoothed our way.

Stained-glass window in the lobby of Africa Hall in Addis Ababa depicts an allegory of the continent's progress from bondage to freedom. Artist Afewerk Tekle, who executed it, also designed the national dress he wears.

Imposing Africa Hall serves as an all-Africa convention center. From the Imperial Box, at rear, relatives of the Emperor watch a session of the United Nations' Economic Commission for Africa. The Organization of African Unity, a Pan-African group, also has headquarters here. Ethiopia paid for the $2,000,000 hall.

From mule era to air age in only two decades Road-short Ethiopia takes special pride in her airline, acclaimed as one of the world's safest. This Addis airport crew inspects a Europe-bound jetliner.

Chemistry class at Haile Selassie I University hears a lecture on atomic structure by Canadian Professor L. R. Pittwell.

His Imperial Majesty has long been a friend of the National Geographic Society, has visited its Washington offices (page 555), and is now a life member by action of the Society's Board of Trustees.

Police Chase Voters to Polling Places

Emperor Haile Selassie I radiates bearded majesty from a slight frame five feet three inches tall. It is difficult not to stand in awe of the ruler of close to 22,000,000 people—even more difficult in rich palace surroundings where one hears a lion roaring in the garden outside and sees a courtier leading a leashed cheetah past a window.

Although he voluntarily gave his country a parliament and a constitution, Haile Selassie retains great personal power. His people, whose ways of life have remained little changed in thousands of years, have been slow to pick up the reins of self-government.

"Sometimes you can't even get them to vote for their representatives in the lower house," an Ethiopian official complained. "I remember once when a district governor got so angry he called out the police and chased people to the polls!"

Being a monarch with palaces, Rolls-Royce motorcars, and liveried servants at his disposal has not always brought personal happiness to the Emperor of Ethiopia. He has endured the rigors of war in his savage mountains and the anguish of exile during the Italian occupation. He has suffered the personal loss of his Empress, two sons, two daughters, and two beloved grandsons; the ignominy of a palace rebellion that set his eldest son unwillingly upon his throne a few years back; the frustration of reforms moving ahead at something less than modern pace.

"It doesn't show," I remarked to a courtier who has served him many years. "He doesn't look his 72 years."

"That is character," was his reply. "Trouble

Nimble fingers grade coffee beans in the Addis plant of A. Besse & Co., Ltd. Electronic machines in background do the preliminary sorting by color. When they "see" inferior beans, they blow them out. Coffee may take its name from the province of Kaffa, where centuries ago Ethiopia discovered the shrub growing wild. Coffee from Kaffa and Harar goes mostly to the United States.

ENTACHROME (ABOVE) AND KODACHROMES BY JAMES P. BLAIR © N.G.S.

only makes him look a little more grave."

Jim and I found him looking graver than usual, for a hostile tide was on the rise once more in the sands of Somalia and the Ogaden, that dreadful desert area in the easternmost part of the empire (map, page 554).

History sheds considerable light on last spring's border fighting between Ethiopia and her newly independent, largely Moslem neighbor, the Somali Republic.

Ethiopia is a Christian country, and to militant Moslems it lies alarmingly close—only 250 miles—to the holy city, Mecca. After Islam was founded in the seventh century, its adherents sought to convert or conquer this land the Arabs called El Habesha and Europeans were to call Abyssinia. Ethiopians retreated to centuries of isolation on their central plateau citadel, while waves of Moslems populated the surrounding lowlands.

When the Ethiopian Empire, notably under Menelik II, annexed the lowlands, she acquired citizens whose culture and loyalties were Islamic. Tolerant Ethiopia treats all faiths and groups with fairness, but some of the old loyalties still may dwell in the borderlands. We saw and heard strong evidence that Somali tribesmen who have long lived in Ethiopia aided their kinsmen last spring.

Taxicab Drives Off to War

We went to Harar, army field headquarters as well as seat of the Ethiopian Military Academy, in hope that the generals would let us go into the Ogaden. We hoped in vain: Fearing something might happen to us, the military politely but firmly forbade us to go south.

Getachew confessed to relief.

"I am half Amhara and half Tigré," he said. "Somalis don't like either one, and it would have been only a question of which half of me they'd shoot at."

But the army hadn't said we couldn't go east. In the dusty Harar market we found a

courageous cab driver, and in his small sedan four of us set forth on the road to Jijiga, only a short way from the Somali frontier.

Three heavily armed policemen stopped us in the nearby village of Babile, and we thought this the end of our road to war. But no, they packed themselves into the car, loading their rifles and releasing the safety catches as they did so.

"We had a phone call from Harar," they explained. "We're your escort."

Winding through the hills that drop off southward into the desolate Ogaden, we came upon a place where huge rocks balance atop each other, as though piled there by some giant of old. We stopped.

The police fanned out behind boulders. Getachew and I joined one of them while Jim made photographs.

"See the trail coming through the rocks?" the policeman asked. "There is a wrecked jeep just out of sight. As you came out of Harar this morning, you probably saw the funeral procession of the three soldiers who were in it, a captain and two men.

"Yesterday morning they were ambushed. The Somalis who did this are still up there in the rocks."

I felt the hair slowly rising at the nape of my neck. "It's getting mighty hot out here in the sun," I said. "Let's go back."

That night, at a breach in the Harar walls, we watched an old man call the hyenas to him and feed them from his hands (page 582).

Getachew shuddered. "I am thinking of men helplessly wounded in the Ogaden," he said. "The hyena lives there, too."

Warriors Mine Blocks of Salt

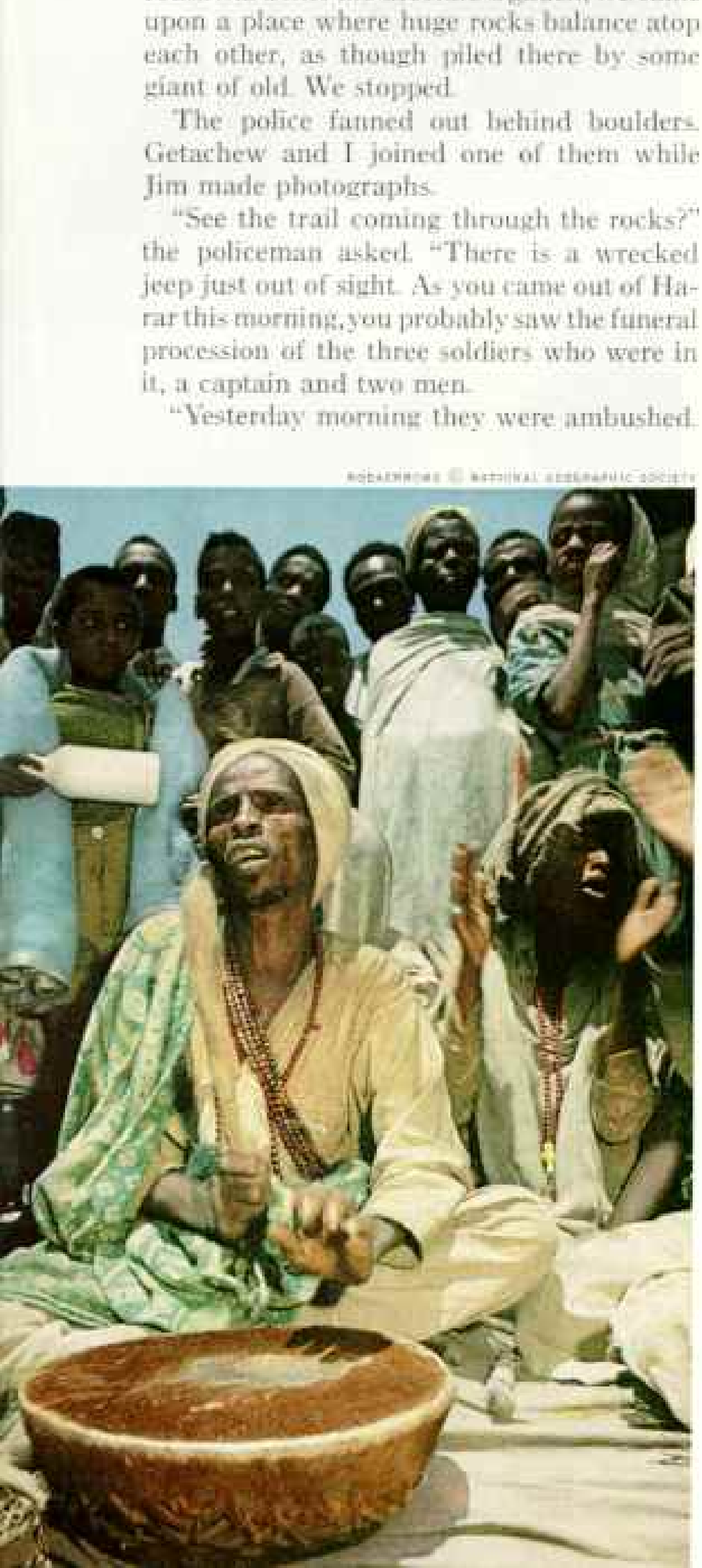
In another blazing desert far to the north, the Danakil Depression, I met my first Danakil tribesmen. These fierce desert warriors marched with Ahmed Gran when the Left-handed destroyed Aksum in the 16th century. Today's Danakil are just as tough. They keep goats and camels, and fight the Isa Somalis and each other for the few precious water holes. Strangers they murder for their rifles. Every man wears a curved, double-edged knife whetted to blood-chilling sharpness.

We had flown into the Danakil Depression to see the camp of an American company exploring what may be the world's largest potash deposits. In the sulphur-scented desolation of this volcanic country close to 400 feet below sea level, the Danakil have long mined the surface salt above the potash. A short jeep ride from the air-conditioned camp, we found at least 200 of them loading salt blocks onto camels (opposite).

Caravans would take the bars to market villages in Tigré Province. Thence the blocks would blanket all East Africa by truck. They served as currency in times gone by, and in some remote areas still do.

The Danakil worked in an inferno; at the potash camp it was 110 degrees in the shade. The miners nevertheless greeted us with a violent dance and wild ululating shrieks. Watching them grinning and posturing for Jim's cameras, I could scarcely believe a story I had heard recently from a reliable source.

Only a month or so before, a flyer had made a forced landing south of here. He landed safely, but was shot to death by men of the desert. No one learned who killed him, but only Danakil live in this part of the country.



To the beat of a drum, Moslem pilgrims chant prayers in the Addis market. Some worshipers annually walk hundreds of miles to the tomb of a holy man, Sheik Hussein, on the border of Balé Province.

Camels take on salt mined in the inexhaustible Danakil Depression (page 556), nearly 400 feet below sea level. There brine bubbles into each fresh cut, and searing sun quickly evaporates it to produce more salt. Travelers dread fierce Danakil warriors, whose desert code demands the murder of strangers lest they deplete water holes. Old miner (below) fairs a salt block with an ax. The blocks still serve as currency in isolated regions.

Once while driving in this region, I struck a pair of goats with the Land-Rover. This was near Tendaho, where the Awash River, haven for crocodiles and the remnants of once-huge hippopotamus herds, provides irrigation water for a large cotton plantation. Here the East African firm Mitchell Cotts & Co., Ltd., has miraculously "tamed" the Danakil of Tendaho to work in the cotton fields and in the ginning and baling sheds.

Nobody came to claim payment for the stricken goats, so we went on. Next day an Ethiopian visited me at our hotel.

"About those goats you hit," he complained. "I came along in another gray Land-Rover an hour behind you. The Danakil ambushed me with spears and rocks. If I had stopped, they might have killed me."

I suppose with Danakil you never know.

Neither, so they tell me, can you always be sure of the Beni Amer, Moslems who dwell along the Sudanese border in northwestern Eritrea (page 551). Desert fighters like the Danakil, they also dislike government. In Asmara, American military people from the important Kagnew communications center warned us not to drive into Beni Amer country.

"More than one of us," said Sgt. Joe Goldberg, "has been ambushed and stripped out

Blazing-hot Massawa, baking under the sun of the East, sees summer temperatures reach 115°. Massawa and Assab face the Red Sea in former Italian Eritrea. The empire also uses the port of Djibouti in French Somaliland, linked by rail with Addis Ababa.

Turks, Egyptians, and a sherif of Mecca have ruled Massawa in the past. Mosques vie for room in this stronghold of Islam.

Italian cotton king Roberto Barattolo, relaxing aboard his Massawa-based yacht, typifies the foreigner who brings industry to Ethiopia. His modern factory at Asmara (top center) gins, spins, and weaves cotton grown at Marsa Gulbub (lower right), a seaside oasis north of Massawa. Here, field hands spray young cotton imported from the United States and Mexico. Dr. Barattolo created the fertile acres amid the dunes by building dams and digging wells, sometimes with his own hands.

there—weapons, shoes, clothes, everything."

We had learned by now that foreigners in Ethiopia—and Addis Ababans too—exaggerate the dangers of travel in the countryside. Nevertheless, as we entered an area we had been warned about, we would leave the Land-Rover unattended in the first village. Thus people could see that it held no weapons.

This policy paid on a trip through the hills to Keren, where the Italians made their last real stand against the British in World War II, then down passes noisy with baboons to Agordat, and over the hot desert road to Tessenei near the Sudanese border.

We found an Ethiopian army division stationed in the countryside. Soldiers moved about in convoys armed with machine guns. We asked the men why they were here.

"These savages killed so many police we

were ordered in to replace them," an officer reluctantly told us.

"Why do they kill the police?" I asked.

"Because they are bandits who want clothes and money—and especially rifles."

First Coca-Cola Wins Loud Thanks

We were welcomed, however, to Beni Amer villages, although we wore clothes and carried money. I gave a tribesman a lift into Tessenei and bought him his first Coca-Cola. The power of his Eastern-style belch of thanks astounded even its perpetrator.

"*Hamdulillah*," he said gravely. "Thanks be to God."

When we parted, he said, "I am happy you did not come here with guns, which we need. Now we do not have to kill you, but can welcome you as friends."

In late Ethiopian summer the rains began. Roads turned into chocolate paste. We ventured into the southern jungles, but turned back when the Land-Rover bogged down.

At Jimma, however, hearing that a popular coffee planter, Tekka Eganno, planned a picnic, the rain gods stayed their hands, sending only a glorious double rainbow.

Jimma is capital of Kaffa Province. It has a sprawling market, a modern central section built by Italians, and a surprisingly large American population. Peace Corps Volunteers teach in its secondary school, University of Oklahoma professors in its agricultural school, and United States military experts in its army barracks.

But Jimma's lifeblood is coffee. In all likelihood coffee was discovered in Kaffa Province, and that perhaps is the origin of the name.

Hyena-man of Harar feeds a beast whose jaws can crush an elephant's thighbone. Eyes glittering, another of the city's hundreds of night-roaming scavengers awaits a turn.

Kaffa people still gather the wild beans for market, but Tekka plants his glossy green bushes in scientific rows and cleans the crop with modern machines.

To Jimma we went on our last adventure in the ancient land, and I am glad we did, for Tekka's pancakelike injera and his wat, the traditional Ethiopian stew, were the best eating in the country, and his picnic turned out to be a microcosm of modern Ethiopia.

Rainbow's End Holds Adventure

We were a hundred assembled under the trees that shade the coffee shrubs on their steep hills. In huge fig trees half-smothered by lianas, hornbills perched and colobus monkeys played gymnastic games.

There were Galla soldiers, a police colonel aristocratically Amharic, a young Italian in a sport shirt with his Ethiopian wife in a shamma. I saw, among those who served us, Moslems of Kaffa and dusky pagans of neighboring Sidamo Province.

Our host, Tekka, was of the Guragé, hardest-working people in Ethiopia and among the oldest. An Ethiopian Horatio Alger, he began his career selling old bottles and tin cans; the Emperor recently rewarded his achievement in creating his plantation by calling him to Addis Ababa and decorating him.

His guests teased him, calling him an aborigine. But the talk was good-natured and drifted from past to future, which here meant coffee, and the roads that one day would take it to market, and the schools for training the young folk to grow it.

The double rainbow still arched across the sky as the picnic drew to a close. It seemed to rise almost from our midst, and the far end rested upon a great mountain rising sheer from the distant jungle.

I looked about me. The men were shooting at a tin can on a stump—men whose forebears would have been shooting not at a target, but at each other.

The children whose laughter had added so much to the afternoon were being rounded up from their hide-and-seek in a banana grove. There was school homework still to be done.

In the coffee-cleaning sheds, Tekka's machinery hummed. An Ethiopian Airlines plane came low overhead, scattering the tumbling monkeys in the trees.

Getachew came to my side. "It is almost the newest part of the empire here," he said. "A century ago it was savage and unconquered. See now how we are working all together to make life better.

"But it is still a land of mystery, this great jungle," he added. "Tekka says somebody must one day climb the mountain at the end of the rainbow to see what is at the top. I wonder what is up there."

I said nothing, but I knew the answer. The one who climbs it will find the same prize that is hidden in every corner of this exotic empire—adventure.

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COVER: Christian holy man of Ethiopia reverently swathes his Coptic cross in cloth (page 550).

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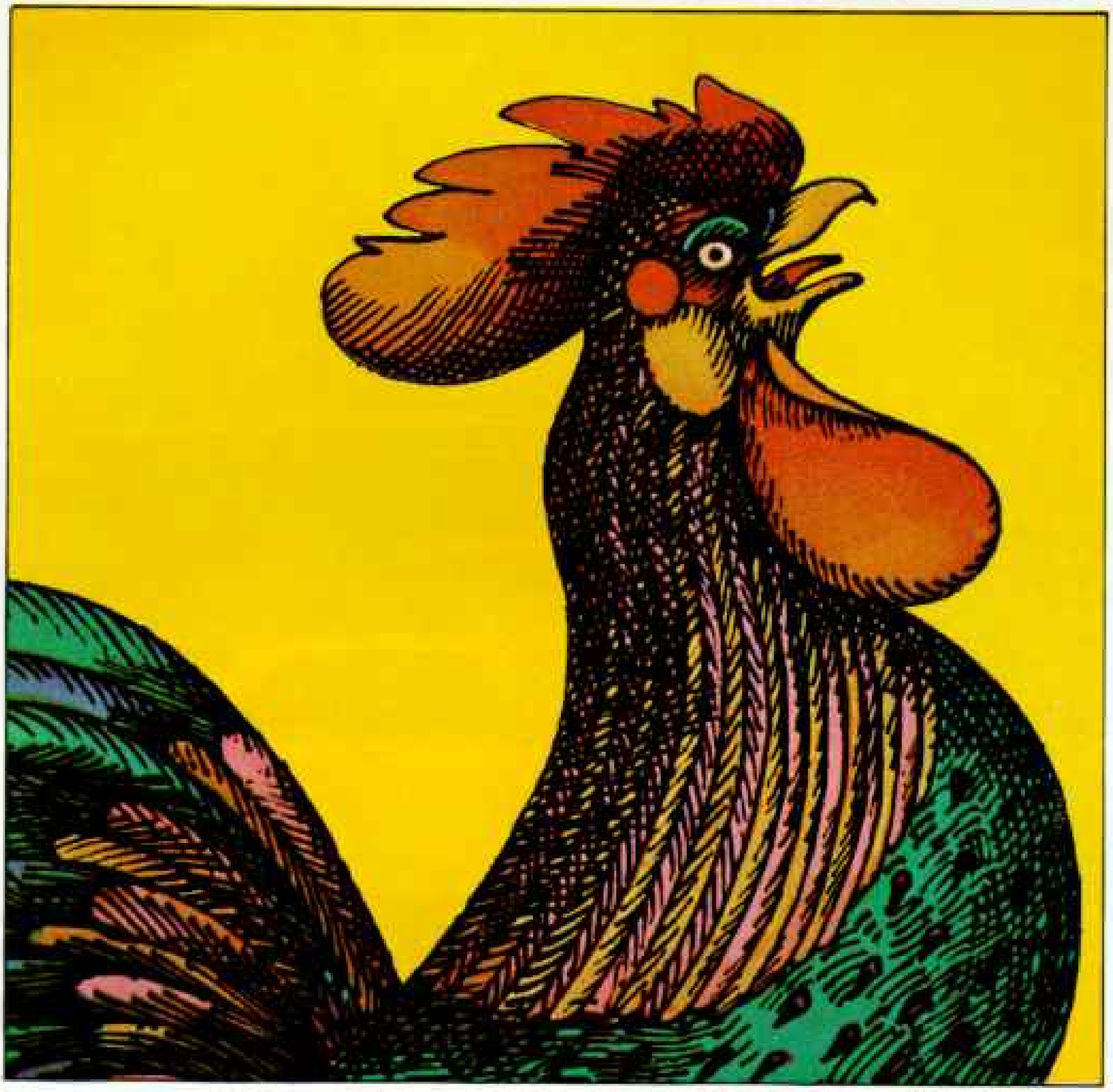

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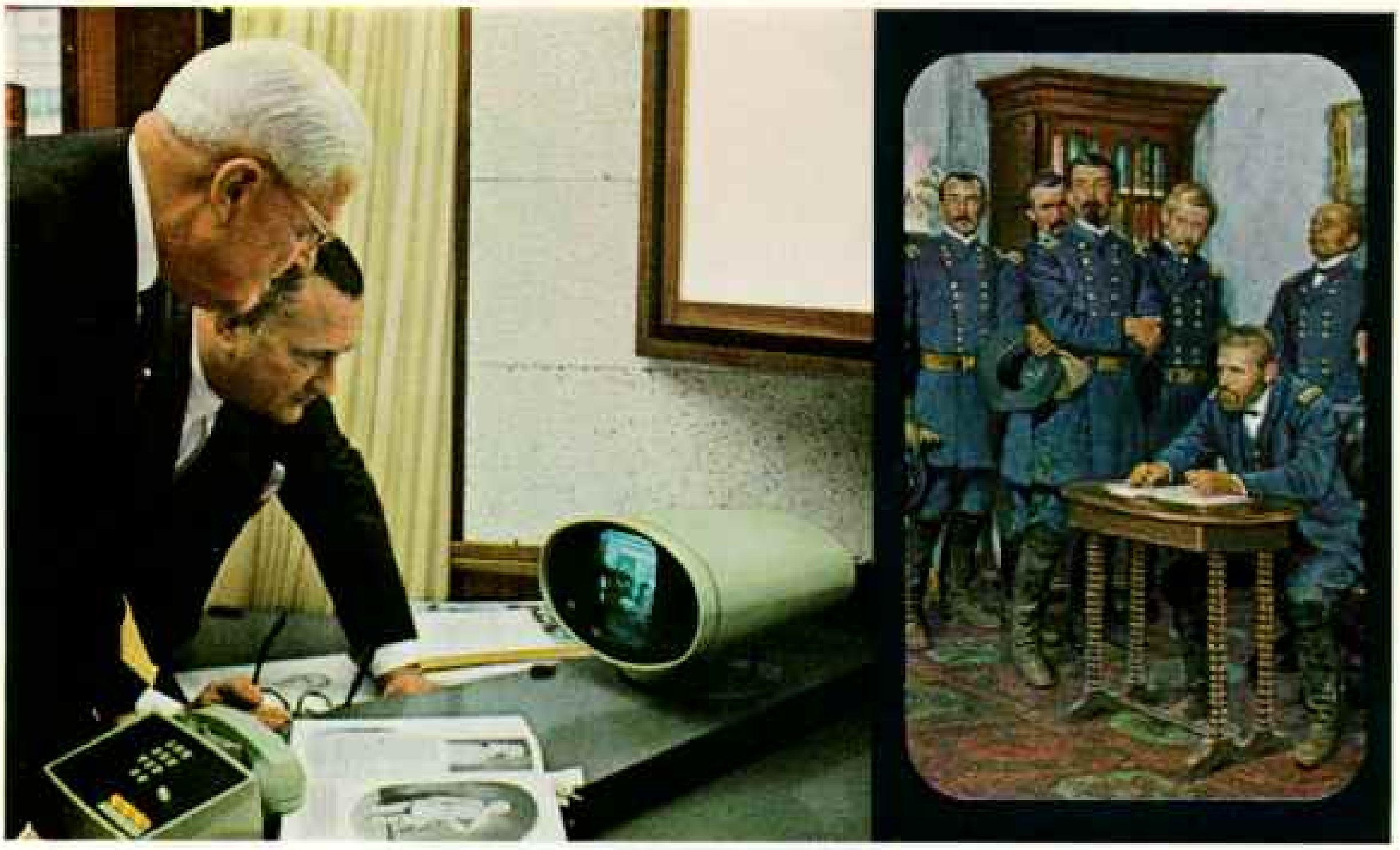

Picturephone telecasts a Civil War painting

HERE'S A NOVEL USE for the television-telephone at National Geographic Society headquarters in Washington, D. C. Maj. Gen. Ulysses S. Grant 3rd, USA (Ret.), left, views a specially commissioned painting of his grandfather, Lt. Gen. U. S. Grant, accepting the surrender of the Army of Northern Virginia on April 9, 1865. Art Editor Andrew Poggenpohl points out details of the painting, telecast by artist Tom Lovell from the Picturephone Center in New York's Grand Central Terminal.

Major General Grant's vivid description in this issue of the Civil War's dying days—final article in a series commemorating the conflict—pays tribute to the peace forged by his grandfather and Gen. Robert E. Lee. Portion of the painting (inset at right) shows a compassionate Grant with his staff. Since no camera recorded the event, artist Lovell studied photographs of participants and eyewitness accounts. Our author considers the work (pages 464-5) to be the most accurate portrayal of the surrender.

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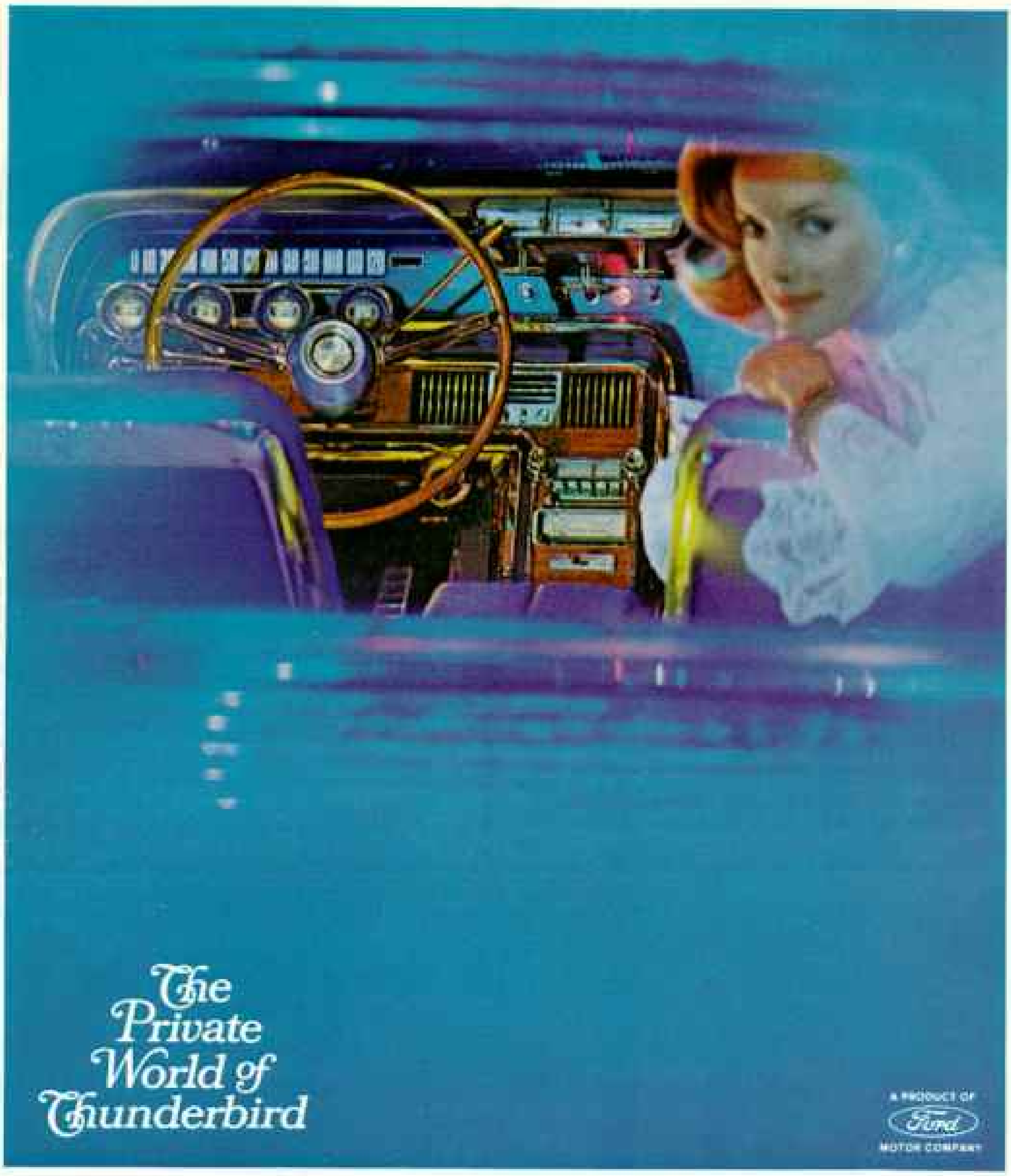

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does practically everything for you automatically

and loads instantly, too

The KODAK INSTAMATIC 800 Camera is the most convenient, most automatic, most helpful precision camera in the world today. It loads *automatically*...*automatically* adjusts for film speed...*automatically* advances the film for you after each shot...*automatically* adjusts the fast *f*/2.8 lens for correct exposure...*automatically* switches to flash speed when you pop up the built-in flash holder...*automatically* indicates by rangefinder when focus is correct...and more, much more! This extraordinary precision camera costs less than $130. See the KODAK INSTAMATIC 800—and the many other KODAK INSTAMATIC Cameras—at your Kodak dealer's. *Price subject to change without notice.*

KODAK INSTAMATIC 800 Camera

EASTMAN KODAK COMPANY, ROCHESTER, N.Y.

Lawn tamer

For complete lawn and garden care, nothing's as great as a Gravely. The Gravely Tractor (with a wide choice of rotaries and reels) wends its way across any lawn to make a jewel out of a jungle. Although mowing will probably be the lion's share of the Gravely's contributions to your well-being, it works with a total of 31 attachments to make your life easier. It will dig those crazy seed beds, plow like a demon, haul a highboy or a load of kids, and even scoop or blow snow from in-the-way to out-of-the-way. It eats up work . . . out front, for safety's sake. It's a long-time friend, lasts for years. Give the Gravely a go at your local dealer now. If you want to dream, write for our '65 catalog. It tells all. It's colorful. So is the Gravely. **You can be a Lawn tamer—on our easy budget plan.**

GRAVELY

Studebaker

5604 GRAVELY LANE
DUNBAR,
WEST VIRGINIA 25064

These delightful stops in New York State can double the fun of your World's Fair trip

Wonderful sights await you in New York State. (Like spectacular Niagara Falls.) Visit them when you come to the World's Fair (this year more exciting than ever). Travel's easy over magnificent highways.

In summer, the whole state blazes with color. Each June, 35,000 bushes bloom at the Newark Rose Festival. At Rochester, there's a May Lilac Festival. Further south, you'll find over 17 miles of brilliant color in Genesee Gorge, "the Grand Canyon of the East."

The Adirondacks offer something for the whole family. Forts, animal farms, unusual attractions found nowhere else in the country. For a spectacular view, take the Tupper Lake, McCauley or Whiteface Mountain chair lift. On a clear day, you can see 100 miles.

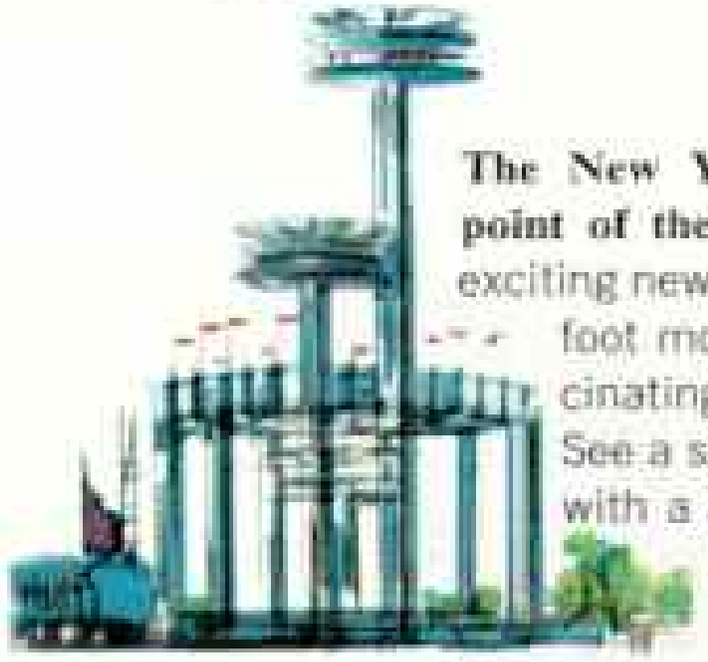
If you want a real fishing challenge, go after fighting muskellunge in the Thousand Islands of the St. Lawrence. Or try for the wily black bass. If you have an extra day, take the 50-mile "ramble" through the islands.

The six magnificent Finger Lakes offer some of the best sailing in the area. Named by old Indian tribes, the lakes are now the center of the wine industry in New York. Don't forget to try some of the excellent local champagne at a nearby inn.

Now 102 years old, Saratoga remains the queen of the race tracks. And there's Saratoga Spa State Park with its world-famous mineral baths and championship 18-hole golf course. Nearby, visit the Revolutionary War battlefield.

In Sullivan County's world-famous hotels, you can sunbathe by the pool all afternoon, be entertained by some of the biggest names in show business in the evening. Close by is West Point, the United States Military Academy. And the only harness-trotting museum in the world is at Goshen.

New York City is the most colorful, exciting city in the world. You'll find its shops, restaurants, theaters everything you expected. See them by sightseeing bus from midtown. ☐ This year, there's lots of information on New York and the Fair in our **free "New York State Vacationlands" guide. And, of course, plenty of facts on what to see, where to stay around the state. Get your copy now from the New York State Department of Commerce, Room 15, P.O. Box 1390, Albany, N. Y. 12201.**



The New York State Pavilion is the high point of the Fair. One of the world's most exciting new buildings! See a 20,000-square-foot mosaic map of the state. See fascinating products made in New York. See a spectacular movie in Theaterama with a 360° screen. Ride up to a platform 220 feet in the sky for a magnificent view of the Fair.

TAKE THE FUN ROUTE TO THE FAIR THROUGH NEW YORK STATE!

MAIL THIS COUPON TODAY

New York State Department of Commerce
Room 15, P. O. Box 1390, Albany, N. Y. 12201
Please send me the new 1965 "Vacationlands" guide to New York State and the World's Fair.

Name

Address

City State Zip

Mastoiditis

When this severe complication of an ear infection develops, it often requires surgery. It sometimes causes permanently impaired hearing.

Today, when ear infections are treated promptly with modern medicines, few serious cases of mastoiditis occur. Surgery is seldom needed; hearing rarely damaged.

In this and many other diseases, new and better medicines developed by Parke-Davis have helped make the difference.

PARKE-DAVIS

BETTER MEDICINES FOR A BETTER WORLD

Oh, I don't know...he just wanted it

Judson is a real gentleman. Hunts with Italian shotguns, collects jade, has his tweeds made in England. Nothing but the best for Judson.

While weekending in the country, he observed a B-10 tractor at work on the lawn. Even took a turn on it himself.

Right away he exclaimed, "this is the only *proper* way for a real gentleman to care for his lawn in town." So he bought a B-10 . . . even a snow clearing attachment for next winter.

But don't worry about Judson. He owns a factory. He could find plenty of jobs down there for his B-10, if he wanted to. But chances are, he'll buy another one.

You know, the B-10 is from Allis-Chalmers, the tractor people who make the big ones.

You too can live like a gentleman and be practical . . . especially if you have a yard.

I may just want one too. Send me the booklet that tells all about the B-10 and attachments.

_____ "Tool-up" for home use

_____ "Grounds for Pride" for office use

_____ I'd also like my dealer's name

Name _____

Address _____

City _____ State _____

FROM THE TRACTOR PEOPLE WHO MAKE THE BIG ONES

ALLIS-CHALMERS

Box 611, Milwaukee, Wisconsin 53201 NG-4

TOMORROW-LAND

High spot of the New York World's Fair reopening this Spring—GM Futurama!

You can look over GM's exciting "idea" cars—*Firebird IV* with television, stereo, game table, refrigerator; *GM-X* with jet aircraft cockpit and controls—fascinating design and engineering innovations right out of tomorrow.

You'll take a ride that is wrapped in wonders . . . through the metropolis of the future, over Antarctic wastes, into tropical jungles, along the ocean floor.

You can count on the people of General Motors again to provide the most popular show at the Fair—the Futurama.

General Motors Is People...

making better things for you

"Autographs" of the stars

You'll see many worlds here

Shopping in subtropical setting

Explore bays, ports, a magic isle

Downtown palms, Los Angeles

June or January, it's sports time

Summertime at the Pacific: a warm sun, a cool sea breeze — and no rain

Should we charge extra for our rainless Summers?

The nights are cool, too. And the humidity refreshingly low. Yet Summer vacation prices in Southern California generally are no higher than Winter, Spring or Fall prices. Why? These seasons are just as attractive here. And with a year-round climate, year-round prices make sense. See coupon.

Southern California

Free: Official Vacation Guide.

Color pictures, sightseeing map, dozens of Southern California attractions.

ALL-YEAR CLUB, DEPT. F-4
629 WEST SIXTH STREET, LOS ANGELES, CALIFORNIA 90017

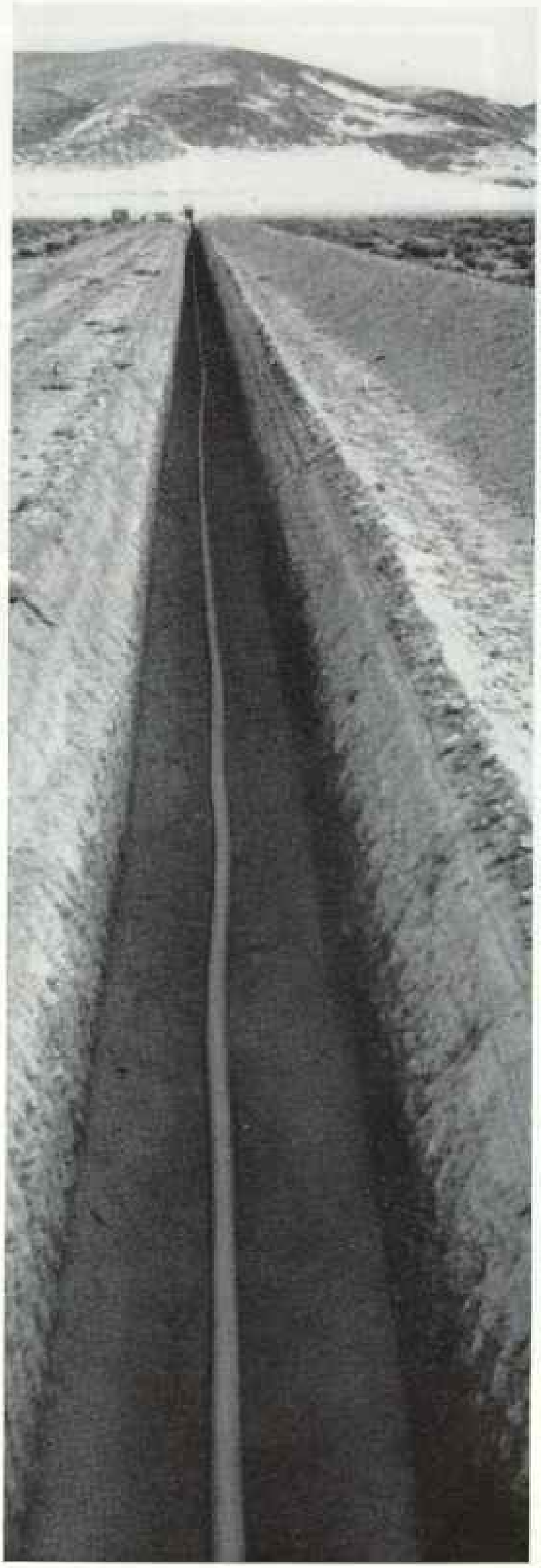
NAME_____
Please Print

ADDRESS_____

_____

An Event Club of Southern California. This advertisement sponsored by the Los Angeles County Board of Supervisors for the citizens of Glendale, Hollywood, Hollywood-Long Beach, Los Angeles, Pasadena, Redondo, Santa Monica, Torrance, 101 other communities.

We dug and refilled a 4000-mile trench to protect 9300 communications circuits against disaster



We split the continent with a trench four feet deep to give the United States its first blast-resistant coast-to-coast underground communications cable system.

More than four years ago when the first of 2500 giant reels of coaxial cable started unrolling in New York State, we began an important project that will give added protection to the nation's vital communications.

Today, 9300 circuits—available for voice, data, teletypewriter, telephoto—are included on this route. It stretches across 19 states and has 950 buried reinforced concrete repeater (or amplifying) stations.

Spotted strategically along the route about 50 feet below ground level are 11 manned test centers. Also of reinforced concrete, they have automatic air filtration and ventilation and living quarters stocked with emergency food and water.

This vital transcontinental link will serve the needs of government agencies, businesses and individuals.

This is a job that needed the Bell System's unified research, manufacturing and operating capabilities. It is another implementation of a basic Bell System policy: "In communications, the defense of the nation comes first."

Bell System

American Telephone and Telegraph Co. and Associated Companies

Olds Vista-Cruiser

carries more than 100 cubic feet of cargo

. . . the proudest family in town

. . . and a price that starts below 38 other station wagons!

You're looking at a wagon that's *loaded* with convincing reasons to go Olds in a big way.

- Like a cargo capacity over 100 cubic feet huge.
- And a Jetfire Rocket V-8 with up to 315 horses.
- A forward-facing third seat that makes back seat passengers part of the family.
- And a tinted-glass Vista-Roof that makes back seat riding part of the fun!
- But Vista-Cruiser's happiest surprise is this: For all its niceties, *prices actually start below 38 other station wagons!*

'66 OLDSMOBILE

Try a Rocket in Action . . .
Look to Olds for the New!

OLDSMOBILE DIVISION • GENERAL MOTORS CORPORATION

PHOTOGRAPHED AT FLORIDA'S SILVER SPRINGS

What has the tilt-up advantages of an outboard yet swings a prop as big as an inboard?

MerCruiser Stern Drive. MerCruisers, like an outboard, can run right up on the beach without damage to drive unit or propeller. MerCruiser's drive unit tilts up, to clear the bottom of the boat . . . no fixed, angled shafts, struts, or rudders on the bottom. This makes MerCruiser easier to launch, easy to trail and lets you run safely in shallow water.

MerCruiser's drive unit tilts up on impact to slide over submerged objects. Hydraulic shock absorbers cushion the blow. The drive unit can be adjusted to different tilt angles like an outboard.

MerCruisers not only have the advantages of an outboard, but they swing a big, slow-turning propeller like an inboard. With gear ratios up to 2:1 you get tremendous low-speed thrust without sacrificing high-speed performance. MerCruiser's exclusive Jet-Prop exhaust buries noise and fumes far behind the boat, underwater drag is reduced, and engine breathing is improved. And, there are no shear pins to fail.

Ask your MerCruiser dealer to show you all the reasons why more people buy MerCruiser than all other stern drives combined . . . 60, 110, 120, 150, 190, 225 and 310 hp gasoline; 60 hp diesel.

Worldwide Sales and Service

MERCRUISER

STERN DRIVE POWER PACKAGES

Organize your own private swimming club at Horseshoe Bay, Bermuda.

Where can you find beaches so crowd-free, so clean, they're like private clubs for you and your family? In Bermuda. Over 100 bewitching pink beaches are more than enough to go around.

Right now, the beach is yours. The pinkest, softest beach you ever owned. Let the little ones splash to their hearts' content!

Bermuda's turquoise water holds excitement for all ages. Swimming, sailing, skin-diving, water-skiing, exploring the clear, brilliant world of underwater.

A bit of Britain. Bermuda — less than two hours from New York (two days by cruise)—is as far as you need go for a holiday with old-world charm. Bermuda *is* old: much of it unchanged since the 1700's.

And Bermuda is British. Proudly, serenely, warmly British. You'll feel it everywhere. No billboards, no hot-dog stands, no honky-tonk. On golf course and tennis court, "well-played, sir" manners. Attentive old-world service, always.

Hamilton is a shopper's paradise. Shopping without pressure. Bargains from all over the world. (Each member of the family is entitled to a duty-free allowance.)

Getting about is fun for all. Motor-bike all over the island. (Do keep to the left—we drive British! But our speed limit's a sane 20 m.p.h. And small children may ride pillion.) Sight-see in a horse-drawn Victoria. Village-hop in a ferry boat. Or take a fringe-topped taxi.

Fish without hooks at Devil's Hole and "catch" a huge turtle or grouper. Ardent anglers will prefer deep-sea fishing for wily game fish—fighting marlin, yellowtail, wahoo.

By night, let nanny bed down the babies. (Bermuda has such nice babysitters.) Then head out for swizzles and calypso. Or dinner by starlight. Dance to a steel band. Watch the limbo—or try it!

Where you stay depends on your preference. Ultra-glamorous hotels. Bermuda guest houses. Attractive cottage colonies.

Claim your place in the sun. Ask a travel agent. Or write Bermuda, 620 Fifth Avenue, New York 20 • 6 North Michigan Avenue, Chicago 2 • 111 Richmond St., West, Toronto.

Made for fishermen

who have skiing problems.

Fishing and water skiing seldom mix.

Especially when fishermen and skiers live under the same roof and share the same boat and motor. The rig that's big enough for father's fishing lacks the get-up-and-go for junior's skiing. And the rig that's right for skiing is all wrong for fishing.

Something's got to give. And unless you play the cards exactly right, it could be the fishing!

We've just invented the perfect solution — the new Evinrude SKI-LARK (what a sneaky name for a fishing boat), powered by a 40 hp Evinrude LARK motor.

It has brawn enough for slalom skiing. Glamour appointments you can hose down. Stability and flat-floor room far beyond the usual limitations of its 14'-7" size.

Yet it's compact and maneuverable as a car-top skiff for "way back in" fishing. And it has the Evinrude GULL WING ride that lets you go in comfort in waves and wakes and white water.

Fishing boat, skiing boat, or luxury runabout — it's all of these things on a moment's notice. With windshield that folds flat, seats that move around, and push buttons that answer to a finger's touch — it's versatile enough for everything from reef diving to moonlight driving.

Just in case you're looking beyond the skiing problem!

FREE! Two new catalogs, 1965 motors and boats. At your dealer, or write Evinrude Motors, 4077 N. 27th St., Milwaukee, Wisconsin 53216.

EVINRUDE

FIRST IN OUTBOARDS

IN CANADA: PETERBOROUGH, ONT.
DIV. OF OUTBOARD MARINE CORPORATION

The Hammond C-131 Spinet Organ in cherry, French Provincial styling, $1070. Other models in a wide choice of styles and finishes. All prices f.o.b. factory, subject to change without notice.

Amazing . . . how this Hammond Organ brings your music back

SOMEWHERE in years gone by, did you happen to have a few music lessons? If so, we have a wonderful idea for you. It will lift your spirits and let you astound your friends.

Get a Hammond like the one illustrated. Take a few lessons. Pick up your music where you left it. You'll never believe how quickly your music can come back until you hear yourself playing the remarkable Hammond Organ.

We've built in all kinds of things to help you. Famous Hammond harmonic drawbars put a wonderful variety of musical tones at your fingertips. Pre-set controls let you change the character of music as you play. Our patented reverberation system gives your music a "concert-hall" sound.

All this is yours, plus the confidence of knowing that the Hammond tone wheel generator—source of the famous Hammond voice—can never get out of tune. Not in a lifetime of playing.

No wonder you really enjoy the time you spend at the Hammond Organ. No wonder you know that you will succeed. Try this fresh start and see. First step: mail our coupon. You'll have no obligation at all . . . except to that person in your family who should have kept on with his music.

BG 9-13

HAMMOND ORGAN COMPANY
4200 W. DIVERSEY AVE.
CHICAGO, ILL. 60639

- ☐ Please send free Hammond Organ Catalog.
- ☐ Also send information on Guaranteed Playtime Plan, described below.

Name_____

Address_____

City_____ State_____ Zip Code

GUARANTEED PLAYTIME PLAN, offered by most Hammond Organ dealers, works this way: dealer will put a Hammond Organ in your home for a trial period, and provide 6 private lessons—all for $25. If you aren't playing to your satisfaction in a matter of days, dealer refunds your $25. But if you buy, the $25 goes toward down payment.

Music's most glorious voice

HAMMOND ORGAN

Also makers of the Hammond Piano

Having trouble with weight control?

The Special K Breakfast is for you. Only 240 calories. Good in protein. 99% fat-free. Tastes fine, day after day.

THE SPECIAL K BREAKFAST

4 ounces of orange or tomato juice —or half a medium-size grapefruit

1 ounce (1½ cups) Special K with 1 teaspoon sugar

4 ounces skim milk

Black coffee or tea

(Only 240 calories)
(Only 0.62 grams of fat)

The Nutrition Story of Kellogg's Special K

One serving of Special K (1½ cups with ½ cup skim milk) supplies 14% of the recommended daily protein allowance for an adult man, and approximately these percentages of his minimum daily requirements as established by the Food and Drug Administration:

Thiamine (B_1)	44%
Riboflavin (B_2)	60%
Niacin	51%
Vitamin C	38%
Vitamin D	50%
Calcium	22%
Phosphorus	22%
Iron	36%

This is the weight control breakfast you can live with, month after month.

Glance again at the picture. Appetizing, isn't it? The Special K Breakfast is a normal, natural meal.

And in spite of its modest calorie count, it starts your day with a heaping helping of nourishment: Complete quality protein. Important vitamins and minerals. And energy to get you going.

A sensibly nutritious breakfast like this can encourage you to eat sensibly at lunch and dinner.

Key to the success of the Special K Breakfast is a uniquely delicious cereal: Kellogg's Special K. Besides being exceptionally high in protein, and low in fat, it has a flavor you'll relish every time you sit down to it.

Kellogg's Special K has become an important part of breakfast with millions of people.

Don't you think it deserves a place on your table?

Kellogg's

"The best to you each morning"

SPECIAL K

Get well—without money worries

Equitable Living Income plan gives you up to $750 a month tax-free when you're sick or hurt

If an accident or illness kept you from working, where would you get the money for your family to live on?

How would you pay the bills—for food, rent, clothing—that keep coming in even when your earnings stop and your other sources of income run out?

Equitable's Disability Income plan could help pay your bills for you. Depending on the plan you qualify for, this Living Income plan could give you up to $750 a month tax-free to help you meet all your living expenses for months, or years, until you were able to work again.

(Did you know that at age 35 the chance of a sickness or accident keeping you out of work over 90 days is more than *twice* as great as the chance of death?)

For details about Equitable's Disability Income plan, call The Man from Equitable.

LIVING INSURANCE...FROM EQUITABLE

THE EQUITABLE LIFE ASSURANCE SOCIETY OF THE UNITED STATES

Home Office: 1285 Avenue of the Americas, New York, N. Y. 10019 · Equitable 1965

See the Equitable Pavilion when you visit the New York World's Fair.

On Course

If golf is his game, he'll be first on the tee. Relaxed and ready to go. A practical man? Of course. He wants to be free to pursue his favorite activities—yet he insists on maintaining an impeccable lawn. When it comes to yard care he does it fast and expertly on his ARIENS Emperor riding mower. No chance for slip-up either. The ARIENS Flex-N-Float rotary mower moves *with* the turf—floats in every direction. And a selection of year 'round attachments makes quick and easy work of other seasonal yard chores. Why not chart your course to your ARIENS dealer for an eye-opening demonstration of the Emperor.
Fore. Mind if we play through?

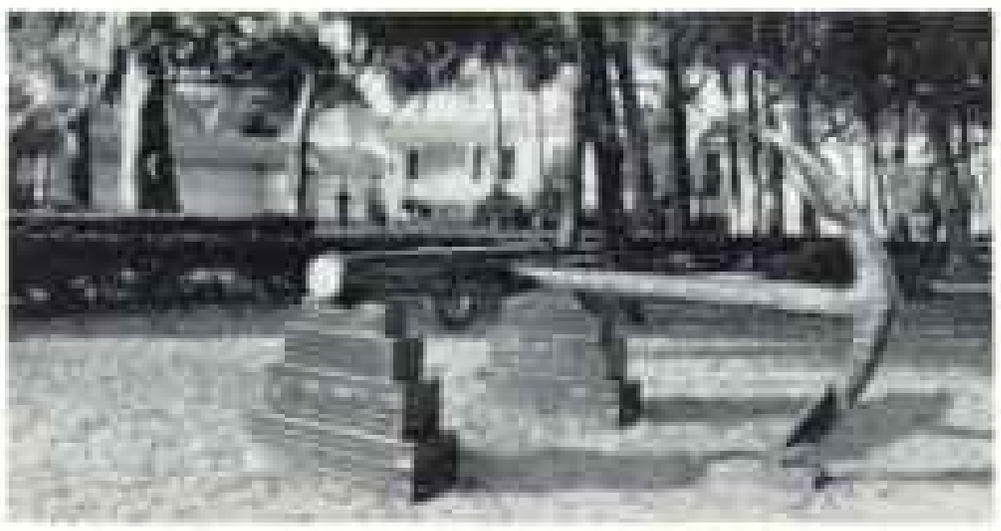
Ariens COMPANY
259 Calumet Street • Brillion, Wisconsin

STARCRAFT '65

explorer deluxe—a new fishing boat safe and steady enough for a child!

New Explorer Deluxe is as comfortable as old shoes . . . scoots with bird-like swiftness . . . and has much less bounce to the ounce even in rough seas. Its 14 ft. fiberglass hull is trihedral. Write for your free Starcraft '65 catalog. Starcraft Boat Company, Dept. NG-4, Goshen, Indiana.

DISCOVER EARLY AMERICA



In Jacksonville . . . where slave ships from Madagascar landed cargoes at Kingsley Plantation on Ft. George Island in the early 19th century. Here, Zephaniah Kingsley and his Madagascar bride ruled his slave empire. From plantation walks to historic forts you can turn back the pages of history beneath sunny skies in Jacksonville, Florida.

Jacksonville
FLORIDA

SEND FOR FREE COLOR BROCHURE
Jacksonville Convention and Visitors Bureau
Hemming Park, Jacksonville, Fla. Dept. B

NAME .....
ADDRESS .....
CITY ..... STATE .....

Pontiac Motor Division • General Motors Corporation

Some cars try to look like Pontiacs.

Some cars try to act like Pontiacs.

Lots of luck.

Imitation is the sincerest form of flattery, and we're as susceptible as anyone else. But the fact is that no matter how hard the others may try, there's still a wide gap between their efforts and the genuine Pontiac. What sets Pontiac apart? Things like a tigerish 389-cubic inch V-8 engine, matchless Wide-Track ride and roadability, and a look that others can't seem to capture no matter how much they envy it. Slip down to your Pontiac dealer's and slip into something like the Catalina Convertible pictured above. You'll agree there's nothing like the real thing. **Pontiac '65/Year of the Quick Wide-Tracks.**

HOSPITALITÉ SPOKEN HERE

You may spell it Hospitality . . . but be assured your neighbours, *les Québécois*, spend their time practicing it in a thousand and one welcoming ways. *La Province de Québec*, the showcase of Canadian history and the arts, provides you with a wonderful blend of modern excitement and Old World charm. Come share our *joie de vivre*, savour our superb French Canadian *cuisine*, marvel at our scenic grandeur. Get all this and friendliness, too. Just mail our coupon and get a free sample of the fun to come in *la belle Province*.

QUÉBEC

TOURIST BRANCH, Dept. CA5-8
PARLIAMENT BUILDINGS
QUEBEC CITY, CANADA

Please send me a FREE illustrated guide to *la belle Province*.

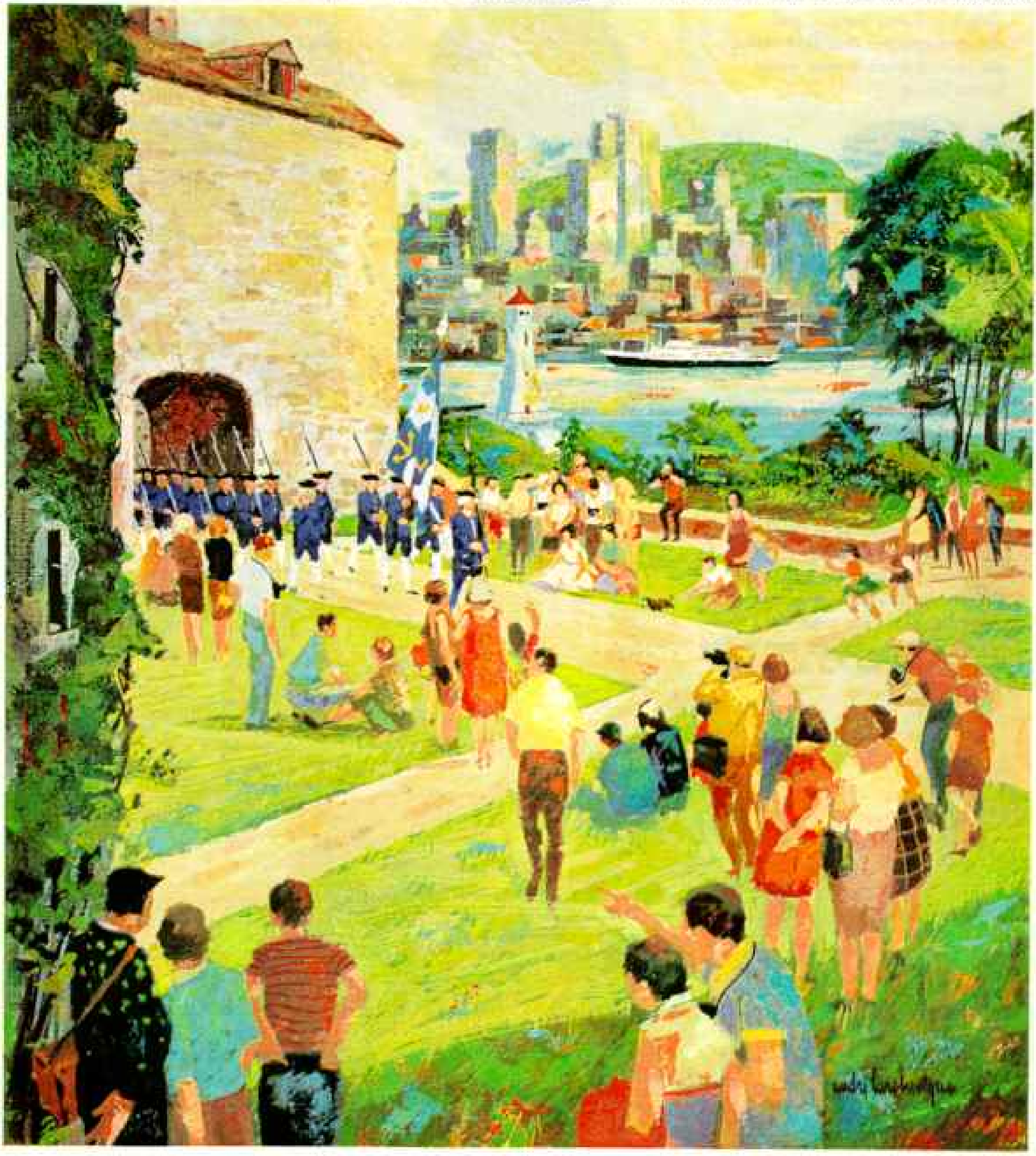
My main interest is .....

NAME .....

ADDRESS .....

CITY ..... STATE .....

In his painting of *les Compagnies franches de la Marine* on *l'Ile Sainte-Hélène, Montréal*, French Canadian artist André Larchevêque captures the contrast of the historic past and the modern present that makes Québec so interesting. Come experience this rare vacation treat *à la québécoise*.



How to surprise your wife with a vacation in the Orient

Tell her you've always thought she'd look beautiful in a cheongsam. And you'd like to take her to a little shop where she can buy one. The shop is in Hong Kong . . . and the cheongsam is that devastating slit-skirted dress women wear in the Orient.

This is the sort of tidbit you find in the Pacific Explorer's Kit you get from us. It has all the facts you need to confound your family and astound your friends with your vast knowledge of the Pacific. More of that in a moment.

Before you spring the surprise, you'll want to know the cost. Less than you think. For example: round-trip fares to Hong Kong start at $900 from the west coast of the U.S. or Vancouver, and you get to visit Japan, Taiwan, Macau, the Philippines, Guam and Hawaii along the way at no extra cost. Add $231 more, and you can return by way of Southeast Asia, Australia, New Zealand and the enchanted isles of the South Seas. Naturally, the final figure depends on your itinerary. Our indispensable kit can help you decide.

Now, about time. You can cruise leisurely around the entire Orient. Or—something few people realize—you can see a large part of the Pacific area in two or three weeks. Here again, our Explorer's Kit will tell you how much time you need to see what you want to see.

In fact, the kit has everything you'll need to get ready, get set and go. A Trip Planner to help you plot your itinerary and a Rand McNally map to pinpoint it for you; a Currency Converter that makes American dollars and sense out of mysterious foreign money; a booklet describing the major attractions in all the Pacific countries, and specific booklets detailing the charms of each. The only thing you could need in addition is the help of your travel agent—the wise man who knows the ins-and-outs of the Pacific.

Isn't it worth $1.00 to give your wife the surprise of your married life? Mail it with the coupon below for your Pacific Explorer's Kit.

AUSTRALIA	MACAU
BURMA	MALAYSIA
CANADA	NEW CALEDONIA
CEYLON	NEW ZEALAND
FIJI	PHILIPPINES
GUAM	SAMOA
HAWAII	SINGAPORE
HONG KONG	TAHITI
INDIA	TAIWAN
INDONESIA	THAILAND
JAPAN	UNITED STATES
KOREA	VIETNAM

PACIFIC AREA TRAVEL ASSOCIATION
442 Post Street, Department 1104 San Francisco, California 94102

I yearn to know more about the exotic lands of the Pacific. Please post me your Pacific Explorer's Kit today. I enclose one dollar.

Name _____

Address _____

City _____ State _____ Zip ____

IH Cub Cadet® is for keeps...

Most owners will never need another tractor

Cadet is no toy; it's a *tractor*. 100 lbs. stronger than most other 7 and 10 hp tractors. I-section front axle. Full length frame to soak up shocks. Direct drive (no belt) power train built for bigger IH Cub® tractors.

Test Cadet's variable ratio steering. Drive "no hands" a bit. See how it holds a line, even when pulling an 800-lb. load. Then try a tight turn. Sharp circle. You'll almost catch your tail.

Hand trimming? What's that? With Cadet you'll work skin-close to walls, trees, obstacles. It figures. Cadet stores in a space 5' long and 3' wide.

You'll use Cadet year-round—everything from mowing to snow removal. Your warranty is the same as for the biggest IH tractors, too. Your nearest dealer? Phone Western Union by number and ask for Operator 25. International Harvester Company, Chicago, Illinois 60601

International Harvester – the people who bring you the machines that work

"The system." It has an interchangeable everything.

6 lenses. 4 film backs. 4 viewfinders. All interchangeable. So you can go from color to black and white midroll. Shoot what you want. Without limitation. It takes 5 cameras to do what "the system" can do. That's why "this is a system, not to be confused with a camera." For further information, write: Paillard Incorporated, 1900 Lower Road, Linden, New Jersey

HASSELBLAD

FOREVER

Memory Lives On... Forever

Memory Stone
MEMORIALS

Lovely, colorful Memory Stone Memorials are famous for their beauty, permanence, craftsmanship and Double Guarantee Certificate.

The same artistry that fashions the Memory Stone Memorial you select has been employed in such national shrines as The Tomb of the Unknown Soldier, The Jefferson Memorial, The Franklin D. Roosevelt Memorial at Hyde Park and many others.

Write for FREE FOLDER of Memory Stone Memorials and name of nearest dealer:

VERMONT MARBLE COMPANY
PROCTOR 3, VERMONT

MEMORY STONE MEMORIALS

In a lifetime, you have just so many chances to buy a car. Make this one count.

Think back over the years. Were all your cars as good as you deserve? Were they masterpieces? Were they eloquent, long, graceful, infinitely luxurious? Did they lift your spirits? Make you soar? Make the merest turn around the block feel like a cruise to Nassau? Did they come equipped with every last thing needed to make driving (or just riding) an unmitigated pleasure? No? Then don't settle for anything less, from now on. Your Buick dealer is waiting to introduce you to the car that will make it up to you for all those disappointments.

Buick Electra 225.
Wouldn't you really rather have a Buick?

Buick Motor Division

the place to go is IDAHO

Discover the REAL WEST this year with an unforgettable vacation in a region of matchless natural beauty and variety. The unspoiled scenery is just as Lewis and Clark found it. And it's still free!

The whole family will enjoy year 'round fun in Idaho . . . water sports, fishing, hunting, skiing . . . every type of outdoor pleasure that makes a vacation refreshingly exciting.

Idaho was selected from all the states as the site of the 1965 Senior Girl Scout Roundup. When you see its towering mountains, endless evergreen forests, high country lakes, clear-water trout streams, alpine meadows, big plateaus and colorful desert areas, you'll understand why Idaho was FIRST CHOICE.

Discover Idaho THIS YEAR!

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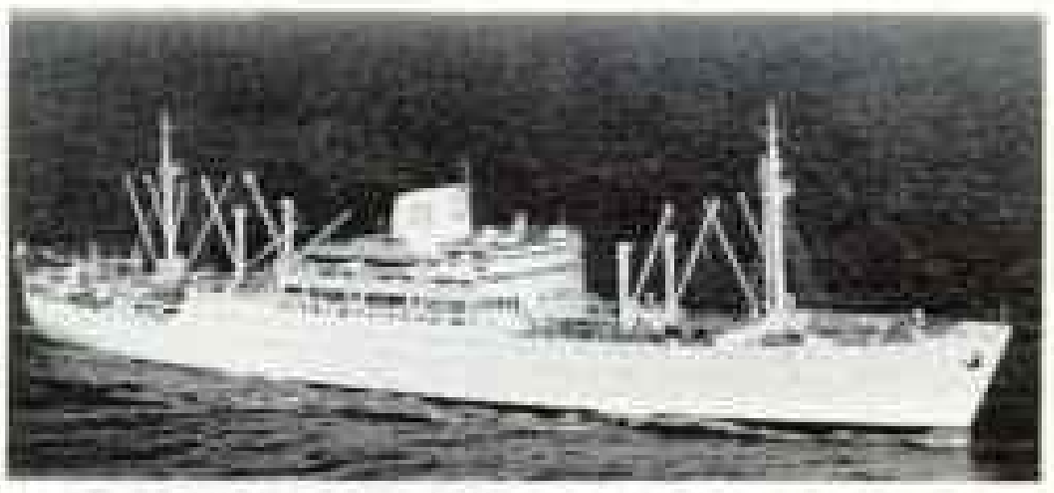

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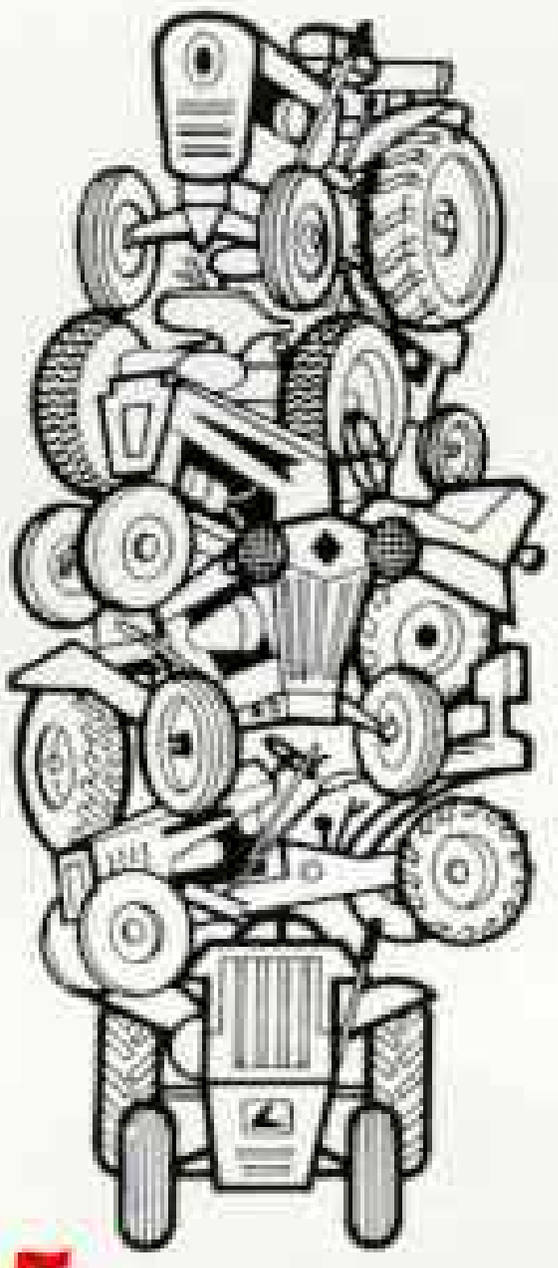

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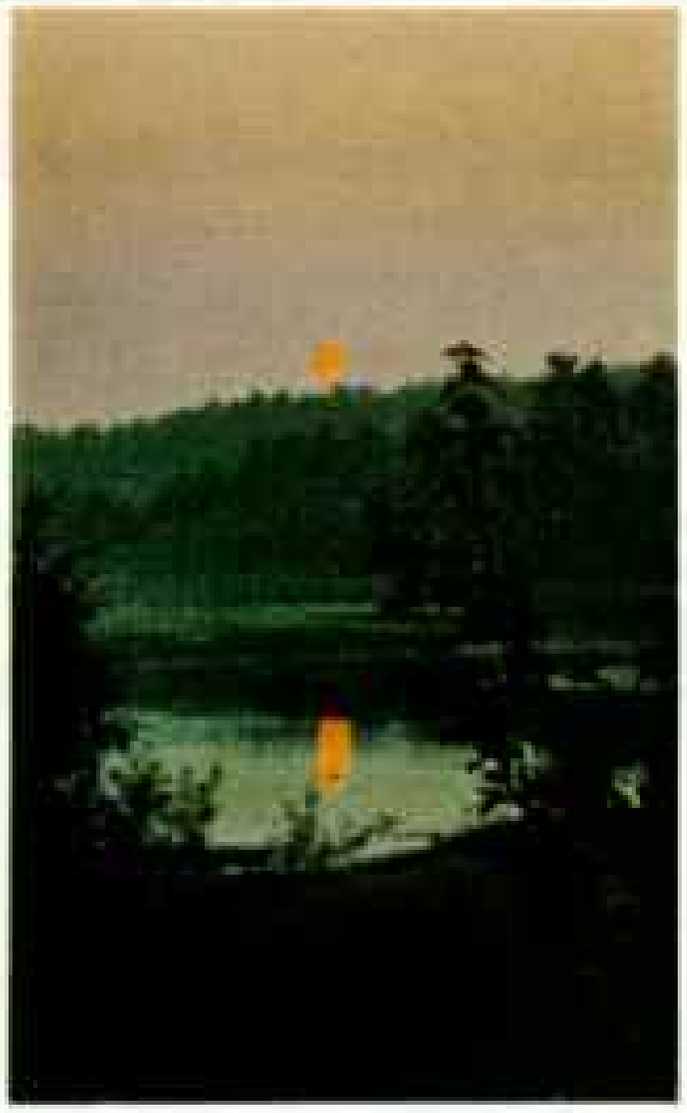

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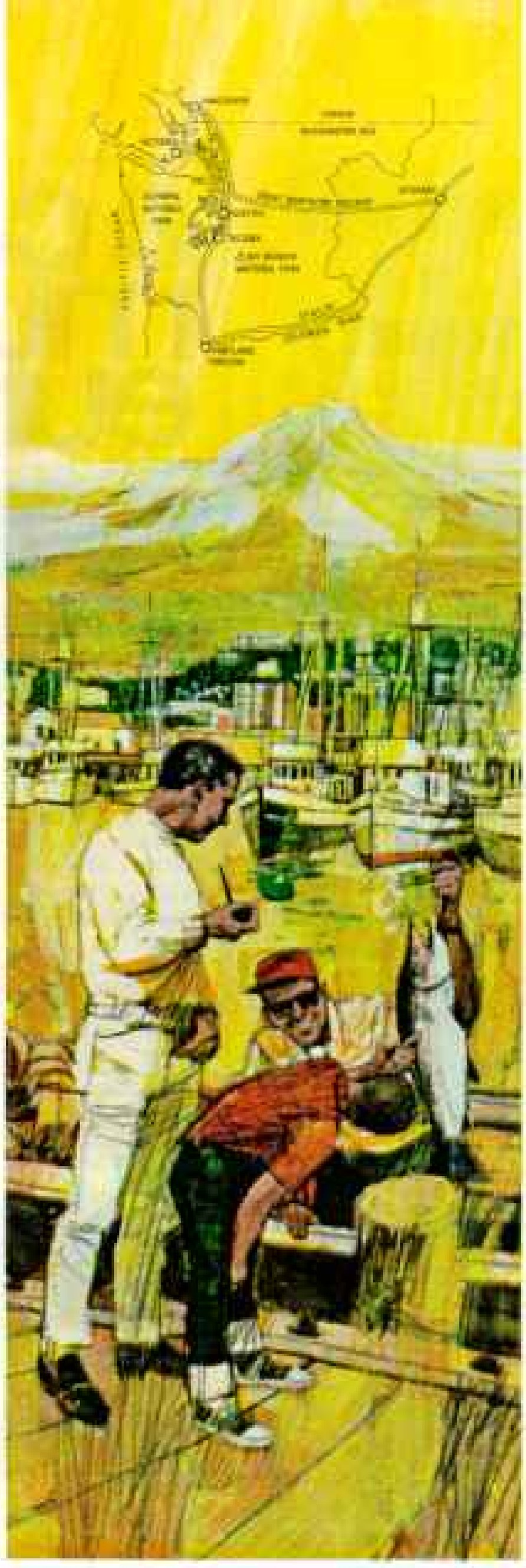

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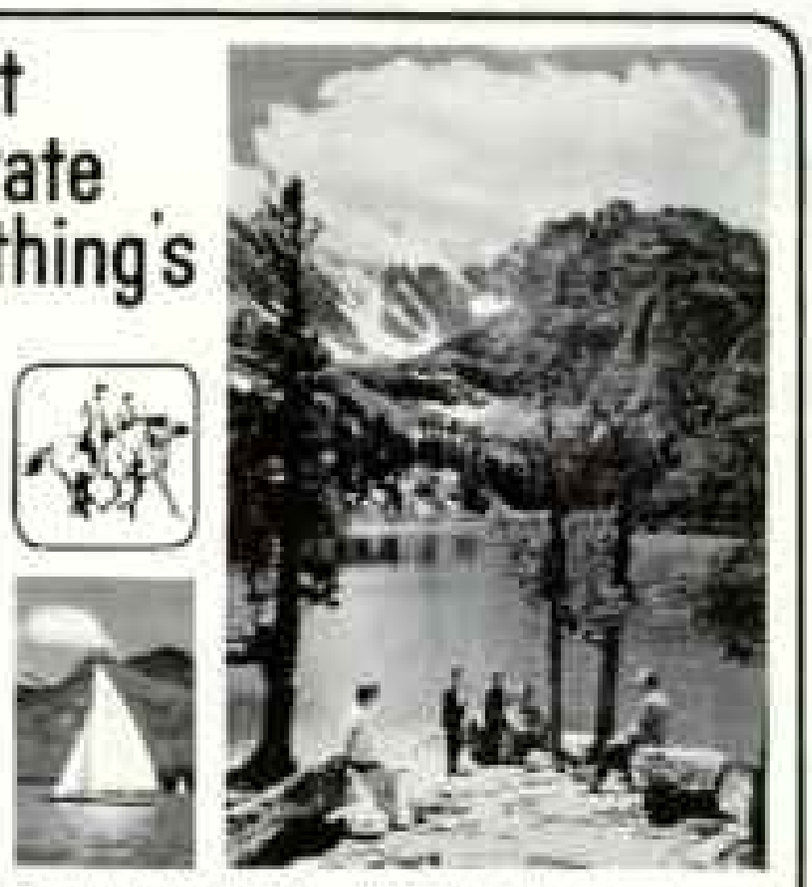

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