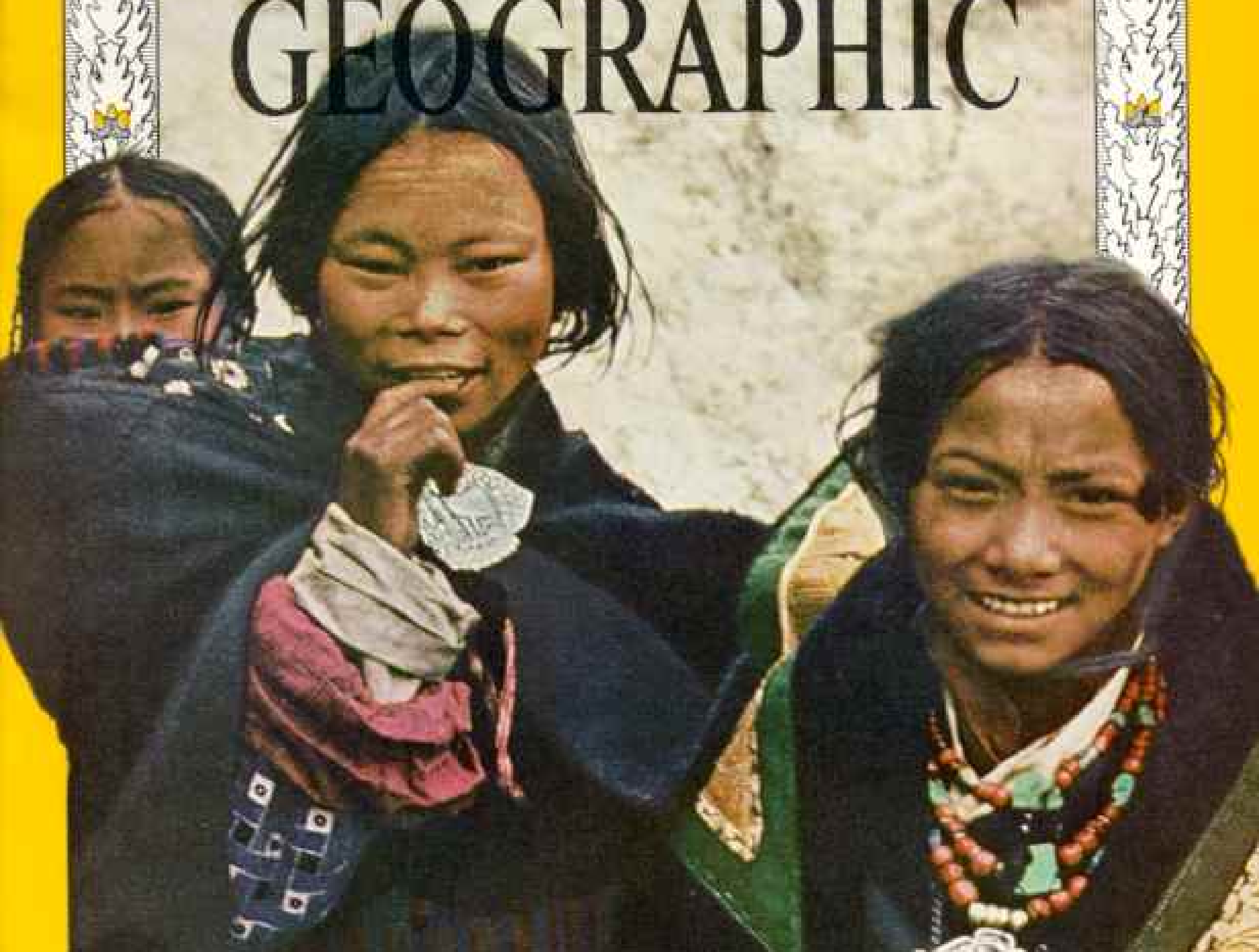


VOL. 128, NO. 4

OCTOBER, 1965

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◀ **COVER:** Shy smiles welcome a traveler to Mustang, Nepal's Shangri-La on the border of Tibet (page 579).

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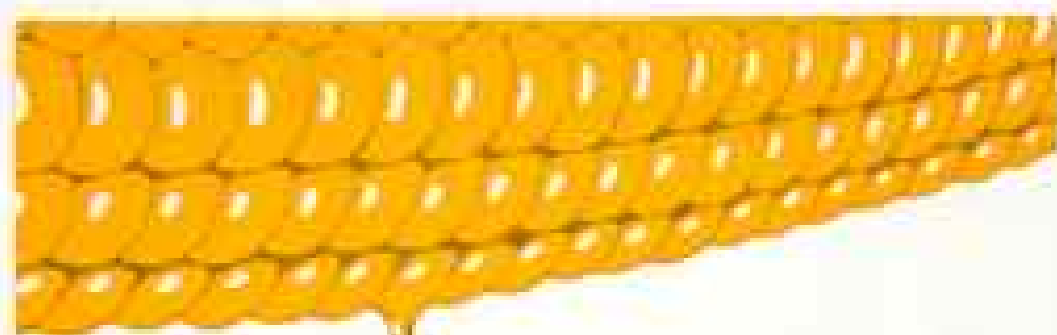
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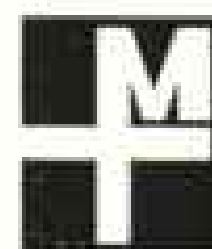
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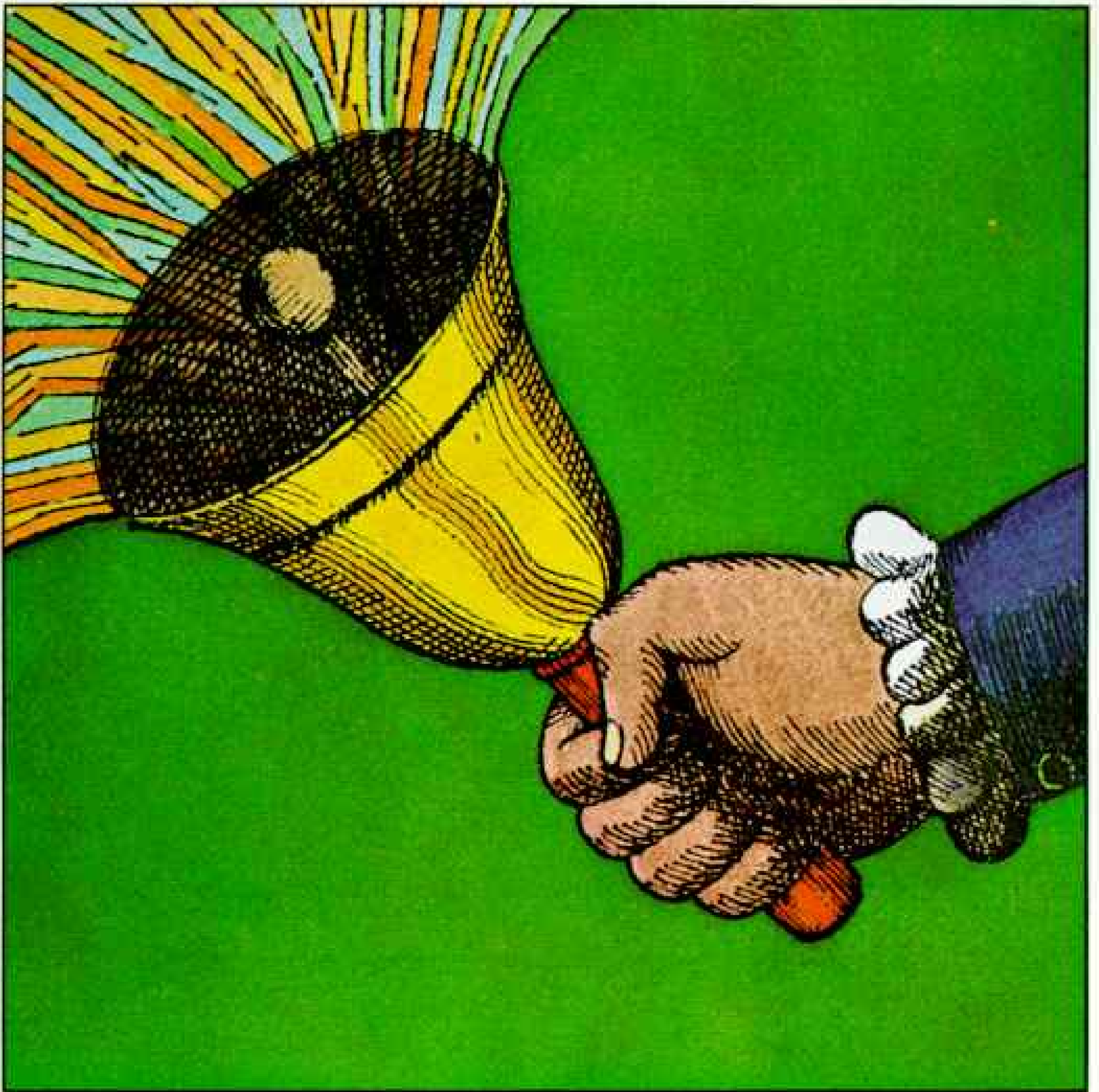
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# We thought we knew it all. Then we discovered Machu Picchu.



We had combed palaces of Persian kings. We had walked through tombs and temples and spired castles. We were ready for something new in lost kingdoms.

Then, one night last January, a couple of archeologists spun us a tale of a mountaintop city built by the Incas 500 years before the Conquistadores.

The place is Machu Picchu and it wasn't long before we were flying down to South America to find it.

A Panagra Jet took us to Lima, and from there we flew to Cuzco, where we embarked on a three-hour zigzag by bus-train along the rushing Urubamba River and 2000 feet up to Machu Picchu.

A majestic city walled in by kings, Machu Picchu bears no sign of strife. You can stand at the perimeter of the city and conjure up images of sharp-eyed Inca warriors peering down at the Conquistadores scurrying below for gold, never dreaming the prize of Machu Picchu lay high above them.

Machu Picchu was never captured, never plundered, yet some time after the Conquistadores, everyone in the city

disappeared. For us, this is the most spectacular (and mysterious) sight in all the Western Hemisphere. And, if there are any challengers to that statement, they're in South America, too.

Lake Titicaca (between Bolivia and Peru) is the highest navigable lake in the world.

Argentina's Iguassu Falls dwarfs Niagara. For sheer size and beauty, there's the Amazon.

So it goes (and we went with it) down one coast from Lima to Santiago, then over to Buenos Aires—all with Panagra. Then up the other coast from Montevideo to Caracas—all with Pan Am. Wish we could do it all again.

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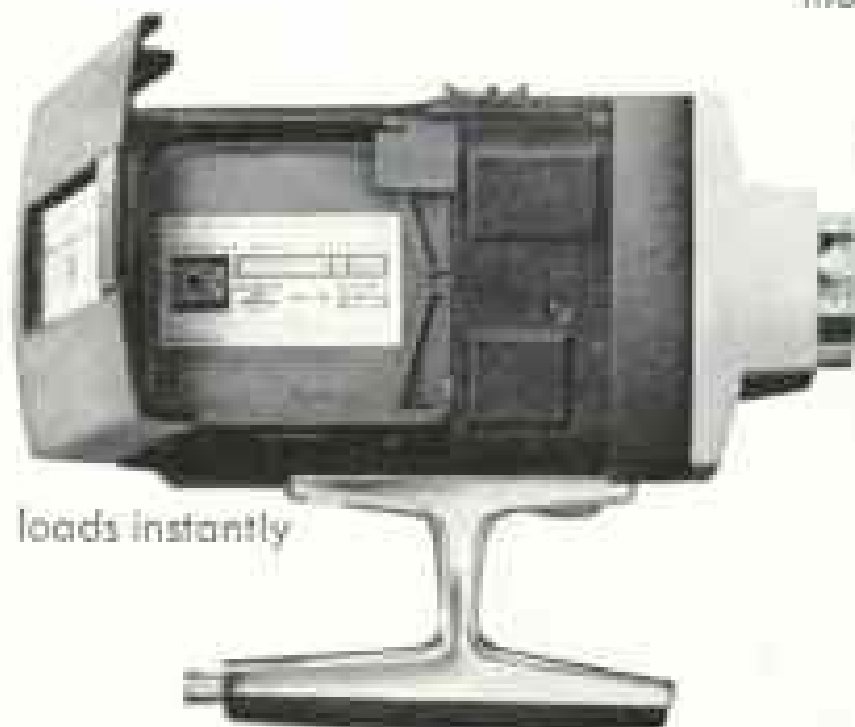
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October, 1965

# NATIONAL GEOGRAPHIC

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## Portugal at the Crossroads

By HOWARD LA FAY

*Photographs by VOLKMAR WENTZEL*

*Both National Geographic Staff*

**A**T DUSK, Lisbon's principal square, the Rossio, explodes into a rainbow of neon; shoppers eddy past glittering store windows; eager patrons press into overcrowded cafes and restaurants; music halls rock with song and merriment. Beneath gay mosaic sidewalks, trains

of a new subway system slam from end to end of the Portuguese capital.

But beyond the lights and laughter and movement lie a city and a nation in crisis. For Portugal—earliest and once the greatest of Europe's modern imperial powers—has chosen to resist the tide of anticolonialism engulfing

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◀ Sons of the sea, the Portuguese became Europe's greatest navigators. Today's fishermen, such as these on a beach near Porto, still dare the oceans in frail vessels.

City of the ages, Lisbon meets the 20th century more than halfway. But ultramodern apartments of Portugal's capital show only one face of this hard-pressed little nation, scarcely larger than the State of Maine. In the 1400's Portugal became one of the world's chief maritime powers when her seafarers set sail into the Age of Discovery. Today she struggles to maintain the remnants of a once-global empire.

Tradition ascribes Lisbon's founding to the Greek wanderer Ulysses. Originally named Olisipo, the city stands, like Rome, on a series of hills. One in every 11 Portuguese lives here, many in apartments like these on Avenida dos Estados Unidos da América—a reminder of Portugal's long friendship with the U.S.A.

Lisbon's *carinas*, or fishwives, trudge cobbled streets of the Tagus riverfront, wearing shoes unwillingly but as the law requires. They carry headloads of seafood fresh from boats, chanting through the city for customers.



Africa: At tremendous cost, the Portuguese army is battling guerrillas in Angola, Mozambique, and Guinea.

I found the crisis reflected in the special sales tax—15 percent on some items—that helps finance the faraway wars. I found it, too, in the myriad signs that sprinkle Lisbon: "Mozambique and Angola, Portuguese for Five Centuries"\*. . . "Portugal Is Not for Sale." I saw it in patriotic demonstrations where out-of-step delegations—firemen with glinting axes on shoulders, women from

\*See in NATIONAL GEOGRAPHIC, "Angola, Unknown Africa," September, 1961; and "Mozambique, Land of the Good People," August, 1964, both by Volkmar Wentzel.



KIDSCHEIMERS BY NATIONAL GEOGRAPHIC PHOTOGRAPHERS VOLKMAR WENTZEL (CLOCK) AND THOMAS HEBBIA (LEFT AND TITLE PAGE) © N.G.S.

religious societies, farmers from the provinces—marched with banners proclaiming *Lutaremos Sempre*—"We Shall Fight Forever." And once again, in Africa, Portuguese are dying in their nation's 800-year struggle for identity, survival, empire.

#### Rebel Vassal Led Way to Independence

Forged from a petty duchy on the western strand of the Iberian Peninsula by Afonso Henriques, a rebellious vassal of the Spanish kingdom of León, Portugal gained independence in 1143. The tiny new state lay between the Minho and Mondego Rivers, but Afonso—who became Portugal's first king—fought

his way south, annexing lands held by the Moors since the eighth century.

Intensely Christian from its very inception, Portugal wears on its coat of arms five blue shields, each with five bezants representing the five wounds of Christ. Traditionally, Portuguese monarchs wore no crown—it belonged to the Blessed Virgin.

In 1147, with the help of Crusaders bound for the Holy Land, Afonso captured the great port of Lisbon from the Moslems. His successors continued the southward advance and, with the final conquest of the Moorish kingdom of the Algarve in 1249, Portugal established borders that have remained virtually

unchanged to the present day (map, page 459). This land of more than nine million people is the oldest intact state in Europe.

Insulated from the rest of the continent by a powerful and oftentimes hostile neighbor (Spain invaded Portugal repeatedly over the centuries, and once, from 1580 to 1640, even absorbed her), the Portuguese turned to the sea. The 15th-century caravels of Prince Henry the Navigator blazed the way into unknown oceans, and Portuguese mariners opened vast areas of the world to European exploration.\* At its brilliant zenith, the empire won by the Portuguese stretched from the China Sea to

"For the Portuguese," he laughed bitterly, "imperialism in the past has been a huge illusion. Do you know what it has brought us? The lowest per capita income in Western Europe and the highest rate of illiteracy."

"Today we face a crucial moment of our history. And no matter what happens—whether we hold the overseas territories or lose them—Portugal is rejoining Europe."

I knew what he meant. Although the Portuguese have left their mark around the globe, almost 500 years of overseas involvements all but exhausted the tiny nation's resources. Chronic misfortune abroad, climaxed by the



Monument to valor, the Monastery of Santa Maria da Vitória soars in Gothic splendor near Aljubarrota, where the Portuguese routed invading Castilians in 1385. Portuguese know it simply as Batalha—Battle. In the Royal Cloister of King João I, the monastery's donor, monks once washed at this gently plashing fountain.

Portugal's voyager-poet Luis de Camões rests in stone atop his tomb in Lisbon's Jerónimos Church, next to the tomb of Vasco da Gama. Camões's epic *Os Lusíadas* ("The Portuguese"), completed some 70 years after da Gama found the sea route to India in 1498, immortalizes the nation's great period of discovery and colonization.

ENTRANCE (LEFT) BY HOWARD LEFROY AND  
RESEARCHER BY VOLKER WENTZEL © N.G.S.

Brazil, from North Africa to the southwest Pacific. Soldiers, missionaries, administrators, settlers poured into the new lands.

"In the 450 years since the discoveries," a Portuguese historian pointed out to me, "our principal export has been men—so much so that far more people of Portuguese descent live outside the country than in it. We literally turned our backs on Europe.

"After Vasco da Gama found the sea route to India in 1498, Portuguese ships monopolized the spice trade. But most of the profits—and most of our manpower—went into guarding the 15,000 miles of sea lanes between Goa and Lisbon. Even so, in one year alone we lost 500 ships to pirates.

"At home, farms and industries decayed. The government was forced to buy food and other necessities abroad. In the end, after mortgaging the country to the hilt, we flooded the spice market and prices plummeted.

loss of Goa in 1961, has now refocused Portuguese energies upon the underdeveloped homeland. Shaking off the economic stagnation of centuries, Portugal has embarked upon a belated industrial revolution.

On the upper Rabagão River, a dam erected at a cost of \$49,000,000 this year began feeding 90 million watts of electric power to the nation. Just outside Lisbon, one of the world's largest rotary kilns produces 1,800 tons of cement daily to support a massive building program. In the capital itself, workers scale steel towers 625 dizzy feet above the Tagus to build Europe's longest and most expensive suspension bridge (page 458).

Historically, the Tagus—flowing out of the heart of Spain to empty into the Atlantic—has sliced Portugal neatly in half. Ferryboats have provided a tenuous link between Lisbon

\* See "Prince Henry, the Explorer Who Stayed Home," by Alan Villiers, *GEOGRAPHIC*, November, 1960.







EXTACHROME BY PATRICK THURSTON © N.A.S.

Swooping cables to support a 7,473-foot suspension bridge, longest in Europe, span the Tagus River estuary at Lisbon (background). Towers soar 625 feet; each cable contains 11,248 steel strands. Scheduled for completion in late 1966, the \$75,000,000 four-lane highway bridge, eventually to carry rail traffic also, will provide Lisbon's first direct link with southern Portugal, opening the region to industry and tourism.

# PORTUGAL

**W**ESTERNMOST NATION of continental Europe, Portugal found her destiny in the sea. Five centuries ago, caravels bearing Portugal's scarlet Cross of Christ coursed the oceans, exploring and opening two-thirds of the then-unknown world. Now, from Brazil



to Timor, 100 million people use the tongue of Europe's oldest intact nation.

Tiny Portugal is a world in miniature: Within hours one may ski in the piny north-central Serra da Estrela and swim on the sunny beaches of the Algarve.

**GOVERNMENT:** Constitutionally a republic; same prime minister since 1932. **AREA:** 35,510 square miles (including Azores and Madeira Islands); 805,320 square miles in overseas territories of Angola, Cape Verde Islands, Macao, Mozambique, Portuguese Guinea, Portuguese Timor, São Tomé and Príncipe. **POPULATION:** 9,156,000 (with Azores and Madeira Islands); 13,544,000 in overseas territories. Celtic influences in northern Portugal, Arab and Berber in the south. **LANGUAGE:** Portuguese. **RELIGION:** Mainly Roman Catholic. **ECONOMY:** 60 percent based on agriculture. One of the world's chief producers of olive oil, wine, and sardines. Leading producer of cork, exporting half the world's supply. Manufactures include textiles, pottery, chemicals, ships. **MAJOR CITIES:** Lisbon (population: 818,000), capital, port; Porto (population: 306,000), wine center, port. **CLIMATE:** Mild and temperate. Rainy winters and warm summers; interior and south, drier and hotter.



Overseas territories 23 times the size of the homeland fly the Portuguese flag today, from islands in the Atlantic and lands in Africa to Macao and Timor in far-off Asia.

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and the undeveloped southern regions of the country, as have several bridges far upriver. But the new Tagus road-and-rail span promises to revolutionize the Portuguese economy.

It was raining when Engineer José do Couto Moniz, General Inspector of Public Works and Director of the Bridge Authority, received me in his office overlooking the river. Outside, I could see swarms of workers half obscured by driving rain, laboring to sink the world's deepest pier—a concrete footing that would extend 260 feet below the river's surface.

### Bridge Will Unite a Sundered Land

"Studies on this bridge began in 1876," Engineer Moniz told me, "and its importance to Portugal's future cannot be overstated.

"For one thing, some nine percent of our population now lives in Lisbon proper, causing an acute housing shortage. By opening up the Tagus's southern shore, we can absorb some of this population in satellite towns.

"Furthermore," his finger stabbed a map, "heavy industry will be able to locate on the peninsula between Lisbon and Setúbal. These are our two busiest ports.

"Finally, the bridge will open the entire south to tourism. The Algarve, with its fine beaches and subtropical climate, will be only a four-hour drive from Lisbon."

Later I boarded a boat and bounced across the rain-lashed Tagus. Just above a temporary dock, workers were pouring concrete for the bridge's southern anchorage—a mammoth block designed to withstand some 28,000 tons of pull from the suspension cables.

A scene from the Apocalypse met my eyes. Workers, knee-deep in mud, slopped through the drenching rain, while machinery under stress clanked and groaned in wild cacophony. Trucks loaded with concrete skidded down a road gouged in the naked earth; they fed their cargo into the buckets of giant cranes that swooped overhead to dump ton after ton into the great cavity that would hold the anchorage. In shifting, swirling mist loomed the colossal statue of Christ the King that guards the river's southern bank. Almost filling the leaden sky, it stretched arms protectively above work and workers.

Despite the hectic industrialization of its outskirts, Lisbon remains a calm and classic capital. The present-day city is a monument to the Marquês de Pombal. On All Saints Day in 1755 a calamitous earthquake wrenched Lisbon, destroying two-thirds of the city.

Subsequent seismic sea waves and widespread fires completed the carnage. Some 40,000 corpses lay in the ruins of the capital that Spanish poet Tirso de Molina had described as "the eighth wonder of the world."

Alone in the government, Pombal—who later assumed dictatorial power—kept his head. He issued the terse order, "Bury the dead and feed the living." Out of the rubble he built today's Lisbon of broad avenues and sweeping squares.

Pombal's statue now stands in the center of the city (pages 468-9), looking down the tree-lined length of Avenida da Liberdade—almost 100 yards wide and bounded by strips of garden where grave swans glide in ponds.

Lisbon, I found, is a city for idle strolling. Turn into the Rua da Madalena and enter the cool, aromatic herb shop Ervanária Rosil, where an expert will prescribe and mix infusions of medicinal herbs to combat rheumatism or laryngitis, obesity or eczema. Drop into the hushed Royal Coach Museum, where the faded plush and peeling gilt of the finest surviving collection of horse-drawn coaches recalls regal splendors and dead monarchs.

Or pass from the sun-drenched street into the vast gloom of the Jerónimos Church. Started by King Manuel the Fortunate in 1496, on the eve of Vasco da Gama's journey to the Indies, Jerónimos incorporates the full exuberance of the Age of Discovery. Here, frozen forever in stone, is the blazing noon-tide of empire. Stylized hawsers writhe in the arches. Shells and coral and fish entwine on every column. Sanctuary lamps glow red above carved African lions.

### Those Who Dared All for Christendom

In a timeless dusk of flickering candles sleep the kings and queens who reaped the wealth of the East. Their stone catafalques rest on the backs of marble elephants. The tomb of Vasco da Gama, first to sail to India, lies next to that of Luis de Camões, Portugal's national poet, who himself voyaged to the Orient (page 456). "This small nation of Portugal," sang Camões, "does not lack those who will dare all for Christendom. . . ."

At the dawn of that brilliant epoch, Portugal was indeed a small, poor land, with a population of barely a million and a half. And discovery exacted a fearful human toll. Of da Gama's men, a third never returned. When Alvares Cabral sailed to India in 1500, he lost 6 of his 13 ships. But the Portuguese





Jam-packed cable car clacks over steep cobbled streets, bringing Lisboans downtown from Bairro Alto, the High Quarter. Its multistoried 17th-century buildings were once the city's tallest.

Explosion of colored paper festoons Lisbon's Alfama quarter for the Feast of St. Anthony, favorite saint of the city. Artful duck lamp will brighten the Moorish quarter at dusk.



"Street of My Jealousies," sings a comely *fadista*, Valentina Felix, lamenting unrequited loves and lost lovers. Melancholy strains of the *fado*, Portugal's best-known song form, resound in late-at-night cabarets like this club in the fashionable seaside resort of Estoril, near Lisbon.



pressed on, determined to carry the cross and the plow to heathen lands. They even journeyed overland into the heart of Africa. Three centuries before Livingstone, they explored the Zambezi and the Congo.

"God gave the Portuguese a small country for a cradle," wrote Antonio Vieira, a Jesuit missionary, "but the whole world for a grave."

Just as you can find the beginning at Jerónimos, you can also find the end—in the

empty tomb of King Dom Sebastião. Historians generally labor long and hard to determine the causes of imperial collapse. But in the case of Portugal, they can name the day and even the hour that saw greatness die.

In 1578, the crippled, mystical Sebastião led Portugal's depleted armies on a rash crusade against the Moorish ruler of Morocco. Twenty-five thousand strong, they crossed into Africa. Banners unfurled, songs on every



BRIDGEMAN © NATIONAL GEOGRAPHIC SOCIETY

lip, they followed their dashing king into the interior. There, at Ksar el Kebir, on August 4, they met the Moors. Four hours later on that fateful afternoon, the Portuguese dream lay strangled in the dust.

Barely fifty survivors of Sebastião's army escaped to the coast and freedom. The mad king was last seen leading a futile charge into the Moorish ranks. And, in a poignant footnote to history, Moslem chroniclers recorded

**Blaze of light** whitewashes Lisbon's Martim Moniz Square; floodlit walls of ancient Castelo de São Jorge crown the hill at upper left. Romans, Visigoths, and Moors occupied citadels on this height; in 1147 Crusaders helped the knights of Afonso Henriques, Portugal's first king, conquer it. Beyond the Tagus towers the 358-foot-high statue of Christ the King, completed in 1959 as Portugal's symbol of gratitude for having been spared involvement in World War II.





Men and bull meet in Santarém—and death takes a holiday. In Portuguese bullfights, the animal is not killed but only wrestled to the ground by a “suicide squad” of eight daredevils called *forcados*. Enraged by being spiked with sharp-tipped *bandarilhas*, a

that hundreds of guitars littered the corpse-strewn battlefield.

Two years later, both Portugal and its possessions passed to the Spanish crown. In 1640, the dauntless Portuguese took up arms, regaining their independence and even the remnants of their empire, but their era of greatest glory had perished at Ksar el Kebir.

I found a kind of magic in the twisting, haphazard streets of Alfama, Lisbon’s oldest quarter, whose name bespeaks its Moorish origin. Huddled on a slope above the river, Alfama houses the city’s poor. And it is the twin of every North African casbah I have seen from Tangier to Tunis. Tall tenements, their eaves almost meeting, lean out above narrow labyrinthine streets whose paving stones have known little sunshine (page 466).

I paused at a tiny square where hundreds of women with bottles and jugs thronged around the public faucets. A lone policeman had the unenviable job of permitting the milling women to advance to the faucets—each in what he judged to be her proper turn. For this he caught flashing smiles from the favored and scathing abuse from those he held back.





"Why is it," I asked him, "that you yourself never smile?"

"Smile!" he said darkly. "I'm too busy praying for my life."

There was a Biblical quality to the scene. As in Old Testament times, the women profited from their trip to the well, exchanging gossip and small talk. Then each filled her jug and balanced it gracefully on her head.

#### Alfama's *Fadistas* Sing of Sorrow

With the fall of night, Alfama resounds to the sad, intoxicating strains of *fado*. These songs—the word "fado" means fate—weep for love lost, illusions flown, death come too soon.

One night I visited several *casas de fado* with Senhor Emilio Mateus, an impresario known in Lisbon as King of the Fado. Almost all the cabarets had a bull-ring decor. This ancient affinity between fado and bullfighting stems from the star-crossed romance of a young 19th-century *fadista*, Maria Severa, with a bullfighter of noble blood, the Count of Vimioso.

As the lights dimmed, a woman took her place between two guitarists. She wore a black dress and clutched a black shawl about her shoulders. The guitars struck an introductory chord, the woman closed her eyes, and her voice rose in haunted tragedy.

"Some people say," Senhor Mateus whispered, "that all *fadistas* wear the black shawl in mourning for Maria Severa. Actually, it's because fado was born among the poor of Lisbon, and as you've probably noticed, poor women invariably wear dark shawls."

Most *fados*, I found that evening, resemble each other. In song after song you can pick out the words *tristeza . . . amor . . . o meu coração*—sadness . . . love . . . my heart. All loves are doomed, all lovers are cruel. I found, too, that several hours of fado can plunge anyone into a rapture of gloom. Long after midnight, with the black sorrow still echoing in our ears, Senhor Mateus and I sought our automobile.

"Did you lock it?" I asked.

"No," he said, still lost in the fado world. "In Portugal nobody steals cars. Only love."

half-ton, specially bred bull faces its challengers (far left), lowers blunted horns, and smashes head-on into the lead man. As the column scatters (below), one *forçado* holds grimly to the bull's tail while the rest try to rescue their bull-dozed comrade.

EDDACHOWSKI © NATIONAL GEOGRAPHIC SOCIETY





Gay streamers honoring St. Anthony flutter above a housewife hanging out clothes in a twisting street of Lisbon's Alfama section.

Mass wedding highlights the Feast of St. Anthony on June 13. Every year merchants and a Lisbon newspaper provide a cost-free ceremony for girls from poor families. Gowns, rings, receptions, even the wedding pictures, are donated. Four of the 61 couples united last year descend the steps of the Church of St. Anthony to automobiles lent for the day.

Nothing so dramatically contrasts the Spanish and Portuguese characters as the conduct of the bullfight in the two countries.

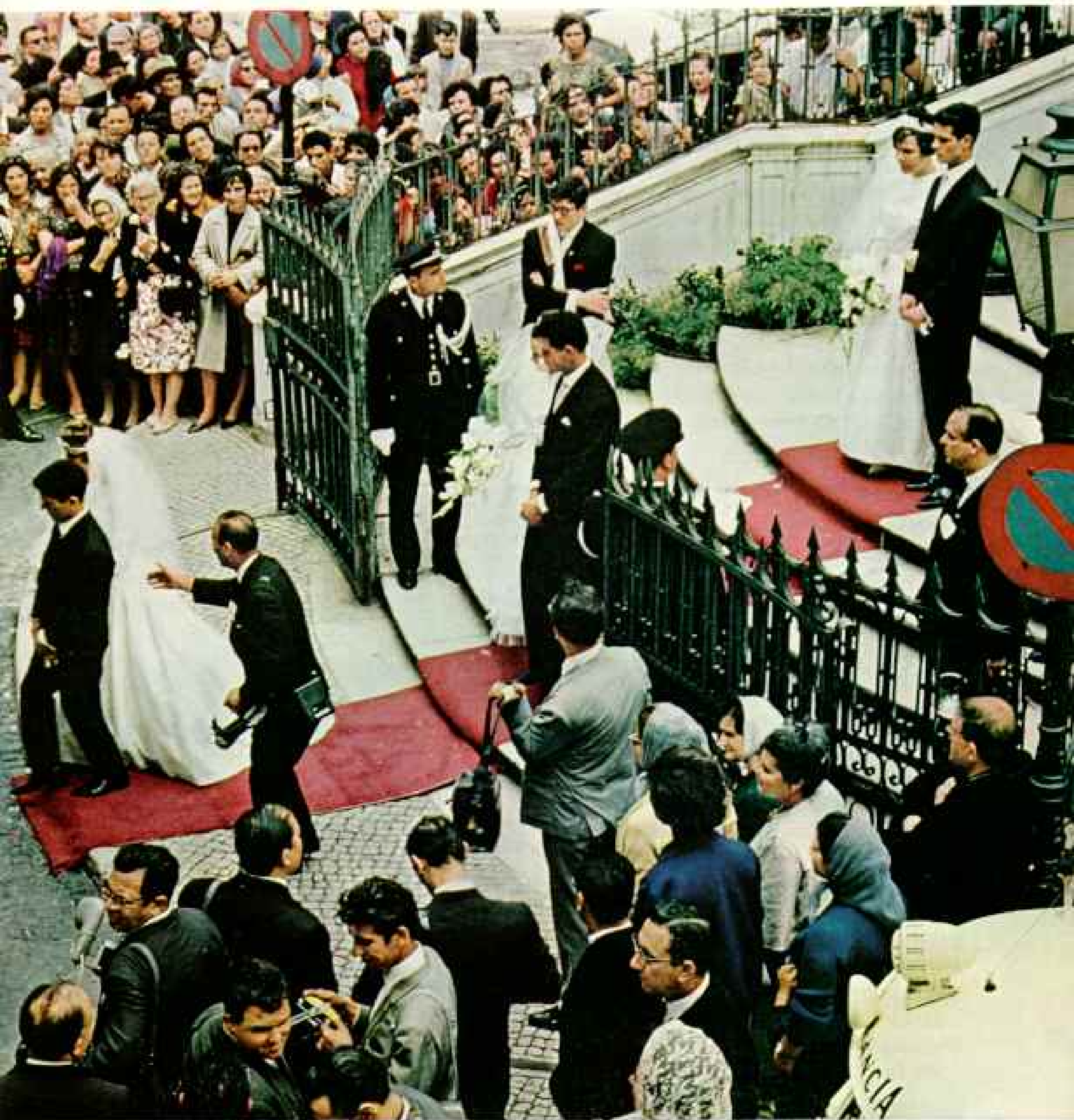
In Spain, when the bull bursts into the arena like a clap of dark thunder—head tossing, horns slashing, seemingly invincible in his might—death enters with him. The bull and a matador, armed only with skill, a cape, and a sword, will play out a ritual as stylized as a requiem. In the end the bull will die. Death may take the matador as well, for over the long, ceremonial agony of man and beast, tragedy flickers like summer lightning.



But in Portugal, when man and bull confront each other, both will survive. Here all is spectacle—darting horses ridden by 18th-century costumed *cavaleiros* whose glory lies in dodging, not killing, the bull, and a climax as old as Babylon and Minoan Crete.

#### Amateurs Wrestle a Charging Bull

I joined the crowd one Sunday at Lisbon's Campo Pequeno bull ring to marvel at the skill of *cavaleiros* and their mounts. Time after time these seeming centaurs gracefully avoided a hurtling half-ton of outraged bull



REUTERS/PHOTOS © NATIONAL GEOGRAPHIC SOCIETY

by the merest fraction of an inch. But mostly I marveled at the *forcados*, or bull tacklers.

In the Portuguese bullfight, when the *cavaleiro* retires from the arena, eight *forcados* form a column facing the bull, receive his charge head on, and attempt to wrestle him to a standstill. It is no game for the faint of heart, even though the bull's horns are blunted and padded (pages 464-5).

At the *barreira*, the wooden barrier that lines the ring, I joined Joaquim José Capoulas, captain of the *Amadores*—the amateurs—of Montemor-o-Novo. He sized up the first bull.

"He is *manso*," he said glumly, "cowardly. The brave ones charge straight and true, but this one will be difficult. He is unpredictable."

Having run the gamut of his skill, the *cavaleiro* left the ring, and, to a fanfare of trumpets, eight of the *Amadores* vaulted into the arena. With his teammates strung out behind him, the young man chosen to receive the charge advanced on the bull, citing him, "*Toiro! Manso! Ay, toiro!*"

The bull pawed the sand and blinked.  
"*Toiro! Manso! Manso!*"

Suddenly, like a train thundering into a



station, the bull charged. The young forcado held his ground and, with horns hooking viciously, the bull smashed into his chest. For a moment, the man tried to grapple with the mighty head. Then, with a powerful toss, the 1,100-pound bull heaved him up and over, pivoting sharply to gore him with his padded horns before a flapping cape drew him away.

The forcado, his costume torn, his mouth trickling blood and a red smear on his thigh, leaped to his feet. Waving off assistance, he limped back to the head of the column and once more, head thrust back, hands arrogantly on hips, taunted the bull. This time he took the charge dead center, locked his arms about the horns, and, with his teammates, wrestled the bull into submission.

#### Pride, Not Pay, Preserves Forcado's Art

You can see forcados in action on any Sunday between Easter and All Saints Day in Portugal. They are nearly all amateurs, receiving no money; one in four will be injured during the season, and must even pay his own medical bills. Why, then, do they do it?

"Because," Senhor Capoulas told me, "we love the bullfight. And because this is something that exists only in Portugal. We are proud to maintain the tradition."

The tradition is older than history. Cretan frescoes of 1500 B.C. show youths tackling bulls much as forcados do today. And 4,000-year-old cuneiform tablets unearthed at Nineveh describe a combat between the hero Enkidu and the Bull of Heaven:

*With his third snort he sprang at Enkidu.  
Enkidu parried his onslaught.  
Up leaped Enkidu, seizing the Bull of  
Heaven by the horns.  
The Bull of Heaven hurled his foam in  
his face. . . .*

West of Lisbon, between the capital and continental Europe's westernmost point, Cabo da Roca, lies Portugal's Costa do Sol—Coast of the Sun. An excellent road skirts the sea, threading the chic resorts of Estoril and Cascais, then doubles back by way of Sintra, Byron's "glorious Eden."

With their mordant sense of humor, the Lisboans call a trip on this spectacular route

"*Volta dos Tristes*—Tour of the Sad"—because custom decrees that on sunny Sundays every car-owning family in the capital must join the traffic jam leading to Cascais.

I joined the long parade of automobiles one Sunday afternoon and found the Volta dos Tristes to be not only a breathtaking scenic experience but a microcosm of Portugal.

In Estoril, traditional home of exiled royalty, the waves break upon the narrow beach



Green geometry of Parque Eduardo VII gives romping room for Lisbon youngsters and strolling space for their elders. Beyond, atop its stone plinth, a statue of the autocratic and able Marquês de Pombal surveys the city he rebuilt after the earthquake of 1755 leveled Lisbon, killing 40,000.

with suitable deference. Even December is balmy there, and palm trees line the long drive leading to the famed Casino, where sad-eyed croupiers, announcing the winning combinations in three languages, deftly separate visitors from their escudos.

Seven miles inland from Estoril, Sintra nestles beneath a jagged mountain range. One peak, capped by two castles, towers directly above the town (following pages). Walls en-

close most of Sintra's houses—stucco houses, softened by time, that gleam red, blue, pink, orange, yellow in the setting sun. But above all, Sintra is green: dark-green trees with vine-bound trunks; clear streams bubbling over rocks coated with rich velvet moss; lichen the color of young olives clinging to every wall. Sintra—silent, private, timeless—belongs to an older, gentler era.

Cascais, on the coast south of Sintra,

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KODACHROME BY CLARA WENTZEL © N.Y.C.





**Royal wedding:** Princess Claude of France and Italy's Duke of Aosta welcome well-wishers after their July, 1964, marriage in Sintra. The resort village clings to the cool mountains that rise above the Costa do Sol, Portugal's Coast of the Sun, west of Lisbon.

**Fantasy in stone,** Castelo da Pena crowns a green hill near Sintra. Perhaps homesick for his German homeland, Ferdinand of Saxe-Coburg-Gotha, young king consort of Portugal's Queen Maria II, built this soaring agglomeration of towers, cupolas, and battlemented walls in the 1840's. The photographer stands at an adjacent castle, Castelo dos Mouros, built by Moorish rulers in the 8th century and now in ruins.



straddles two worlds (pages 472-3). Beneath the eyes of indolent tourists on cafe terraces, fishermen go about the grim business of wresting a living from the sea. Each morning fishing boats cast off beneath the balconies of luxury hotels; by night, the slightly bewildered fishermen stroll past shop windows where a month's pay could buy no more than a scarf.

Portugal lives on fish. Not only does it constitute the principal protein in the national diet, but exports of 153,000,000 pounds of canned fish gained more than \$39,000,000 in precious foreign exchange last year.

From Viana do Castelo in the northwest, famed for crabs, to Monte Gordo in the ex-

treme southeast, scene of great tuna runs, seafood funnels ashore. *Varinhas*, or fishwives, hawk their wares from door to door (page 454); and fish—stewed, grilled, fried, or boiled—graces every table in the land.

#### **Stormbound Fishermen Earn No Pay**

Daily, from every harbor and beach in Portugal, swarms of fishing boats put to sea, painted in an exultant clash of colors—reds, yellows, purples, greens (pages 453 and 474-7). They forge seaward like a garland of flowers tossed across the water. More than a century ago the poet Almeida Garrett wrote a verse that captures the saucy bounce of these





SETÚBAL (OPPOSITE) AND AGUADACHÓN (2) (R.L.S.)

Portuguese fishing boats on a sunny sea:

*Pescador da barca bella,  
Onde vás pescar com ella,  
Que è tam bella,  
Oh pescador!*

*(Fisherman of the bark so gay,  
Where will you fish with her today,  
That bark so gay,  
O fisherman!)*

Where? I found out one afternoon aboard the 69-foot *Alzirinha*, Januario Viegas Gomes master (pages 478-9). Resplendent in white, blue, buff, and red, *Alzirinha* headed bravely out of Setúbal Bay in search of sardines. Foul

weather had kept the Setúbal fishing fleet shorebound for four days, and the crews were eager for action. As on American whalers of old, crewmen earn a share of the catch. No fishing means no pay.

"An average fisherman," Captain Gomes tells me, "earns about a dollar a working day during the nine-month season. We go out six days a week and, depending upon luck, stay out anywhere from 12 to 20 hours."

"Do you ever come back with an empty boat?" I ask. He smiles mirthlessly. "*Muitas vezes. Many times.*"

I stand with Captain Gomes before the wheelhouse, bracing my back against it.





*Alzirinha* pitches and rolls through the turbulence at the mouth of the harbor, where the emptying waters of Rio Sado smash broadside into the ocean current. The wharves and factories of Setúbal, brisk and industrial, sink rapidly behind us. A sharp breeze gusts in from the sea, cuffing my face and leaving the taste of salt on my lips.

"Fishing is better for us now," says Captain Gomes. "We have bigger vessels and more efficient equipment. In the old days we had to watch the gulls. Whenever you see them plunging into the sea, you know they've sighted fish. And on moonless nights you can spot a school because it gives off a certain phosphorescence that we call *ardentia*. Now, of course, we simply use sonar."

#### Boats Risk Collision to Set Nets

Once beyond the harbor, we veer south, skirting the longest beach in Europe—60 wild, empty miles of surf like pale jade breaking on sand so white that it dazzles the eye. Two hours at a spanking eight knots bring us within sight of the fishing grounds. Some boats are already in action, while dozens of others converge rapidly.

I crowd into the wheelhouse with the captain and the helmsman, José Maria de Oliveira Biscaya. Tension mounts as the 18 crewmen scurry to their posts.

In sardine fishing, two men in a dinghy drop off the stern of a speeding seiner; the little boat serves as a kind of buoy for the net, which snakes out after it. Cutting a tight arc, the main boat then swings back to the dinghy to close the circle of net.

Our dinghy teeters on the stern, already manned. Two crewmen stand by to launch it

Gleaming yachts and work-scarred fishing boats bob in the sheltered harbor of Cascais, a cosmopolitan resort on the Costa do Sol. The 17th-century seaside citadel at far left serves as the official summer residence of the president of the republic.

Sun-swept arc of the Costa do Sol stretches about 15 miles from the Tagus estuary to the dunes of Praia do Guincho. A scenic road follows the curving coastline, skirting white beaches and rocky inlets. At chic Estoril, east of Cascais, tourists while away the hours in a sumptuous casino.

Gourmet's choice faces diners in Praia do Guincho, on the Atlantic near Lisbon. Local provender includes giant lobsters, trapped just offshore, plus prawns, mussels, clams, and light-pink *scampi*.

Fresh fish dangle from the hands of varinas at Esposende. Fish-loving Portuguese dote upon *o fiel amigo*, the faithful friend—their name for dried cod. Cooks claim to have devised 365 ways of preparing it—one for each day of the year.





at the word of command. In the wheelhouse, the captain's eyes dart from the flickering sonar to the surface of the sea and to the other questing boats. But mostly they linger on the sonar, awaiting the thick, black, continuous streaks that signal fish.

The men of *Alzirinha* are living their moment of truth. A day's pay, 24 hours of bread and hope, hangs on Captain Gomes and the sonar. A false drop of the net—too early, too late, off the mark—and a boat returns with an empty hold.

Hands tight on the wheel, José Maria threads among boats already hauling in fish-clogged nets and others, like *Alzirinha*, still scouring the sea. All around us vessels skim and wheel in a vast, unsynchronized ballet. Overhead, gulls scream their greed and swoop recklessly down to pirate silvery fish from the nets.

"*Mãe de Deus!*" hisses José Maria, "Mother of God!" Abruptly he spins the wheel, *Alzirinha* shudders into a hard 90-degree turn, barely missing a dinghy.

"Close," I say.

"We've had closer," says the captain.

For almost three hours we sweep back and forth . . . back and forth. Time after time the sonar's streaks thicken hopefully, but

**Bucking heavy surf, fishermen bring their boats ashore at Nazaré, an Atlantic fishing village named for the childhood home of Jesus.**

**Like Phoenicians of old, Furadouro's brawny men of the sea struggle with heavy oars to bring a high-prowed *barco do mar* onto the beach.**

**Teams of yoked oxen draw a boat to the safety of the sands. Bulky, flat-bottomed *barcos do mar* ride breakers that would swamp less seaworthy craft.**



TRADITIONAL LABOUR AND FISHERIES © N.C.S.



never enough to justify casting the net. "Besides," says the captain, "the fish being taken are only *carapau*—horse mackerel. Sardines fetch ten times their price."

We make one last careful pass, then heel away and head seaward. Several other craft fall in with us. Already the sun hangs low and red on the rim of the Atlantic.

"Fish come close to shore by day," Captain Gomes tells me, "but with darkness they move out. So," he gives a little shrug, "we follow them."

Steadily, through mounting seas, we plow toward the dying sun. Still tense and expectant, the crew stand to their stations. Inside the wheelhouse, the sonar traces its futile

fishless pattern. Night overtakes us—sudden, black, ominous. Twelve-foot waves now batter *Alzirinha*, and sheets of green water slam across the bow. I clutch a railing and watch the light atop our mast gyrate crazily against the murky sky. A piercing wind tears at the taut rigging.

#### Rough Seas and Empty Nets

The wheelhouse door opens and Captain Gomes leans out. "The weather's too bad to continue," he shouts in my ear. "We couldn't even recover our net in this sea."

Just before midnight, *Alzirinha* staggers through a last brutal swell and glides into the sheltered waters of Sesimbra, a small port





at the foot of the rugged Serra da Arrábida. One by one the other Setúbal boats nose in to join us. Two crewmen named Joaquim and João manage to scrounge a bushel basket of carapau from the luckier vessels, and soon *Alvirinha's* entire complement is busily preparing *caldeirada*, the traditional fish stew of Portuguese seafarers.

Some clean the small bony carapau while others peel potatoes and a few onions. João and Joaquim collaborate to build a charcoal fire in an old cast-iron brazier. Soon an enormous kettle bubbles merrily.

We eat the *caldeirada* very simply by spearing bits of fish and vegetable with a knife and squeezing them between thick slices of coarse,

delicious bread. A jug of red wine—cheap and harsh and very good—passes from hand to hand. Jokes pass too, and with them the unfunny news that one vessel has sold its entire catch of carapau for only \$17.

As the weather report crackles on the wheelhouse radio, "South winds . . . rain," João kills the fire by picking up the live coals one by one with bare callused hands and flipping them into the water.

A short cat nap until 3 a.m., and we are under way again. The sea, high and savage, greets us with a mighty wallop as we leave the protection of Sesimbra. Southward we sail, through lashing squalls and black waves that drown the blacker sky. The wind keens,



BOGACHRONES BY KOLMAN WENTZEL (ARCKEL) AND THOMAS HERRIA © N.G.S.

**Wed to the sea**, a girl of Nazare frolics amid ropes drying on the beach. Nazare fisherfolk claim descent from Phoenician mariners.

**Melancholy vigil** ends each day of fishing at Nazare. Women, their somber shawls recalling Portugal's Moorish past, await the return of their husbands from the fogbound ocean. Portuguese fishermen risk their lives every time they put to sea.

"O salty sea," writes Fernando Pessoa, 20th-century poet of this fishing nation, "how much of your salt comes from the tears of Portugal! . . . how many mothers have wept . . . how many girls have remained unwed to make you ours, O sea."



Canny skipper, Capt. Januario Viegas Gomes of the fishing boat *Alzirinha* steers his vessel toward the sunset. The author sailed with him in search of sardines.

Like necklaces of cork and wood, net floats line the deck of *Alzirinha*. Awaiting the command to action, the sardine fishermen stand ready to cast their neatly furled net. One in every 50 Portuguese men wrests his living from the sea.

From the time of Vasco da Gama, a fleet has sailed annually to take cod from Newfoundland's Grand Banks. Sons of Portuguese immigrants to the United States go to sea with the fishing fleets of New England and California.

Idle moment before the night's work lets *Alzirinha's* crewmen relax on deck with Epa, the ship's mascot.





EXTRACT FROM (LEFT) AND PHOTOGRAPH BY VOLKER WENTZEL © N.A.S.

timbers groan, and crewmen huddle numbly on the deck. Feet braced far apart, I hunch against the rain and the sea, gripping the rail with both hands. Through the wheelhouse window I can see the hooded light of the sonar. The restless streaks spell *no fish . . . no fish . . . no fish . . .*

Out of the darkness João lurches toward me. He offers me a pair of neatly patched work gloves. "Wear these," he says. "Your hands could slip." I look at his own hands, thickened by thirty years of hooks and nets and fins—those hands that had scooped live coals from the brazier. What is there to say?

I take the gloves. "*Obrigado*. Thank you."

He smiles his shy smile. "For nothing."

Two hard bone-jarring hours on a souther-

ly course bring us no sign of fish. So we swing about and make for Cabo Espichel at flank speed. Time is running out: with sunrise, fish become more wary, elusive. The crew, still at their posts, make no more jokes. Their faces are haggard, their clothes sodden. The captain's eyes, scanning the sonar, reflect glum weariness.

#### Four-hour Respite, Then to Sea Again

Dawn, as gray and sullen as the sea, breaks in the east. We sweep the eight miles from Cabo Espichel to Sesimbra. Nothing. We steam back to the cape and try again. Still nothing. Joaquim, standing beside me, grins in embarrassment as his head nods in tiny naps. Finally Captain Gomes flips off the sonar.





Riding sidesaddle, Senhora Rita Nuncio, wife of a renowned bullfighter, spurs her mount along an irrigation canal that cuts the plains of Baixo Alentejo. Hay for winter fodder stands in cottage-shaped stacks.

Brimmed hats and cowls provide sun protection for girls carrying water to workers in the rice fields near Alcácer do Sal.

"É o fim!" he snaps in disgust. "The end. We're going home."

We sail along the high, fierce shoreline of Arrábida with its secret beaches and soaring crags, swing north around a little promontory, and Setúbal looms before us.

It is 10 o'clock in the morning as I clamber up on the wharf. In four hours, *Alzirinha* will put to sea again. José Maria says, "Bad luck for you that we caught no fish. Now you'll have no story."

I look at him—at all those poor, proud, princely men—and I don't know whether to laugh or cry. Finally we shake hands all around, and I walk away from the wharf.

That ended my experience with Portuguese fishermen. But now, when I see a can of sardines, I handle it reverently. For I remember a moonless night on the Atlantic, a wildly pitching deck, the silent shapes of men huddled against the cold and the spray. I remember the hopeless flick of the sonar in the wheelhouse, the mast weaving lunatic patterns against the sky, and the chill lash of salt water across my face. My body braces against the savage smash of a quartering sea, and my ears, in the little lulls, still hear the wind thrumming its sad, lost song through the rigging.

And I know, as I hold that can, that somewhere off the coast of Portugal, João and José Maria and Joaquim are fighting high seas and murderous gales, dark skies and empty nets—all for a dollar a day, and lucky when they get it.

*Pescador da barca bella...*

#### Past Lingers in Wedding-present Village

Journeying north into Portugal's wondrous heartland of castles and cathedrals, I stopped off in the Middle Ages. Somehow, time has bypassed the walled village of Óbidos, a wedding present from King Dom Dinis to his queen in the 14th century. The years have wrought little change in Óbidos's pale walls and high keep. Birds chirp in cages



STEELE-PINES © NATIONAL GEOGRAPHIC SOCIETY

hung along the narrow streets, and housewives drape their wash on rocks to dry. Life itself seems to be suspended in the medieval rhythm—preserved intact in the golden Estremaduran sunshine like a butterfly in amber.

In morning's first light, I watched men and women stream out the gateways to cultivate their fields. They rode on asses or in carts drawn by quick-stepping donkeys. Then in the evening, as the bells of the village church tolled the Angelus, they rode back. The women, atop their mincing, neat-footed mounts with panniers on either side, could have stepped from a medieval woodcut. Even their costumes—somber shawl, ankle-length skirt, bootlike shoes—had altered little in 600 years.

I arrived at nearby Nazaré at night, in the enchantment of a silvery fog. Here I learned that Portugal lies closer to Araby than any geographer dreams.

Following the principal street, I emerged upon a broad crescent of beach bounded by the Avenida da República. Waves with the gathered momentum of 3,500 miles of open ocean detonated rhythmically against the shore and died in long expiring roars. Stucco structures, low and white in the fashion of



North Africa, lined the inland side of the avenida, behind them rose the narrow alleys of the fishermen's quarter.

Through the wispy fog I could see women standing in inky clusters, talking quietly. They wore long dark shawls, clutched tightly at the throat so that only a pale diamond of face appeared. They could have been Moslem women in all-concealing *maltramahs*. And the fishermen, their long stocking caps dangling like untied turbans, squatted in the wan light of doorways exactly as do their Arab counterparts from Morocco to Yemen.

Perhaps it was merely the nacreous and shifting fog that shaped this facsimile of an alien land. Perhaps not. But that night I pon-

dered the words of a Portuguese writer I'd met in Lisbon. "No foreigner can ever understand us," he had told me. "All of you look at a map and mark Portugal as the westernmost nation of continental Europe. But you're wrong. It's the easternmost."

#### "The Moors Are on the Coast"

Who can ever measure the full impact of centuries of Moslem occupation upon the Iberian Peninsula? Even today, 700 years after the last Moorish king struck his colors to the Portuguese, one citizen will caution another to discretion by saying, "*Os Mouros estão na costa*—The Moors are on the coast."

Daylight revealed a different Nazaré. Now





EDDACHROMES © NATIONAL GEOGRAPHIC SOCIETY

Tumbling crags of granite wall off the province of Beira Baixa from the rest of Portugal. Shepherd guards his flock near the village of Monsanto. In the distance, beyond the Rio Erges, lies Spain.

Enjoying the evening, a woman of Monsanto rests on her rock balcony. With no garden space available, she suspends flowerpots from the walls. Her timeless village clings to the stony brow of a mountain. Villagers build their houses and streets from rocks and even hew dwellings out of the granite. Local herdsmen and farmers preserve folkways that hark back to antiquity. In a national competition, Monsanto won the title "Most Portuguese Village in Portugal."

families thronged the shoreline, mending nets and caulking hulls. Beached boats jammed the sands and adjacent streets. Squat and shallow, they curved up into high, pointed prows (pages 474-5). Recalling vessels of the ancient world, they lend credence to the local theory that the fisherfolk are descended from Phoenician seafarers.

The names of the gaily painted boats—*Gloria A Deus*, *Vai Com Jesus Cristo*—reflected the deep faith that sustains the men of Nazaré. Among all the pious names, in fact, I came upon only one worldly note. A nonconformist had christened his rowboat *Linda Darnell*.

For reasons unknown, the traditional garb of Nazaré is bright wool tartan—wildly mismatched shirts and trousers for the men, skirts worn in layers of seven for the women. A girl balancing a basket of gleaming fish on her head swung past me, all grace and plaid and swishing skirts. I wondered if one day she would end, like so many of her sisters, as a black-shawled widow haunting the beach,

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waiting for a boat that would never return (pages 476-7).\*

A scant seven miles from Nazaré, in the town of Alcobaça, stands the grandiose Monastery of Santa Maria. But few people enter the austere church to pray. They go rather to savor a strange and terrible love story.

Save for a plain altar, the church contains only two caskets, each carved from a single block of white stone. To the right of the altar lies Dom Pedro I, King of Portugal from 1357 to 1367; to the left, his Spanish mistress Inês de Castro. On her head is a crown. And therein lies the story:

Inês had borne Pedro—then the crown prince—several children. Because she was Spanish and because the children complicated the royal succession, certain counselors of Pedro's aging father, King Afonso IV, urged that she be killed. On a winter day in 1355, Afonso visited Inês. He made a final demand that the comely foreigner abandon his son. She refused. Before the day ended, his executioners murdered her and interred her body in Coimbra.

#### Sorrowing King Crowns a Dead Queen

At the news of her death, the raging Pedro—who later swore that he and Inês had been secretly married by the Bishop of Braga—rose in revolt against his father. In 1357, he mounted the throne. The guilty counselors fled, but Pedro managed to have two of them extradited from Castile.

"In his cruel and pitiless rage," recounts a chronicler, "he put them to the question himself." He ended by tearing out their living hearts—one from the front, one from the back. Then, the story goes, Pedro exhumed Inês and had her body crowned in a solemn ceremony, then borne in torchlit procession to the tomb at Alcobaça. A few years later the king joined her in death.

Now, in their immortality of white stone, the lovers lie foot to foot so that when they rise on Judgment Day, the first sight for each will be the other. And carved into a wheel of fortune on Pedro's sepulcher are the words "*Ate o fim do mundo—Until the end of the world.*"

Almost directly east of the somber resting place of Pedro and Inês, the town of Tomar nestles in the green valley of Rio Nabão. High above the houses, among pines and cypresses, sprawls the Convent of Christ—a summary in stone of Portuguese history.

In 1160, the Knights Templar erected a fortress church on this spot, then the frontier between Christendom and Islam. When the

papacy suppressed the Templars in 1314, the Portuguese Order of Christ absorbed the knights' immense local holdings.

The battlemented church still stands. From its octagonal sanctuary, a muted echo of Byzantium in scarlet and dull gold, I passed into the Chapter Room. Here, on austere wooden chairs, the Knights of Christ had planned their campaigns. In a square cloister, where Gothic arches framed orange trees in bloom, my feet trod numbered slabs; each covered the remains of a knight, half-monk, half-warrior, who had wielded his sword for God and this little kingdom.

Henry the Navigator, Grand Master of the Order of Christ from 1418 to 1460, diverted its wealth and manpower into his voyages of discovery, and the knights' red cross blazoned the sails of every caravel. Later, as treasure from the Orient poured into Portugal, the same Manuel the Fortunate who built Jerónimos added a nave to the convent—a nave so elaborately carved that "the stone sings."

But, in the end, it is the stark simplicity of the Templar church that haunts the imagination. As I left, I noticed a blurred Latin

\*See "I Sailed With Portugal's Captains-Courageous," by Alan Villiers, NATIONAL GEOGRAPHIC, May, 1952.





Nimble fingers fly as women of Arraiolos, in Alto Alentejo province, stitch flowery designs into rugs, using yarns tinted with natural dyes. Their craft began with imitations of Persian carpets. Known to princes and peasants since the Middle Ages, the Portuguese rugs have become popular with tourists, who order them custom-made.

Christmas figures come to life in a potter's workshop at Estremoz, in central Portugal. The daughter of the house, heir to this folk art, paints an earthenware Virgin Mary.

Another Virgin and two Wise Men stand beside a stylized Portuguese countryman.

Talismans in paint protect Portuguese boats. A blue-clad horseman rides the prow of this *moliceiro*, literally "slime boat," that harvests water-woods for fertilizer from the brackish canals of Aveiro. Seagoing mariners decorate their craft with saints, mermaids, and eyes that "look for fish."



PHOTOGRAPHS BY ANLARA BENTLEY © R. G. C.



inscription set into a gaunt, gray stone wall:

*In 1228 on 13 July came the King of the Moors leading 400 mounted knights and 500 infantry: they besieged this castle for six days: and destroyed everything outside the walls: ... and the Master with his soldiers delivered it from his hands: and the same King returned to his own country with destruction of innumerable men and beasts.*

My eyes lingered on the weathered 737-year-old battle communique. Turning to gaze down the fair valley, I could almost hear the fading shouts of the Moorish raiders.

Through a countryside rich in Gothic castles and Roman ruins, I drove north to the Rio Mondego. Beside the river, fringed by poplars and willows, the crowded, graceful town of Coimbra clings to a hill. At the summit, a tower marks the University of Coimbra—oldest in Portugal and one of the most famous in Europe. King Dom Dinis transferred the university from Lisbon in 1307. In 1540 the scholars moved into a royal palace atop the high hill. That palace, supplemented by dozens of modern buildings, is still the educational hub of Portugal.



Climbing toward it through the antique, twisting streets of the aptly named Bairro dos Palácios Confusos—Quarter of Confused Palaces—I threaded among students in their traditional garb of Edwardian frock coats and tattered black capes. Hurrying from class to class, their capes flapping, they resembled low-flying ravens.

In the university's Ceremonial Hall, where the faculties solemnly confer doctorates to the sound of kettledrums and horns, portraits of Portuguese kings gaze from the red-damasked walls. In the long succession from Afonso

White sails whipping against a blue sky turn windmills near Torres Vedras, where the Duke of Wellington in 1810 beat back the advance of Napoleon's army on Lisbon. When the wind changes, clay whistles on the rigging signal the millers at work in their fields, warning them to reset the sails.

Golden surf of wheat washes a church-crowned hill in the province of Trás os Montes. The name, meaning "Beyond the Mountains," refers to the ranges that rumple northern Portugal.



*BARCOS RABELOS* — “boats with tails” — still ply the Douro River under graceful square sails. Named for their long steering sweeps, they were once the only carriers of port wine from the upper Douro vineyards to aging sheds at Vila Nova de Gaia. Now trucks and trains threaten to replace even these last survivors of a dying fleet.

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Henriques to Dom Manuel II, whose forced abdication ended the monarchy in 1910; I noticed a gap from 1580 to 1640—the years when Spanish monarchs ruled Portugal.

I mentioned the 60-year omission to a student. “You are right, senhor,” he said, “we do not have portraits of every king of Portugal. Only of every Portuguese king. It is a nice distinction, no?”

At dusk I found my way to the *Penedo da Saudade*—the Rock of Yearning. Generations of students have strolled here on a narrow unpaved walk high above the Mondego—and rarely alone. That evening was no exception. Young men in capes sauntered arm in arm with girls beneath silvery green olive trees. This was late autumn, and fallen olives squished softly underfoot as I walked among

the couples. Somewhere in the town a church-bell tolled six o'clock. The sound floated up with a distant sweetness.

Lovers of long ago, and of not so long ago, had carved their initials in the benches lining the walk. Plaques set into the great rock itself contained sentimental, and very bad, verses such as “Coimbra, Land of Loves” and “First Flower of Spring.” But the minds of the couples, as they whispered and softly laughed, were not on poetry.

I approached Porto, “Capital of the North,” via the twisting gorges of Alto Douro. Here, in the upper reaches of the Douro River valley, wolves and boars still roam the lonely hills. For some 80 miles between the Spanish border and the town of Mesão Frio, the wild Douro cuts between terraced slopes of one of



**Sunny smile sells grapes** in Porto's market place. The busy seaport gave its name to both the famous wine and Portugal itself.

**Sun-baked terraces** of the upper Douro River grow the sweet grapes that yield port wine, famed product of Portugal for centuries. Harvesters pick to the rhythms of drums and flutes. Thirty million gallons of wine flow each year from the Douro vineyards.

the world's most intensively cultivated vineyards. By law, only grapes from this tightly defined region may be used in port wine, and some 25,000 growers exploit every square inch of usable soil.

But, as I learned when I visited the winery of Quinta das Carvalhas at Pinhão, automation has infiltrated even the ancient art of making port. No longer does harvest time find laughing peasants treading out the grapes to the sound of flute or accordion. Standing beside the old treading tanks, encarnadined by 80 years of use, I watched the grapes come in from the fields. And, sorrowfully, I watched them disappear into a machine where shiny metal cylinders now squash them hygienically and impersonally.

The demise of a tradition, however, had in

no way impaired the appetites of the pickers. When I visited the kitchen maintained by the vineyard for its seasonal workers, I stared in awe at the gargantuan cookstove—a stove the size of a small boxcar. A crane lifted huge caldrons on and off the top, where two women in thick, insulated shoes hopped nimbly about, stirring the food with paddles.

After being pressed and casked in the upper Douro, port wine goes down the river for blending and aging in the warehouses of Vila Nova de Gaia, just across from Portugal's second largest city, Porto (pages 494-5).

A lively rivalry divides Porto and the capital. Porto's industrious citizens—called *tripeiros*, or tripe-eaters, because in 1415 they slaughtered all their cattle to provision a Crusader fleet, keeping only the entrails for



themselves—say pointedly, “Porto works for all Portugal.” The insouciant Lisboans respond, “The best thing about Porto is the road leading to Lisbon.”

Despite a high degree of industrialization—more than 20 textile plants have opened in the past six years alone—Porto’s commercial life still largely depends upon the city’s namesake wine. While quantity varies with each harvest, an average year sees some seven million gallons shipped to world markets.

#### “Tasters” Rarely Taste, Never Swallow

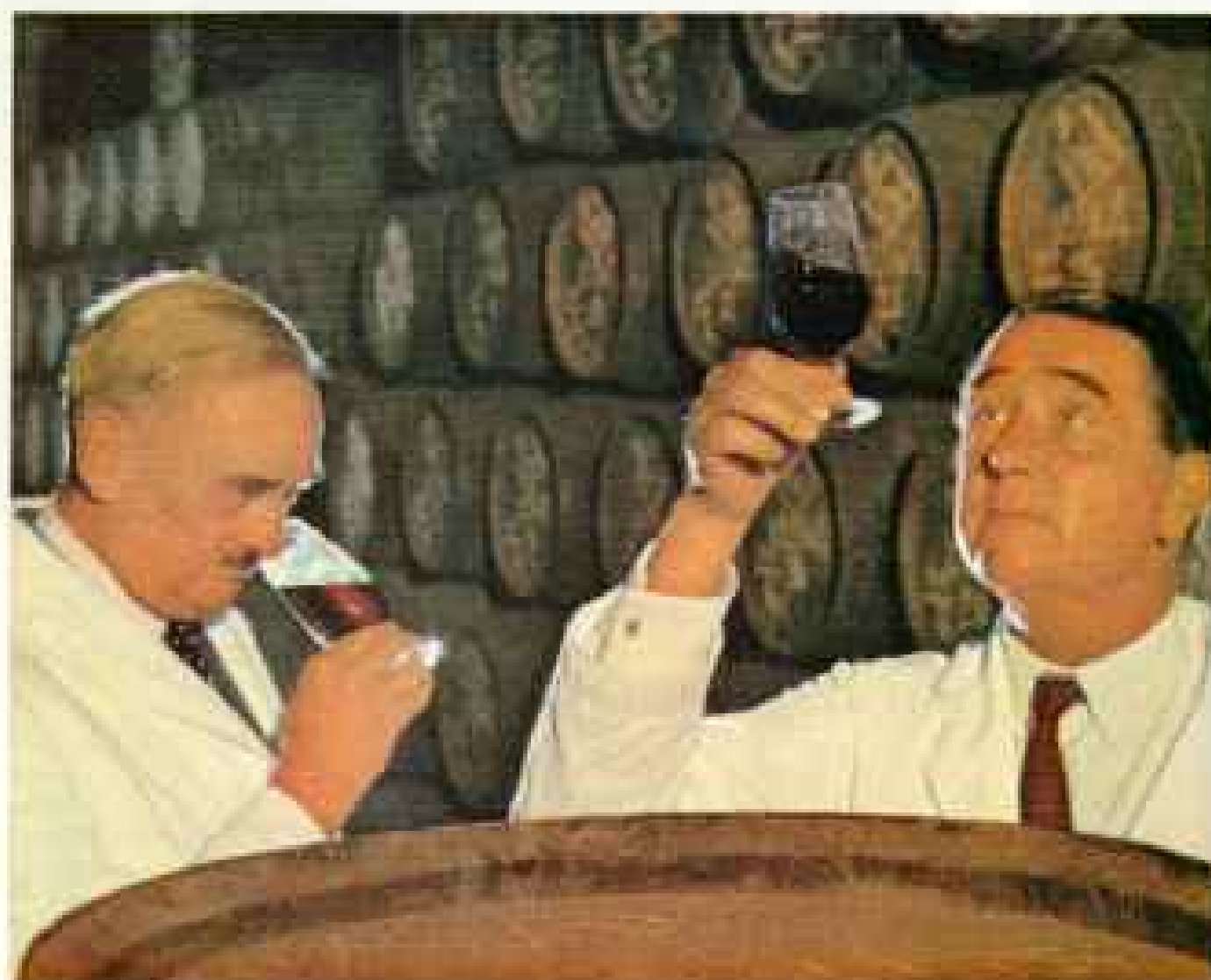
Of this, every drop undergoes the rigid scrutiny of the Instituto do Vinho do Porto, a government organization dedicated to preserving quality. Samples of each shipment pass through the institute’s chemical labora-

tories, but in every case the last word is pronounced by a staff of professional tasters.

To see these experts at work, I visited the institute’s bright, antiseptic tasting room. The president of the eight-man tasters’ panel, Senhor José Nogueira, ushered me into his world of shiny glasses, porcelain basins, and beakers of wine.

“Tasters,” he said, “seldom really taste. We first check color by holding a glass of wine against the light, then swirl it to observe the quality of the froth, and finally inhale the bouquet.” Taking a glass, he quickly demonstrated the three steps. “Only if some doubt remains do we actually sample a wine. And a taster merely uses his tongue and the roof of his mouth. He never swallows.”

At Senhor Nogueira’s invitation, I tried a



“King of wines,” port owes its distinctive flavor to careful selection and precise blending of Douro wines, fortified by brandy. Since the 18th century, British vintners living in Porto have dominated the making of port. Here two of them, John Smithes (left) and Felix Vigne, test the color and bouquet of a vintage in the lodges of Cockburn Smithes & Cia., Lda.

**Baroque Palace of Matens**, near Vila Real, stands as one of Europe’s great country houses. Coat of arms of the Counts of Vila Real surmounts the main entrance; rococo of Louis XV style embellishes the chapel at left.

Twenty centuries of spectacular monuments stud the Portuguese landscape: Roman remains at Évora and Conimbriga; Moorish castles in the Algarve; stern Gothic fortresses and cathedrals in Estremadura; ornate stonecarvings of the era of King Manuel I in Lisbon and Tomar; baroque in Porto; and modern glass-and-concrete architecture in every major city.



glass. Aping him, I held it up; it gleamed like a ruby. A quick twirl of the wrist not only produced a satisfactory foam but doused my arm to the elbow. A skeptical sniff led to a sip. I savored the wine briefly against the roof of my mouth, then spat it into a porcelain basin.

"Fruity," I pronounced, "but young."

Smiling his approval, Senhor Nogueira then produced a 25-year-old tawny port. I repeated the procedure, this time drenching only my wrist. My verdict: "Bright and refreshing."

Senhor Nogueira beamed. "Excellent! You are a fine student."

But in the end I flunked. For next came a 70-year-old tawny; far too expensive for the market place, it was used only for blending.

Once again the glance, the swirl, the sip.

Then came disgrace. At the critical moment, reflecting that never again would I be able to sample so magnificent a wine, I did the unspeakable. I swallowed.

### Cowboys Ride Southern Plains

Portugal's final frontier lies in the south beyond the Tagus. There stretch the wide plains of Alentejo where mounted *campinos*, or cowboys, in knee breeches and stocking caps canter beside drifting herds (pages 496-7). Here is the land of swift stallions, brave bulls, and plangent guitars—the land of Portugal's great estates, the *latifundios*.

I was welcomed to the 43,000-acre Herdade de Rio Frio—Cold River Farm—by José Lupi, the lithe, handsome engineer who directs this huge agricultural enterprise. Senhor Lupi,

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RODOLPHUS BY VOLKMAR HERTZEL © W.A.L.





Liquid-eyed and raven-haired, a Minho girl displays the holiday garb of her province.



Airy arch of steel supports the double-decked Dom Luis I Bridge across the Douro River at Porto. Descended from a settlement called Portus Cale by the Romans, the city of Porto clings to granite hills near the river's mouth. A hard-working population has made Porto the commercial and industrial hub of northern Portugal. The bridge's upper level leads past the old city walls.



Inside and out, Portugal's churches glow with color. This Porto church bears New Testament scenes on glazed tiles called *azulejos*, from an Arabic word meaning "smooth." Worshipers have their shoes shined before attending Sunday Mass.





ESTACADORE (OPPOSITE, UPPER) AND ARRACHORES © R.S.L.

one of Portugal's leading cavaleiros, was no stranger; I had seen him in action in the bull ring.

"Here we raise everything from eucalyptus trees to grapevines," he said, "but our principal products are cork, rice, and pork. With the exception of the cork, we process everything here on the farm before shipping it."

We tramped through a spanking-new automated rice-processing plant that strips, polishes, sorts, and bags more than six million pounds a year; a winery, lined with enormous oaken casks, that annually presses 400,000 gallons from Rio Frio's 2,000 acres of grapes; a modern dairy barn housing 130 cows; a vast

piggery where hundreds of sows nursed thousands of young; poultry pens that provide almost 1,000 chickens a day for Lisbon.

A private generator furnishes Rio Frio's power, and 14 dams hold water for irrigation.

"We have about five hundred families quartered on the farm, providing us with some thousand workers," said Senhor Lupi. "We don't pay much—about a dollar a day for men and 80 cents for women. But we offer every family a house and an acre and a half of irrigated land for their own use. Medical care is free, and we maintain a fully staffed hospital. We also have a theater, a gymnasium, and four free schools."



Raising a curtain of spray, a herd of Iberian

Buttoned vest, monogrammed pin, and floppy hat add up to a *campesino*, a natty Ribatejo cowboy.



"Is there anything you lack?" I asked.

"Yes," he said—a little regretfully, I thought. "We don't coin our own money."

Although Rio Frio resounds to the clank of tractors, the twin passions of the old aristocracy—horses and bulls—have not been forgotten. "We have about 80 horses, all with Arab blood, that we breed for the bull ring or jumping or riding," Senhor Lupi told me. "It's a luxury. Like everyone who raises horses, we lose money."

Later we rode far out on the plains to an area of sparse and rocky ground. There, where no other cattle could survive, roamed the *toiros bravos*, the fighting bulls bred for the ring. We watched as the herd moved with slow majesty up a slope.

"These animals," said Senhor Lupi, "are bred first and foremost for bravery. Size, weight, horns—all is meaningless without that one intangible. And, with bulls as with men, you cannot rely upon appearance."

Far to the south, the plains erupt into a



ANDRÉ VIEIRA © NATIONAL GEOGRAPHIC SOCIETY

horses, driven by a *campino*, fords a stream at a state-owned farm near Santarém.

range of brown, eroded mountains. Beyond, running the length of the southern coast, an irregular strip of flat land borders the ocean. This is the Algarve, Portugal's land of dreams: Dreams of a romantic past, when Moorish cavalry clattered through its towns and veiled women with smouldering eyes peered from windows; dreams, too, of a future that will see the Algarve—rich in sun and sand and sea and smiling orchards—emerge as Europe's new Riviera.

#### Stamp of the Moors Still Marks Algarve

More than seven centuries have passed since the Knights of Santiago overwhelmed Aben Afan, last Moorish king of the Algarve, but a cachet of the East lingers still (next page). I found it in the white cubical houses of Olhão, with their windowless façades and door knockers formed like the Arabic Hand of Fate; families still mount to the roofs of those houses—as in Biblical times—to take the air in the cool of the evening. I found the

East, too, in Arabic place names like Faro, Bensafirim, Alfambra; and in the sticky regional candies made of figs and eggs.

Driving through the narrow sunny littoral, I could even believe the local legend of the Moorish warrior who once, long ago, had captured a northern princess. Hopelessly in love, he watched her languish for the sight of snow until, in happy inspiration, he planted endless acres of almond trees. Blooming in February, they covered the Algarve with a mantle of white and the princess was content. You can see the almonds still in any February, their blossoms like drifted snow.

With its year-round subtropical climate and its plenitude of lovely curving beaches, the Algarve has attracted the attention of all Europe. Half a dozen luxury hotels already dot the coast from Monte Gordo to Sagres, and last year more than 50,000 foreign tourists flocked to the Algarve. Few of them, though, took the four-mile detour from Lagoa that leads north to the Arade River



Boats shelter peacefully beneath the walls of Lagos, in Portugal's southernmost province of Algarve. Sunshine and luminous seas bathe this seaport, which saw the ships of King Dom Sebastião sail for Morocco on his crusade of 1578. His defeat by the Moors at Ksar el Kebir foretold the ruin of Portugal's empire.

Five centuries of Moorish rule left its imprint on the Algarve. Houses at Carvoeiro reflect the Moorish style, and women of the province still partly veil their faces.

Though isolated by mountain and sea, the Algarve has caught up with the world. More and more tourists reach this sunny littoral, attracted by luxury hotels and a new airport at Faro, the provincial capital.

and Silves. Bereft of most tourist amenities, this dusty, dwindling town of 3,500 serves as a trading center for nearby farmers.

Like so many Portuguese towns, Silves clutches the side of a hill. Climbing to the crest, I reached a castle of blood-red sandstone. Every line was squared, geometrical, pleasing to the eye. The castle, like Silves, stood silent and somnolent in the sun. But once it had been the citadel of Moorish kings. Its fall in the middle of the 13th century had ended 500 years of Moslem domination of southern Portugal.



Prior to that fateful event, Silves—then called Xelb—had been the bustling capital of a Moorish kingdom that stretched into Andalusia and Africa. Writers, artists, and philosophers had strolled amid its fountains and fruit trees. Remembering Silves, the 11th-century Moorish poet Almotamide wrote:

*How many nights have I lingered  
in your shadows,  
With girls . . . both pale and dusky,  
Who pierced my soul  
Like shining swords, like dark lances.*

I passed through the gate of the castle into a broad open court. Save for a pair of school-boys doing their homework in the shade of a tower and a very old man strolling stiffly on the battlements, I was alone. From an embrasure above the gate, I could look out over the Arade, a streak of smudged silver winding toward the sea. Once, galleys from all the far realms of Islam had followed the river up to Silves with cargoes of silks and spices. Now—emptiness.

In the center of the vast court I walked around an enormous covered cistern and

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REINCHIMES © NATIONAL GEOGRAPHIC SOCIETY







peered into shadowy subterranean galleries that, by mysterious ways, penetrated far beyond the castle walls into the cellars of the town. Here, a thousand years ago, Moorish kings had stored food for their garrisons.

Mounting to the battlements, I gazed out over the rich fields surrounding Silves. The old man I'd seen earlier hobbled toward me and halted, his arthritic hands clasping the head of a cane. "So, senhor," he said, "what do you think of our castle?"

"It is very old," I answered, "and beautiful."

"Yes," he said. "The Moors built well. For instance, that great cistern you inspected—Cisterna da Moira Encantada—still supplies water to Silves. I am a man of this town—a Portuguese and a Christian, proud of my ancestors who took Silves from the infidel. But each year I see it decay a little more. And, forgive me, I feel a certain nostalgia for the magnificence of the past. So I come here every day."

#### Love Opens a Gateway to Treason

I nodded. My hand traced the edge of an arrow slit in the massive wall.

"Yes, senhor," said the old man, "they're very thick. The Moors thought them impregnable. No army of that time could have taken this castle by storm. And none did."

"How, then, did it fall?"

He pointed to a narrow opening in the north wall. "That is the *Porta da Traição*, the Gate of Treason. You see, the Moorish King Aben Afan had a daughter who fell in love with one of the Christian knights besieging the castle. They exchanged notes, and he persuaded her to meet him one night at that gate. When she opened it, the Christians swarmed in and massacred the garrison."

"What happened to the princess?"

He shrugged. "Who knows? Tradition holds that every year she appears at that cistern at midnight on the Feast of St. John to sing a sad Arabic song. That's why we call it the Cistern of the Enchanted Moor. Perhaps," he smiled, "she too has regrets."

Algarve . . . land of legends and of dreams.

Fittingly enough, I ended my trip at Ponta

de Sagres. Here at the bleak and windy southern tip of Portugal, Prince Henry the Navigator had revolutionized the art of seafaring. In an age when ships never willingly ventured out of coastal waters and knowledge of the sea ended at the horizon, Henry had decided to plunge into the gray unknown stretching west and south of Sagres.

He recruited sailors, scholars, and scientists from all Europe and brought them together near this lonely headland. Patiently, he sifted their lore; quietly, he labored among charts and astrolabes. In the end he showed his countrymen—condemned by the cruel realities of geography to a marginal existence on the edge of a continent—the sea path to greatness. And they followed it.

The sea does not smile at Sagres. Even on the sunniest day it claws and smashes at the base of the high dolomite cliffs. From their edge I gazed out into a sullen infinity of ocean. Five centuries ago Henry had stood there. The solitary ascetic had looked beyond the pounding waves, and a vision of far lands had dazzled his eyes.

The prince died in 1460, before the greatest of the discoveries, before Dias and da Gama and Cabral and Magalhães—known to the world as Magellan. But his was the momentum, his the spirit that guided those voyages as surely as if he had plotted their courses with his own hand.

So I stood there at Sagres, on the flat headland ravaged by salt winds, where Henry had given the Portuguese their empire. Sebastião had lost it at Ksar el Kebir; João IV had wrested some of it back from Spain in 1640. But the 19th century saw the loss of Brazil and central Africa. In 1961 Goa, Damão, and Diu—Portuguese for 400 years—passed to India. And now violence mutters like distant thunder in the last of the African territories.

I looked at the hostile ocean, and I wondered if our own age would finally answer the question that has haunted Portuguese history since the time of Henry: Portugal has followed a cross and a flag beyond the seas—to what destiny?

THE END

**Scarlet Cross of Christ** still roves the seas. Slicing a calm Atlantic, the Portuguese schoolship *Sagres* and Spain's *Juan Sebastian de Elcano* leave Lisbon at the start of the 1964 Lisbon-Bermuda-square-rigger race. In the tradition of the 15th-century caravels that first ventured "beyond the realms of morning," *Sagres's* sails bear the cross of the Order of Christ. She carries the name of the headland whence Prince Henry the Navigator watched his ships set sail for the ends of the world.



*Morelmore, twice life-size*

# Bizarre World of the Fungi

Article and photographs by  
PAUL A. ZAHL, Ph.D.  
National Geographic Senior Staff  
(Natural Sciences)

ONE CLEAR, CRISP morning in northern Michigan, I stood with a group of men, women, and children lining up for one of the Nation's most curious competitions. Dressed for hiking and each holding a paper shopping bag, they awaited the starter's gun for Boyne City's annual mushroom hunt.

*Bang!* And 73 contestants raced into the tall timber like a scattering of hungry chickens. They were off on a search for morels, gray-to-brown fungi which for a few brief weeks each spring push up through the forest duff of this north country. Not stately or showy like many mushrooms of summer and fall, these crinkly-capped little sprouts nestle half-hidden in the drab litter of last season's fallen leaves (page 504, top).

But it wasn't just promise of prizes that motivated the searchers. From winner to last-place finisher, each would dine that night on what he gathered. And a meal of fresh morels, as every gourmet knows, is its own reward.

## Fortune Awaits a Morel Grower

That vast group of mushrooms, toadstools, molds, mildews, rusts, smuts, and yeasts known as fungi had long intrigued me, for their humble stature belies their importance to all life. My visit to Boyne City's May morel hunt was but a facet of my study.

When Mrs. Don Pearsall, a Michigan housewife, emerged as the contest winner, I asked her how she was able to find 286 morels in the allotted two hours while many another contestant could bring in only a dozen or so.

"Just knowing where to look," was her disarming reply. Whatever the telltale signs—a stretch of burned-over woodland, perhaps

*Laccaria, one-half life-size*



EVERGREENS BY CARL H. WESTMAN (ARIZONA), WITH S. DAVIDSON (MONTANA) AND PAUL A. ZAHL © NATIONAL GEOGRAPHIC SOCIETY

*Pholiota, one-half size*





*Calyptia* (FROM GREEK WORD MEANING "SMALL CUP"), 2 TIMES LIFE-SIZE

Weird beauty of the mushrooms and their kin often goes unnoticed. Nature's shadowy nooks and damp crannies nurture myriad forms of fungi such as these, from familiar umbrella-shaped mushrooms and toadstools to strangely contorted cups and saucers.

*Hygrophorus*, TWICE LIFE-SIZE

*Clitocybe*, LIFE-SIZE







below: *Amanita bisporigera*, 7/16-2/18/1984, life size © R.S.S.

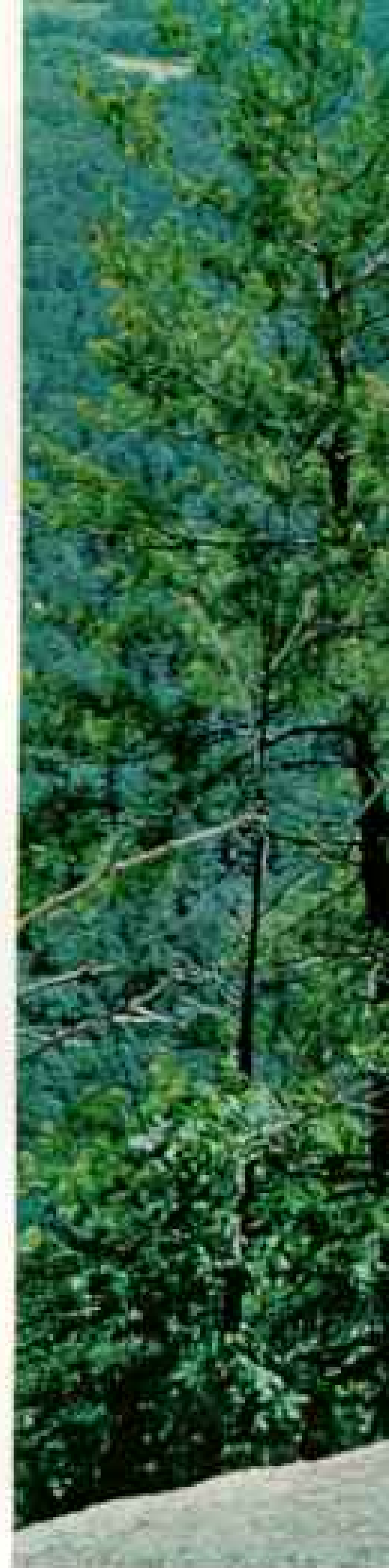


Forest-dwelling morel (left) makes a tasty morsel—when definitely identified. But this, like other edible wild mushrooms, has dangerous look-alikes (text, opposite page).

Basketful of color shows the endless variety of woodland fungi. The author's wife Eda and son Paul gathered these specimens near Echo Lake (background) in New Hampshire's White Mountains.

"But one should never mix doubtful mushrooms with edible kinds," warns biologist Zahl. "A dangerous type may contaminate a wholesome variety merely by touch."

"Destroying angel" (lower left), one of several poisonous *Amanita* mushrooms growing wild in field and forest, has an innocent pristine-white appearance that belies its deadly nature. Even a bite or two can cause—hours later—violent stomach-ache, breakdown of blood cells, and finally death. White-gilled cap and slender stem rise from ruptured "death cup" at base; the stem often has a fringe or veil near the top.



the lie of a drainage slope here, the shape of a gully there, or the patch yonder where winter's snow had thawed early—Mrs. Pearsall obviously knew, but wasn't telling.

The point is that most mushrooms have specific habitat preferences and grow only where their individual needs are met. Specialists in this field—mycologists—have long known this, of course.

A highly technical—and often jealously guarded—know-how is required to grow fungi, whether it be in the great vats of pharmaceutical companies where penicillin mold is cultured or in the darkened sheds and underground caverns from which commercial growers in the United States supply the Nation's tables with more than 130 million pounds of mushrooms a year.

As to morels, no one yet knows how to grow them commercially. The market for a year-round crop promises a fortune for the man who can unlock the secret.

The hunt over, I strolled through the woods



STYLING BY BRANT W. HAIST (OPPOSITE, CENTER); FOODSTYLING BY PAUL A. ZAPAL © N.C.S.

to locate a few specimens for my own private test of morel flavor. I managed to find about two dozen, enough for an adequate meal.

It was dusk when I reached my kitchenette-equipped motel quarters near Boyne City. I washed my basket of brownish tidbits and cut one mushroom in two lengthwise. The stem was hollow, and its gill-less cap was characteristically pitted and furrowed (opposite).

#### When in Doubt, Don't!

I was sure they were all morels—except for two that seemed a little different. Unpleasant suspicions began to stir. This was my first field experience with northern morels, and I had done my picking in the dim light of late afternoon. Solemnly I compared the two odd ones with the picture of a true morel in my mushroom field guide.\* Clearly they did not correspond. Flipping the pages, I found the answer: Several related types may sometimes grow alongside *Morchella*. One of my doubtful specimens seemed to belong to *Verpa*, de-

scribed as usually safe but in some instances questionable. The other could have belonged to *Helvella*, some species of which are edible, and some dangerous.

With haste and finality I rejected the two nonconformists. Had there been a real fear that either belonged to a deadly species, I would have discarded the entire lot, for an elementary rule of mushroom collecting is never to place edible and poisonous specimens together. Mere touch may contaminate. I tossed the authenticated morels into a skillet with melted butter, added a pinch of salt, and

\*Frequently recommended mushroom guides include: *Edible and Poisonous Mushrooms of Canada*, by J. Walton Groves, 1962; *Mushrooms of the Great Smokies*, by L. R. Hesler, 1960; *A Popular Guide to the Higher Fungi (Mushrooms) of New York State*, by Louis C. C. Krieger, 1935; *The Savory Wild Mushroom*, by Margaret McKenry, 1962; *Mushrooms*, by Albert Pilát and Otto Uliák; *Mushrooms of Eastern Canada and the United States*, by René Pomerleau, 1951; *The Mushroom Hunter's Field Guide*, by Alexander H. Smith, 1963. A pioneer study and guide—now long out of print—appeared in the May, 1920, NATIONAL GEOGRAPHIC: "Common Mushrooms of the United States," by Louis C. C. Krieger.

sautéed the lot for five minutes. A delicious aroma filled the room. The dish was such as might have inspired the Roman poet Juvenal 1,900 years ago to say: "Keep your grain, O Libya, unyoke your oxen, provided that you send us mushrooms."

A few days later I asked Professor Alexander H. Smith, an internationally known mushroom authority at the University of Michigan, if there was any foolproof way of telling edible mushrooms from poisonous species.

"No, and it's extremely dangerous to guess," he replied. "To anyone who isn't an expert, I

suggest that he limit his mushroom hunting to the shelves of a supermarket."

Theories that poisonous mushrooms will darken a silver spoon, or that they have a tell-tale odor, texture, or exudate, or a cap that peels readily—all these had better be forgotten, Professor Smith said.

"There is only one dependable course—learn to know your species," he emphasized. "Verify your identification with a reliable field guide. Discard any specimens you cannot positively establish as belonging to an authenticated edible species."



KODACHROME BY PAUL A. ZAHL © N.S.E.

**Lesson in lifesaving:** The author's brother, Dr. Harold A. Zahl, warns his sons about a mushroom growing wild in New Jersey. The yellowish specimen in his right hand is an immature fly agaric, a species which can cause hallucinations and even death. Not so the edible *Boletus* in his left hand; from related species, the ancient Romans made a salve or lotion for warding off rheumatic pain and removing freckles.

## Key to common lethal fungi (shown on facing page)

- |   |   |
|---|---|
| 1 PANTHER FUNGUS, <i>Amanita pantherina</i>         | 7 <i>Helvella underwoodii</i>                 |
| 2 BOOTED AMANITA, <i>Amanita colhurnata</i>         | 8 WESTERN FLY AGARIC, <i>Amanita muscaria</i> |
| 3 SCORNFUL AMANITA, <i>Amanita spreta</i>           | 9 EASTERN FLY AGARIC, <i>Amanita muscaria</i> |
| 4 DESTROYING ANGEL, <i>Amanita bisporigera</i>      | 10 EMETIC RUSSULA, <i>Russula emetica</i>     |
| 5 JACK-O'-LANTERN FUNGUS, <i>Clitocybe illudens</i> | 11 <i>Agaricus placomyces</i>                 |
| 6 <i>Lactarius vellereus</i>                        | 12 <i>Lepiota molybdites</i>                  |





## Beware! Not for the dinner table

THESE ARE A FEW of the poisonous mushrooms—toadstools, in popular parlance—that can produce results as serious as the bite of a rattlesnake. "Mushroom hunters have paid dearly for careless observations and inaccurate identifications," says a leading authority on mycology, Dr. Alexander H. Smith, of the University of Michigan. Dr. Smith authenticated details of these paintings, working closely with artist and author.



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SMEXLEY

Poisonous varieties are often enticingly attractive to the eye. I recall a recent walk through some New Jersey woods. There had been rain, and the trail was muddy. In a thicket of pine and birch I came upon a score of wondrously colored mushrooms, some nearly the diameter of a soccer ball. Their wide-spread umbrellas showed splashes of orange, yellow, and rose, and were flecked with bits of scale. Immature specimens pushed

egg-size domes of shiny yellow through the pine-needled forest floor. Here and there stood stately beauties of palest white.

Both kinds were lovely—but only to look at. The colored ones were highly toxic fly agarics, *Amanita muscaria* (No. 9 in painting of some common poisonous mushrooms on page 507). The wax-white creations were destroying angels, *Amanita bisporigera* (page 504 and No. 4 on page 507), among the deadliest of



Tiny cups of *Patella scutellata* speckle damp, rotted logs. These fringed tangerine-hued discs are enlarged here about five times.

White plumes of *Hericium coralloides* grow from rotting wood like a frozen fountain. Mushroom fanciers know it as "bear's head" and "hedgehog." All *Hericium* species may be eaten. Snow-white streamers bear the spores, microscopic reproductive cells that a single fungal growth can release by the billions. Winds carry them thousands of miles, spreading the species to all corners of the world.



toadstools—as poisonous mushrooms are sometimes called. Several white *Amanitas*, including the species *verna*, carry the ominous name “destroying angel.”

Most deaths from mushroom eating—six or so occur in the United States every year—involve *Amanita*. Destroying angels look appetizing, are even said to taste good, and for hours nothing may happen. Then come violent intestinal seizures, destruction of vi-

tal tissues, and usually death in a few days.

More than all others, this genus has given the word “toadstool” its fearful meaning. Toadstools generally are dangerous in proportion to the amount eaten. But with such *Amanita* species as *bisporigera*, *pantherina*, *collybiata*, and *spreta*, a few bites may be fatal; even the spores are loaded with poison (see Nos. 1, 2, 3, and 4 on page 507).

With mixed feelings I stood amid these

*Herichium coralloides*, TWICE LIFE-SIZE; PHOTOGRAPHER BY PAUL S. ZAHN © NATIONAL GEOGRAPHIC SOCIETY







baneful beauties, for I knew that even harmful mushrooms may play a useful role. Underground filaments of certain fungi entwine and invade the roots of particular trees and other plants to their mutual advantage. Collectors have noted that *Boletus luteus* prefers to grow near pines, *Boletus scaber* near birch, *Boletinus cavipes* under larch, and *Amanita muscaria* under pine and also aspen, birch, larch, and spruce.

#### Benefits Flow in Two Directions

With their filaments, the fungi have a superior capacity for absorbing nutrients; these essentials they carry to the tree. The tree, in turn, manufactures carbohydrates through photosynthesis and transports these to its roots, where the fungus utilizes them as nourishment.

Plant fossils 350 million years old reveal the presence of root-dwelling fungi. Over the eons, some plants have come to depend

solely on this association between roots and filaments, an association known as mycorrhiza. The Indian pipe (page 524), for example, dwells in deep forest. Unable to manufacture its own food by photosynthesis, it depends for sustenance on a fungus which acts as a pipeline between it and adjacent trees.

Orchids long resisted efforts to grow them from seed until a French botanist put them in a culture of fungal filaments regularly found with the roots of the mature plant.

In spite of much knowledge gained in recent years, many details of these relationships are still unclear to botanists.

That same New Jersey countryside revealed another curiosity of fungus life. In a field of lush grass, I came upon a nearly perfect mushroom fairy ring about 20 feet across (above). In such circles, Europeans of old believed, the "wee folk" came to dance at night.

Some species cause a withering of grass within a ring, suggesting the wear and tear of



Fairy ring of mushrooms adorns a New Jersey meadow. Such circles, sometimes enclosing withered grass, reveal the presence of underground fungus filaments, growing outward in a circular mesh, or plaque, from an original spore at the center. Fairy rings can be 50 feet or more across and hundreds of years old.

Medieval Europeans believed that elves or fairies, dancing by night, trampled down the grass and sat on the mushrooms to rest. The rings were regarded as sacred. "He wha cleans the fairy ring an easy death shall dee," promises a Scottish proverb.

Comparing sizes of three "elf stools," Jimmy Zahl, the author's nephew, gets a close-up view of 8-inch-wide mushrooms (above).



"Fingerprinting" dark-spored meadow mushrooms (*Agaricus campester*), Paul Zahl, Jr., removes stems and lays the gilled caps on white paper, covering each with a bowl overnight to keep out drafts. Presto—next morning falling spores have produced distinctive prints on the paper.

SCIENCE ILLUSTRATION BY NATIONAL GEOGRAPHIC SOCIETY





## Harvest time



THE CORTACOROMA (LEFT) BY KLEVO HARK  
 ADDACHROMES BY PAUL A. EARL © N.A.S.



dancing feet. Such fairy rings also have been imaginatively linked to lightning, haystacks, moles, ants, goats, or stallions.

Actually, a tiny wind-borne mushroom spore falls on a grassy field, germinates, and sends out radially a maze of threadlike filaments. They penetrate humus and grass roots and eventually become a circular plaque a few inches below the surface. When season and weather are right, mushrooms pop up at the rim of this unseen wheel.

By-products of mold growth



## in an underground farm

COMMERCIAL white mushrooms cluster like eggs in beds of compost at the Butler County Mushroom Farm near Pittsburgh, Pennsylvania. Underground galleries of an abandoned limestone mine grow more than ten million pounds of mushrooms annually. Harvesters wear miners' caps.

To keep tabs on rate of growth, the author painted these commercial mushrooms (*Agaricus bisporus*) with water colors. Appearing first as tiny nubs (left), they take five to six weeks from planting of the spawn to reach penny size (lower). Sixty hours later, as large as golf balls, they are ready for picking (below). After several days, when gills turn brown (right), market value decreases.



REPRODUCED BY PAUL R. DAVIS © NATIONAL GEOGRAPHIC SOCIETY

may act as stimulants to the grass at the outer edge of the ring. Within, factors less well understood may have a withering effect, resembling recent trampling. Most ring fungi are perennial, with the hub and center of the ring dying, and the outer rim of live filaments expanding in diameter as much as 13 inches a year. There are fairy rings in Colorado estimated to be 400 to 650 years old. Remarkable, too, are those near the Stonehenge ruins on England's Salisbury Plain.

In a full year of study, I spent uncounted hours, camera in hand, seeking mushrooms in woodland, meadow, and riverbank in a dozen parts of the Nation. I toured university

research centers and institutes; I talked to distinguished authorities. I visited the famed Kennett Square area of Chester County, Pennsylvania, where half of the country's commercial mushrooms are grown. The industry here was pioneered in the late 19th century in farm stables and under greenhouse workbenches. Now its growing sheds and canneries—still largely family-run enterprises—serve distant markets.

I called, too, at the Butler County Mushroom Farm, 30 miles northeast of Pittsburgh, largest individual mushroom operation in the world. In an abandoned limestone mine, more than ten million pounds of top-grade



white mushrooms are produced each year.

The calendar said January 5, and snow lay deep on the ground; yet within the mine the temperature held unvaryingly at 56° F. Outside, block-long mounds of stable litter, clover hay, and crushed corncobs lay steaming in the cold morning air. Machines turned and blended these materials into compost for filling shallow wooden trays. After four days in a pasteurizing chamber to kill disease-producing organisms; the trays would be "inoculated" with laboratory-grown mushroom filaments called "spawn."

Such cultivation of mushrooms began near Paris in the 17th century. Today Paris has hundreds of miles of mushroom beds in suburban caves; tunnels, and sheds; Frenchmen consume, on the average, 32 ounces a year.

Americans eat only 14 ounces, but the total grows as more efficient production brings market prices down. Appealing to the housewife is the variety of tasty dishes possible with mushrooms, together with the fact that they are low in calories but rich in minerals and certain vitamins.

#### Gourmets' Choice in Different Lands

Although hundreds of mushroom species are edible, only a few are eaten regularly. *Agaricus bisporus* is the principal mushroom of commerce in Europe and America. In Southeast Asia it is the paddy-straw mushroom, *Volvariella volvacea*. Japanese and Chinese prefer *Lentinus edodes*, a mushroom farmed outdoors on logs.

Other popular edible fungi, as yet not



ILLUSTRATION BY FRED SWANBY © NATIONAL GEOGRAPHIC SOCIETY

Although these common American species are considered edible, no collector should eat a wild mushroom unless sure of its identity.

THERE IS NO FOOLPROOF RULE by which edible species found in woods or fields can be distinguished from poisonous kinds, which may resemble them closely. Even some edible ones may cause dire results for persons with allergies. "Hay-fever patients would do well to be cautious when first testing any kind of mushroom," says Dr. Alexander Smith. "One so-called edible species," he adds, "is safe unless eaten with an alcoholic beverage—or even several hours before or after. The mixture may cause severe poisoning!"

- 13 HONEY MUSHROOM, *Armillaria mellea*
- 14 VIOLET CORTINARIUS, *Cortinarius violaceus*
- 15 EDIBLE BOLETUS, *Boletus edulis*
- 16 DELICIOUS LACTARIUS, *Lactarius deliciosus*

- 17 GLISTENING INKY CAP, *Coprinus micaceus*
- 18 OYSTER MUSHROOM, *Pleurotus ostreatus*
- 19 *Psathyrella candolleana*
- 20 SUN-SHADE POLYPORUS, *Polyporus umbellatus*
- 21 SHAGGY-MANE, *Coprinus comatus*
- 22 MOREL, or SPONGE MUSHROOM, *Morchella esculenta*
- 23 CLUB-SHAPED CANTHARELLUS, *Cantharellus clavatus*
- 24 CHANTERELLE, *Cantharellus cibarius*
- 25 MEADOW MUSHROOM, *Agaricus campester*
- 26 HALF-FREE MOREL, *Morchella semilibera*
- 27 HEDGEHOG MUSHROOM, *Hydnum repandum*
- 28 BRICK CAP, *Naematoloma sublateralitium*
- 29 *Calvatia cyathiformis*
- 30 CHICKEN FUNGUS, *Polyporus sulphureus*
- 31 PARASOL MUSHROOM, *Lepiota procera*

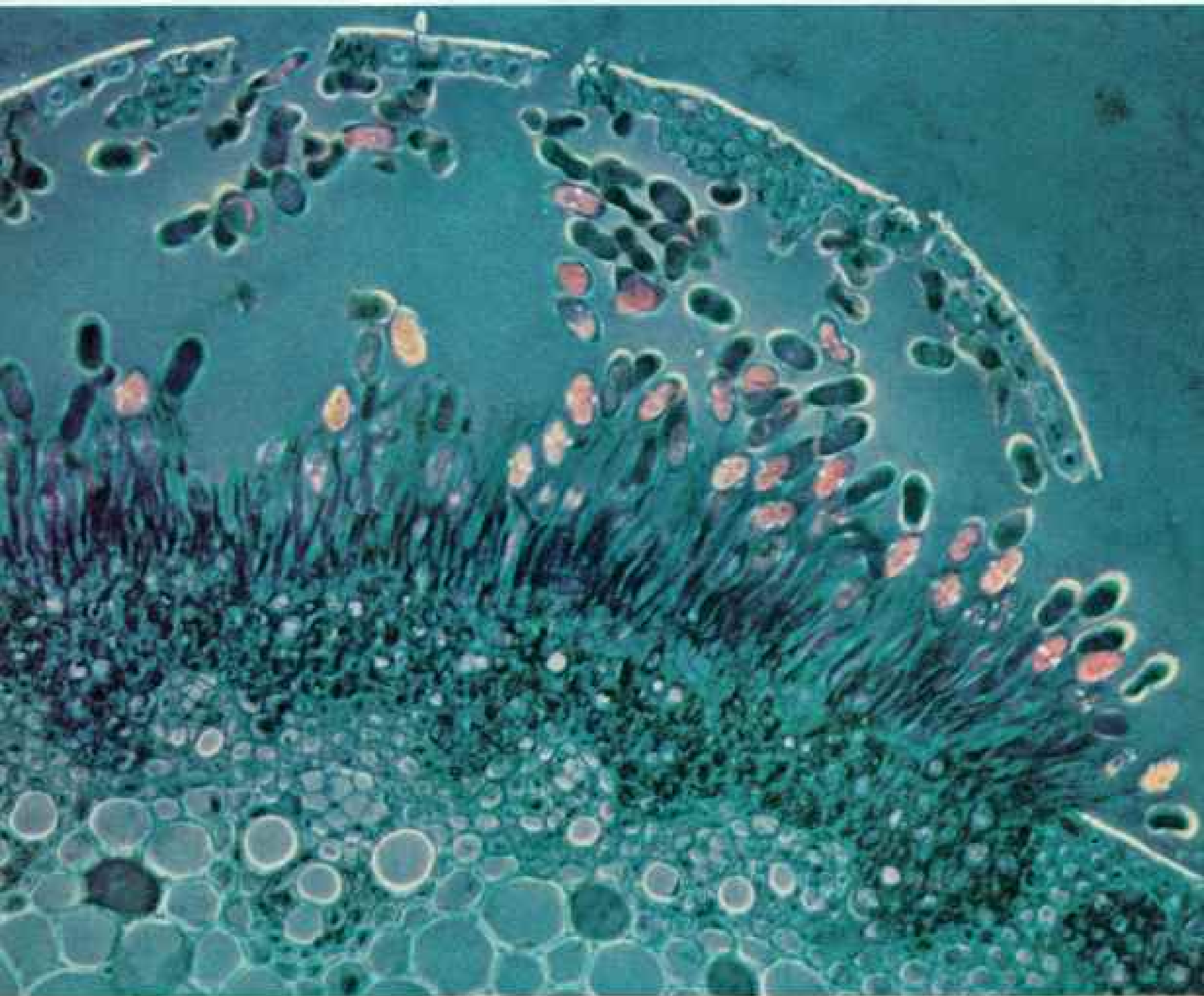




Molds, rusts, and smuts, ravagers of the plant world, rank among man's worst enemies. A fungus blight caused the Irish potato famine of the 1840's. Yet other molds yield incalculable benefits—penicillin, for example. Black rust (above) attacks a stem of wheat, enlarged 200 times. Tiny filaments penetrate the stalk, feeding on the hexagonal wheat cells. A blister forms on the curved surface of the stalk, holding rust spores on a forest of tiny stems. Ripening, the scab breaks and spores (here dyed pink and black for study) escape to infect other grain stalks.

Bread mold, magnified 35 times (upper left), resembles weird clumps of fuzzy-headed pins. Each tiny sphere is a cluster of spores of *Rhizopus nigricans*; immature ones are silver, mature spores black.

Thicket of fibers, sometimes as densely matted as felt, forms the hidden heart of most fungi. The filaments invade a host plant or animal, sap its substance, and often cause its decay. Individual fibers (enlarged here 50 times) are only one cell thick.



MICROGRAPHS BY PAUL A. ZAHN © NATIONAL GEOGRAPHIC SOCIETY

commercially grown, are the nutty chanterelle, *Cantharellus cibarius*; the oyster mushroom, *Pleurotus ostreatus*; the porous mushroom, *Boletus edulis*; the beefsteak fungus, *Fistulina hepatica*; the giant puffball, *Calvatia gigantea*; the shaggy-mane, *Coprinus comatus*; and, of course, the delicious morel and France's truffle.\* (See painting of common edible mushrooms, pages 514-15.)

#### Mushroom Pickers Wear Miners' Hats

In the Butler County Mushroom Farm, 14 days are allowed for the spawn to penetrate the compost. Then a top layer of rich soil is added, and the trays are stacked in the mine's humid darkness. Three weeks later, countless tiny white spheres begin to appear at the surface of the soil. In 60 hours they may attain golf-ball size. Pickers wearing miners' hats with lamps (page 512) gather this harvest for

\*See "The Diffident Truffle, France's Gift to Gourmets," NATIONAL GEOGRAPHIC, September, 1956

transport by refrigerated vans to canning and produce centers as far away as Milwaukee and New York.

In the farm's spick-and-span laboratory, I talked to its consulting mycologist, Dr. James W. Sinden. Could mushrooms be grown on a small scale by a person at home?

"Certainly," he said. "There are scores of small mushroom-growing units throughout the country. In France it has long been a cottage industry. However, we regard cultivation as admirably suited to large-scale operations."

Mushrooms, he added, are highly susceptible to a number of ruinous diseases. Raising them also calls for careful attention to temperature, humidity, and soil condition.

The fungus group of which mushrooms are a part has four major divisions. One, Basidiomycetes, has over 15,000 species, including the commercial mushroom, puffballs, destroying angels, smuts, and rusts. Another, Ascomycetes, embraces morels, powdery



APPE 0118

Photographed by their own light (right), luminous lampshades of *Mycena lux-coeli* mushrooms glow at night like neon. By daylight they are demure little parasols (above) growing on Hachijō Island, Japan. Such luminous fungi occur in many parts of the globe. During World War II an American reporter in New Guinea informed his wife: "I'm writing to you tonight by the light of five mushrooms."

Mushrooms in the mail: Paintings of many species, both edible and poisonous, decorate these 1958 Rumanian and Czechoslovakian postage stamps. Magnifier enlarges a fly agaric (pages 506-7).



PHOTOGRAPHS BY ROBERT S. GRAY © R.S.G.





*Myceus lat-cruell* (COPPER) LEFT AND ABOVE; FUNGICIDES BY TATA HANCOCK © R.E.S. TWICE LIFE SIZE

mildews, blue and green molds, yeasts, truffles, and most lichens in its 19,000 species. Phycomycetes includes bread molds and downy mildews, among others, and Myxomycetes—the slime molds.

All members of this vast plant division have several characteristics in common: They contain no chlorophyll; they produce spores instead of seeds as one means of propagation; and they have no flowers or true roots.

Without chlorophyll, they cannot convert the sun's energy into food, so they live as parasites or scavengers. That clump of mushrooms growing on tree or stump is anchored by thousands of unseen branchings, filaments which penetrate and digest the wood's cellulose (page 516). Fuzz on that piece of stale bread or aging meat connects with subsurface fibers that break down the stuff on which it grows.

This also applies to mold species that may affect the human body, or to rusts, mildews, smuts, and dry rots. All are insidious invaders and destroyers of plants, animal tissues, stored grain, timber, leather, fibers, fabrics—even the coating on optical lenses and the insulation of electrical wires. Enzymes secreted by

fungi can eat away almost any substance in the organic world.

Yet, even though some are death-dealing parasites, other fungi confer an incalculable blessing. Acting as scavengers, they cause decay of stumps, logs, and vegetation. Without them, what a heap of debris would choke our forests and fields!

Consider, too, the role of yeasts in baking and brewing. Or the use of molds in making gluconic, citric, and lactic acids—and sauerkraut, silage, and vinegar. Or such a versatile fungus as *Penicillium*. *Penicillium notatum* gives us the miracle drug penicillin, while *Penicillium roquefortii* and *Penicillium camemberti* produce two of our most favored cheeses. Fungi may be nature's most notorious destroyers, yet they are at the same time among her most valued converters, enrichers, and synthesizers.

Fungi are everywhere, thanks to an ability to produce endless numbers of spores—minute, exceedingly tough bits of dormant life. Remember the puffball you stepped on or brushed with your shoe on the golf course last summer? The little cloud of brown dust that squirted from it consisted of spores in



**Pooff!** Spores spew like smoke from a puffball, the fragile *Lycoperdon perlatum*. A falling twig, an animal's paw, even a raindrop can accomplish what fingers do here—rupture the brittle skin and send a cloud of spores into the air.

**Giant Montana puffball** held by photographer Haist's daughter resembles a ball of dough. Some specimens of *Calvatia* balloon to more than three feet in diameter. In the days before matches, the dry interior served as tinder to build a flame from the spark of flint and steel.

**Spores escape** through depressions in the cap of rare *Phallologaster saccatus*, twice life-size. Its fetid odor lures insects that scatter the spores.

REPRODUCED BY WILLIAM A. SMITH (YELLOW) AND GRANT W. HAIST © R.E.S.



such numbers as to make even an astronomer dizzy—trillions in a good-size puffball (left and above). From a single meadow mushroom half a billion spores, each capable of starting a new generation, may enter the air in a day.

Nearly weightless, spores are swept into the atmosphere by air currents. They may travel on wings of the wind for hundreds and even thousands of miles before settling to earth or being driven down by rain. Some have been detected floating seven miles high.

#### Spores Survive Decades of Adversity

Not all spores ride the wind. Those of the truffle and stinkhorn groups depend on animals and insects for dispersal, clinging to fur or antennae hairs, or being broadcast in droppings. Spores of other species are scattered by rain splash. Some are fired from their spore case like pellets from a gun—popping out when coverings shrink and split, or shooting out when internal fluids build up and burst the case through osmotic pressure.

Spores may be star-shaped, oval, spherical, cubic, or rhombic. They range from black

through brown, purple, ocher, rose, and white. Most are but a few ten thousandths of an inch across. Many species possess an impervious hide resistant to drying and freezing—just about any environment short of fire and boiling water—enabling them to sit out adversity for decades if necessary.

When a spore of most types of fungus settles in a spot favorable for growth, it soaks up water and expands until its shell cracks. Soon an extension of the spore's swelling protoplasm emerges as a tiny, translucent finger. Almost immediately it begins to branch. Then, in one of nature's most primitive forms of reproduction, a branching filament pushes against another, or against one originating from a different spore. Their walls rupture, permitting a mixture of their protoplasts.

Now proliferation begins in earnest. Hungry filaments stab in all directions in search of nutrient. Rip the bark from a rotting log, or turn over some rich humus; chances are you will uncover webbings of fungus filaments (mycelia) penetrating every crack and pore.

If moisture, temperature, and food supply



Curled cups of *Aleuria aurantia* look like melted orange plastic. When they mature, these cup fungi—one of the most common and colorful of such forms—will fire their spores several inches into the air. Sometimes this produces an audible hiss and a white cloud above the surface.

Fingers and thumbs of club-heads and puffballs break through a mossy bed. Slim *Clavarias* and bulbous *Lycoperdon*, growing side by side, contrast widely different types of mushrooms, both edible.

SWISS LIFE/ART



are favorable, great numbers of pinhead-size knobs will appear within the tangle. In some species these grow to bird-shot-size, then to pea-size and larger.

Mushrooms sometimes pop up overnight at seemingly miraculous rates of growth. The truth is that they were pre-formed, waiting underground for the vital stimulus of rain. When it came, they drank deeply, within hours swelling ten-, twenty-, or a hundred-fold, finally to break the surface and meet daylight. In some species, however, development takes days and even months.

Most common mushrooms belong to the Basidiomycetes group. They exhibit a bewil-

dering diversity of size, color, form, and habitat. In the instructive company of Prof. L. R. Hesler, University of Tennessee mycologist, I encountered members of the group's major divisions on a walk through the wet forests of Great Smoky Mountains National Park.

#### Mushrooms That Turn Into Ink

A cluster of small clay-hued beauties at the base of a stump had the gills that characterize one Basidiomycetes group. These were inky caps—genus *Coprinus*—so dubbed because at maturity the gills turn black and then, curiously, dissolve into inky fluid.

Clinging to the side of a rotting log was a



*Aleuria aurantia*, 4 TIMES LIFE-SIZE, REDRAWN BY PAUL A. FAHL © NATIONAL GEOGRAPHIC SOCIETY

large mass of purest white, a *Hericium*, whose toothy-looking surface marked it as a typical example of another Basidiomycetes category (pages 508-9). A sprout with a sticky tip on which flies seemed to be feasting was a *Phallus*—stinkhorn—member of a group known for offensive smells. And those thick-set mushrooms with rosy umbrellas were *Boletus*, one of a Basidiomycetes group distinguished by pores. Also porous were the bracket fungi that clung to trunks and stumps along our path, some so small as to seem like mere fuzz, others enormous tiered platters:

On the forest floor I saw clusters of soft pearl-gray orbs with holes like chimney vents.

When we brushed them with hand or foot, spore clouds spurted from the vents. Nearby were pea-size baskets, each with a clutch of spore cases—bird's-nest fungi (pages 526-7). Both were members of Basidiomycetes' puff-ball group.

I saw, too, frequent evidence of mushrooms having been nibbled on. Squirrels relish mushrooms; so do insects, chipmunks, turtles, and even deer and cattle. I've often watched slugs feeding on tender puffballs or snails rasping at a gorgeous *Boletus*.

Certain beetles and ants even go in for fungus farming. In the Amazon area several years ago, I followed endless lines of *Atta* ants

traveling the jungle floor. Each ant held a fragment of leaf high in its jaws. The lines led to underground galleries. There ants placed the leaves in compost beds that the queen had inoculated with a fungus, and the result was a fungus garden. From swellings on the mycelia the ants derive much of their sustenance.

#### Barnyard Fungi Lasso Their Prey

Quite the reverse are fungi that prey on nematode worms. These fungi live in soil, stable litter, and humus—habitats shared by a variety of tiny nematodes. Mycelia of such fungi are armed with minute nooses. When a worm pokes in its head or tail, the noose tightens in a relentless stranglehold. The worm cannot escape. The fungus then attacks and digests its victim.

Sometimes in my field trips I came upon a small, rather undistinguished mushroom, *Psilocybe*, in wet, grassy places. Indians of Mexico's Oaxaca State eat certain semipoisonous species of this mushroom for their vision-producing effects. One person who took part in such rites described hallucinations brought on by the mushroom as flashing scenes "of newness, of fresh beauty." Another reported that "magenta mountains melted into hibiscus petals, and the petals dissolved into a Niagara Falls of flowing diamonds."

Vikings reportedly ate intoxicating toadstools. Tribal folk of the Russian region of Kamchatka believed that eating *Amanita muscaria* pulled back a veil to reveal the spirit within the mushroom. But all vision-producing mushrooms are potentially poisonous. Primitive people well knew of the dangerously narrow margin between a fantasy-inducing and a lethal dose.

Many vitally important fungi belong to the category Ascomycetes, including the powdery mildews, some of earth's most notorious crop ravagers. These fungi account for an appalling list of scourges: chestnut blight, apple scab, peach leaf curl, alfalfa leaf spot, corn ear rot, brown rot of stone fruit, lettuce drop, clover stem rot, grain rot, and many more.

On the brighter side, the mold that produces penicillin belongs to the Ascomycetes group. So do yeasts, cheese molds, truffles, morels, cup fungi, and the fungus component of most lichens.

Of these, the lichens are perhaps the most curious, for each individual or colony is in reality a union of an alga and a fungus living in interwoven intimacy for mutual benefit.

The fungus gains from the alga's ability to capture the sun's energy with its chlorophyll, while the alga finds security in the moisture and sturdiness of the fungus.

Lichens are among the hardiest and most resistant of all organisms. They thrive on outcroppings in the Arctic and Antarctic, on rocks in sun-parched deserts, in the harsh climate of mountaintops, and even—it has been speculated—on Mars.

Lichens supply much of the winter food of arctic reindeer and caribou. They provide the base for special perfumes. From them come litmus pigments and certain dyes.

I once visited lava fields of Mauna Loa volcano on the island of Hawaii. A decade or so before, a river of molten lava had destroyed all life in the area. Yet at the time of my visit, the once-barren rocks were covered by a living blanket of shaggy gray vegetation. Brought in by the wind, this lichen was now slowly fragmenting the lava's surface, creating

KODACHROME © NATURAL HISTORY SOCIETY







*Cortinarius violaceus*, 1.1000x, 1/10000x

**Fruiting body** of a mushroom grows for one purpose: to bear and release reproductive cells. These delicate gills under the cap of a *Cortinarius violaceus* hold countless tiny cells; when mature, they will fall free and be carried off by wind. Lacking proper weather conditions, the underground filaments of a fungus may stay hidden for years before sending up fruiting bodies.

**Cut like a wheel of cheese**, *Boletus* reveals its inner system, where spores develop. Tiny tunnels lace the tan section, allowing mature spores to escape. The larger holes in the lighter section are left by worms feeding on mushroom flesh.

**Fluted caps** of *Chroogomphus rutilus* nestle among pine needles. These mature specimens (approximately life-size) grow in Tennessee, in Great Smoky Mountains National Park. Patches of dustlike spores dot the blade-shaped gills.

**Woody fungus** shaped like an artist's palette, *Ganoderma applanatum* provides a tic-tac-toe board for Paul Zahl, Jr. (left). The white underside of this species turns brown at the touch of his stick, making a fine sketch board. The boy pulled it from the tree trunk where other shelllike growths still cling. Indian pipes—colorless, seed-bearing plants—grow between the tree roots. Like fungi, they lack chlorophyll and cannot produce their own food (page 510).



BOLETUS © NATIONAL GEOGRAPHIC SOCIETY





Dancing "cattails" identify a slime mold, a mass that moves like a giant amoeba across the forest floor. When the mold dries, it sends up these spore stalks. Pins indicate size of this *Stemonitis*.

Pouches of "eggs" give *Nidula candida* its common name: bird's-nest fungus. Its spores, in egg-shaped sacs, are not self-expelling. But the slightest jar disperses them, leaving empty "nests."

Night-growing *Pilobolus crystallinus* (below) reacts violently to the first touch of dawn. Light swells the transparent stems until they burst and fire black spores like miniature cannonballs. Match head shows height of the glassy thicket.





the pioneer soil upon which seeds of higher plants would eventually take hold.

Lower than the Ascomycetes in the botanic scale are the Phycomycetes—bread molds, downy mildews, white rusts, and water molds. It was a Phycomycetes that caused Ireland's potato crop to fail in the 1840's; nearly a million persons starved, and waves of emigrants fled to the New World.

#### Bristle Tuft Spawns a Creeping Ooze

Lowest of the fungi are the Myxomycetes. One summer my ten-year-old son and I, clambering through a tangle of logs in a wet forest of New Hampshire's White Mountains, came upon a dime-size tuft of bristles on a stump (opposite). Each bristle was coated with a layer of brown spore dust. I knew that any one of these spores, falling on a suitably wet surface, would quickly germinate and

produce a microscopic animalcule with a lashing double tail. This, in turn, would swim to some chosen cranny, settle, lose its tail tuft, divide, and redivide until it became a living envelope of cellular ooze—a slime mold, a Myxomycetes of the genus *Stemonitis*.

Then, with the speed of a clock's hour hand, the mold would pour between decayed leaves, through humus crevices, and over rotted twigs, feeding as it grew. In a few hours, at most a few days, the mass would work its way out of the shadows to the surface of a log or stump where the air was dryer. Motion would stop. The mass would dry out. And a new crop of spore-laden bristles would emerge.

Caught by a vagrant breath of air, a cloud of spores would swirl away to repeat that generation-to-generation cycle which is the warp and woof of all living things, from fungus to man.

THE END 527

*Neurospora crassa*, 7 days old





# Osprey

Pandionidae

ome rests a huge platform of  
ag white below, dark brown  
kink in its wings. Its sharp  
ewk! chewk! to a frenzied  
impels my visit. For this is  
cticut today.

y because of the colony of  
ut River. There were 150  
dozen of the birds in the  
reat oak on the crest of a  
wheel in April and a pair  
uity, having an osprey's  
symbol!

shy tract near the river  
flat platform of sticks  
as I canoed in those  
land shores. It would  
gs to scan the ripples,  
spray but a moment  
r toes can move for-  
p claws spiny pads  
r nose forward like  
h is large.

ould wing home.  
I never saw an  
here they share  
from above, an  
236).

ominion round  
pine trees on



**WEARFISH IN HIS TALONS**, an osprey  
returns to his perch to carve his share.  
Two-thirds goes to his mate and young.  
Diving talons-first (opposite), he hits prey  
with a splash. If he locks into too big  
a fish and can't relax his grip in time,  
he may be pulled under and drowned.  
Length 21-24". Frederick Kent Truslow

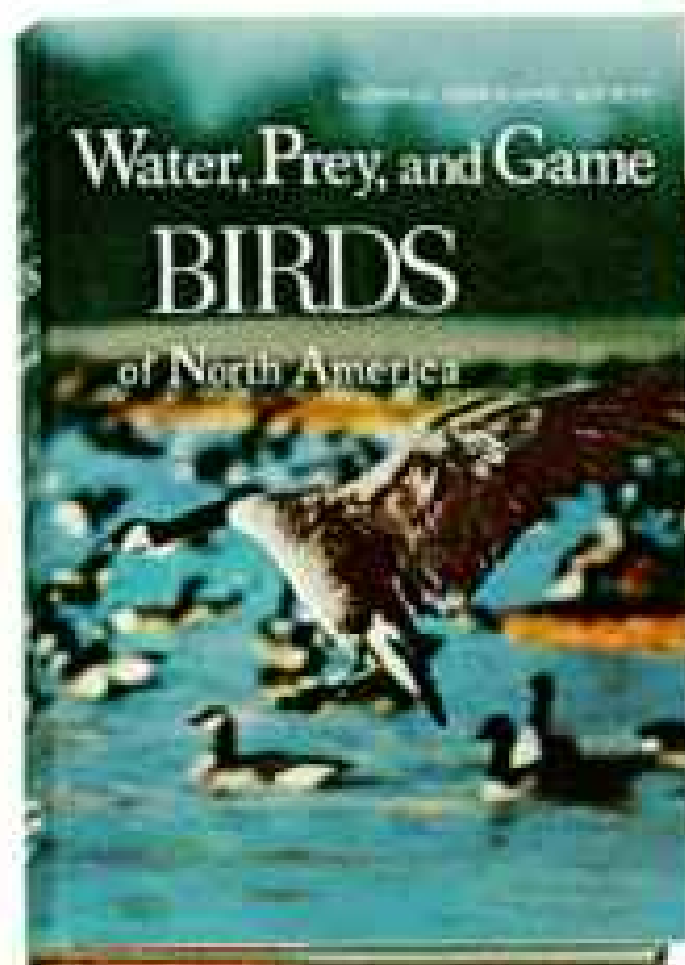
*Companion to Song and Garden Birds,  
this volume completes the Society's  
presentation of North America's  
656 major species of birds.*

# Water, Prey, and Game Birds: A New “Singing Book”

By MELVILLE BELL GROSVENOR, LL.D., Sc.D.  
President and Editor, National Geographic Society

**A**LL OF US feel a stir of excitement at the far-off clangor of wild geese flying over in spring or fall, the laughter of loons on a northern lake, or the cry of a limpkin in the Everglades. We thrill at the sight of a soaring eagle, or a great blue heron trailing his long legs as he flies.

The wonder of these big birds of lonely shore, marsh, and upland has remained with me ever since I was a small boy spending summers at Baddeck, Nova Scotia. My father, Gilbert Grosvenor, often took us children to a rookery of great blue herons, in a forest of birches and maples. Here we would watch the magnificent birds wing in from the Bras d'Or Lakes. I can see them still, and hear their hoarse cries. Thus it gives me unusual pleasure to announce



ILLUSTRATIONS BY FREDERICK  
ALBERT TRAVELER © N.G.S.



Canada goose brakes for a splash-down on the Society's new book. The big honker's stirring notes ring from the companion record album.



**Tidbit entices** a purple gallinule within kissing distance of naturalist-photographer Frederick Kent Truslow. A peanut in his teeth attracts the Florida marsh bird. Supplementing skill with endless patience, Mr. Truslow pictures birds as they can be seen only in their native haunts. His cameras captured many of the 480 photographs reproduced in *Water, Prey, and Game Birds of North America*, including these remarkable pictures of the common egret (opposite and below) and the extremely rare California condor. The volume presents comprehensive biographies of 329 species with brilliant color illustrations, anecdote, and scientific detail. It completes the Society's two-volume work on North American birds.



EGRETTES BY CHARLES ALLBON (OPPOSITE) AND FREDERICK KENT TRUSLOW © N.G.S.

publication of the National Geographic Society's newest "singing bird book"—*Water, Prey, and Game Birds of North America*.

With the brilliantly illustrated 464-page book comes a long-playing record album that brings the wild, haunting voices of nature into the reader's living room.

Together, they make up a timely and appropriate companion to your Society's first singing book, *Song and Garden Birds of North America*, published last year. The two volumes cover all the 656 major species of birds, big and little, to be found in the United States and Canada.

Members who marveled at our initial venture into wildlife sound will be pleased with the new album of six two-sided records—a full hour of listening to voices even more varied than the melodies of the songsters.

With the proof of the book before me and heron cries sounding from my record player, I can see again the rookery I knew in boyhood. And how clearly I remember one personal experience with a great blue heron!

It was a young bird that had tumbled from the nest. Unable to fly, it flopped about clumsily on the ground.

"Can we take it home?" we asked eagerly.

Father weighed the question. "All right," he said finally. "If you promise to catch the fish to feed it."

This seemed little to ask, and we agreed. We built a wire cage, then set about establishing a supply line of perch, caught from the family pier.

The first two days the heron rejected our offerings, obstinately clamping its big beak shut. Fearing the bird would starve to death, we pried open its mouth and dropped bits of perch down the heron's gullet.

#### Captive Finds Eating Is Fun

With this first taste our friend caught on to the pleasures of eating. He gobbled eight or ten large perch daily and squawked for more. Before long we were fishing so much that we had little time left for other activities. After that summer I felt I never wanted to see another hook and line!

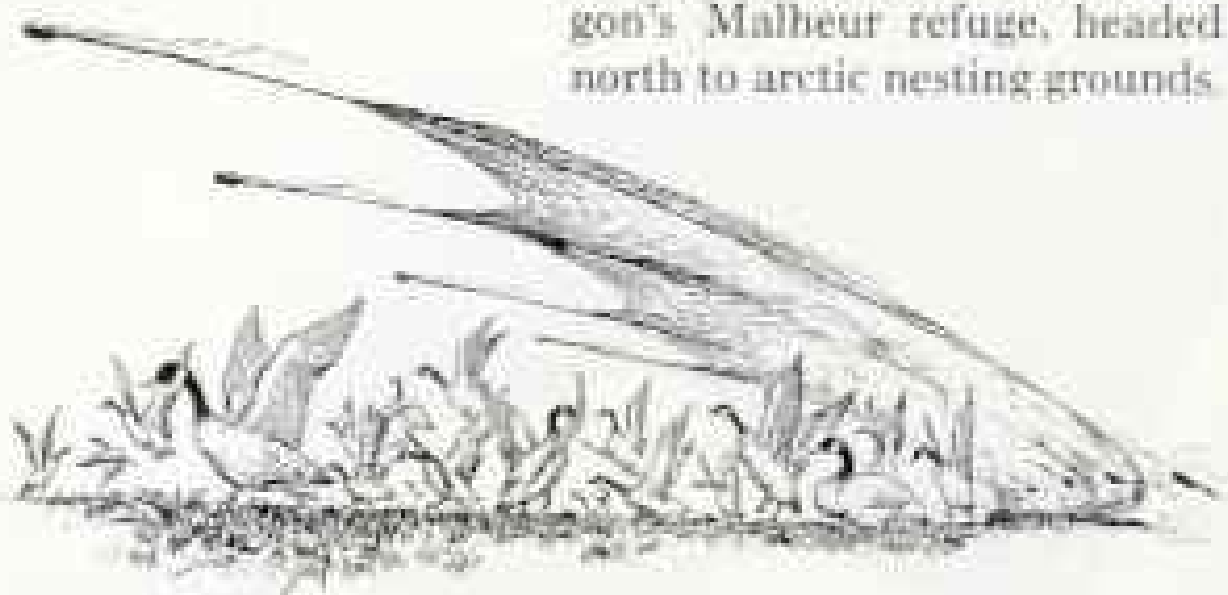
Our heron grew steadily in size, strength, and especially in appetite. But as he grew, his disposition got worse. We learned to approach him warily any time we had fish, and to dodge the vicious jabbings of his rapierlike beak.

Weeks later came a day when we realized the captive no longer needed our help. By then he was deftly catching live perch that we placed in a tank inside the enclosure.





Migrating snow geese in arrowhead formation glitter like sequins as they rise from Oregon's Malheur refuge, headed north to arctic nesting grounds.



Cannon-fired nets snare Canada geese. The new book tells how conservationists band and release the birds so their travels can be traced. Separate chapters describe the mysteries of migration and the battle to save wildfowl from extinction. Maps locate wildlife refuges and trace migration routes.



Ailing duck takes his medicine at a wildlife refuge. The book also shows how scientists color goslings for later study, by injecting red dye into goose eggs.



We opened the door of the cage. The heron stepped outside with his deliberate mincing gait, a cold glare in his beady yellow eyes, his neck in a graceful "S" curve. Then he spread his great wings, uttered a noncommittal croak, and sailed off to join others of his kind feeding down by the shore.

Raising the heron proved to be a chore, but we felt it had all been worthwhile. We knew our efforts had given this bird the chance to soar wild and free, to stalk frogs and minnows in the grassy shallows, to find a mate and rear more herons that would gladden the heart of nature-loving mankind.

The great blue heron, familiar to all who have visited North American waterways, is only one of the 329 species represented in *Water, Prey, and Game Birds*.

To make this book a worthy mate for *Song*



and *Garden Birds*, more than 210,000 copies of which have been bought by members in its first year, Book Service Editor Merle Severy and his staff outdid themselves. Again enlisting the best efforts of outstanding ornithologists, nature photographers, and artists, they labored long to create a beautiful and instructive volume.

For the new book, as for the first, chief author and consultant was Dr. Alexander Wetmore, world-famed ornithologist, Vice Chairman of the Society's Committee for Research and Exploration, and former Secretary of the Smithsonian Institution. Other eminent scientists who contributed their knowledge include John W. Aldrich, Dean Amadon, John and Frank Craighead, Philip S. Humphrey, George H. Lowery, Jr., Robert Cushman Murphy, Robert J. Newman, Roger Tory Peterson,



SKETCHES BY RAIN DEMBOFF; ILLUSTRATIONS BY DAVID B. MARSHALL, U.S. FISH AND WILDLIFE SERVICE © 1988

Olin Sewall Pettingill, Jr., Austin L. Rand, S. Dillon Ripley, and George Miksch Sutton.

As in *Song and Garden Birds*, the species are described with a wealth of detail and anecdote, and each is strikingly portrayed in color. Paintings of birds in natural settings by Walter A. Weber, Allan Brooks, and Roger Tory Peterson complement 480 brilliant photographs. Seven maps show migration routes and refuges.

#### "Thunder Pumper" Performs on Records

To all this delight for eye and mind is added the dimension of sound. Ever since we made publishing history last fall by including a record album with *Song and Garden Birds*, your editor has been receiving enthusiastic letters in praise of this innovation. However, one member complained that the bird songs were

too realistic. In search of the tempting singers, his cat leaped into—and wrecked—a costly record player!

Among the most appreciative letters I received was one from my father. "Before leaving Baddeck," he wrote, "one of our grandsons played on our old gramophone most of the 70 bird songs. They sounded remarkably accurate. As I sat in an adjoining room, I heard suddenly a bird song so vivid and true that I shouted, 'Why, there's a cardinal singing outside our window. I never heard a cardinal before in Cape Breton!' Then I realized that what I heard was your record."

In this second album, we hear the gossipy conversations and the warning and mating cries of larger birds, many of which live in remote areas. In their shy seclusion they produce a truly astonishing variety of screams,





#### WATER, PREY, AND GAME BIRDS OF NORTH AMERICA

Handsome new 464-page book, with 643 illustrations, 600 in color, bound in gold-stamped buckram. Includes a long-playing record album presenting the sounds of 97 species. Available at \$11.95, only by direct order from the National Geographic Society, Department 253, Washington, D. C. 20036. Request later billing if desired. The companion volume, *Song and Garden Birds of North America*, published last year, contains 400 pages, 355 illustrations, and a long-playing album of 70 bird songs; \$11.95. Both volumes in a deluxe cloth slipcase, \$25. Postpaid anywhere in the world.

Darting wood ducks flash exquisite plumage against gray moss drapery in their swamp home. The book's 643 illustrations, 600 of them in color, include many such paintings by NATIONAL GEOGRAPHIC's Walter A. Weber and naturalists Allan Brooks and Roger Tory Peterson, as well as the best obtainable photographs in color.

"Oh, I know that song!" Youngsters on an outing in the National Zoological Park in Washington hear a battery-powered phonograph play bird songs from the record album included with *Song and Garden Birds*. Recordings of 97 species comprise the Society's second album of bird sounds, an equally fascinating supplement to *Water, Prey, and Game Birds*.



whistles, grunts, croaks, hoots, whoops, gurgles, and other startling sounds.

All the high-fidelity recordings, transferred to long-wearing vinyl discs, came from the Library of Natural Sounds at the Cornell Laboratory of Ornithology. Over the past 36 years the laboratory staff, led by the late Dr. Arthur A. Allen, has taken its supersensitive listening "dishes" to seashore, swamp, desert, and mountain to record songs and calls of birds.\*

In the new album, the library's present director, Dr. Peter Paul Kellogg, introduces the sounds of 97 species.

I could scarcely believe my ears when I first heard the recording of the American bittern. This long-necked wader of marshes announces its presence with several curt snaps of its bill, rather like a conductor rapping a

\*Dr. Allen's pioneering work in photographing birds in color and in recording their voices was aided by the Society for many years. He contributed 18 articles to NATIONAL GEOGRAPHIC and wrote and illustrated the Society's popular book *Stalking Birds With Color Camera*.

baton. Then sucking sounds, *thwuck*, as if booted feet were being pulled from thick mud, alternate with reverberating clunks, like a stake being driven with a maul.

Hearing this performance, one understands why Thoreau wrote, "The bittern pumps in the fen," and why some people call this member of the heron family the "thunder pumper."

Equally surprising, but in a different way, is the cry of our national bird, the bald eagle. It is more a series of squeals or squeaks than a scream—unexpected as a piping soprano voice issuing from the mouth of a giant.

I can testify personally to the accuracy of this recording. A few years ago, in Everglades National Park, Florida, I crouched in a blind with Frederick Kent Truslow, photographing bald eagles and listening to their strange cries. Mr. Truslow (page 530) contributes a memorable chapter, "The Eagles," as well as many of the book's most remarkable photographs.

THE END

PAINTING BY WALTER A. BOBBI; PHOTOGRAPH BY FRED KENT TRUSLOW. BLACK STAR © NATIONAL GEOGRAPHIC SOCIETY







# AMERICA ENTERS THE MODERN ERA

By FRANK FREIDEL

Professor of History, Harvard University

**I**N THE FIRST TWO DECADES of the 20th century, Theodore Roosevelt and Woodrow Wilson endowed the American Presidency with a powerful leadership the Nation had not known since Lincoln. Several of their successors gave nostalgic tugs backward, but these two—one a Republican, the other a Democrat—established a pattern for succeeding strong Presidents.

At home both sought a larger measure of political democracy and economic justice, and abroad a share in responsibility for world order. They moved to assume the sober duties of the United States in its new status as an industrial giant and major world power.

Roosevelt expressed the President's new progressive role:

"In a century and a quarter as a nation, the American people have subdued and settled the vast reaches of a continent; ahead lies the greater task of building up on this foundation, by themselves, for themselves, and with themselves, an American commonwealth which in its social and economic structure shall be four square with democracy."

Wilson developed the progressive theme in his Inaugural Address of March, 1913. He noted that while "Our life contains every great thing, and contains it in rich abundance," unnecessary evil had come with the blessings.

"With riches has come inexcusable waste. We . . . have not stopped to conserve the exceeding bounty of nature. . . . We have been proud of our industrial achievements, but we have not hitherto stopped thoughtfully

enough to count the human cost. . . . The great Government we loved has too often been made use of for . . . selfish purposes, and those who used it had forgotten the people."

Both these Presidents and their supporters, the progressive generation, believed that, without abandoning the free-enterprise system, they could perfect the dream of the Founding Fathers by combining a scientific approach to the problems of the age with positive Government action. They wished to reform, not destroy, the American way of life.

## Progressives "Beat the Carpet"

For the most part, the leaders of this generation were successful young men and women of good education and family background who wished to extend the abundance of the Nation more widely to the poverty stricken. Their ideals were clean Government and social justice.

In 1906 Finley Peter Dunne quoted his fictitious Mr. Dooley, Irish sage and bartender, as saying, "Th' noise ye hear is not th' first gun iv a revolution. It's on'y th' people iv th' United States batin' a carpet."

The progressive generation achieved impressive reform legislation in city, state, and Federal Government—to guarantee citizens

\*Because of the enthusiastic reception given "Profiles of the Presidents," this important GEOGRAPHIC series has been expanded from four to five articles. The last will appear in January, 1966. The series began in November, 1964 (Washington through John Quincy Adams), and continued in January, 1965 (Jackson through Buchanan), and May, 1965 (Lincoln through McKinley).

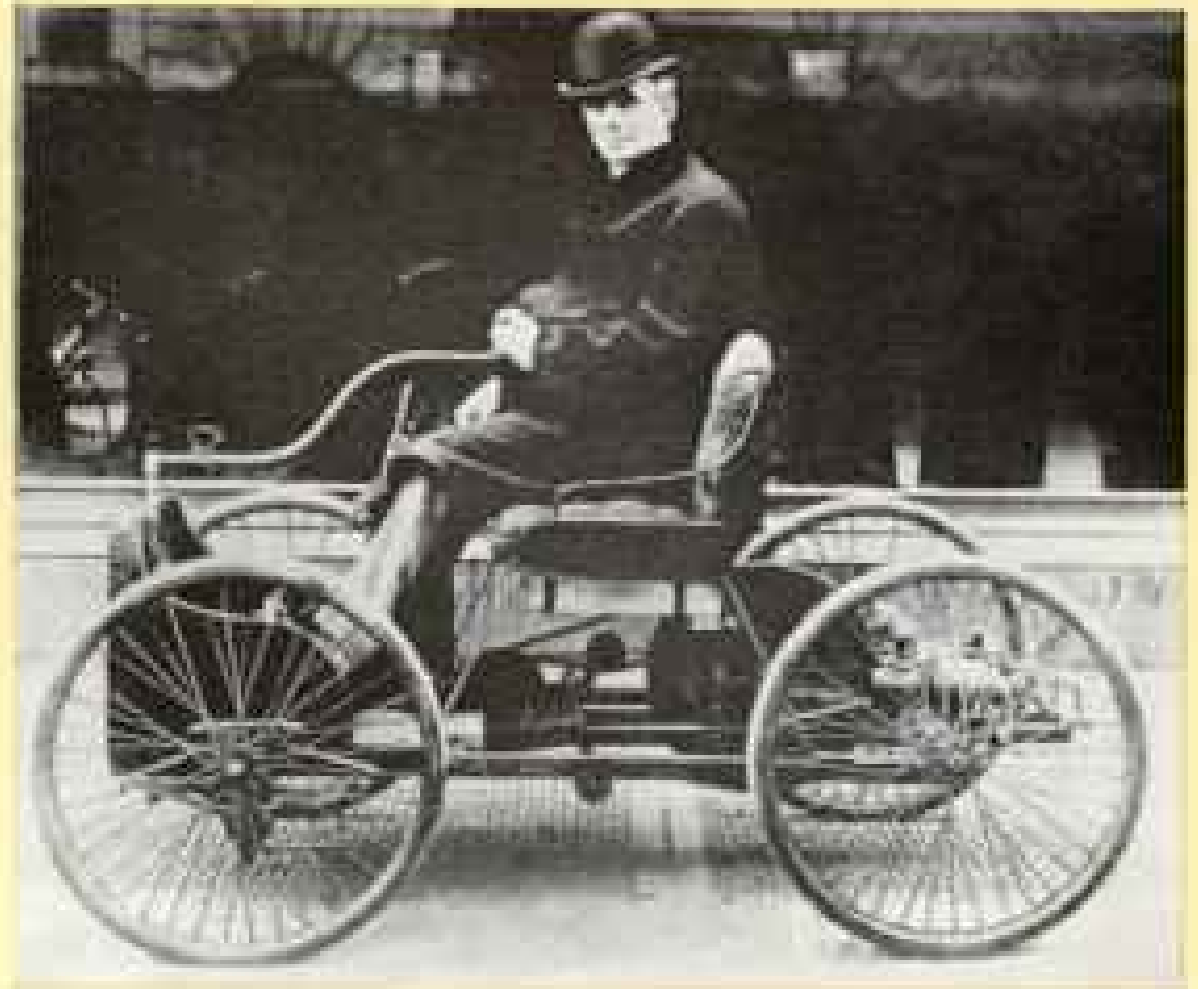
"You may fire when you are ready, Gridley." Gripping a railing of the flagship *Olympia*, Commodore George Dewey, under orders from Assistant Secretary of the Navy Theodore Roosevelt, closes for action at Manila Bay in 1898. When *Olympia's* captain, Charles V. Gridley, gave the command to fire, Dewey's U. S. Asiatic Squadron blew the antiquated Spanish fleet out of Philippine waters. Thus the United States ended Spain's colonial era in a 100-day war and entered the 20th century destined to be a world power.



LEWIS W. HINE COLLECTION, LIBRARY OF CONGRESS

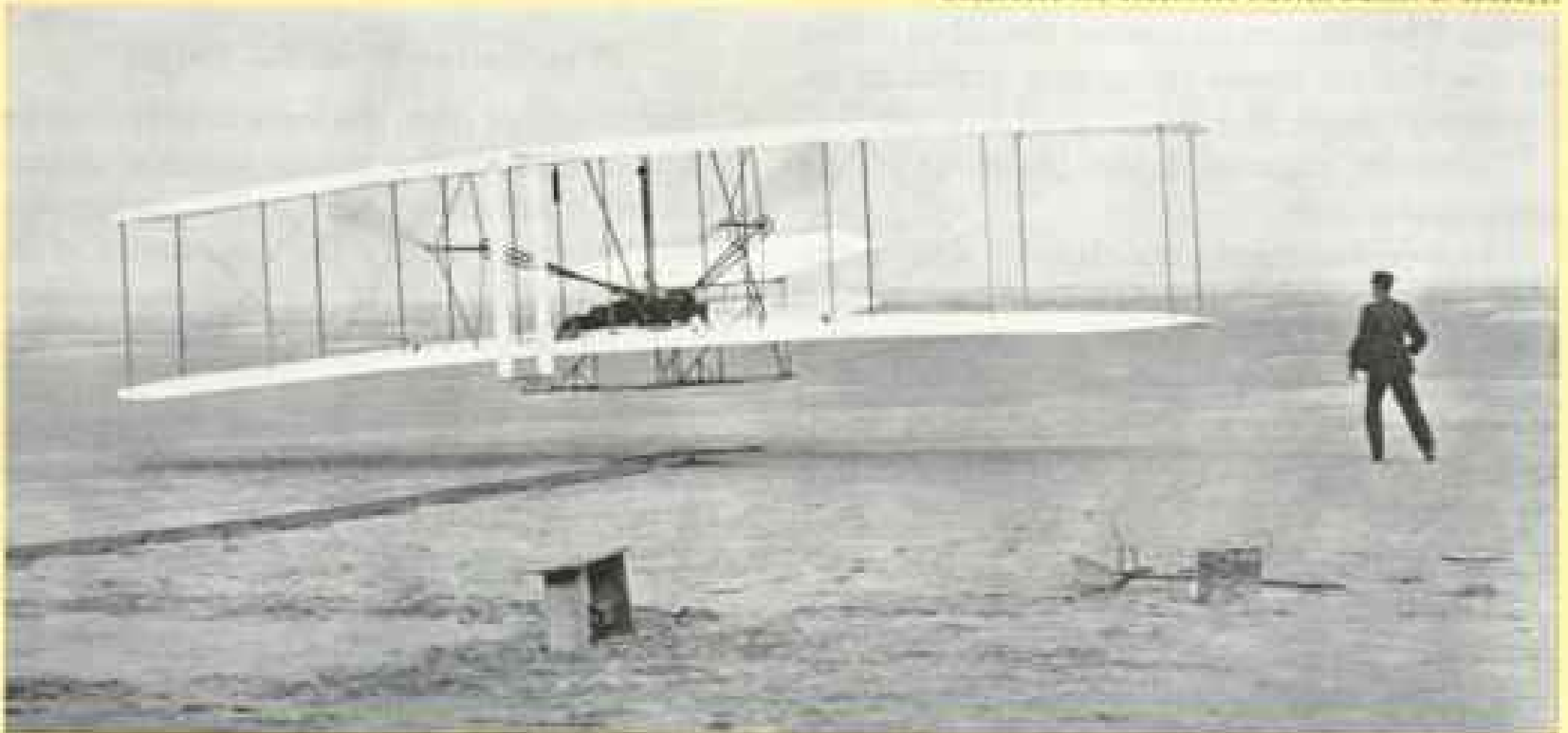
**Child at work** changes cotton spindles. In southern textile mills one-third of the workers were under 16. Children sometimes labored 12 hours a day for only a few cents. Photographer Lewis Hine's portrayal led to laws regulating such conditions. The first Federal child labor law passed during Wilson's Presidency (page 558).

**The man and the car:** Henry Ford, apostle of mass production, sits in his first model of 1896. Ford's low-cost Model T put America on wheels.



UNDERWOOD AND UNDERWOOD LABUEL, LIBRARY OF CONGRESS

**Frail flying machine** lifts off for a momentous 12-second trip above the dunes at Kill Devil Hill on North Carolina's Outer Banks. During Theodore Roosevelt's Administration, Orville Wright—prone at the controls—made man's first powered flight in a heavier-than-air craft. His brother Wilbur runs alongside to steady the wing. The historic date: December 17, 1903.



greater political participation, to protect their health and morals, to restrict corporate encroachments on their rights, and to conserve the great national heritage of natural resources. These reformers sought also to propagate democracy and economic well-being in other nations, and ultimately enlisted in a great crusade intended to make the world, in Wilson's words, "safe for democracy."

Inevitably reaction followed, and in the 1920's the voters seemed to tire of Presidents

like Roosevelt and Wilson. They turned to Warren G. Harding, who tried to lead the Nation back toward a "normalcy" no longer to be found, and then they voted to "Keep Cool With Coolidge."

#### Hoover Policies Reflect Changing Mood

By 1928 their mood had changed again, and they elected Herbert Hoover, another progressive President and an admirer of both Theodore Roosevelt and Woodrow Wilson.

"We want the vote!" Suffragettes parade through Washington, D. C. The Nineteenth Amendment to the Constitution gave women the franchise in 1920.

"The Pole at last!" Robert E. Peary, with a "Godspeed" from Theodore Roosevelt, became the first to reach the North Pole, on April 6, 1909. The explorer planted the Stars and Stripes, then photographed Matthew A. Henson (center), his Negro assistant, and the four Eskimos who shared in the achievement.



WIDE WORLD



ADMIRAL ROBERT E. PEARY

Hoover's campaign nickname, the "Great Engineer," signified his intent to bring a technical solution to the Nation's difficulties.

Like his progressive predecessors in the White House, Hoover believed the Government should intervene in the affairs of its citizens only enough to guarantee a free working of the economy; he hoped for a voluntary rather than compulsory way to efficiency. It was his misfortune to be President when the Great Depression struck. Although in time he

proposed remedial legislation in keeping with progressive traditions, his defeat for reelection in 1932 signified the people's desire for more drastic measures.

Facing deep troubles at home and abroad, where the depression was bringing Adolf Hitler and other aggressors to power, the American people were again ready for leadership reminiscent of the Wilson and Theodore Roosevelt Administrations. Once more they were determined to beat the national carpet.





# Theodore Roosevelt

TWENTY-SIXTH PRESIDENT 1901-1909

**T**HEODORE ROOSEVELT brought new excitement and strength to the Presidency. Vigorously he led Congress and the public toward progressive reforms and a strong foreign policy, taking the view that he was a steward of the people, limited only by specific constitutional restrictions. In the popular eye he was the “buster of trusts” and wielder of a “big stick.”

“I did not usurp power,” he later wrote, “but I did greatly broaden the use of executive power.”

Roosevelt's youth differed sharply from that of the log-cabin Presidents. He was born to a well-to-do family in New York City in 1858; his brownstone home on East 20th Street is a national historic shrine. But Roosevelt, too, had to struggle—against ill health. When his father told him he had the mind but not the body to sustain a worth-while career, he replied, “I'll make my body.”

From early childhood Roosevelt was a naturalist, and he learned to ride, hunt, and thrive in the wilderness. He eventually did build a strong body and became a lifelong advocate of physical and moral excellence.

Many-sided man—war hero, writer, reform politician—Theodore Roosevelt at 42 became the Nation's youngest Chief Executive, succeeding the assassinated President McKinley on September 14, 1901. He had served as McKinley's Assistant Secretary of the Navy, won the governorship of New York in 1898, and two years later was elected Vice President. Entering the White House, he labored to earn election there “in my own right.”

“Trust-busting Teddy” smashes burgeoning monopolies in American business. A New York *Globe* cartoonist captures T.R.'s energetic onslaught on “malefactors of great wealth.” He worried Wall Street but won support on Main Street, U.S.A. Roosevelt had a flair for awakening public interest in the problems of the day.

While a senior at Harvard University he began work on *The Naval War of 1812*, published two years later in 1882—the first of some 40 books. Using his earnings from writing to supplement his income, he decided to devote himself to public service.

Backed by a Republican club in New York City, Theodore Roosevelt, at 23, won election to the New York State Assembly. The colorful, energetic way he fought for clean government projected him into the headlines.

## Sorrow Sends T. R. to Dakota

In 1884 his first wife, Alice Lee Roosevelt, and his mother died within a few hours of each other. Roosevelt left New York for the Badlands of Dakota Territory, and there in the next two years he mastered his sorrow as he lived in the saddle, driving cattle, hunting, and capturing three thieves. The Theodore Roosevelt National Memorial Park in North Dakota, which includes T.R.'s ranch, was created in his memory.

In all his adventures, both in his youth and as a man, he showed utter fearlessness.

“There were all kinds of things of which





**Fearless under fire,** Col. Theodore Roosevelt on horseback leads the Rough Riders against a Spanish force in Cuba on July 1, 1898. Artist Frederic Remington captured the Roosevelt gallantry in the San Juan charge that endeared him to fellow Americans and

I was afraid at first," he once reminisced, "ranging from grizzly bears to 'mean' horses and gunfighters; but by acting as if I was not afraid I gradually ceased to be afraid."

In December, 1886, Roosevelt married Edith Kermit Carow, a childhood friend (page 544). Returning to politics, he served a lengthy apprenticeship as United States Civil Service Commissioner, President of the New York City Board of Police Commissioners, and Assistant Secretary of the Navy. To each position he brought glamour and publicity.

As Assistant Secretary of the Navy, he moved even faster than John D. Long, the competent Secretary, to get ready for possible war with Spain, sending orders to Commodore George Dewey that, in the event of hostilities, he was to attack the Spanish fleet in the Philippines.

When war came, Roosevelt became lieutenant colonel of the Rough Rider Regiment. Advanced to colonel, he got the Rough Riders into the thick of the fight in Cuba. Flamboyantly brave and devoted to his men, he

was the favorite of the war correspondents.

In the path of heavy fire from the Spanish on the San Juan ridge, Roosevelt, on horseback, paraded conspicuously before his troops as he marshaled them and gave the order to charge. Up the ridge they went, "cheering and running forward between shots."

In a few minutes the Rough Riders were at the top, and Roosevelt became one of the most popular heroes of the war. A monument on San Juan Hill near Santiago was erected in memory of the valiant charge.

#### "Cowboy" Enters the White House

Boss Tom Platt, needing a hero to draw attention away from scandals in New York State, accepted Roosevelt as the Republican candidate for governor in the fall of 1898. The victorious Roosevelt "played fair" with Platt, as he had promised, yet brought distinction to his administration. In 1900, Platt, with the aid of other bosses, managed to push Roosevelt out of New York and into the Vice Presidency, despite the protests of President





WASHINGTON ART MUSEUM, GREENSBORO, N. C. (APCRELL LIBRARY OF CONGRESS)

earned him world-wide fame. For the strenuous T. R., every challenge evoked a similarly vigorous response. He wrote to his son Kermit: "I always believe in going hard at everything"—this despite ill health and poor eyes that required him to wear glasses (below).

McKinley's manager, Mark Hanna of Ohio,

With the assassination of McKinley, Roosevelt, at 42, became the youngest President in the Nation's history.

"Now look," moaned Hanna, "that damned cowboy is President of the United States."

Nevertheless, Roosevelt heeded Hanna's advice to go slowly. He also enlisted in Government service capable men like Henry L. Stimson, men of a sort too seldom recruited earlier. At the same time he built a national organization loyal to himself rather than to Hanna. This served him well in the election of 1904, when he won the Presidency in his own right, against Alton B. Parker, polling more than 56 percent of the popular vote.

Roosevelt showed the proper respect for the powerful conservative leaders of Congress—Speaker "Uncle Joe" Cannon and Senator Nelson Aldrich—but tried to edge them toward his own policies.

"These men," Roosevelt explained years later, "still from force of habit applauded what Lincoln had done in the way of radical





THEODORE SHERMAN,  
WHITE HOUSE COLLECTION

Poised, self-assured Edith Kermit Carow Roosevelt joined in the vigorous fun of husband and six children, yet firmly asserted herself when things got out of hand.

Roosevelt exuberance echoed in the 22 rooms of Sagamore Hill on Long Island, T. R.'s summer White House. His daughter-in-law Eleanor Alexander recalled the Sagamore scene: "The Roosevelt family enjoyed life far too much to . . . waste time sleeping. Every night they stayed downstairs until midnight; then, talking at the tops of their voices, they trooped up the wide, uncarpeted staircase and went to their rooms. For a brief ten minutes all was still; and, just as I was dropping off to sleep for the second time, they remembered things they had forgotten to tell each other and rushed shouting through the halls."

Tusks and game heads, esteemed by Roosevelt as "proof of the hunter's prowess," fill Sagamore Hill, now a national shrine.

dealing with the abuses of his day; but they did not apply the spirit in which Lincoln worked to the abuses of their own day."

Roosevelt's ideal was to use the Government as the arbiter among conflicting economic forces in the Nation, especially between capital and labor, guaranteeing justice to each and dispensing favors to none. Thus he emerged as a "trust buster." He shared American pride in the enormous productivity of factories, with consequent high living standards, but he realized that the abuses growing out of the new industrial combinations—the trusts—must be curbed.

#### T. R. vs. the Railroad Trusts

Roosevelt fought for legislation to investigate large interstate corporations and to impose supervision on them; in 1903 Congress established a Department of Commerce and Labor which contained a Bureau of Corporations to investigate trusts. Roosevelt also initiated numerous antitrust suits.

The first and most spectacular of these was the Government case against the Northern Securities Company, a great railroad combination in the Northwest. To the distress of J. P. Morgan of Wall Street, the Government won. The Supreme Court later upheld the decision to break up the combine.

In 1906, Roosevelt proposed stronger Government regulation of the railroads. Through adroit maneuvering, he obtained the Hepburn Act, giving firmer regulatory power to the Interstate Commerce Commission, es-

tablished in 1887 under Grover Cleveland.

In dealing with labor problems, Roosevelt pursued a similar course. In May, 1902, the miners in the anthracite coal fields had struck for an eight-hour day, a wage increase, and union recognition. Roosevelt had forced the mine operators to confer with labor leaders and had used Government influence for the first time to gain impartial arbitration.

Some of Roosevelt's highest achievements were in conservation. He believed in both the scientific development of national resources and the preservation of wilderness areas.

In the spring of 1903, Roosevelt toured the West, noting in many places how the uncontrolled exploitation of lands, forests, minerals, and water was threatening our natural resources. He camped in Yosemite Park with naturalist John Muir and became converted to Muir's view that it could best be preserved under Federal control. With the approval of most Californians, Roosevelt brought Yosemite under national administration in 1906. He also added enormously to the national forests in the West, reserved coal deposits and future sites for power dams for public use, and fostered great irrigation projects.

In foreign policy, Roosevelt steered the United States toward more active participation in world politics. He liked to quote what he called a West African proverb, "Speak softly and carry a big stick, you will go far." The "big stick" was the new American Navy, which he prodded Congress to build up to a strength equaling that of other world powers.



ETCHINGS (BELOW) AND BODACHROME BY NATIONAL GEOGRAPHIC PHOTOGRAPHER WILLIAM ALBERT ALLARD © W. G. L.

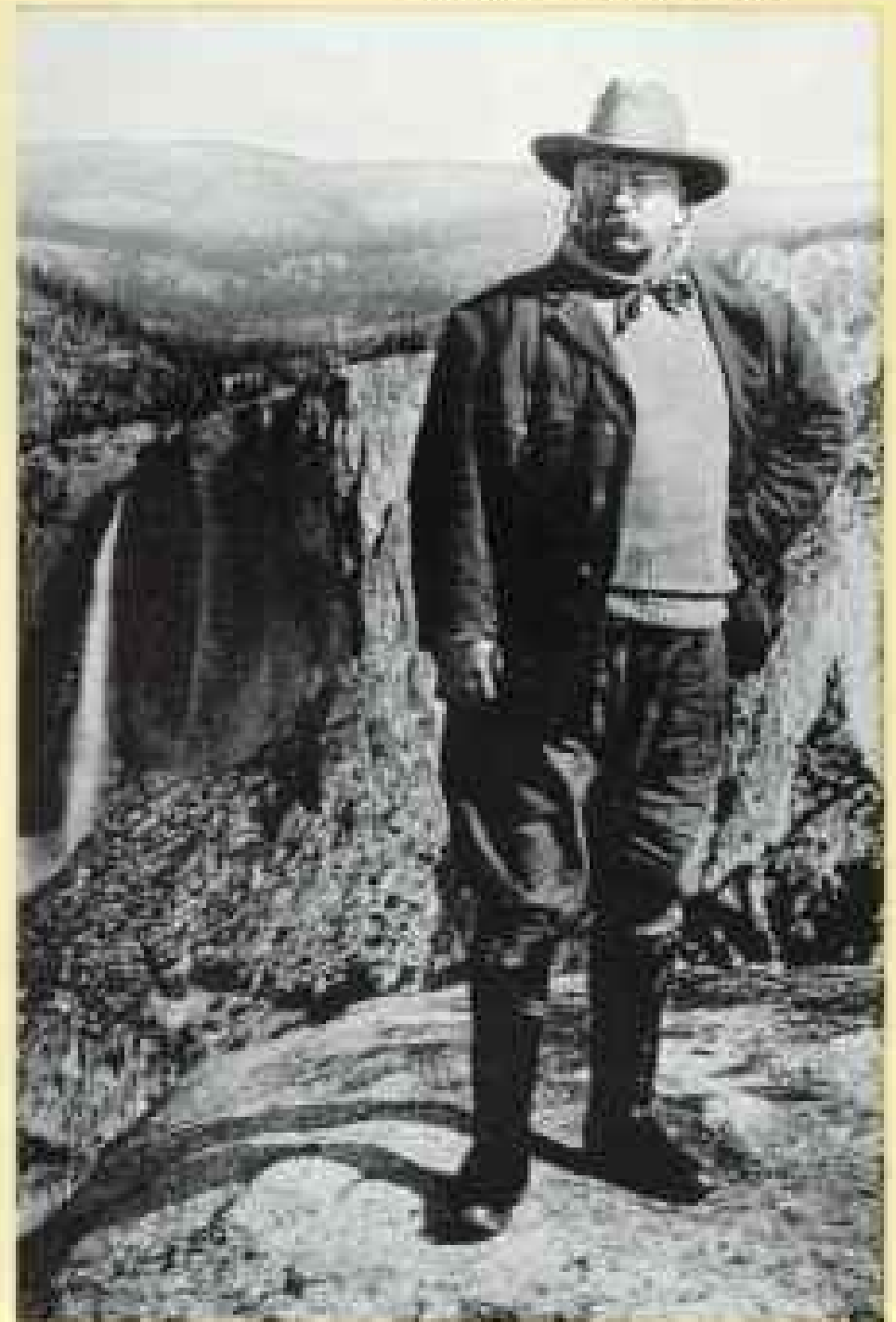






Riding a steam shovel, the President in 1906 inspects a pet project, the Panama Canal. Crews worked on the strategic short cut between the Atlantic and Pacific for 16 years despite tropical heat, yellow fever, and opposition from Colombia, former owner of the Isthmus.

HENDERWOOD AND HENDERWOOD



To enable the fleet to move readily between the Atlantic and Pacific Oceans, Roosevelt took drastic measures (keenly resented in Latin America) to begin construction of a canal across the Isthmus of Panama (above). And to forestall the intervention of European creditors and the establishment of unfriendly foreign bases in the Caribbean, he sent an American official to police the finances of the Dominican Republic.

At the request of Japan, in 1905 he mediated the Russo-Japanese War, winning the Nobel Peace Prize—and the ill will of the Japanese, who did not gain as much as they had hoped. When, later, war with Japan threatened over the separation of Japanese from Americans in San Francisco schools, Roosevelt persuaded the school board to back down and negotiated immigration restrictions with Japan. He then sent the Great White Fleet on a good-will tour of the world (opposite, upper). At Yokohama it was received with acclaim.

“Teddy” brought a new vibrancy to the

Presidency. His high-pitched, earnest voice, jutting jaw, and pounding fist captivated audiences. And he was a brilliant conversationalist of almost limitless range.

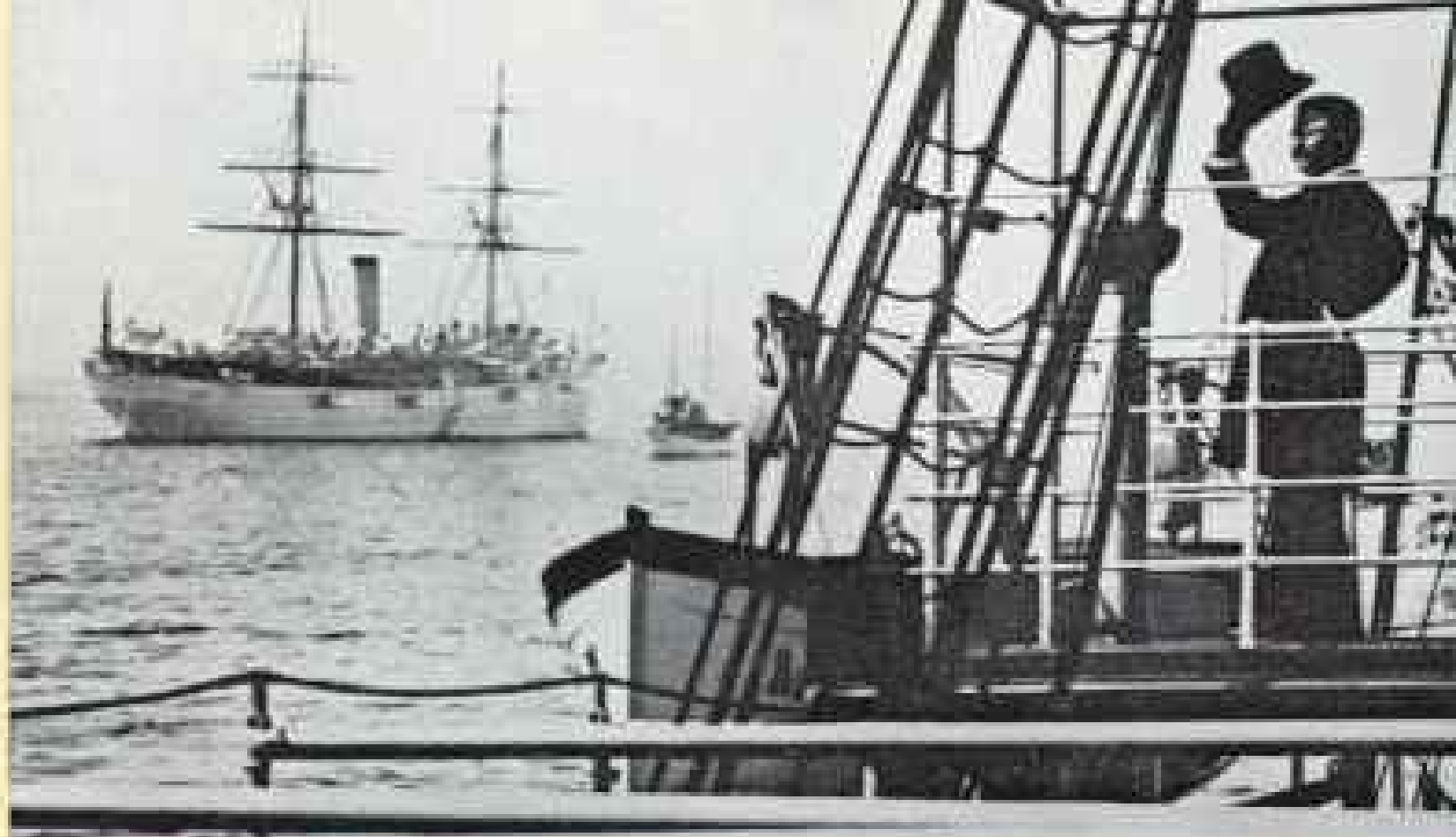
Rudyard Kipling recalled listening to Roosevelt in the early 1890’s at Washington’s Cosmos Club: “I curled up on the seat opposite,” Kipling said, “and listened and wondered, until the universe seemed to be spinning round and Theodore was the spinner.”

The strenuous life was a necessity for Roosevelt. Leaving the Presidency in 1909, he was not content to settle down at Sagamore Hill, his home at Oyster Bay, Long Island, today a national historic site (page 545). Instead, he departed for Africa at the head of an expedition to hunt big game.\* He bagged probably the world’s most comprehensive collection of East African animals, now housed in the Smithsonian Institution.

In 1914 Roosevelt explored the unknown

\*See “Wild Man and Wild Beast in Africa,” by Theodore Roosevelt, *NATIONAL GEOGRAPHIC*, January, 1911.

Staunch advocate of a strong Navy, Roosevelt dispatched 16 American battleships on a 14-month world cruise in 1907. The President used the spectacular voyage of the Great White Fleet to impress potential enemies with United States naval might—and to persuade Congress to authorize two dreadnoughts. Here, aboard the Presidential yacht *Mayflower*, Roosevelt reviews the fleet at Hampton Roads, Virginia.



UNDERWOOD AND UNDERWOOD (ABOVE), HERBERT ROOSEVELT

“Last chance to be a boy.” The Huck Finn in T. R. took him down rapids on Brazil’s River of Doubt in 1914. Three men died; Brazilian Colonel Candido Rondon (center), co-leader with Roosevelt, lost a toe; and T. R. shortened his life with an abscess and jungle fever.



Camping conservationist, the President visits Yosemite National Park in 1903 (left). Although he was attacked by the press for his interest in hunting, it was Roosevelt who set aside the first 51 wildlife refuges in the United States.

River of Doubt in the Amazon wilds (above).<sup>\*</sup> Of the trip he wrote: “No less than six weeks were spent in slowly and with peril and exhausting labor forcing our way down through what seemed a literally endless succession of rapids and cataracts.”

He did not relate that he himself had been injured and ill; at one perilous point he even suggested that the others leave him behind to die. In a voice still weak with fatigue, Roosevelt gave his first public account of his Amazon trip in a lecture to the National Geographic Society.

T. R. was proud of having put the River of Doubt (later named the Theodore Roosevelt) “on the map,” as he phrased it. “I had to go. It was my last chance to be a boy.”

But he had not ignored politics. By 1910, he was advocating a “New Nationalism,”

which led to the Progressive program. “I stand for the square deal,” he asserted. In 1912 he ran for President on a Progressive ticket, splitting off from the Republican Party, which nominated Taft. To reporters he remarked that he felt as fit as a bull moose, and the new party became known as the Bull Moose Party.

#### Fanatic’s Bullet Fails to Halt Speech

While campaigning in Milwaukee, T. R. was shot in the chest by a fanatic, but insisted on speaking before being taken to the hospital.

“The bullet is in me now,” he told his audience, “so that I cannot make a very long speech... I am ahead of the game, anyway. No man has had a happier life than I have led; a happier life in every way.”

Roosevelt recovered, but lost to Wilson in the election, and was never able to resume fully the strenuous life he loved. He died in 1919 and was buried at Youngs’ Memorial Cemetery, Oyster Bay, Long Island.

<sup>\*</sup>See “Theodore Roosevelt: a Centennial Tribute,” by Bart McDowell, NATIONAL GEOGRAPHIC, October, 1958, and “Down the River of Doubt,” by Theodore Roosevelt, *Great Adventures With National Geographic*.







TWENTY-SEVENTH PRESIDENT 1909-1913

**W**ILLIAM HOWARD TAFT, a large, jovial, conscientious man, was a distinguished jurist and accomplished administrator whose real aspirations were in the direction of the Supreme Court rather than the Presidency. He achieved his fondest dream eight years after he left the White House, becoming Chief Justice of the United States in 1921.

His four years in the White House were extremely uncomfortable—primarily because he was caught in the middle of an intense battle between progressives and conservatives. Taft disliked resorting to political means to gain his worthy ends. He once explained: “Political considerations have never weighed heavily with me. I have tried to do in each case what seemed to me the wisest thing, regardless of its effect upon my own future.”

As a result, Taft received scant credit for the considerable achievements of his administration. In four years he initiated double the number of antitrust suits that had marked Theodore Roosevelt’s seven years in office, and dissolved the giant oil and tobacco trusts. As a conservationist, he reserved oil and coal deposits on Federal lands, established a Bureau of Mines to guard mineral resources, and encouraged irrigation projects. To aid the “common man,” he obtained parcel post and a postal savings system, and established the Children’s Bureau and a Commerce Court.

Taft created a commission to promote efficiency and economy in Government, and fostered successfully two constitutional amendments, providing for a Federal income

tax and for popular election of Senators. It was a substantial record, but progressives, demanding far more, assailed it as deficient.

#### President Befriended Fledgling Society

In Taft, the National Geographic Society found a friend and champion in its early days. He lectured before the Society ten times and contributed 15 articles to its magazine, on subjects ranging from the League of Nations to the Lincoln Memorial. He was also the first ex-President to become a Trustee of the Society, serving on the Board from 1917 until his death in 1930.

Taft was born in Cincinnati, the son of a prominent, well-to-do Ohio judge who had served in Grant’s Cabinet. He was

**Genial, gregarious** William Howard Taft, a veteran public servant before he reached the White House, believed that the only lasting reward of the Presidency lay in “the thought that one has done something permanently useful to his fellow countrymen.”

**Cultured** Helen Herron Taft enjoyed traveling with her diplomat husband in the Far East. As First Lady, she received from the Mayor of Tokyo 3,000 Japanese cherry trees, an enduring gift to the Nation’s Capital.





Respect and affection bound Filipinos to Taft during his four-year tour of duty. Appointed first Civil Governor of the Philippines in 1901, Taft vastly improved the island's roads, schools, and standard of living.

graduated second in his class at Yale and returned home to study and later to practice law. He rose in politics through Republican judiciary appointments, through competence and availability, and because, as he once wrote facetiously, he always had his "plate the right side up when offices were falling."

He was appointed, before he was 35, to be a Federal circuit court judge. His decisions, though tending to be verbose, were notable for their conservative legal scholarship. Taft aspired only to be a member of the Supreme Court, but his wife, Helen Herron Taft, held other ambitions for him.

His route to the White House was via administrative posts. President McKinley sent him to the Philippines, and in 1901 he became Civil Governor. Sympathetic toward the Filipinos, he made a splendid reputation by improving the economy, building roads and schools, and giving the people at least limited participation in their government.

Taft loved the Filipinos and they loved him. With bands and flags, 6,000 islanders marched to the governor's palace on January 10, 1903,

Top-hatted delegates, headed by Secretary of War Taft, take a flat-car tour of the Panama Canal. During his four years as Secretary, Taft championed the project. The "big ditch" opened for business in 1914 on the eve of World War I.

Sheet music for Taft's 1908 campaign features a portrait of the personable, portly Republican—at some 300 pounds the largest of all Presidents.

RALPH E. BECKER COLLECTION, SMITHSONIAN INSTITUTION



to demonstrate their affection. Florid speeches in Spanish praised the beloved Taft. One declared that Governor Taft was a "saint with the power to perform the great miracle" of uniting all of the factions in the islands. Pedro A. Paterno, whom Taft had been forced to chastise for his revolutionary activities, declared that "as Christ had converted the cross into a symbol of glory and triumph, so had Governor Taft turned a dying people to the light and life of modern liberties."

#### Bryan Faces Two Tafts

President Roosevelt brought Taft to Washington in 1904 to be Secretary of War, and in that office he supervised the start of work on the Panama Canal. By 1907, Roosevelt had decided that Taft should be his successor and easily obtained his nomination at the 1908 Republican Convention. Taft disliked the campaign, "one of the most uncomfortable four months of my life." He pledged his fealty to the Roosevelt program, especially popular in the West, while his brother Charles Taft assured eastern Republicans they had nothing



TAFT PRESIDENTIAL PAPERS, LIBRARY OF CONGRESS

to fear. William Jennings Bryan, running on the Democratic ticket for a third time, complained he had to oppose two candidates, a western progressive Taft and an eastern conservative Taft.

Progressives at first were well pleased with the election of Taft. "Roosevelt has cut enough hay," they said. "Taft is the man to put it into the barn." Conservatives were delighted to be rid of Roosevelt.

From the outset, Taft recognized that his techniques as President would differ from those of his predecessor. To Roosevelt, departing for Africa, he sent a revealing farewell letter: "I have not the facility for educating the public as you had through talks with correspondents, and so I fear that a large part of the public will feel as if I had fallen away from your ideals; but you know me better and will understand that I am still working away on the same old plan. . . ."

But Taft did not approve of Roosevelt's stretching of Presidential powers, and when confronted with Congressional opposition inherited from Roosevelt, he moved cautiously.

Taft became President shortly after a variety of Roosevelt proposals dealing with such matters as labor reforms and conservation had been killed in the House Rules Committee by Speaker "Uncle Joe" Cannon. Taft alienated the progressives when he refused to help them curb the Speaker's power.

#### Winona Speech Adds to Political Woes

Keeping his campaign promise to lower tariffs, Taft called Congress into special session to enact the legislation. But then, with his view of a limited Presidential role, he would not marshal his powers behind the progressives as they battled for lower rates. Taft worked privately to improve the bill, but refused to publicize his achievements. The resulting Payne-Aldrich tariff seemed another triumph for eastern industrialists, yet in Winona, Minnesota, he opened himself to criticism by defending it as "on the whole . . . the best bill that the Republican Party ever passed."

Taft added to his political miseries by replacing Roosevelt's conservationist Secretary





“A shrine at which all can worship,” proclaimed ex-President Taft (left), Chairman of the Lincoln Memorial Commission. To President Warren Harding (center), Taft said, “I have the honor to deliver this Lincoln Memorial into your keeping.” A distinguished guest was Robert Todd Lincoln (right), son of the Great Emancipator. Thousands witnessed the ceremony on May 30, 1922 (below).

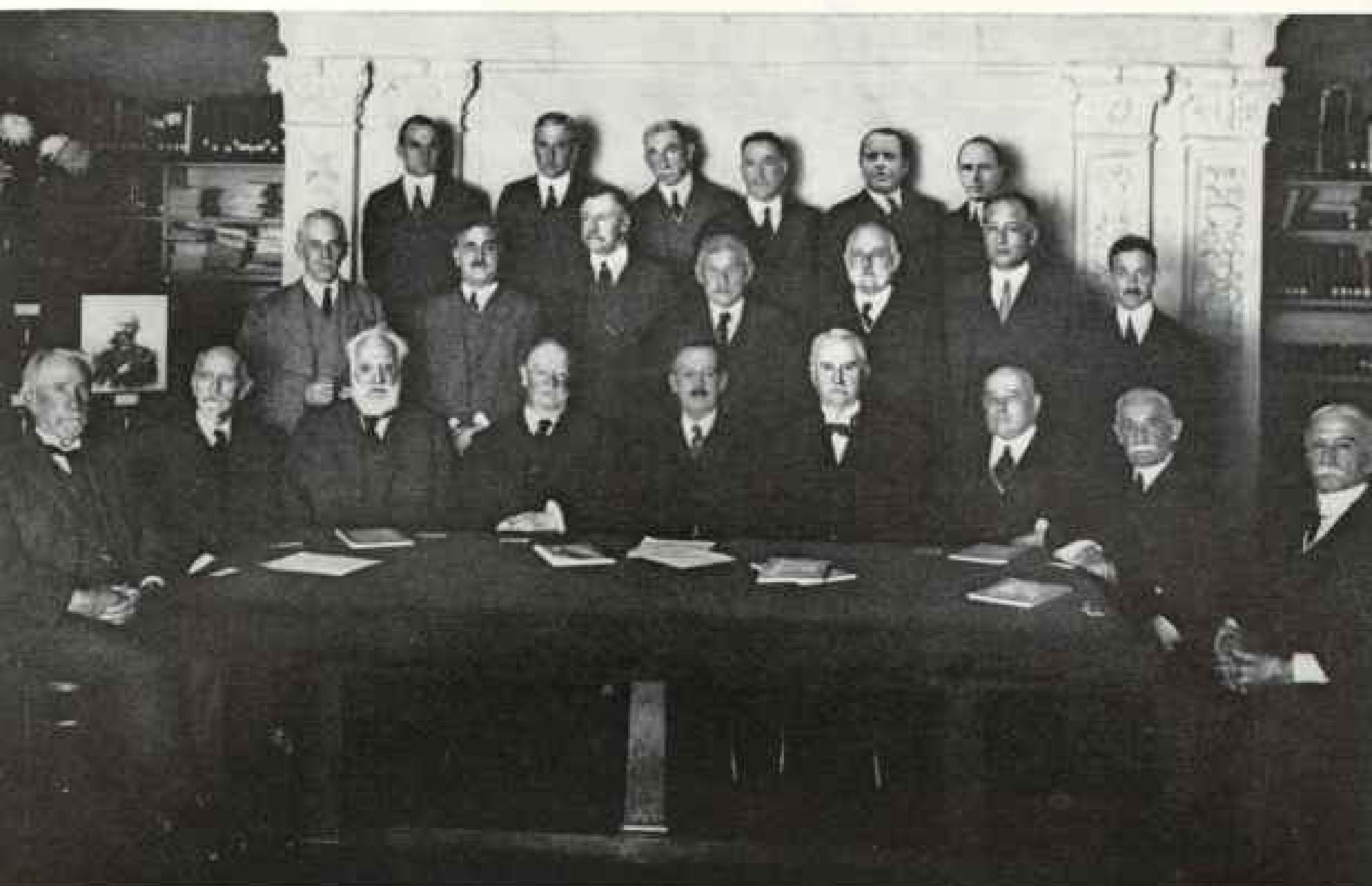
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First former President to be named a Trustee of the National Geographic Society, Taft (seated fourth from left) meets with fellow board members in 1921. Six months earlier he had been appointed Chief Justice—the only man to head both the executive and judicial branches of the Government. To Taft's right sits inventor Alexander Graham Bell, to his left Society President Gilbert H. Grosvenor.

After his White House term, Taft had happily departed politics to become a professor of constitutional law at Yale. Appointment to the Supreme Court fulfilled a lifelong dream. As Taft the Chief Justice wrote decisions, Taft the administrator zestfully set about reorganizing a court system clogged with litigation. Before he died in 1930, he secured Congressional approval for today's Supreme Court Building.

HERBERT E. FRENCH COLLECTION, LIBRARY OF CONGRESS (ROOSE), WAYNE OWEN WILLIAMS, NATIONAL GEOGRAPHIC SOCIETY





CHARLES MARTIN, NATIONAL GEOGRAPHIC STAFF

of the Interior with a Seattle lawyer, Richard A. Ballinger. When Taft defended Ballinger against charges that he was failing to carry out Roosevelt's conservation policies, he became an anticonservationist in the eyes of the progressives, despite his solid conservation achievements:

In his foreign policy, Taft was a strong advocate of arbitration as a means of settling international disputes. In 1910 he made a notable speech calling for treaties to set up arbitral courts. At its close, French Ambassador Jules Jusserand declared, "We will make such a treaty with you." Taft replied, "I'm your man."

Taft negotiated treaties with both France and England, but the Senate amended them to death. Later Taft declared, "It was not that those treaties would have abolished war; nobody said they would; but it was that they were a step in the right direction toward the practical ideal under which war might have been impossible."

In reply to the critics who complained that Taft was dedicating his foreign policy to American exporters and investors overseas, he asserted, "To call such diplomacy 'dollar diplomacy' . . . is to ignore entirely a most useful office to be performed by a government

in its dealings with foreign governments."

In 1912, when the Republican Convention renominated Taft, many progressives left the party to support the Bull Moose candidacy of Roosevelt, thus guaranteeing the election of Woodrow Wilson. While under attack from his old friend Roosevelt, Taft took solace from a remark of Abraham Lincoln's that he kept framed on his desk: "I do the very best I know how—the very best I can; and I mean to keep on doing so until the end."

In 1918, when he discovered T. R. in the same Chicago hotel, he threaded his way through the dining room, amid applause, to grasp his hand. Later Roosevelt exclaimed, "Wasn't it a gracious thing for him to do?"

#### Happiest Office Comes Late in Life

To Taft's delight, President Harding in 1921 appointed him Chief Justice of the United States, making him the only man to serve both as President and as head of the Supreme Court. He was so happy in the office, which he held until just before his death in 1930, that he once wrote, "I don't remember that I ever was President."

Taft lies in Arlington National Cemetery, across the Potomac from Washington. His birthplace is being restored as a memorial.

# Woodrow Wilson

TWENTY-EIGHTH PRESIDENT 1913-1921

**W**OODROW WILSON was a great war leader and crusader for world peace who insisted that the United States must share responsibility for maintaining international stability. In his first term he brought to fruition a basic program of progressive reform, the New Freedom. In his second term, he mobilized the manpower and industrial might of the United States, which helped bring an Allied victory in the war to make the world "safe for democracy."

Wilson sought to implement that ideal through the League of Nations, but the Senate blocked the entrance of the United States into the League and frustrated his dream.

Perhaps because his earliest memories were of the Civil War, Wilson's most earnest hope was for permanent peace. He was born in Staunton, Virginia, in 1856, the son of a Presbyterian minister who during the Civil War had a church in Augusta, Georgia, and during Reconstruction taught theology in charred Columbia, South Carolina. The boyhood home of Wilson can still be seen in

Augusta, and the Staunton birthplace (page 557) and Columbia home have become Woodrow Wilson memorial museums.

Wilson was raised in the traditions of the South; he was proud the Confederates had fought, but glad the Union had survived.

## "A Noticeable Man" Enters Politics

After being graduated from Princeton—known then as the College of New Jersey—and attending the University of Virginia Law School, Wilson practiced law in Atlanta. But finding law practice uncongenial, he subsequently earned a Ph.D. at the Johns Hopkins University and began an academic career. His hope, as he told his future wife, Ellen Louise Axson, was to move on to statesmanship. As a law student he had expressed his daydreams by inscribing calling cards, "Thomas Woodrow Wilson, Senator from Virginia."

Wilson rose rapidly as a conservative professor of political economy, popular both in the classroom and as a writer. Although Wilson disparaged his own appearance, he



Quest for peace guided Woodrow Wilson; he had seen the frightfulness of conflict as a child during the Civil War. But destiny cast him as a wartime President. He came to the White House on the eve of battle in Europe. By April, 1917, only five months after re-election, he found himself asking Congress to declare war on Germany.

Childhood friend of the President, Ellen Louise Axson gave up a career in art to marry the young professor. Their three daughters, seen here at their Princeton, New Jersey, home, were in their twenties when the family moved to the White House. As First Lady, Ellen Wilson saw two of the girls married before her death at 54.

*Painting by Sir William Orpen,  
White House Collection*





was a striking figure. His wife described him with a line from Wordsworth, "a noticeable man, with large gray eyes."

A contemporary, W. S. Couch, saw his face as "curiously geometrical. . . . The mouth is small, sensitive, with full lips, a mouth almost too well shaped for a man, and a woman might envy the arched eyebrows. But the almost brutal strength of the general bony structure of the face, and that aggressive jaw promise an active, iron willed, fighting man. . . ."

Elected President of Princeton in 1902, Wilson threw his energies into remodeling the university into an eminent intellectual institution. Faculty and alumni received many of his reforms warmly, but opposed others. The resulting unrest perhaps influenced his decision to accept a call from conservative Democrats to run for Governor of New Jersey in 1910.

Even during the campaign, he asserted his independence of the conservatives and of the machine that had nominated him by endorsing an extensive progressive platform. As governor he made good his pledges, speedily

moving New Jersey into the vanguard of the progressive states.

After a stiff fight at the 1912 Democratic Convention, he was nominated for President and campaigned on a program called the New Freedom. Wilson claimed this placed greater stress on individualism and states' rights than did Theodore Roosevelt's competing New Nationalism. It was a New Freedom, asserted Wilson, for "the man who is knocking and fighting at the closed doors of opportunity." In the three-way election, against Roosevelt and Taft, he received only 42 percent of the popular votes, but an overwhelming proportion of electoral votes.

#### Wilson Follows an Adams Precedent

In his first Inaugural Address, President Wilson criticized the "inexcusable waste" that accompanied American prosperity and the use of the Government "for private and selfish purposes." He called for a reform program that would be a return to early ideals, declaring, "Our work is a work of restoration."

Wilson followed with a bill of particulars that he translated into legislation a year later. President Wilson, like Roosevelt before him, regarded himself as the personal representative of the American public. "No one but the President," he wrote in the summer of 1913, "seems to be expected . . . to look out for the general interests of the country."

Wilson skillfully maneuvered through Congress three major pieces of legislation. The first was a lower tariff, the Underwood Act, which he obtained despite lobbies and log-rolling. In support of the bill, he appeared in person to deliver a message to Congress, the first President to do so since John Adams. Attached to the measure was the first graduated income tax as we know it today, beginning with a one percent tax and ranging to a six percent maximum.

Next Wilson obtained legislation of great lasting importance, the Federal Reserve Act. This provided the Nation with the more elastic money supply it badly needed by creating 12 regional "bankers' banks," supervised by a board in Washington. In 1914 he won stronger antitrust legislation, including establishment of a Federal Trade Commission to guard against unfair business practices.

**Courage and stubbornness**, traits that marked his years as Chief Executive, seem to show in Wilson's walk. In cap and gown, he strides across the campus at Princeton, where he was a bold, innovating president.





SCAPURONE BY NATIONAL GEOGRAPHIC PHOTOGRAPHER ERNEST ERISTOF © N.G.S.

**Birthplace of the 28th President**, the manse of the First Presbyterian Church in Staunton, Virginia, wears the look of Dixie with its balconies and stately Greek Revival columns. From the house, maintained as a public shrine, the gardens descend in three terraces. Son of a minister, Wilson spent his formative years in the South and as a young lawyer practiced in Georgia.





HARRIS B. SWIFT

Versatile helpmate, dark-eyed Edith Bolling Galt married the widowed Wilson in 1915. His confidante during the 18-hour workdays of the war, she became both nurse and executive secretary after a stroke crippled the President in the fall of 1919.

In gratitude for U. S. food, Belgian children embroidered this flour sack from a Waitsburg, Washington, mill and sent it to Wilson.



THE NATIONAL TRUST FOR HISTORIC PRESERVATION

In 1916, an election year, Wilson loosed another burst of legislation; out of conviction as well as political shrewdness, he took up the views of the 1912 Bull Moosers regarding the strong exercise of Federal power. Among the new acts was one to end child labor throughout the Nation—a law later invalidated by the Supreme Court in a decision it subsequently overruled. Another law limited interstate railroad workers to a maximum eight-hour day. By virtue of this domestic legislation and the Democratic campaign slogan, "He kept us out of war," Wilson narrowly won re-election over Charles Evans Hughes.

Wilson knew both great happiness and acute sorrow in the White House. During the early months, surrounded by the wife he adored, his three grown daughters, and often numerous Southern relatives, he would frolic within the circle, singing at the piano, laughing and reciting limericks, and doing imitations, including one of fist-shaking Theodore Roosevelt. But in August, 1914, Mrs. Wilson died, and Wilson was brokenhearted.

#### Edith Galt Helps Relieve the Burden

Without his wife he seemed lost until he met a charming widow, Edith Bolling Galt. They were married in December, 1915.

"He believed that God had given her to him for companionship, strength, and joy," Wilson's biographer, Arthur S. Link, has written. "Her love made him whole again."

Throughout his years in the White House, Wilson worked long hours, often until late at night. He drafted his own speeches, press statements, and important correspondence, first setting them down in Graham shorthand, then transcribing them on his typewriter.

As the war in Europe impinged increasingly upon the United States, Wilson's burden became heavier and heavier. He had urged the American people to be neutral in thought as well as in deed, but became involved in a struggle to maintain the Nation's neutral rights on the high seas. In 1916, against Congressional opposition, he launched a preparedness program, enlarging the Army and greatly increasing the size of the Navy.

From the war's beginning, Wilson hoped for a just peace, and as late as January, 1917, called for "peace without victory." But Germany made a bold gamble, and on January 31 abrogated its earlier pledges by announcing it would embark on restricted submarine warfare—knowing this act would bring American intervention. Wilson reluctantly concluded that Germany was flouting America's



**Jubilant doughboys** on the front line cheer news of the Armistice in November, 1918. Had this truly been the war to end wars? Wilson fervently hoped so and sought to build an enduring peace safeguarded by a League of Nations.

First President to visit Europe while in office, Wilson arrived in Paris for the Peace Conference in December, 1918. French Premier Georges Clemenceau points out landmarks to the American leader (right) and to David Lloyd George, Prime Minister of Great Britain.

Throngs cheered Wilson in the Paris streets, but at the conference table the victors bickered over borders and reparations, and his hopes for a "just and stable peace" dimmed. Though the Allies acclaimed his proposed covenant creating the League of Nations, he saw other peace aims ignored or compromised. Returning home a weary man, he faced the task of winning Senate ratification of the peace pact—the Treaty of Versailles.





neutral rights and that peace and the preservation of democracy could come only through the destruction of German autocracy. On April 2, 1917, he asked Congress for a declaration of war.

#### **Senate Rejects League of Nations**

As the massive American effort brought nearly five million men under arms and produced vast quantities of war materiel, the balance slowly tipped in favor of the Allies. Wilson went before Congress in January, 1918, to enunciate American war aims, the Fourteen Points. The most important was the fourteenth, the establishment of "a general association of nations ... affording mutual guarantees of political independence and territorial integrity to great and small states alike."

After the Armistice in November, 1918,

Wilson went to Paris to try to fabricate in person an enduring peace. On his return he presented to the Senate the Versailles Treaty, containing the Covenant of the League of Nations. He asked, "Dare we reject it and break the heart of the world?" But the election of 1918 had shifted the balance in Congress to the Republicans—partly because of farmers' discontent with grain prices, not opposition to Wilson's peace aims. A militant minority in the Senate believed the United States should stay out of the League. By seven votes the treaty failed to obtain the requisite two-thirds Senate majority.

The President, against his doctor's warnings, had made a national tour to mobilize public sentiment, but became exhausted and collapsed at Pueblo, Colorado, September 25, 1919. Shortly after, he suffered a stroke and





HARRIS & SWING, UNDERWOOD AND UNDERWOOD (RIGHT)

nearly died. For two months Wilson's wife and physician tried to shield him from matters that would upset or tire him. Once Mrs. Wilson turned away officials, saying, "I am not interested in the President of the United States. I am interested in my husband and his health." Wilson's illness has since been cited by those seeking to provide constitutional safeguards against the incapacity of a President.

Nursed by his wife, the ex-President lived on until 1924 at 2340 "S" Street in Washington, now a national historic landmark. He is buried at the Washington Cathedral, where his tomb and memorial bay may be seen.

"I am not one of those who have the least anxiety about the triumph of the principles I have stood for," he once said. "That we shall prevail is as sure as that God reigns."

Always a crusader, Wilson was the first President since John Adams to address Joint Sessions of Congress. Here in the House Chamber he appeals for legislation soon after taking office. From this same dais on January 8, 1918, he presented his famous Fourteen Points, outlining American peace hopes. Congressional controversy engulfed the fourteenth point, which called for establishment of an international "association"—the League of Nations.

Exhausted but still a fighter, Wilson ignores his doctor's advice and makes a whistle-stop tour of the United States. His aim: to mobilize public opinion and force the Senate to act favorably on the League of Nations. He would be glad to give his life for the cause, he said. After stumping the Midwest and Far West, he collapsed and was whisked back to Washington, where he was invalided by a stroke four days later. He gradually regained strength, but suffered another blow when, on March 19, 1920, the Senate voted down the Versailles Treaty with its League Covenant.





# Warren Harding

TWENTY-NINTH PRESIDENT 1921-1923

**W**ARREN GAMALIEL HARDING, a well-meaning man, promised a Nation troubled by the inflation and dislocations following World War I that he would take it back to "normalcy." But there was to be no turning back from the profound economic and social changes that the war had wrought. Harding, unwise in some of his appointments, was betrayed by corrupt friends and died heartsick and disillusioned before the end of his term.

He was born in the Ohio village of Blooming Grove in 1865, the son of a farmer who turned homeopathic doctor. After graduation from Ohio Central College, Harding became, at 19, the publisher and co-owner of the Marion, Ohio, *Star*. As the little town of 4,000 steadily grew and prospered, so did the *Star* and Warren Harding. In 1891 he married Florence Kling De Wolfe, daughter of the town's richest banker.

## Convention Deadlock Leads to Presidency

Tall, handsome, and likable, Harding was ideally suited to be the most prominent citizen of Marion. His undeviating Republicanism and vibrant speaking voice, together with more political skill than has been generally recognized, carried him far. He served in the state Senate and in 1902 became Lieutenant Governor of Ohio. He delivered the nominating address for President Taft at the 1912 Republican Convention, and in 1914 he was elected to the United States Senate, which he found to be "a very pleasant place."

An Ohio admirer, Harry Daugherty, began to promote Harding for the 1920 Republican

nomination because, as he later explained, "He looked like a President."

When the principal candidates of the 1920 Republican Convention deadlocked, Harding obtained the nomination. The call for "normalcy" became the theme of his campaign. He declared, "America's present need is not heroics, but healing; not nostrums, but normalcy; not revolution, but restoration; not agitation, but adjustment; not surgery, but serenity; not the dramatic, but the dispassionate; not experiment, but equipoise; not submergence in internationality, but sustainment in triumphant nationality. . . ."

Actually, the very murkiness of such statements was effective. While the Democratic candidates, Governor James M. Cox of Ohio and Franklin D. Roosevelt, conducted crusades for the League of Nations, both opponents and proponents of American entrance into the League could find in Harding's speeches reasons to vote for him. Most voters, however, were chiefly interested in protesting uncomfortable living conditions. Harding won by the greatest landslide in a century, more than 60 percent of the popular vote.



COURTESY THE HARDING MEMORIAL ASSOCIATION

"He looked like a President," political friends said of Warren Harding, and the polls bore them out in 1920, when the Ohioan won by a landslide. Plagued by scandals involving high Government officials, he died disillusioned after 2½ years in office.

"I have only one real hobby—my husband," said Florence Kling De Wolfe Harding. Ambitious, enthusiastic, she helped him to the top. Her frequent garden parties gave the White House a country-club air.



He promised to enlist the best brains in the country in his administration; he did, in choosing such distinguished men as Charles Evans Hughes to be Secretary of State and Herbert Hoover to be Secretary of Commerce. Unfortunately he also appointed some officials who turned out to be false to their trusts.

Despite the pleas of Hughes, President Harding interpreted his election as a mandate to stay out of the League of Nations. Hughes, loyal to the President, was cold to European proposals for cooperation in collective security. As a substitute, he proposed at the Washington Conference on the Limitation of Armaments a drastic reduction of the fleets of the United States, Great Britain, and Japan.

A British observer declared that Secretary Hughes sank more British battleships than "all the admirals of the world had destroyed in a cycle of centuries."

The United States thus eased tensions in the Pacific, and in so doing postponed for 15 years a serious naval race with Japan.

With similar skill, Secretary Hoover ran Harding's Department of Commerce in the interests of small business. Further, he persuaded the President to pressure steel companies into eliminating the 12-hour day and 7-day week, then still in effect at some mills.

Republicans in Congress easily obtained the President's signature on their bills. They eliminated wartime controls and slashed taxes, established a Federal budget system, restored

the high protective tariff, and imposed tight limitations on immigration. By 1923 the post-war depression seemed to be giving way to new prosperity, and newspapers hailed Harding as a wise statesman, effectively carrying out his campaign promise, "Less government in business and more business in government."

#### Scandals Follow Harding to the Grave

But behind the façade, some of Harding's friends brought to their offices and even to the White House something of the less savory atmosphere of a rural county seat. Word began to reach him that some of his cronies were using their offices for their own enrichment. Alarmed, he complained to editor William Allen White, "My... friends... they're the ones that keep me walking the floors nights!"

Fortunately for himself, Harding did not live to face the public reaction to the Teapot Dome affair, concerning the leasing of Government oil reserves, and other scandals of his administration. On August 2, 1923, he died in San Francisco following a heart attack. By the time the scandals were exposed, the damage to the Republican Party was offset by the obvious moral rectitude of his successor, Calvin Coolidge.

Harding was buried at Marion amid national mourning, and the Harding Memorial there marks his burial site. His Marion home is a national historic landmark.





UNDERWOOD AND UNDERWOOD (LEFT); LIBRARY OF CONGRESS

**Bareheaded:** in soft spring rain, President Harding (center) attends the unveiling on April 6, 1922, of a National Geographic Society memorial honoring explorer Robert E. Peary in Arlington National Cemetery. Mrs. Harding watches at his right, on the President's left stand Society President Gilbert H. Grosvenor; the French Ambassador and Mme Jusserand; Chief Justice Taft; and Secretary of State and Mrs. Charles Evans Hughes.

**Unknown soldier** lies in state in the Capitol Rotunda on the same catafalque that had borne three assassinated Presidents—Lincoln, Garfield, and McKinley. Here on November 11, 1921, President Harding pays his respects to an American soldier, "known but to God," who fell in France in World War I. Shortly after, the casket rode a caisson across the Potomac River to Arlington.

**Wan and depressed** on a speaking tour, the President cruises Alaskan waters with Mrs. Harding and Territorial Governor Scott C. Bone in Eskimo parka. A few weeks later, in San Francisco, the Nation's 29th President died of a heart attack.







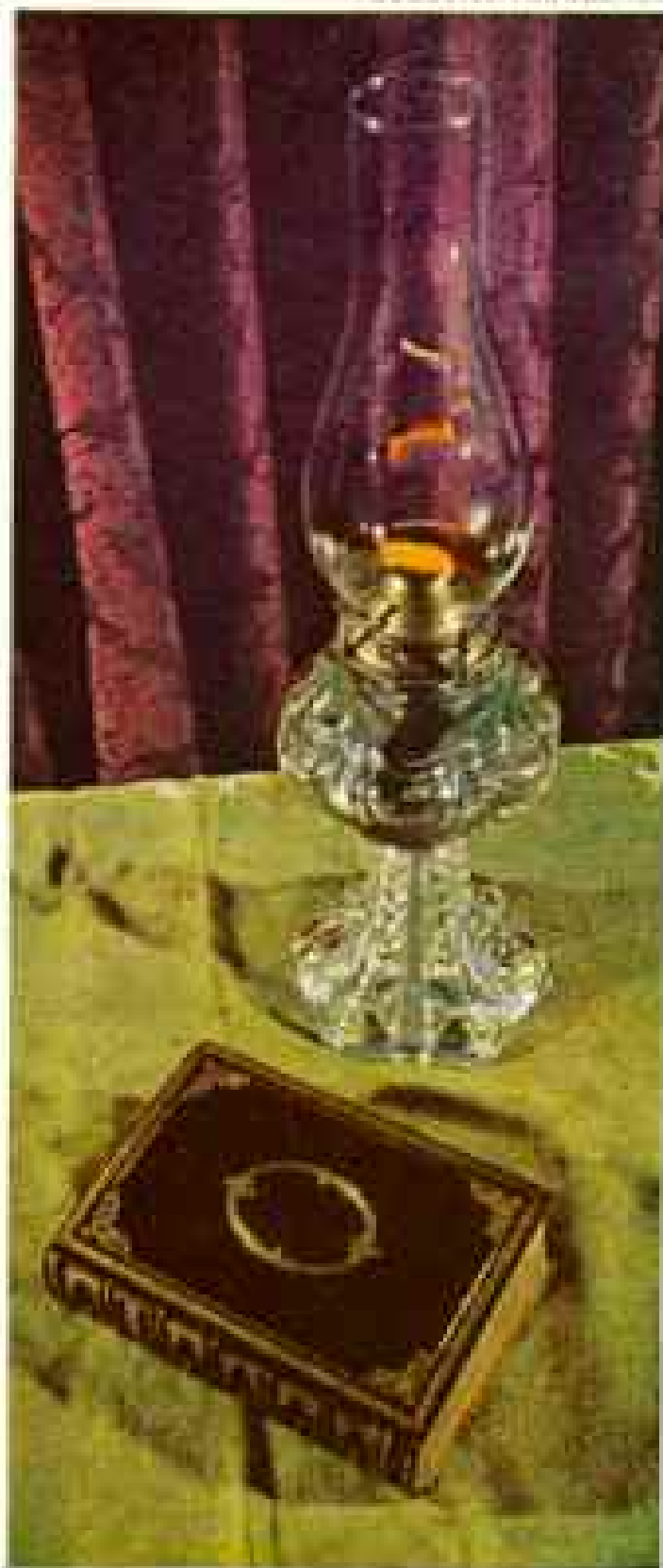


THIRTIETH PRESIDENT 1923-1929

Frugal New Englander, Calvin Coolidge occupied the White House in an era of extravagance and waste but offered the Nation an example of near-Spartan rectitude in public and private life. Delighting in his Yankee twang, the Nation affectionately called him "Cal."

Lighted by this lamp, the family Bible by his hand, Vice President Coolidge was sworn in as 30th President at 2:47 a.m., August 3, 1923, in his native Plymouth, Vermont. His father, a notary, administered the oath when President Harding died.

HERBERT CALVIN COOLIDGE  
MEMORIAL FOUNDATION



Painting by Charles S. Hopkinson, White House Collection

CALVIN COOLIDGE as President was the embodiment, in an urban age, of the frugality, industry, and morality of an earlier, rural America. In keeping with his credo, Coolidge took an essentially hands-off view of the role of Government, asserting, "The business of America is business."

Born in Plymouth, Vermont, on July 4, 1872, Coolidge was the son of a hard-working village storekeeper. Parts of the house in which he was born, and his father's adjoining store, are maintained as a museum. "My boy was always shy and quietlike and never put himself forward," his father later reminisced. "Calvin could get more sap out of a maple tree than any of the other boys around here."

Coolidge was graduated from Amherst College with honors, and entered law and politics in Northampton, Massachusetts. It was there that he met Grace Goodhue, who became his wife in 1905. "She has kept me running for public office ever since I married her," Coolidge jested in later years. In truth, as Mrs. Coolidge wrote, she had at times "protested against further advancement up the political ladder." Over the years he won election to a score of offices, ranging from councilman in Northampton to Governor of Massachusetts. En route he became thoroughly conservative.

#### Strike Stand Leads to White House

Boston merchant Frank W. Stearns explained privately in 1916: "He told me once that when he first went into the Legislature he supposes he was considered a radical, especially along the lines of legislation in favor of social betterment. There came a time about the middle of his legislative experience when he came to the conviction *not* that his previous ideas were wrong but that Massachusetts, at any rate, was going too fast. As he put it, legislation was outstripping the ability to administer. He felt that unless we were willing to get into serious trouble that would take years to rectify, a halt must be called. . . ."

As President, Coolidge took this same view of the Federal Government—that enough reform legislation had been enacted and that it was up to him to call a halt.

Coolidge first became a national figure during the Boston police strike of 1919. When Samuel Gompers, president of the American Federation of Labor, urged that the strikers be re-employed, Coolidge wired, "There is no right to strike against the public safety by anybody, anywhere, any time." After the nomination of Harding for President at the 1920 Republican Convention, delegates ignored the leaders and nominated Governor Coolidge for Vice President.

In the early morning hours of August 3, 1923, while visiting his father in Plymouth, Coolidge received word that



VERMONT COLLEGE LIBRARY

Coolidge revisits Vermont: "I found that the love I had for the hills where I was born touched a responsive chord in the heart of the whole nation."



UNDERWOOD AND UNDERWOOD



HALPH S. BEEBEY COLLECTION, SMITHSONIAN INSTITUTION

Window sticker struck a popular note. Coolidge polled 54 percent of the vote in 1924.

Indian headdress replaces straw hat as Coolidge powwows with the Sioux at Deadwood, South Dakota, in 1927.

While vacationing in the Black Hills that year he announced that he would not seek re-election. The death in 1924 of 16-year-old Calvin, Jr.—a blister on his toe from playing tennis led to blood poisoning—had left enduring sorrow. "When he went," lamented Coolidge, "the power and the glory of the Presidency went with him."

Harding was dead, and that he was President. By the light of a kerosene lamp, his father, a notary public, administered the oath of office.

The Coolidge Homestead, across the street from the birthplace, appears today much as it did then. In the "oath" room visitors see original furnishings—a day bed, a brown rug, a wood-burning stove. In these simple surroundings, Coolidge began his administration.

Of Coolidge as President, a Democratic admirer, Alfred E. Smith, wrote: "His great task was to restore the dignity and prestige of the Presidency when it had reached the lowest ebb in our history, and to afford, in a time of extravagance and waste, a shining public example of the simple and homely virtues which came down to him from his New England ancestors."

### "Cal" Untouched by Harding Scandals

President Coolidge was determined to preserve the old moral and economic precepts amid the Nation's material prosperity. He refused to use the economic power of the Federal Government to check the growing boom and did not believe that Government action was the solution to the depression in agriculture and certain industries. His first message to Congress, in December, 1923, called for a foreign policy of attending "to our own affairs," and for tax cuts, economy, and only limited aid to farmers; it was hailed by Chief Justice Taft as "great in the soundness of its economic statesmanship."

Coolidge rapidly became so popular that the Harding scandals, as they were gradually exposed, seemed to damage the Democratic investigators more than they discredited the Republican Party. In 1924, benefiting from "Coolidge prosperity," he defeated John W. Davis, winning 54 percent of the popular vote.

In his Inaugural Address Coolidge asserted that the Nation had achieved "a state of contentment seldom before seen," and pledged himself to maintain the status quo. He vetoed two farm-relief bills and Senator George Norris's scheme to produce cheap Federal electric power on the Tennessee River.

In a speech to the Daughters of the American Revolution, Coolidge formulated the deeply conservative political philosophy behind such vetoes:

"Whenever some people find that abuse needs correction in their neighborhood, instead of applying a remedy themselves, they seek to have a tribunal sent on from Washington to discharge their duties for them, regardless of the fact that in accepting such super-



PAINTING BY HERRICK EMANUEL CHRISTIE, WHITE HOUSE COLLECTION

Grace Goodhue Coolidge, charming and radiant, was among the most popular of First Ladies. She taught at the Clarke School for the Deaf in Northampton, Massachusetts, before marrying the future President.

vision they are bartering away their freedom."

Walter Lippmann, in 1926, sought to explain the success of the Coolidge credo: "It suits all the business interests which want to be let alone. . . . And it suits all those who have become convinced that government in this country has become dangerously complicated and top-heavy."

President Coolidge himself put it with characteristic succinctness: "When things are going along all right, it is a good plan to let them alone."

Coolidge was both the most remote of Presidents and one of the most accessible.





HARRIS & FAINE

Lines of curious Americans crowd the White House sidewalk to attend a New Year's Day reception during the Coolidge Administration. The President met the public almost daily. "On one occasion I shook hands with nineteen hundred in thirty-four minutes," the Vermonter recalled in his *Autobiography*, "which is probably my record. Instead of a burden, it was a pleasure . . . to meet people in that way and listen to their greeting. . . ."

He once told Bernard Baruch why he often sat silently through interviews in his office: "Well, Baruch, many times I say only 'yes' or 'no' to people. Even that is too much. It winds them up for twenty minutes more."

On the other hand, no President was kinder in permitting himself to be photographed in Indian war bonnets or cowboy dress, and in greeting innumerable delegations (page 568). And he was the last President whom every visitor to Washington could meet. At about 12:30 most afternoons a line-up of several hundred persons filed through the President's office to shake his hand.

#### Serves as National Geographic Trustee

Coolidge's dry Yankee wit and his frugality with words became legendary. The story of the young woman who sat next to Coolidge at a dinner party is typical. She told him she had bet she could get at least three words of conversation out of him. Without looking at her,

he quietly retorted, "You lose." And in 1927, while vacationing in the Black Hills of South Dakota, he issued the most famous of his statements, "I do not choose to run for President in nineteen twenty eight."

He retired from the Presidency in 1929, and that year became a member of the National Geographic Society's Board of Trustees.

His biographer, Claude M. Fuess, who calls him "a great and good man," sums up the Coolidge Presidency: "He was a safe pilot, not a brilliant one. Under him the nation was not adventurous, but it was happy. He won no battles, challenged no traditions, instituted few reforms. What he would have done with a war or a depression on his hands is a fascinating subject for speculation."

But when the Great Depression hit, Coolidge was in retirement; shortly before his death in January, 1933, he confided to an old friend, "I feel I no longer fit in with these times." He is buried in Plymouth, Vermont.



FROM RICHARD E. BYRD (CARVELL INTERNATIONAL REPROD.)

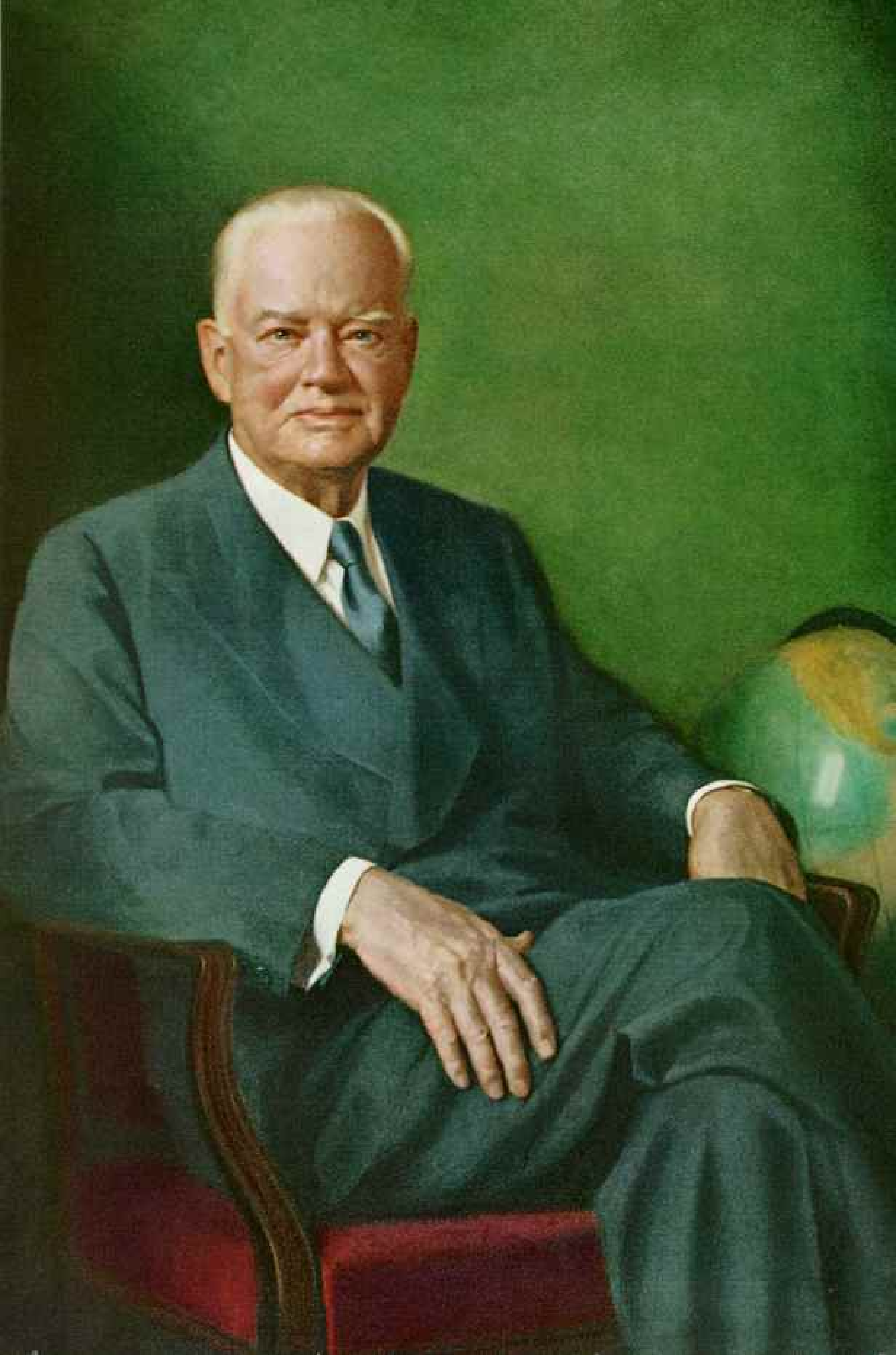
Off for the top of the world. Ground crew cheers as Lt. Comdr. Richard Evelyn Byrd and pilot Floyd Bennett roar down an icy track at Spitsbergen on May 9, 1926, pointing their Fokker trimotor toward the North Pole. During the Coolidge Administration aerial exploration came of age, spreading its wings even wider in 1929 when Byrd also conquered the South Pole by air.

First to fly the Atlantic alone, 25-year-old Charles A. Lindbergh thrilled the world in 1927. An unknown civilian aviator working for an airmail contractor, he flew from New York to Paris in his single-engine plane, *Spirit of St. Louis*, in 33½ hours. Guest of President Coolidge, he received a hero's welcome in Washington.

WIDE WORLD



"Admiral of the Ends of the Earth" receives the National Geographic Society's Hubbard Medal from President Coolidge on June 23, 1926, for his historic flight over the North Pole. On accepting the Society's highest honor for exploration, Byrd recalled the words spoken seven years earlier by Adm. Robert E. Peary: "Coming Polar explorers . . . are quite likely to use modern means which have sprung into existence within the last few years. According to my own personal impressions—*aerial flights.*" Said the naval aviator, "How true his prophecy has turned out to be."





THIRTY-FIRST PRESIDENT 1929-1933

**H**ERBERT HOOVER was forced as President to cope with a severe world-wide depression. Unlike earlier depression Presidents, he used Government resources to help business recover, but his popularity had evaporated and he was defeated in 1932. In later years he was again hailed as an outstanding American leader.

Few men have lived such long, exciting lives. The son of a Quaker blacksmith, Herbert Hoover was born in West Branch, Iowa, on August 10, 1874. His father died when Herbert was six; his mother, two years later. He went to live with an uncle in Oregon, where he learned not only how to clear forest, but also how to type and keep books. He was one of the first students to enroll at Stanford University when it opened in 1891, and at 20, in the midst of a depression, he was graduated with a degree in geology.

He quickly demonstrated his analytical and organizing talents, and at 23 took charge of some gold mines in the Australian desert. He developed one of the richest of all, the Sons of Gwalia mine.

#### Public Career Begins at 40

In 1899 he became the chief mining expert for the Chinese Government. En route to China, he stopped in California to marry his Stanford sweetheart, Lou Henry. In June, 1900, the Boxer Rebellion caught the couple in Tientsin, and Hoover assumed responsibility for the civil administration and for husbanding food and water in the beleaguered foreign settlement.

By the early 1900's, Hoover had become famous in the mining industry. He developed great mines in Australia and Burma and rehabilitated others in Russia. When the chief accountant for a firm of British mining consultants, in which he was a junior partner, embezzled a million dollars, Hoover, in the absence of his senior partners, decided that the firm would make good the loss even though it was under no legal obligation. He personally assumed a substantial share of the loss, wiping out the greater part of his life's savings. The firm's reputation—as well as Hoover's personal standing—were greatly enhanced, and the incident became a legend in international business circles.

A week before Hoover celebrated his 40th birthday in London, Germany declared war on France, and the American Consul General asked his help in getting tourists home.

"I did not realize it at the moment," Hoover later

Brilliant mining engineer Herbert Clark Hoover had amassed a comfortable fortune when, at 40, he dedicated the rest of his long life to public service. In World War I he served without salary as U. S. Food Administrator and then, under Harding and Coolidge, as Secretary of Commerce. An astute professional man, he hated the waste of war, a Quaker and humanitarian, he detested the bloodshed and suffering it entailed. On accepting the Presidential nomination in 1928, he declared: "I think I may say that I have witnessed as much of the horror and suffering of war as any other American. From it I have derived a deep passion for peace."



Lou Henry Hoover spoke five languages and relaxed by reading sociology and economics. She filled the White House with books and art objects. Mrs. Hoover was a long-time member of the National Geographic Society; her name appeared among its 2,433 members as listed in the January, 1903, NATIONAL GEOGRAPHIC.

wrote, "but on Monday, August 3rd, my engineering career was over forever. I was on the slippery road of public life."

After helping 120,000 Americans return to the United States, Hoover took on a far more difficult task: to feed Belgium, which had been overrun by the German Army and faced starvation. Throughout the war his herculean program fed millions of Belgians and French behind the German lines.

After the United States entered the war, President Wilson appointed Hoover head of the Food Administration. Newspapers referred to its work as "Hooverizing." By voluntary methods, without rationing, Hoover succeeded in cutting home consumption of foods needed overseas and kept the Allies fed.

After the Armistice, Hoover had the responsibility of organizing shipments of food to starving millions in central Europe. In 1921



he extended the program to famine-stricken Soviet Russia.

"Twenty million people are starving," he replied to a critic. "Whatever their politics, they shall be fed!"

Shocked by both the radicalism and reaction he had seen in Europe, Hoover, as Secretary of Commerce in the Harding and Coolidge Administrations, advocated a middle path. He hailed the "rising vision of service" which

led Americans to pursue community responsibilities rather than merely "the acquisition and preservation of private property. . . ."

This was his own pattern of life; during his years in public service he refused to take even a token dollar a year for his own use. Conversely, he felt the Government should help business in practical ways, while putting as few restrictions on it as possible.

When Hoover received the Republican



**American bounty for hungry Europe:** During and after World War I, Hoover headed relief programs that spelled life for millions. While fighting still raged, he crossed the mine-infested English Channel and North Sea 40 times. Here, in 1920, he inspects a shipment of flour bound for war-ravaged children.

**Grateful Polish youngsters hail him in Warsaw in 1946.** As chairman of President Truman's Famine Emergency Committee, he surveyed food problems of 38 nations stricken by World War II.

**Tuned in on a one-tube set,** Secretary of Commerce Hoover personally checks on radio interference complaints in 1923.





nomination in 1928, no one seemed better qualified to state as he did in his acceptance address, "We in America today are nearer to the final triumph over poverty than ever before in the history of any land." His decisive election over Alfred E. Smith seemed a guarantee of ever-rising living standards.

#### Hoover Calls for Voluntary Action

Yet less than a year later came the stock-market crash of 1929, and the Nation spiraled downward into depression. Hoover tried to use Government leadership to stimulate recovery through voluntary methods. He urged business not to cut payrolls, labor not to ask for higher wages, and farmers to practice crop control. Also he announced that, while keeping the budget balanced and currency sound, he would cut taxes and increase spending on public works, such as Hoover Dam, then being constructed on the Colorado River.

In 1931 repercussions from Europe deepened the crisis, even though the President arranged a one-year moratorium on reparations and war-debt payments. In December, 1931, Hoover asked Congress to enact an unprece-

dent program: creation of a giant Federal loan agency (the Reconstruction Finance Corporation) to aid business; additional help for farmers facing mortgage foreclosures; banking reform; a loan to states to aid in feeding unemployed; further expansion of public works; and drastic governmental economy.

The program had hard sledding with a hostile Congress dominated by Democrats and progressive Republicans. Slowly they passed part of the measures. Hoover, no man for political maneuvers, would not budge on his principles, and felt that demands that the Government go further presaged disaster.

"I was convinced that efficient, honest administration of the vast machine of the Federal government would appeal to all citizens," he wrote later. "I have since learned that efficient government does not interest the people so much as dramatics." Years earlier, when some of his backers showed him a press release describing his courage during the Boxer Rebellion, he tore the paper to shreds, saying, "You can't make a Teddy Roosevelt out of me."

While proposing his positive program to fight the depression, Hoover reiterated that

**First President born west of the Mississippi**, Hoover spent his infancy in this cottage in the Quaker hamlet of West Branch, Iowa. Today a national historic landmark, the site includes a blacksmith shop like that operated by Hoover's father, a Presidential library housing papers and mementos, and the graves of the President and his wife.





Clad in waders and business suit, Hoover lands a trout. An avid angler, he wrote a witty book on the sport. As Secretary of Commerce, he played an active role in fisheries conservation.

Elder statesman stands beside the Hoover Institution on War, Revolution, and Peace at Stanford University in California. During World War I, Hoover scoured Europe for documents that form the basis of the research center's library. The Lou Henry Hoover and Herbert Hoover Rooms exhibit personal items, for it was at Stanford that the geology student met the coed who became his wife.

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UNITED PRESS INTERNATIONAL (LEFT); WIDE WORLD

caring for the cold and hungry must be primarily a local and voluntary responsibility.

"If we start appropriations of this character," he asserted, "we have not only impaired something infinitely valuable in the life of the American people but have struck at the roots of self-government."

Hoover's opponents in Congress criticized him unfairly, making him the scapegoat for the depression, and he was badly defeated by Franklin D. Roosevelt in 1932. Subsequently he was a powerful critic of the New Deal, warning against tendencies toward statism.

In 1947 President Truman appointed Hoover to a commission, which elected him chairman, charged with reorganizing the executive branch. He was appointed chairman of a similar commission by President Eisenhower in 1953. Many economies resulted from both commissions' recommendations.


Hoover wrote many articles and books; he was working on a book when he died, at 90, in New York City, October 20, 1964. He lies beside his wife on a hillside at his Iowa birthplace. Nearby, the Herbert Hoover Library-Museum preserves his papers and mementos for study, and the two-room cottage in which he was born has been restored and opened to the public.

END OF PART IV









# MUSTANG, Remote Realm in Nepal

Article and photographs  
by MICHEL PEISSEL

**T**WO YEARS of preparation, 850 pounds of food and equipment, and I had forgotten the *katas*! What could we do?

Tashi, my Tibetan companion, looked at me with disapproval. The two small ponies that the King of Mustang had sent to fetch us were waiting.

Fortunately, an old monk agreed to sell me a kata, the narrow white ceremonial silk scarf required for a meeting with the king. Tucking the kata into my Tibetan robe, I mounted a pony and, with Tashi, rode out of Lo Mantang, capital of Mustang, by the town's only gate. Passing a row of prayer flags, we galloped onto a barren plain. Two hours later, we reached the king's summer palace.

## All but Surrounded by Red-held Tibet

While we waited, Tashi briefed me as to how I should present the scarf, extending my right arm with "reserve and modesty." To greet a high Himalayan official—to say nothing of a king—without a kata would have been "very, very sinful indeed."

As it turned out, all went well, and that day, seated cross-legged at the foot of a wooden throne, I learned that Tibetan-speaking Angun Tenzing Trandul, 24th King of Mustang, did not know that the world is round. For him and his people, the world is flat and in the shape of a half-moon!

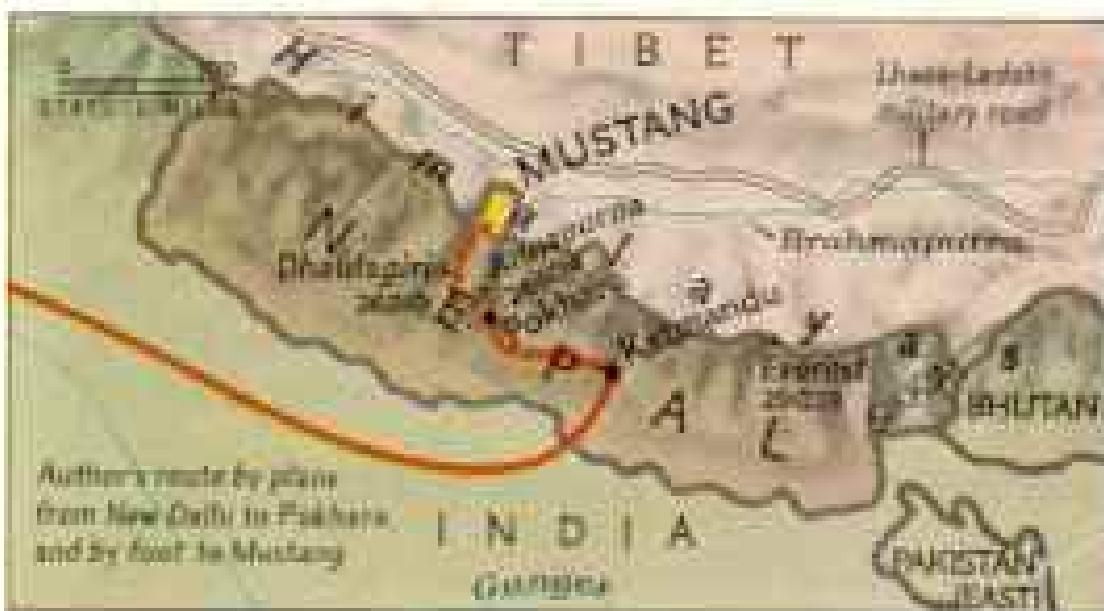
Was this more surprising, I wondered, than the fact that the outside world is ignorant of Mustang's existence? Hidden behind 26,810-foot Dhaulagiri, seventh highest peak in the world, and behind the great Annapurna massif, Mustang is bordered on three sides by Communist-occupied Tibet. Only 750 square miles in area, Mustang perches at a staggering mean altitude of some 15,000

Gateway to the past: Town of Tsarang marks the first stop of the author's ten-week expedition to lofty Mustang, land of demons and lamas. His caravan approaches a door chorten, a Buddhist shrine that holds a lama's ashes. Only a handful of Westerners have reached the remote kingdom in Nepal.



**Audience with a feudal monarch:** In his summer palace at Trenkar, His Highness Angun Tenzing Trandul (right) receives Michel Peissel. The French author and anthropologist learned to speak Tibetan before journeying to the 750-square-mile, 15,000-foot-high kingdom that juts into Communist-held Tibet on Nepal's northern frontier.

Slow-paced yaks of the author's caravan trudge rocky trails through a treeless, eroded landscape. They took 15 days to cover the 150-mile northward journey from Pokhara to Lo Mantang, Mustang's walled capital near the Tibetan border. The route led through one of the great Himalayan river gorges—the valley of the Kali Gandaki between 26,810-foot Dhaulagiri and the rugged massif crowned by 26,504-foot Annapurna. Caravans provide Mustang with its only outside income, bearing salt from Tibet to interior Nepal for payment in silver and grain.



feet. The kingdom pokes like a thumb into Tibet, only three trails link it with the rest of Nepal to the south.

Mustang today forms an integral part of Nepal, but its Tibetan-Buddhist background, as well as a long history of independence, give it a special status within the Hindu realm. While Nepal administers Mustang's foreign relations, the remote little kingdom preserves much of its autonomy under its king, or raja, as the Nepalese call him.

As a matter of policy, the Nepalese Government has seldom permitted foreigners to enter Mustang, situated in a politically sensi-

five zone on Nepal's high Himalayan border with Tibet. One of the few Westerners ever admitted to the tiny mountain state was Toni Hagen, a Swiss geologist who visited its capital in 1952.\* Since 1959, when the Communist Chinese completed their conquest of Tibet, Mustang more than ever before has been forbidden territory.

At Oxford University, and with the aid of Professor Christoph von Fürer-Haimendorf of the University of London's School of Oriental and African Studies, I had planned a survey

\*See "Afoot in Roadless Nepal," by Toni Hagen, NATIONAL GEOGRAPHIC, March, 1960.





of the culture and people of this isolated Himalayan state. Perhaps because I spoke Tibetan, I received the first permit ever given to a foreigner to reside there at length.

I owed this favor to the kindness of His Royal Highness Prince Basundhara, brother of the King of Nepal, to the sympathy of Professor Purna Harsha of the Department of Archeology and Culture of the Nepalese Government, and to the help of members of Nepal's Foreign Office whom I first met in 1959, when I had set out to study the Sherpas of eastern Nepal.

#### Calm Words in Tibetan Reassure an Armed Guerrilla

When permission finally came, reaching Mustang proved an adventure in itself. Two weeks after leaving Katmandu, Nepal's capital, I found myself staring into the barrel of a sub-machine gun held by a fierce-looking man with long hair. I then fully understood the reluctance of the Nepalese Government to allow foreigners in this area. Not only do Chinese Communist troops flank Mustang on three sides, but often-unruly Khamba warriors—anticommunist Tibetan refugees—roam its southern border adjoining the rest of Nepal. As a result, travel in the area, at best uncertain, is also decidedly unsafe.

It was at the top of a high and barren pass that my party met two Khambas. One carried the machine gun, the other a rifle. "*Kale phé,*" I said, as calmly as possible. This phrase means, "Take it easy—go slowly." The two warriors were so astonished to be addressed in Tibetan that they put down their guns and let us go on.

Finding servants and a companion for my journey had been a tricky problem. Bazaar opinion in Katmandu was that we would all be killed by the unruly Khambas.

I finally recruited one servant, a cook named Calay who had accompanied me to the Mount Everest district in 1959. Although I did not appreciate his specialty—chocolate cake filled with garlic—I knew that his bow legs were the only crooked thing about this honest young man.

As for my 21-year-old Tibetan companion, Tashi, he was afraid of nothing. "In 99 years, all creatures living today will be dead," he observed cheerfully. Sooner or later made little difference to him. Personally, I preferred later.

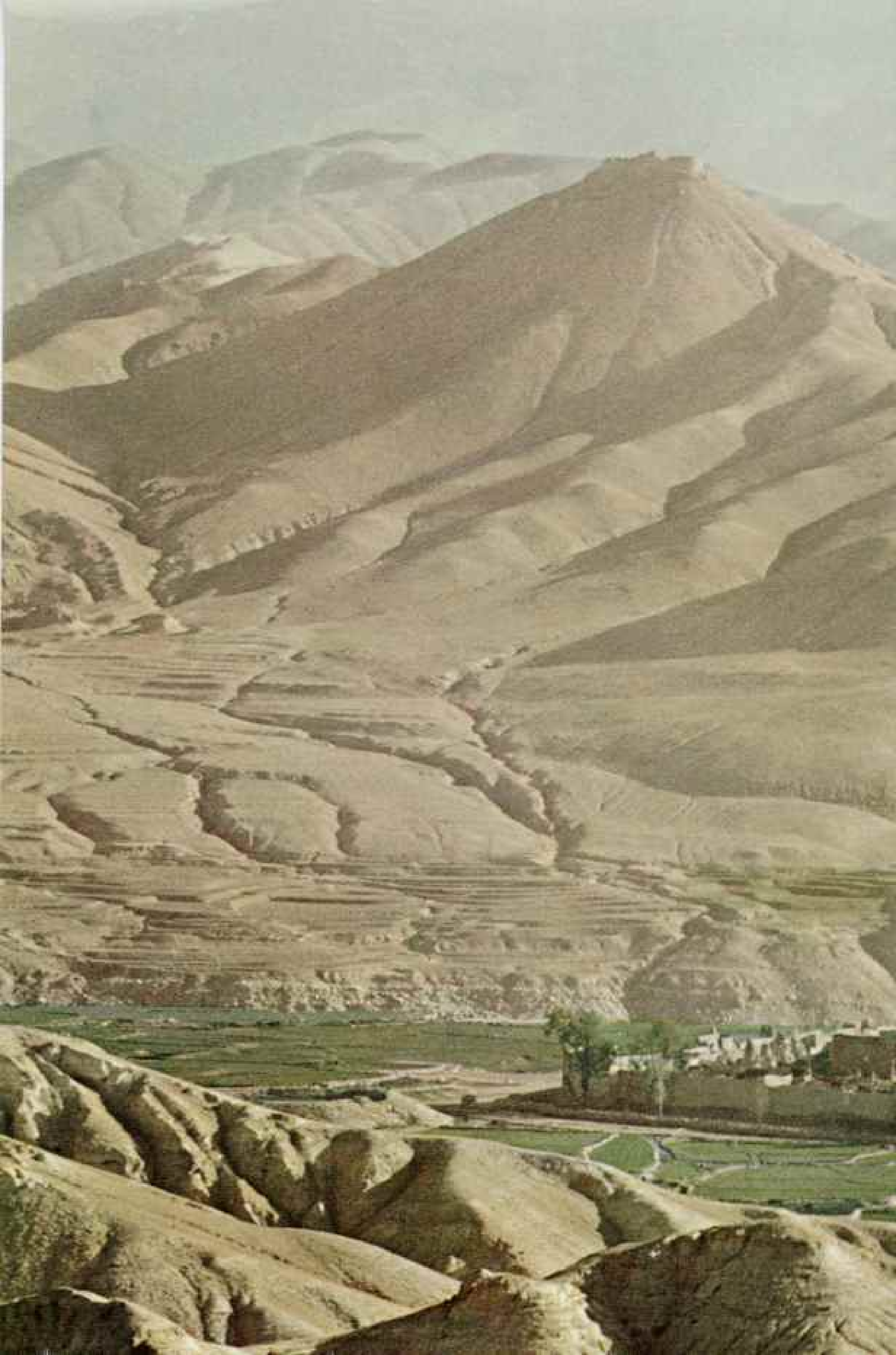
Despite the risk involved in not having a Western companion, I accepted this arrangement as the best way to get to know the people I had set out to study. For two and a half months, the duration of my trip, I spoke only Tibetan (a dialect of it is the language of Mustang). I also wore a Tibetan cloak to be less conspicuous.

Our expedition formed in Pokhara, near the Mustang border, in April of last year. Pokhara is the closest Nepalese town with an airstrip and a hospital. From there, with Calay, Tashi, and 10 porters, I set out for Lo Mantang (maps, page 580).

Rigors of mountain life etched on her stoic face, a woman of Mustang dresses her granddaughter's hair with yak butter. Traders brought the coral for her jewelry from distant seas; Mustangese gleaned the prized turquoise from the kingdom's rock-strewn canyons. Here, as in Tibet, women hold a high place in the social structure and may have more than one husband. Often they marry two or three brothers.





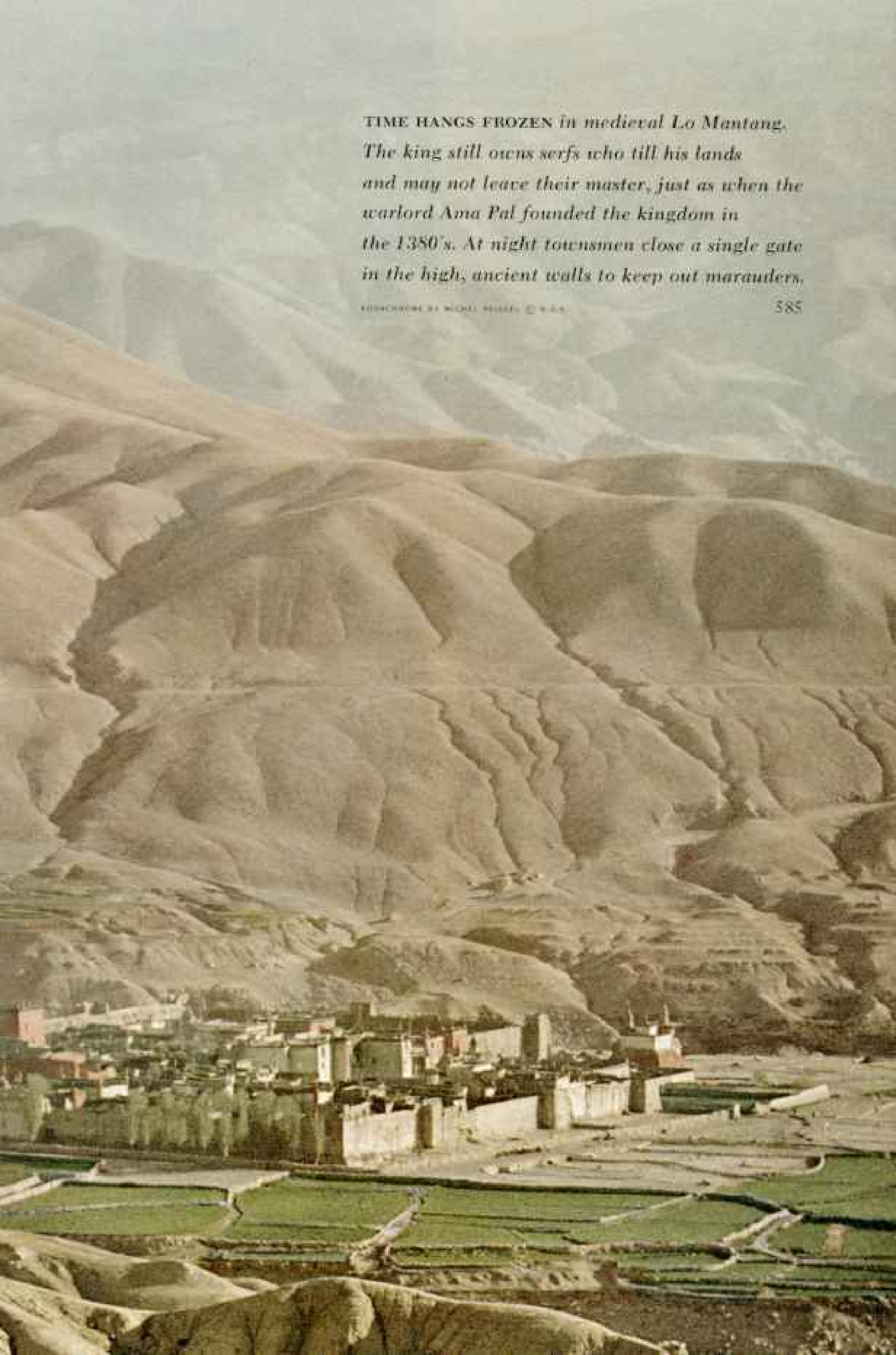




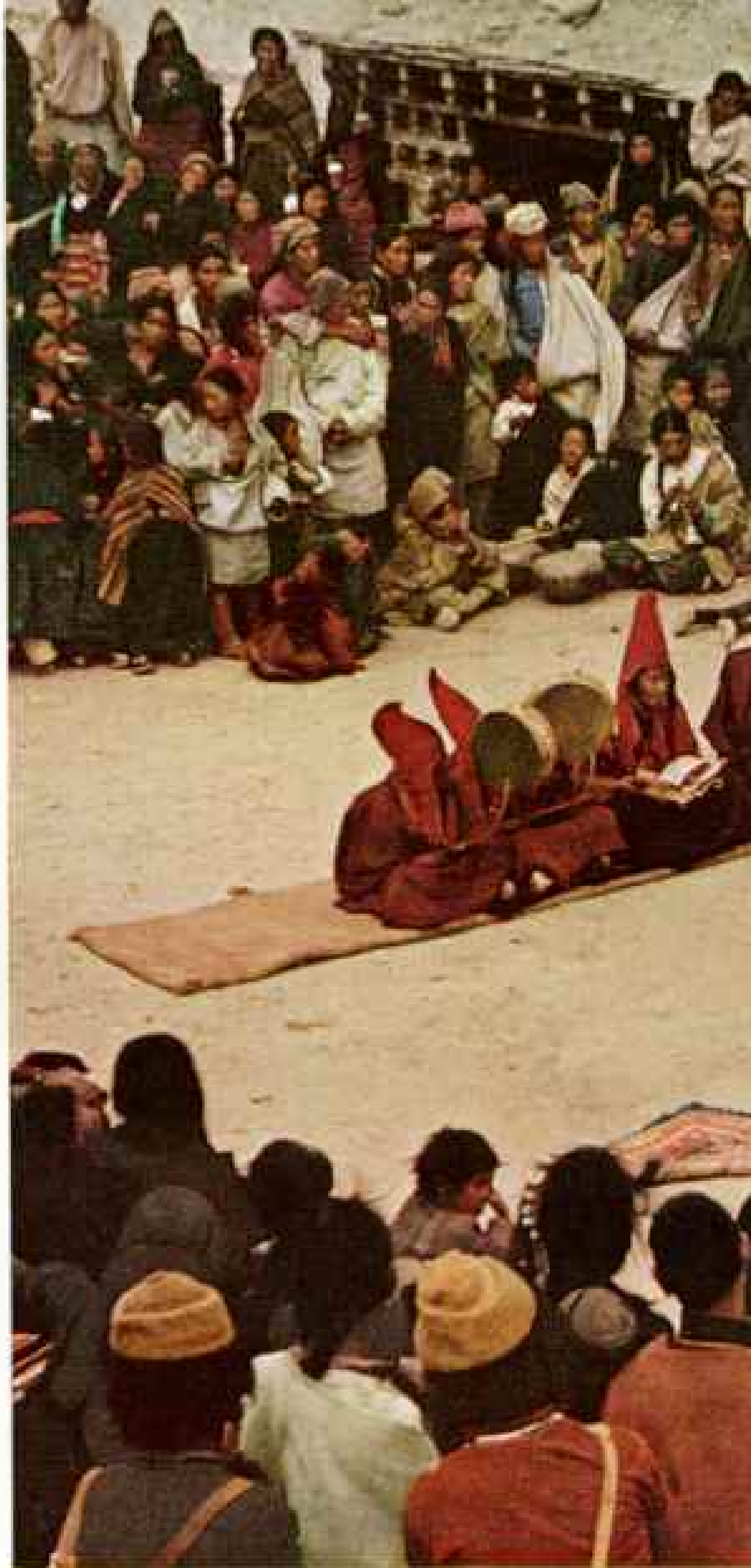
TIME HANGS FROZEN in medieval Lo Mantang.  
The king still owns serfs who till his lands  
and may not leave their master, just as when the  
warlord Ama Pal founded the kingdom in  
the 1380's. At night townsmen close a single gate  
in the high, ancient walls to keep out marauders.

PHOTOGRAPH BY MICHAEL HESSELMAN © 1988

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Crashing resonance of horns, drums, and cymbals marks the "chasing-of-the-demons." Long trumpets that make sounds like lowing cattle telescope for ease in carrying. Sitting cross-legged, monks and lamas sing and pray during the three-day observance in Lo Mantang.



Seven days out of Pokhara, my porters refused to go any farther. Fortunately, however, I encountered four villagers from Mustang with a small herd of yaks, the long-haired cattle of Tibet. For an exorbitant price, they agreed to load my equipment and provisions and take us to their capital.

#### Useful Yak Proves Expensive

A yak is an exceedingly versatile animal. It gives wool for clothing, and the female, called a *dri*, gives milk to drink. Once a year yaks are bled and their dried blood is eaten. You can plow a field with a yak, ride a yak, or load it with a heavy pack. You burn its dung for warmth. Its bushy tail commands a high

price in India as a fly whisk. And when a yak falls over a cliff, its lucky owner (who, by law, is not allowed to kill his animal) inherits as much as 800 pounds of meat.

The yak's only real drawbacks are its horns, its bad character, and the fact that it is incredibly slow. Added to this, yak transport in the Mustang area is incredibly expensive. Only astronomical fees will induce a herdsman to expose himself and his precious animals to the Khambas. I figured that this last part of the journey cost \$4 a mile!

After 15 days of trekking over some of the worst trails in the Himalayas, and our hair-raising encounter with the gun-bearing Khambas, we reached the summit of a high pass



KOBACHHOREE © NATIONAL GEOGRAPHIC SOCIETY

and looked down upon the most spectacular sight I had ever seen. In a lunar landscape of deep canyons and barren ridges reared the mighty mass of a fortified town (pages 584-5). Above the walls towered red monasteries and the white bulk of a palace. This was Lo Mantang, capital of mysterious Mustang.

In three directions I could look into Communist-occupied Tibet. To the south, at my back, rose the great snowy peaks of the Annapurna massif, part of the rarely seen "hidden north face" of the Himalayas.

I led my small caravan down to the town. The sounds of trumpets echoed from a monastery as I walked through a massive gateway, the only breach in the great wall surrounding

Lo Mantang. Townsmen close it every night to keep out brigands.

For four weeks this fortress would be my home. Then I would set out to explore every corner of this strange land, visiting each of its 23 villages and two other towns.

#### Royal Beasts Wear Silver Saddles

A curious throng surrounded us as we unpacked our yaks within the town walls. One of the Lo-bas—as the residents of Mustang call themselves—offered us lodging. That same day I moved into the third floor of a house that belonged to the widow of a duke.

Mustang houses are made of earth and clay packed between wooden boards that are later



Cockscornb-hatted monk chants Buddhist scripture while a demon snarls over his shoulder. The monk holds a Tibetan horn, embellished with silver and gold, and set with coral and turquoise.



Malicious monsters, betokened by scowling masks and threatening swords, are expelled from the capital in rites performed during the New Year's festival. Outside the town's walls, the head lama and his monks symbolically shoot them with a painted arrow, with a stone hurled from a sling, and with antiquated muzzle-loading guns. The spirits flee, and the town feels safe from their evil influence. Policeman-monk (lower right) carries a sheaf of peacock feathers—equivalent of a night stick—to keep order.



Weather-worn ruins remain where an 11th-century fort sheltered a feudal lord and his court. Ocher-painted chortens cluster about the crumbling walls. In the background looms the seldom-photographed northern face of the Himalayas, which walls Mustang off from the rest of Nepal.

Pledged to monkhood, the king's grandson plays with a statue of Norchen Kunga Zampo, a founder of Mustang's monasteries.



removed. The rammed earth retains the grain of the wood, giving the houses the familiar appearance of molded concrete structures of the West.

The king, at his summer palace at Trenkar, had been informed of my coming by a royal messenger who had run with the news from Tsarang, the first Mustang town we had entered (pages 578-9). It was now, with our arrival in the capital, that he sent two Tibetan ponies with silver saddles and elaborate harnesses to take me and Tashi to the palace for an interview—and I had to buy a kata for the occasion.

In the dimly lit throne room of the palace, I found 30-odd men, some dressed in rough sheepskins, others in fine silk brocade. This was the court—servants and wealthy nobles who spend most of their day attending the

king or deliberating affairs of the small state.

To one side, seated cross-legged on a sheepskin rug set upon a wooden throne ornamented with red and gold painted dragons, sat King Angun Tenzing Trandul—a solemn man of about 65 years (page 580). He wore his long hair in the Tibetan manner, braided and wound tight around his head and held in place by a bright red ribbon. A dark red cloak draped his shoulders.

#### King and Visitor Wait for First Words

Silence fell on the assembly as I entered. Pulling out my kata, I bowed deeply before the king, presenting the scarf with a gesture that I hoped reflected "reserve and modesty." The old man smiled and, not saying a word, indicated an orange-carpeted cushion by his side. I took my seat.





© SHARON BIRD © NATIONAL GEOGRAPHIC SOCIETY

A long, embarrassed silence followed. No books could have instructed me on the protocol of this court, at which I was one of the first Westerners ever to be received.

For five long minutes I sat nervously in dead silence. The king and his attendants just stared at me. I returned the stares, marveling at everything around me. Half a dozen dogs roamed the throne room, chickens popped in and out the door, a dove cooed in a cage at the king's foot, while ornate silver teacups lined low tables—a startling combination of wealth and primitivism.

The king bent over and picked up a thin-necked silver jug, beautifully embossed. He brought the narrow neck of the jug to within a couple of feet of his face and, to my surprise, spat into it with grace! Having thus cleared his throat, he said simply, "*Kare re?* What is it?"

"We come to pay our respects to Your Majesty," uttered Tashi shyly. We had agreed that he should speak first, since he knew the high honorific court language of Tibet. I had had enough trouble learning colloquial Tibetan, without trying the high honorific phraseology used in addressing great monks, nobles, and royalty.

"Excuse me, I am ashamed," I said, "but I speak Tibetan like a peasant." The king was startled, both shocked and pleased. Shocked because I had addressed him in what could be compared to vulgar slang, startled because I spoke his language at all.

This, though, broke the ice. Smiling, the king asked me where I came from. "I am French," I said. A blank expression met my answer. "I come from very, very far away," I explained—"from France."

"Is France near Lhasa," asked the king, "or the island of America?" It was then I learned he was unaware that the earth is round.

The king asked innumerable questions about me and my purpose in his land. "I came to study the history of your kingdom, and its customs, to see its books and visit its monasteries," I said. All present nodded approval.

Abruptly, the king asked me: "Will the Chinese invade Mustang?"

Taken aback, I answered, "I do not think so." I tried to explain that I was not a government official. "I am sure the Chinese will honor their border treaty with Nepal," I added, alluding to a 1961 agreement that reaffirmed Mustang's inclusion within Nepal.

"I and my people are afraid," the king said. "We hear great explosions from Tibet that bring the hills crashing down."

I later learned that the lights of a Chinese army camp could be seen from the hills of Mustang. Some of the Lo-bas had also seen "giant rumbling monsters"—trucks—just beyond the border. The king may not know

that the world is round, but he is well aware that his land may be thrown into today's political conflicts in Asia.

As our audience neared its end, the king waved to one of the Lo-bas in attendance. Coming forward, the man touched his knees, then the ground, and finally prostrated himself before the king. Then he seated himself at the foot of the throne. Taking a pointed stick and a flask of black ink from the fold of his coat, he began to write on a large piece of handmade brown paper as the king dictated:

"I request that these two foreigners [Tashi and I], who are one person, should be allowed assistance and their questions answered in every monastery of my realm."

The king, with a silver signet, affixed his seal to the bottom of the page. He then pointed to a man in his mid-thirties, seated opposite me, and said, "This is my son. His stomach aches. Have you any medicine?"

I questioned the king's son and found that he had just returned from Katmandu. Beyond doubt, he had caught dysentery, a disease that



Straw-stuffed pelt of a snow leopard will hang from a monastery wall as a gift of the hunter. Despite the Buddhist ban against taking life, these upland predators may be killed in self-defense or to protect livestock. Otherwise the Mustangese—except for one lowly tribe, the Shemba—strictly abstain from killing animals. This leopard's skin measured nine feet from nose to tip of long tail.

Fingers pointing at the sky, chortens echo the uplift of Mustang's mountains. The Buddhist monuments rise nearly everywhere—on lonely peaks, along secluded trails, at entrances to villages and towns, and on corners of houses. A wayfarer gains religious merit by passing the shrines on his right; through long usage, even horses and yaks follow the custom. Each year, the chortens get fresh stripes of paint made from colored clays.



often afflicts Tibetans who journey to lower, warmer lands. I gave him a common stomach remedy and momentarily forgot his case.

The old king, I learned, had been out of his own land as far as India to visit the great Buddhist shrines. He had brought back the pair of horn-rimmed spectacles that struck the only oddly modern note of his attire.

From the king, and later research, I learned that Mustang was founded in the 1380's by Ama Pal, a fierce soldier who had conquered the 20 great fortresses whose mighty ruins overlook the present villages of Mustang. Angun Tenzing Trandul claims to be the 23d king in line since Ama Pal, and he is one of the last remaining kings of a pure Tibetan culture. In Tibet itself the ancient small kingdoms were long ago united under the rule of the god-king, the Dalai Lama, who now lives in exile in India.

When China overran Tibet, Mustang was spared because a 160-year-old agreement made the King of Mustang a loose tributary to the Hindu Gurkha kings of Nepal.

According to this old treaty, Mustang still pays to the Nepalese authorities each year 886 Nepalese rupees (\$120) and one horse. In return the King of Mustang, who also holds the honorary title of Colonel of the Nepalese Army, is allowed to administer his kingdom.

#### Western Clothing Fascinates Mustangese

Shortly after I settled in Lo Mantang, an old woman came up to me and pinched my arm. When I turned, I found that she and a small crowd of women were trying to learn what my clothes were made of. I soon realized that these Lo-bas were unfamiliar with the smallest of Western technological inventions.

The only manufactured goods that reach Mustang are the rich gold and silk brocades imported from China across Tibet by yak caravans. These brocades furnish the monks and the rich nobles with elaborate shirts that are worn on festive occasions beneath their rough woolen sheepskin-lined cloaks. All other material for clothes is woven from the wool of the many goats that roam the high





hills. Women spin and weave goats' wool (pages 600-601) while men—especially in the winter months—twine yak wool into thick strands to make their knee-high boots.

Wherever I went I was escorted by curious onlookers, many of whom had never before seen a foreigner. All marveled at my aluminum pots and pans, even the texture of my tent; grownups would fight over the empty tin cans I threw away. Matches are unknown; everybody has his own flint and steel.

Mustang, I discovered, is above all a sacred land. The very name is derived from the words *sMon Thang*, meaning "the plain of prayer." Some 600 of the land's 8,000 inhabitants are monks. The state religion is Tantric Buddhism of the Sakya-pa sect, very similar to the Buddhism of the Dalai Lama.

In Mustang stand some of the most remarkable monasteries left outside Tibet; at least two had been served in the past by as many as 1,000 monks. Three of the monasteries were cut into vertical cliffs, accessible only by ladders and tunnels hewn in the rock.

#### Demons Haunt the Mountain Kingdom

Twelve dukes, 60 monks, 152 families, and eight practicing witches sleep every night within the great sheltering walls of Lo Mantang. With the town's only gate tightly shut, I expected that everybody would slumber quietly. This is not so; the entire population goes to bed in fear.

It is neither the Chinese soldiers nor the Khambas that worry the townspeople, but the 416 demons of land, sky, fire, and water.

Thousands of expedients have been employed to fend off these evil spirits that cause the 1,080 known diseases as well as the five forms of violent death. Butter lamps burn before altars in the private chapel of every residence; monks, dukes, and peasants recite prayers throughout the day; thousands of prayer flags flutter on poles; prayer wheels and prayer walls clutter every open space.

But still the spirits prowl, especially at night. Even the intricate demon traps set on every house (page 596), and the horse's skull secretly buried below each doorstep, cannot stop them. When the sun sets behind the eternal snows to the west, no resident is truly safe.

On the first day of the fourth lunar month of the Tibetan calendar (May 10, 1964), I was awakened by the shrill sound of a whistle. The noise came from a flute made of a human leg bone—an instrument frequently used by monks. From the flat roof of my house, I gazed down upon a ceremony unfolding in the town

square. It was to last three full days, filling the air with the chilling sound of cymbals and the morbid drone of drums, some made from human skulls. This was the annual "chasing of the demons," usually held at the beginning of the New Year, but delayed for some reason last year (pages 586-9).

The square had the appearance of a monastery. Monks sat on red carpets, and more than 60 of them assisted the High Lama of Lo Mantang, who officiated dressed in a vivid brocade gown with a hat representing two dragons and human skulls. A sturdy "policeman" monk patrolled the crowd of onlookers; in his hand, instead of a night stick, he carried a sheaf of peacock feathers.

On the third day the ceremony reached its climax. A mighty shriek ushered in three dancers dressed as devils. Brandishing swords, they cast their spells about the assembly.

Suddenly, as if panic-stricken, everybody rose and rushed screaming for the town gate. Outside the walls, the lama shot a sacred arrow into a symbolic offering representing one of the evil dancers. The crowd cheered as the arrow hit its mark, and away ran one of the demon dancers. The operation was repeated with sling and stone, and another demon fled. Then 15 men with old muzzle-loading muskets fired at the third offering, and the last of the demons disappeared.

#### Sharing a Room With a Corpse

Had I died in Mustang, I could have chosen from quite a variety of funeral services. Following Tibetan Buddhist custom, I could either have been cremated, thrown into a river, buried, or I might have been chopped up into small squares and fed to the vultures, thus disappearing into thin air. In this manner the human body is believed to return to the four elements of which it is composed: fire, water, earth, and air.

To the four traditional ways of disposing of the dead, Mustang adds a fifth method reserved for a man who dies leaving neither sons nor grandsons. His body is preserved in salt and then enclosed in the walls of his house. When finally, in the third generation or beyond, a boy is born, the dead body is taken out at night and secretly carried to a nearby hill, where the corpse is "traded" to the evil demons against a guarantee of long life to the newborn male heir.

To my discomfort, I learned one day that a body lay within the walls of the private chapel in which I had been sleeping as the honored guest of a noble family in Lo Mantang.

Thereafter I felt as if I were sleeping in a tomb.

A week after my arrival, Pemba, a Lo-ba who had befriended me, scrambled up the notched tree-trunk ladder that led to my terrace. "The king's son is very ill and is going to die," he panted. "People say you are responsible, that you gave him medicine."

The news struck me like a blow.

"You should never have given him anything," said Tashi. "These people are simple and uneducated, not like those of Lhasa."

This did little to cheer me. I quickly took a bottle of antibiotics from my medical kit. This will do the trick, I thought, while I sent Tashi to hire ponies.

A short time later we clattered up the stone steps that led to the king's summer palace. As we dismounted, my heart sank. We were too late. Before the door smoldered a small yak-dung fire beside three red-painted stones placed one upon the other. These meant that someone was seriously ill inside, and not even a close relative could enter.

On returning to Lo Mantang, I was told that local doctors had gone the day before to the patient's side. Their "medical" bags, I knew, would have contained dried frogs and similar ineffective delicacies.

For three whole weeks the yak-dung fire was kept smoldering before the palace gate while the king's son lay between life and death; there was nothing I could do but ponder the consequences should he die.

Awaiting reports of the royal patient, I set out with Tashi to investigate the nearby monasteries. Frescoes covered the walls of the inner chambers of these sanctuaries; every corner was a work of art. From the ceilings hung beautifully painted religious scrolls (page 603), while the altars bore gilt-copper statues of famous lamas and great divinities. Most striking of all was the gigantic figure of Maitreya, the "Buddha who is next to come," standing three stories high in one of the main temples of Lo Mantang.

Seated cross-legged in the dimly lit sanctuaries of these monasteries, Tashi and I pored over the many books stored there in pigeon-hole racks. With a great thud, large silk-bound volumes, some weighing as much as 50 pounds, were dumped before us by the monks to whom we showed our royal letter of introduction. Tashi proved invaluable in translating the intricate Tibetan literary language; it differs from both colloquial Tibetan—which alone had taken me six years to learn—and the honorific phraseology.

Some books were very old and plain. Others



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Spinning prayer wheel filled with printed verses sends supplications heavenward. Lo-ba woman wears a beauty patch beside one eye and fastens her scarf with one of the few modern devices the author saw in Mustang—a safety pin.

Night-roaming demons by the hundreds make demon traps one of life's necessities in Mustang. They hang over the doorway of every home, snaring spirits before they can harm the occupants. Pictures represent the household, extending to each member the benefits of the trap. Ram skull and sacred formulas bring protection. Such traps represent a survival of the pre-Buddhist Bon religion, which intermingled over the centuries with Tibetan Buddhist practices.



**Mountain mystery:** Who carved these beehive caves in the fluted, wind-worn cliffside? No local tradition accounts for their existence. The author found 29 such sites in Mustang, each containing more than 50 caves, many of them interconnected by hidden passages. Today, most of the caves can be reached only with climbing equipment. In a few places, monks have taken over the more accessible chambers, using them as monastery cells.









the villages. Surrounded by green fields of barley and buckwheat, these villages resemble oases on the moon.

The Lo-bas' frugal diet centers upon ground barley, complemented by yak's milk and cheese. Nevertheless, only the salt trade between Tibet and Nepal enables Mustang to survive. The Lo-bas fetch the salt from Chinese-held Tibet, loaded on yaks, goats, or ponies. They transport this precious merchandise over the mountains to Nepal, where they trade it for grain and silver coins.

One day, a salt trader told me: "The Chinese know everything that you are doing."

Having nothing to hide, I did not care. But out of curiosity I asked, "How do you know?"

"I told them," came his naive reply!

In the rivers that course through the barren canyons of Mustang lies hidden wealth—gold. Surprisingly enough, the kingdom's inhabitants regard extracting the precious metal as

**Jeweled lady, her hair in braids, displays Mustang high fashion. Turquoises, silver brooch, and Chinese brocade attest her wealth.**

had silver covers inlaid with thick gold characters. One day we were lucky enough to stumble onto a manuscript of the history of Mustang from the 1380's to the present day.

This unique manuscript proved that the small mountain state boasts a long and continuous history. In the past, Mustang had apparently been a relatively rich kingdom. The ruins of abandoned towns and monasteries support the written evidence. Mustang had also played a significant political role in the past, particularly after the Tibetan-Nepalese war of the 1850's when, for his services in the peace negotiations, the king had been granted three peacock feathers—one from the Manchu Emperor of China, one from the Nepalese Maharaja, and one from the Dalai Lama. The king still wears three feathers in his large-brimmed ceremonial hat.

So high and barren is this land that not a single tree grows wild on its wind-swept hills. The kingdom's few trees grow only near streams or in irrigated gardens, where they are watered and pampered like flowers for the pleasure of royalty and the lords of the land.

At first I was amazed that humans could survive in such high and desolate terrain. The Lo-bas manage to live only through their ingenuity and trade. Elaborate irrigation canals bring water from deep mountain gorges to



a task far beneath their dignity. Turquoise, however, is avidly sought.

To me the high cliffs and deep gorges held a treasure far more valuable than any jewel. There I found a multitude of man-made cave dwellings carved into the inaccessible cliffs (pages 596-7). Who had lived there and when I could not tell. To reach these rock towns (some had as many as 200 cells visible from the outside) would require intricate cliff-scaling equipment. In all I counted 29 such cave towns, each with more than 50 separate units. One day I hope to solve the mystery of these mysterious dwellings.

I had been in Mustang for four weeks when Tashi brought me good news. "The fire is out. The king's son is better." Next day, on foot, I went to the palace again. Contrary to my apprehension, I was well received. The king readily answered all my questions.

While we sat talking, a servant filled my

cup again and again with Tibetan tea. Made of rough leaves and brewed with an equal weight of butter and salt, Tibetan tea is really a kind of soup. My royal host even had a raw egg put into the tea to please me. Attempting to smile with approval, I kept gulping the strange liquid from my never-empty cup.

#### Everybody Works for the King

The king, I found out, is not alone in administering his domain. Dukes and district lords assist in the task. Every family in Mustang has a particular duty to perform. Some peasants operate the royal messenger service, standing at the king's disposal to carry letters and his belongings from town to town. Others must provide their king with fuel; still others must maintain his household. Some are serfs—men attached to the king's land who cannot own private property or leave their master.

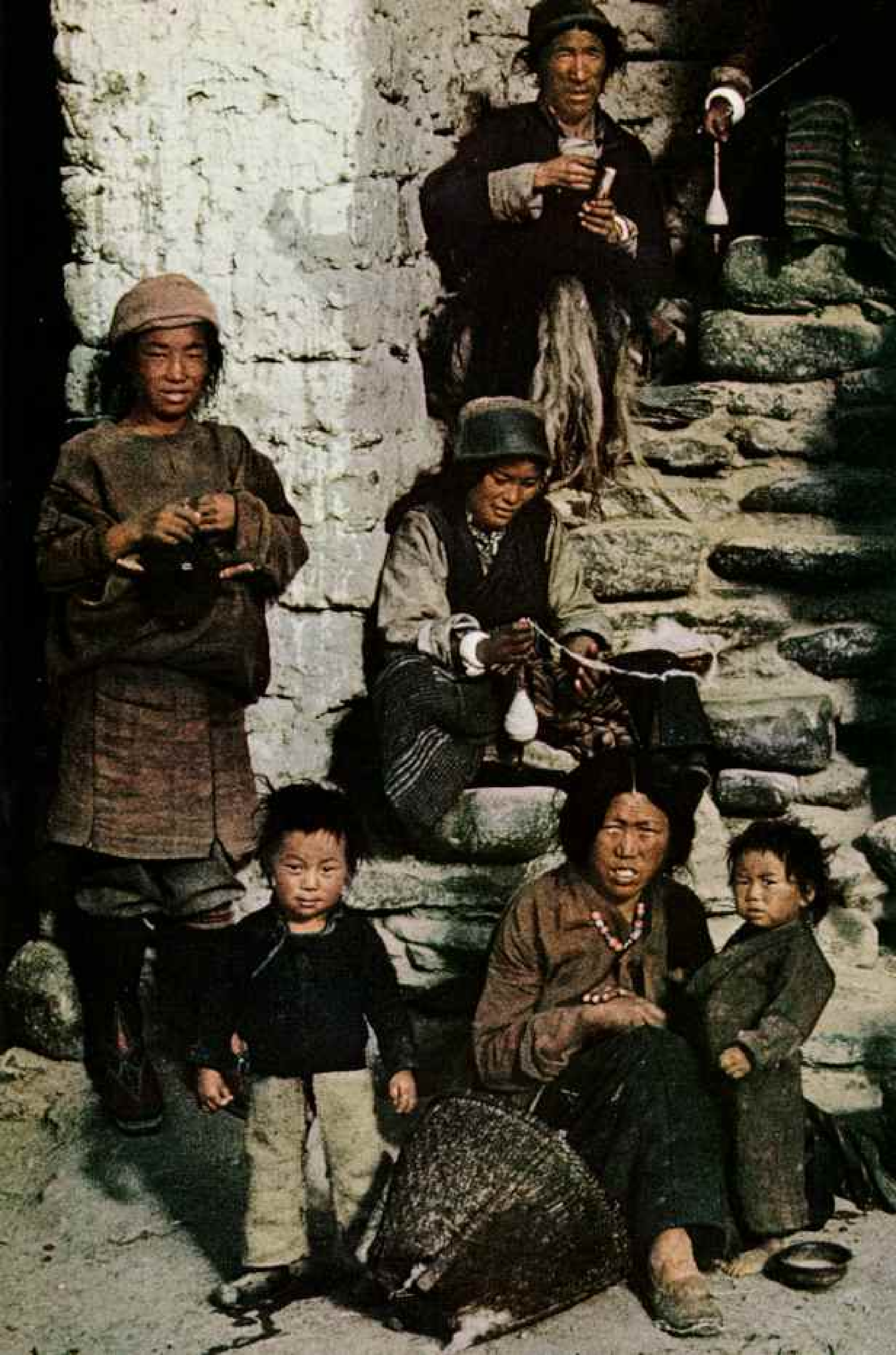
Scratching the stony soil, plowmen prepare the king's fields at Phuwa for barley and buckwheat. They work with a team of *dzos*—offspring of yaks and cattle. Trees (right background) grow at this altitude only near water and in gardens.

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In many respects Mustang resembles a small feudal state of medieval Europe, though in Mustang possibly more people know how to read and write. Children are taught at home or in monasteries. If a family has two sons, at least one enters religious orders when he is eight or nine years old.

This was the case with the king's second son, now living secluded in a great monastery in the town of Tsarang. Although a monk, he had disregarded his vows of celibacy and had married. A year before my arrival his wife had died. To atone for his impious youth and to gain merit, he had voluntarily confined himself to a room above the monastery to pass three full years. Normally, his only visitors were close relatives.

#### Secret Name Foils Demons

The young lama received me—as a Westerner I was a curiosity throughout the kingdom—and even invited me to share his seclusion. We passed many hours seated together before the elaborate altar in his cell. There he gave me a new name.

Hundreds of butter lamps flickered before the pensive faces of gilt statues. The lama recited prayers for a whole day; then, after a night of meditation, he gave me a folded piece of paper. Written on this was my new name.

These given names are often kept secret; had I wanted to do so, I could have hidden the paper in a small bag to be carried around my neck. When I died, the monk performing one of my funeral rites would open the secret bag, look at the name, mutter it in his prayers, and then burn the paper. No demon would learn my identity.

Grouped in a sunny corner of Lo Mantang's main square, women spin goats' wool for clothing, while men twine yak hairs to make material for boots, a common division of labor. Shy maiden (right foreground) hides her face from the camera behind a basket.



My new name was Shekagari or “Crystal Clear Mountain”—rather more poetic than Migser sNaringpo, “Yellow-eyed Longnose,” as some local children irreverently called me.

One day I strode into a village to find all the men sitting in a field. Some drank chang—barley beer—in silver cups; some twined yak wool; others turned prayer wheels.

I inquired what was going on. To my surprise I learned that this was a local court of justice, its members in calm deliberation.

Crimes and offenses in Mustang go either before a village court, supervised by an elected “wise man,” or before the king.

With wry humor, the populace knows the king’s court as “the golden yoke,” since both parties to a dispute usually end by paying heavy fines to the king.

In Tsarang I inquired as to the fate of thieves. A man took me to the great castle of the king dominating the town and led me to a small dark room. There I saw great ancient





**Painstaking artistry of Buddhist monks:** In this detail of a tanka—a painted cloth scroll—a small army hides in the woods behind a monastery.

**Like breaking surf,** white-capped mountains crest above the high plain northwest of Lo Mantang. Green cultivated fields quilt the flatlands surrounding Trenkar (left background) and Phuwa (foreground). “I and my people are afraid,” the king told Mr. Peissel, referring to the Communist Chinese beyond the ridgeline. “We hear great explosions from Tibet that bring the hills crashing down.”

swords, bows and arrows, old muskets, and a coat of mail. The man picked up an object and handed it to me. I saw to my horror that it was a shriveled human hand.

“This,” he said, “is what we do to thieves.”

#### Several Husbands for One Wife

Every day brought startling new information about the Lo-bas. Men and women, I learned, ate the same food, but differently prepared. What was good for a man was

judged unfit for women and vice versa.

As in Tibet, polyandry is practiced in Mustang; a woman can have two, sometimes three, husbands. Mustang history chronicles several reigns of one queen wed to three kings.

Two months in Mustang almost exhausted my provisions. I tried to eat the local diet of barley flour, but found that it contained too much dust and too many tiny pebbles for my stomach and teeth.

I had now been to every corner of the land,



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Ragged Shemba tribesmen butcher a yak. Considered "unholy," they alone may kill animals for food. Many of Mustang's people, however, eat the meat thus provided. Shembas may not live within Lo Mantang's walls, remaining a class apart.

seen every village, and spoken to practically all the inhabitants. I had even started to feel like one of the Lo-bas, who consider washing an unhealthy, harmful practice. Dirt cakes children and adults alike. I realized that I, too, had not had a bath since I arrived.

In my farewell visit to the Tsarang lama, son of the king, I found out that apparently I myself possessed many "disgusting habits."

"Do you really eat chickens and fish?" asked the lama in disbelief. When I admitted it, he laughed at the joke.

"I am sure," he said, "that you could not do such a revolting thing!" I never had the courage to tell him that in France we even eat snails, frogs, and sometimes horse meat.

Lo-bas avoid the killing of all animals, even rescuing flies when they fall into a cup of tea, and fleas are carefully plucked and thrown away alive. Buddhists consider killing as evil, because they regard animals as low reincarnations of human beings.

Animal slaughter is a monopoly of the Shemba, a lowly tribe that kills the yaks,

goats, and sheep eaten by much of the population but never by monks. These Shembas, together with the Garas, a blacksmith class marked as unholy, are not allowed to live within the walls of the capital of Mustang. When a member of these lower orders enters a man's house, he must stay by the door bending low, his sleeve before his mouth.

The last of my stores gone, I prepared to leave Mustang. I knew that beyond the great Himalayan range to the south the monsoon was building up. Soon heavy rains, landslides, and vicious blood-sucking leeches would end travel down the deep gorges of the Kali Gandaki toward the lowlands of Nepal and the outside world.

The day I set out, the Tsarang lama gave me as a present a small Tibetan long-haired terrier. "Please accept this gift. Take the dog to your country," he said.

Then he added wistfully, "Is it not strange that this dog will fly in a sky boat [an airplane] and see so many strange lands, while I remain here in Lo."

## SIX-MONTH INDEX

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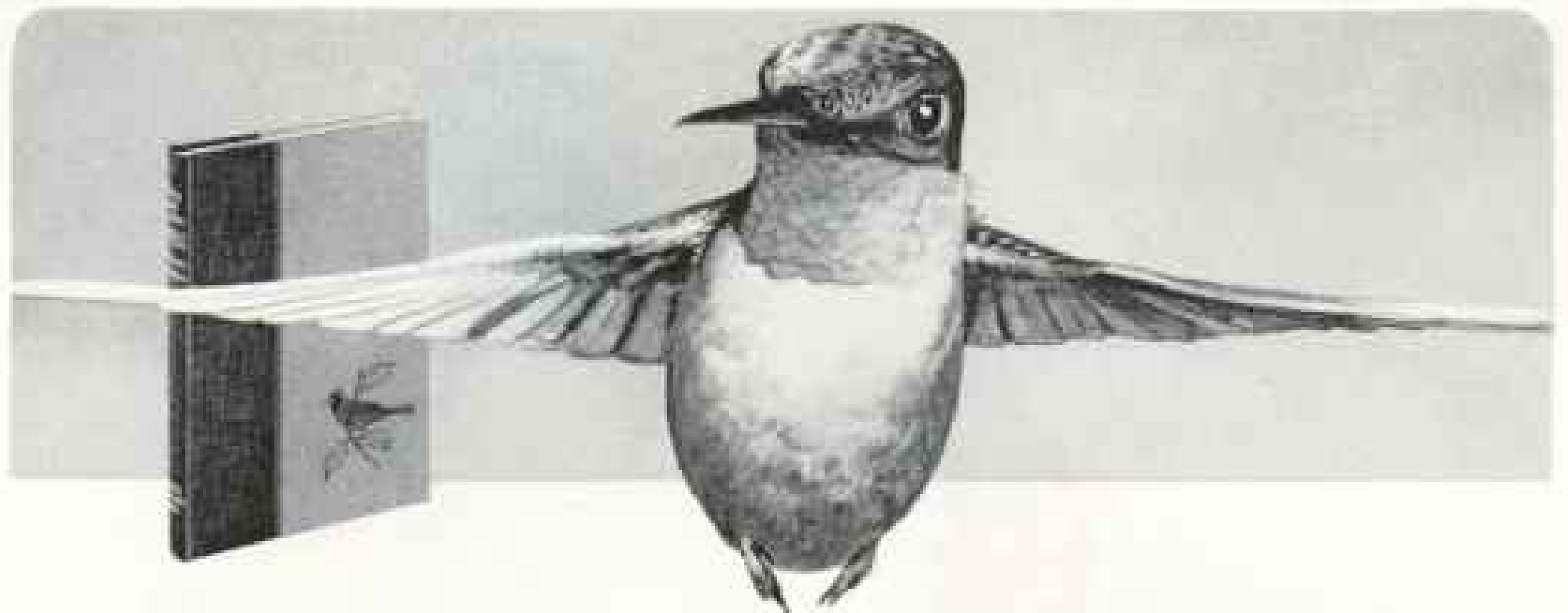
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