SPECIAL MAP SUPPLEMENT: VIET NAM AND ITS NEIGHBORS (page 42)

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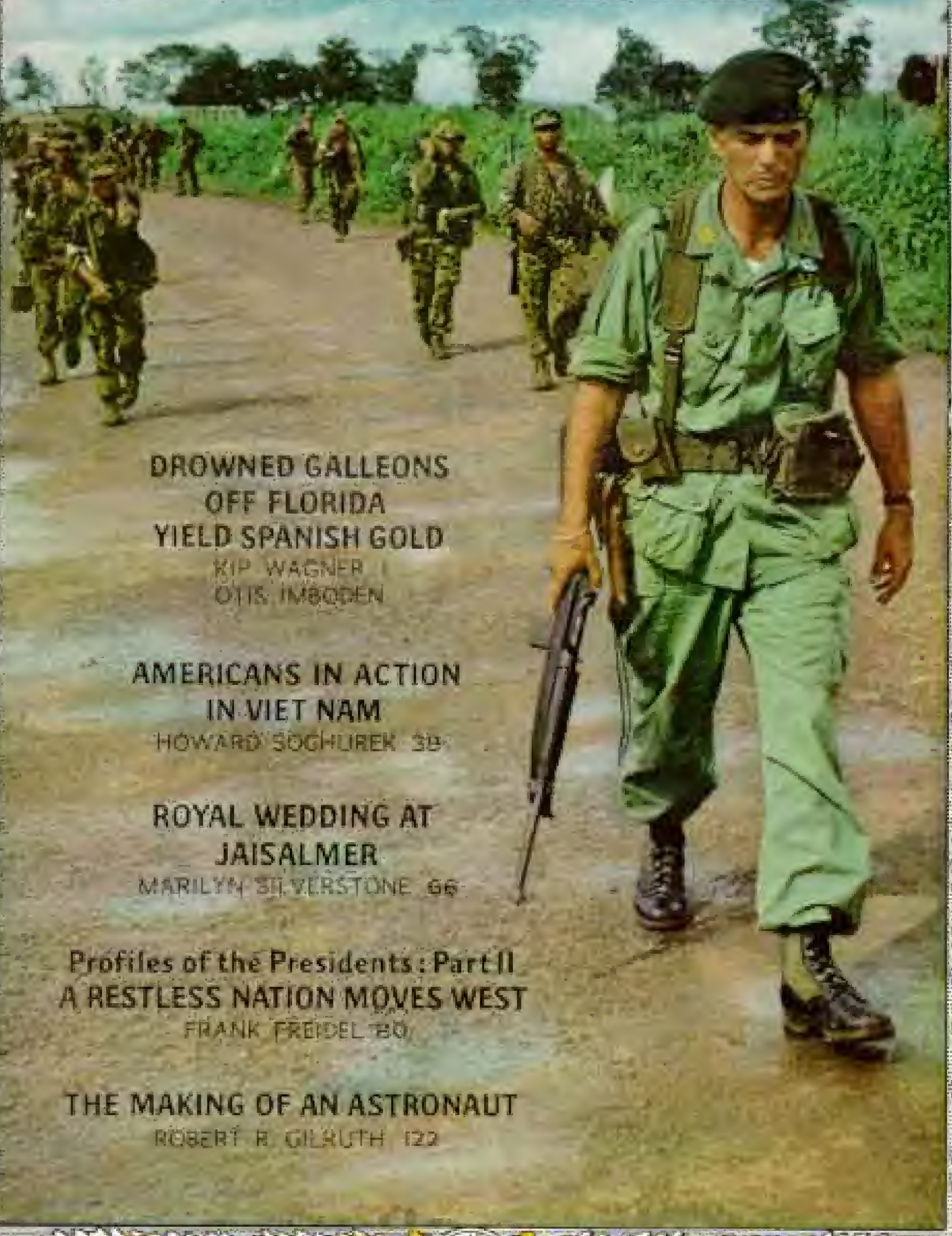
NATIONAL GEOGRAPHIC



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THE JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D. C.

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◀ **COVER:** Maj. Edwin E. Brooks leads Vietnamese *montagnard* rebels back toward their camp (page 49)

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Chief Cartographer Wellman Chamberlin (center) reviews final proof of the new sheet's Antarctica section. At left, the capital of one-time Netherlands New Guinea, now part of Indonesia, becomes Sukarnapura; in Africa, Nyasaland gives way to a free nation, Malawi.

Throughout 1965, members will receive not only a unique, exciting magazine each month but other map supplements. Let your friends share these rich benefits by nominating them for membership on the form below.

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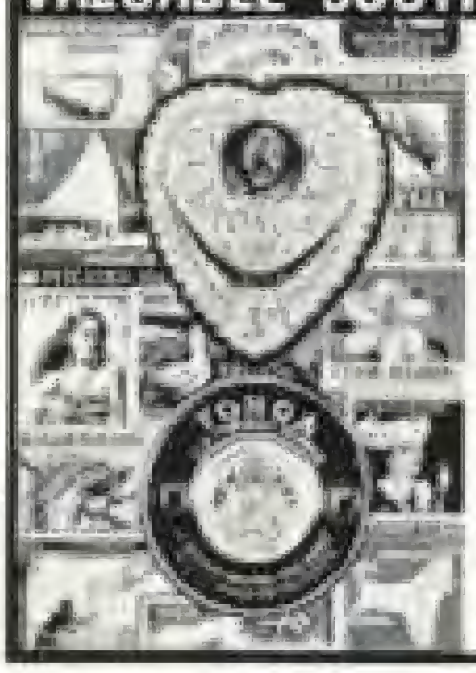

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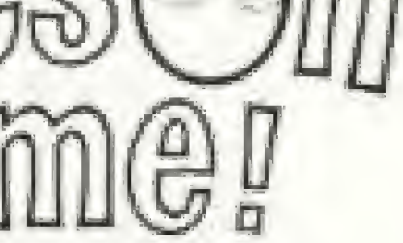

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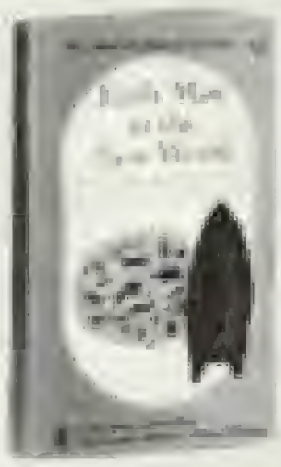

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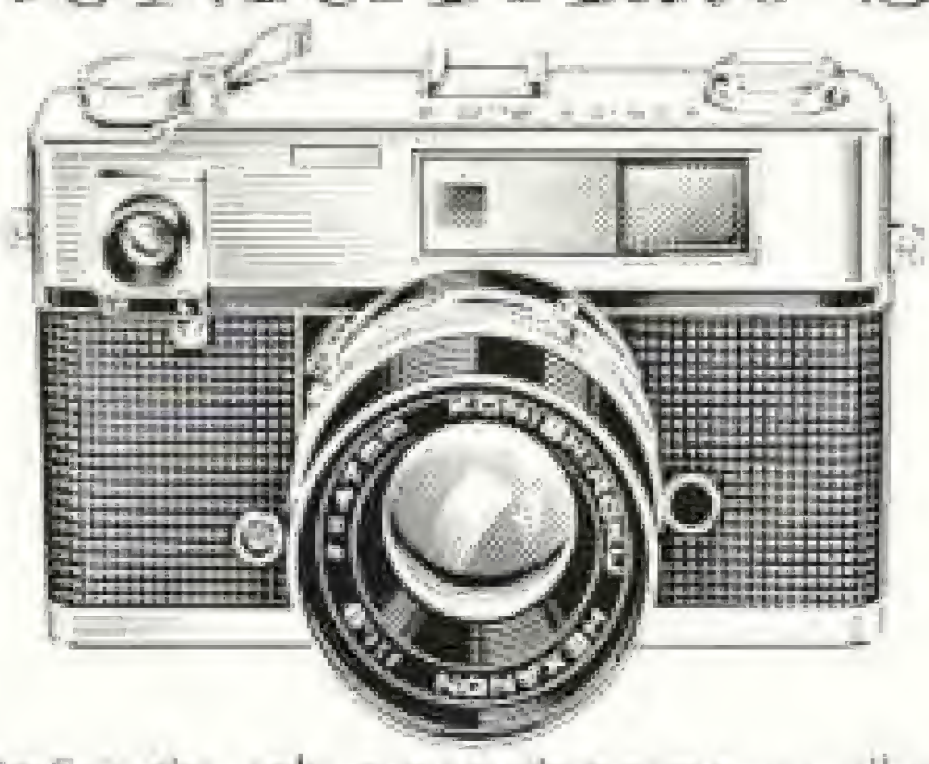

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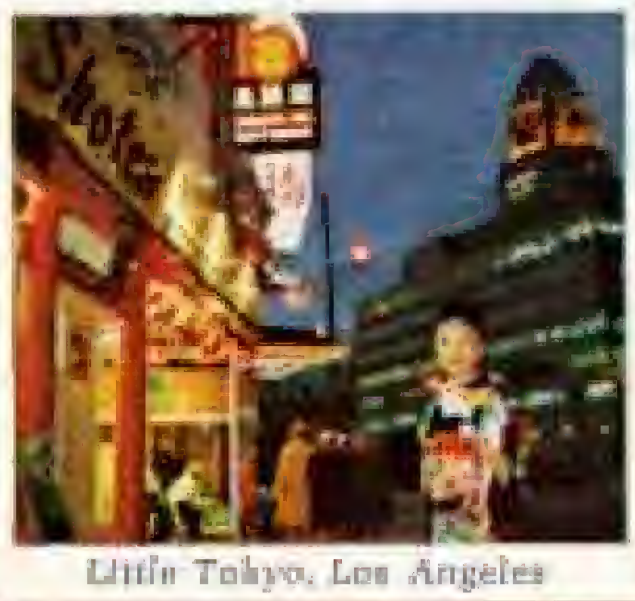

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January
1965

NATIONAL
GEOGRAPHIC

Drowned Galleons Yield Spanish Gold

Adventurous divers in Florida bring up the 20th century's richest find of sunken treasure

By KIP WAGNER

Photographs by OTIS IMBODEN
National Geographic Staff

SUNKEN TREASURE. What magic these words hold! I suppose there is hardly a man—or woman—alive who has not thrilled to stories of silver pieces of eight, of drowned Spanish gold, of pirate treasure. Those of us who grew up on *Treasure Island* still hear, echoing faintly across the years, the screeching cry of Long John Silver's parrot: "Pieces of eight! Pieces of eight!"

Romantics like myself take leave of these childhood dreams reluctantly, telling ourselves that such tales have little basis in fact.

In a recent book on sunken ships I read: "In today's world, 'pieces of eight' and silver bullion aren't likely to be found outside the pages of adventure books. Nevertheless it is still true that the coasts of the United States . . . are dotted with sunken vessels. . . ."

It is indeed still true, and I found that not all the pieces of eight and silver bullion lie in "the pages of adventure books." In Florida waters my associates and I have recovered more than a million dollars in treasure from the rotted remnants of Spanish Plate Fleet ships lost 250 years ago. Our finds have included heavy ingots of silver and gold, magnificent jewelry, gold coins in mint condition, silver dishes, delicate K'ang-hsi Chinese porcelain, thousands of pieces of eight, and several beautiful chains of purest gold.

Hurricane Buries Familiar Beach

One of nature's most powerful forces, a hurricane, sent those richly laden Spanish galleons to the bottom. And, appropriately, my own improbable tale begins with the aftermath of a hurricane 10 years ago.

On a hot still afternoon, after two days of screaming winds, I stood on the low sand bluffs near Sebastian Inlet north of Vero Beach, on Florida's east coast. I was bewildered. The familiar foreshore along which I had beachcombed for so long had been completely altered.

Cloud debris littered the sky to the northeast. The Atlantic heaved lumpily against the

The Author: Housebuilder turned treasure hunter, Kip Wagner directs a team probing sands and shallows of Florida's east coast. From the remains of the Spanish Plate Fleet that sank in a hurricane in 1715, he and his divers have recovered riches worth more than a million dollars. These golden 8-*escudo* pieces, also known as doubloons, bear the shield of Spain's Philip V on one side, a cross on the other.

INGOTS OF GOLD, *gleaming doubloons, and delicate Chinese porcelain stood beside the sea that hid them for two-and-a-half centuries. Three ships and nearby beaches yielded the treasures; five unexcavated vessels may hold other wonders. These relics lay under 15 to 30 feet of water near Sebastian Inlet, 15 miles north of present-day Vero Beach, where the richly laden fleet came to grief.*

horizon, and the dull green surf broke listlessly at my feet. Fifteen feet of the bluff overlooking the beach had washed away, and with it the secret path by which I had come here for the past six months.

As I walked along the water's edge, kicking at bits of purple and green seaweed, something too bright to be a seashell gleamed through a welter of wrack and sand. I picked it up. It was a polygonal piece of silver, stamped with a cross and the arms of Spain. I had found a piece of eight.

The legendary piece of eight of pirate stories is a coin about the size of a silver dollar. It was worth eight *reales*, hence its name. British colonials called it a cob—a word meaning lump—because of its irregular outline.

This storm had a drastic effect on my life. From a rather curious antiquarian, I turned into a highly organized fisher of Spanish treasure. At that time I little dreamed that my new interest would lead to the greatest find of sunken treasure since 1687, when William Phips sailed away to England with a million dollars in silver bars and coin, to be knighted and later made Governor of Massachusetts. Phips reaped his fabulous harvest from a galleon that had gone down in 1643 on the Silver Bank, north of Hispaniola.

Storms Strew Beach With Silver

Severe northeast storms, as well as hurricanes, had occasionally thrown silver coins up on the beach in past years. After a lively northeaster, I had found as many as five. They scarcely made conversation along this coast, where similar finds had long been known.

The harvest was scanty but dependable. I had about forty pieces of silver when the hurricane changed things. Now my money beach lay under a foot of sand and terraced flotsam from the offshore reefs. No smooth

beach, only matted debris. But what of the coin I had just found? Had the storm bared a new trove offshore? I looked at the pounding sea.

One thing I had noticed about the coins I picked up: none was dated later than 1715. A friend told me of a flotilla of Spanish ships carrying $14,000,000 in treasure that had been driven on reef and shore by a hurricane in the vicinity of Cape Canaveral (now Cape Kennedy) in the year 1715. Thus I first heard of one of the greatest disasters to befall the annual Plate, or Silver, Fleet sent out by Spain to bring home the wealth of the Indies.

John Taylor, a captain's clerk in one of the guard ships assigned to protect William Phips during his epic salvage, described the Plate Fleet system in flowing language:

"The King of Spain, whose dominions are now extended from the east to the west, whose kingdoms are full one third part of the known world, whose treasures in his western dominions are rich and durable mines of gold and silver . . . without bottom or a seeming end, from whence flows the wealth of Spain, by which the pomp, state, frontiers of that kingdom are maintained and defended, yearly sends his . . . mighty ships of Spain into America, which moving road bring him home his annual treasure of gold and silver. . . ."

Spain sent two fleets annually to the New World. One, the Galeones de Tierra Firme, or mainland fleet, sailed to New Granada—present-day Colombia—where it picked up gold, emeralds, and pearls at Cartagena, and later silver from Peru's fabled mines at Portobelo on the Panamanian Isthmus. The other, the Flota, or fleet, of New Spain, sailed to Veracruz, on the Gulf Coast of Mexico. There it took aboard silver, cochineal and indigo dyes, as well as goods of the Orient—porcelains and silk—which came to Acapulco, on Mexico's Pacific Coast, in the annual galleon

Beside the heaving Atlantic, a treasure seeker searches the beach with a mine detector. The apparatus emits a high-pitched whine over metal objects as small as fishhooks; it has pinpointed ships' spikes, cannon balls, cutlasses, and coins by the hundreds.

"My first investment in salvage equipment was a $15 surplus military mine detector," says author Wagner, "and I still use it, especially after storms have reshaped the sands. Usually my only companions are formations of pelicans that fly over, wheel, and look down at me with seeming perplexity."

Silver pieces of eight, called reals, look like bits of green stone following a 250-year bath in brine. Coin at left shines again after hydrochloric acid dissolved the thin coating formed by the action of salt water on copper, a hardening agent in most silver coins.

Shrieking like a thousand banshees, hurricane winds shred the waves and shatter the Spanish treasure fleet. In this artist's re-creation, the tropic-spawned tempest dashes the ungainly galleons on to saw-toothed reefs. Desperate crewmen climb high in the rigging while others battle giant combers in an effort to gain the safety of the shore. Ships fall apart, their backs broken, and precious cargo spills and sinks. More than a thousand souls perished, and $14,000,000 in gold and silver vanished into the depths.

from Manila and then were shipped overland by mule train to Veracruz. The two fleets joined in Havana, Cuba, for the homeward voyage across the Atlantic.

A West Indies jingle warns of hurricane time: "June, too soon; July, stand by; August, come they must; September, remember; October, all over." Originally, the fleets had wintered in the Caribbean and sailed for Spain in June, so that they would be well clear of the treacherous Straits of Florida before the dreaded season. But little by little, through bureaucratic delay and difficulty in manning

the vessels, sailings came later in the year, until it was routine for the fleets to return at the height of the dangerous season of high winds.

The War of the Spanish Succession, which embroiled half of Europe before peace came in 1713, delayed the sailing of the Silver Fleets for two years. The two fleets, greatly diminished in number, had met at Havana as the "Combined Armada of 1715." In July of that year they sailed from Havana, up the Straits of Florida, riding the Gulf Stream to Cape Canaveral, whence they would strike out across the Atlantic (map, page 10).

In Seville, center of Spain's colonial trade, there stands an imposing building, the Archivo General de Indias, the richest repository of historical Spanish-American documents on earth. From these archives I obtained copies of hundreds of folios dealing with the great catastrophe of 1715.

The pilot of one of the ships, with a handful of survivors, struggled north to report to the Governor of the Spanish settlement at St. Augustine. Across the void of two-and-a-half centuries this eyewitness speaks to us: "Captain Sebastián Méndez, pilot of the

ship called *Nuestra Señora del Carmen*, alias *La Holandesa*, under command of Don Antonio de Echeverz, commander of the Galleons, who before me, the notary, took the oath by God Our Lord and the sign of the cross as is customary, undertook to tell the truth, and being questioned . . . the declarant stated that he departed from Havana on the 24th day of July in company of the Galleons and the Flota, and he was lost on Wednesday the 31st, at two o'clock in the morning, because of a hurricane which came on from the east-northeast so strongly that although he has sailed the seas for many years and suffered through many tempests he has never seen another like it for violence, and his ship and all the rest were lost, some before and some after Palmar de Ays, at 28° 10'[North Latitude] . . . in an area nine leagues [27 miles] from north to south."

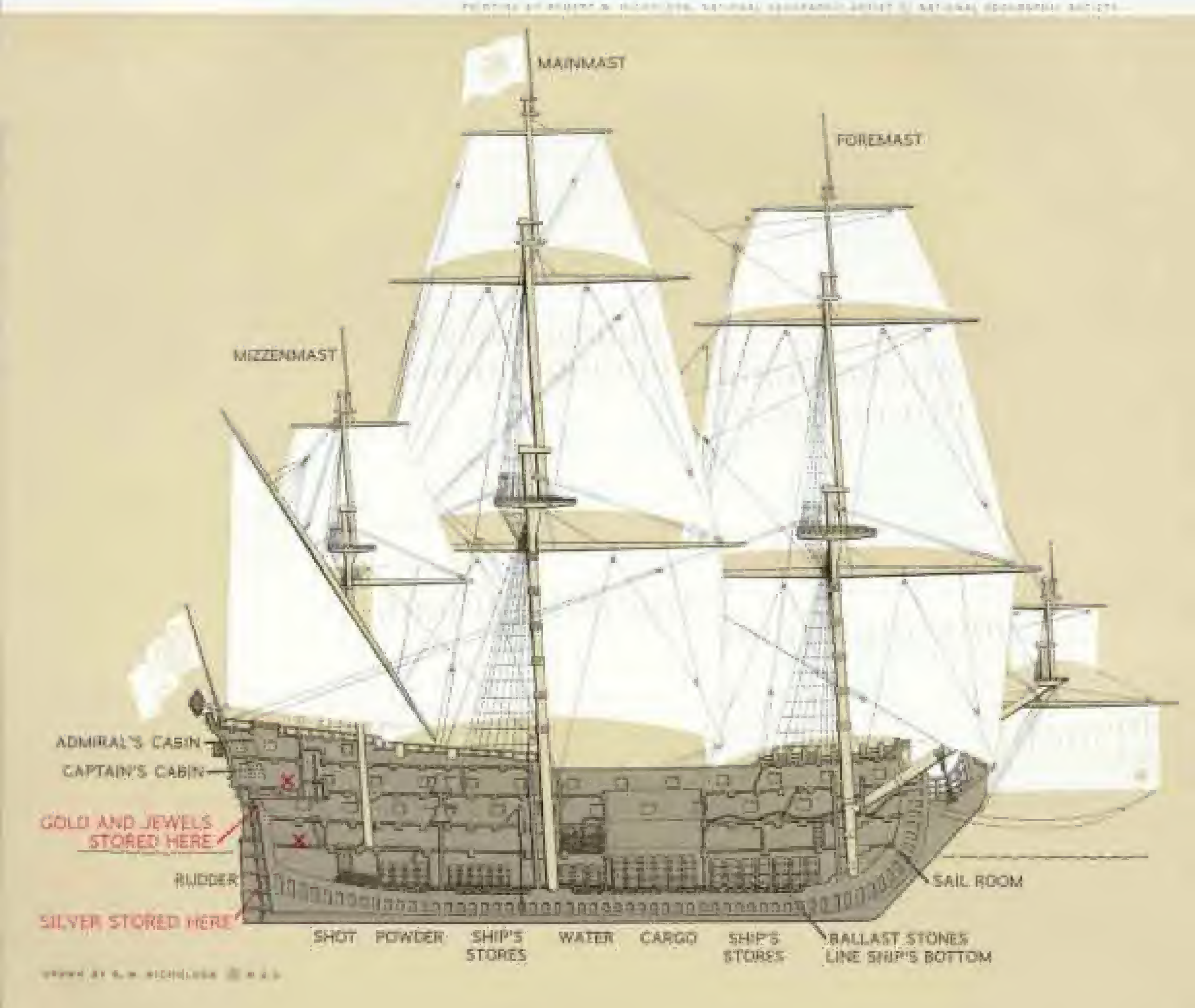
As I fingered transcripts of old documents, I seemed to feel Havana's hot sun on my back.

Wednesday, July 24, 1715. A signal gun booms from the flagship. Answering guns thunder from the grim walls of the Morro, and the fleet suddenly comes to life. Seamen jump to the capstan bars; the pawls clank as the great iron anchors come slowly aboard. Halyards are swayed tight and the yards braced round. The combined fleet of Gen. Don Juan Esteban de Ubilla and Gen. Don Antonio de Echeverz is under way.

A handsome sight, these 11 vessels, as they heel to the wind in the pull of the deep blue Gulf Stream. The high-pooped vessels roll up past the Keys under a cloudless sky.

Monday, July 29. Seamen look distrustfully at the sky. The sun still shines, but there is a slight haze. The heavy galleons roll in the long swell of a glassy sea. Under their lee are the sharp-toothed reefs and treacherous shoals of the low Florida coast.

Tuesday, July 30. By noon the wind dies.



FLORIDA

"Treasure fever had me in its grip," says the author, "when I first saw this 1774 chart of east Florida by English cartographer Bernard Romans." On his chart, Romans noted: "Opposite this River, perished, the Admiral, commanding the Plate Fleet 1715. . . ." The river was Sebastian Creek, and in a cove near its confluence with the Indian River, Mr. Wagner found so many old coins washed ashore that he called it "my money beach." "Wreck" notation north of Cape Canaveral refers to a 1768 sinking. Eighteenth-century dividers, still in working condition, came from a wreck site explored by Mr. Wagner's diving team.

Old Spanish script on a microfilmed document recounts the stories of survivors. Dazed and hungry, the castaways staggered into St. Augustine and gave depositions about the night of terror. Here the author (left) confers with National Park Service historian Luis R. Arana, an authority on old Spanish. The Archive of the Indies in Seville, Spain, preserves the original records.

Clouds of canvas overspread an *Invincible*, an admiral's flagship. The 155-foot vessel had a mainmast 150 feet tall; its poop stood 27 feet above the waves. Mounting 50 to 60 guns, such ships served for fighting and convoy duty, but carried little cargo except treasure. Galleons had disappeared as a type by 1715, but the romantic term survived long after as a name for treasure vessels.

New World ports overflowed with plunder for the crown in the heyday of Spain's American empire, from 1500 to 1820. Some ten billion dollars in treasure crossed the Atlantic. Gold and silver bars, coins minted in Mexico and South America, church plate, elaborately set jewels, rich silks and brocades and porcelain from the Orient—all rode eastward in merchant vessels escorted by warships. Once a year two such fleets met at Havana and sailed north on the Gulf Stream. English map maker Herman Moll traced the usual routes on his chart of about 1720. Sketchy knowledge of New World geography results in distorted land outlines, especially noticeable in the Florida Peninsula. National Geographic cartographers modified the chart slightly and added a red cross at the spot where the convoy went down.

Now the sky pales behind a gauze of high cloud. The ships roll even more heavily. The wind begins again, blowing hard from the southeast, shrilling through the rigging with a rising note of danger. Stinging spray whips from the breaking waves. Although it is midafternoon it grows darker, and the great stern lanterns are lighted. Their yellow glow, seen dimly by the following ships, traces unsteady arcs against the darkness. Opaque green seas break over the broad bows.

2 a.m., July 31. Suddenly the wind shifts to ENE and the hurricane strikes in all its fury. The galleons stagger and heel. Officers shout commands that no one hears. Now each ship is on its own. Some claw for sea room, but, caught between Cape Canaveral and the wind, they must take in sail and are driven shoreward. Some try to anchor, but the anchors fail to hold. On deck no man can breathe the suffocating mixture of wind and water. In the blackness of night and storm, seamen stumble over fallen masts and rigging. For those washed overboard there is little hope.

One after the other the ships drive on to the jagged reef. With rending crashes they strike. Seas pick up the heavy hulls and fling them again and again upon the unyielding stone (painting, page 61).

Soon it is over. Ships and men alike have vanished. Of 11 ships, only one escaped, the French vessel *Griffon*, which the Spanish had forced to sail with the fleet to keep their ship movements secret. It had been to northeastward and so had sea room to weather the cape.

Thus perished the treasure fleet of 1715.

Here, according to an account published by the Spanish historian Cesáreo Fernández


90
85
80
75
70
Deg. W. from London
MARYLAND
VIRGINIA
C. Charles
Bay of Chesapeak
Albemarle Sound
ATLANTICK
OCEAN
C. Hataras
C. Look out
C. Fear
C. Cartaret
Port Royal
Savana R.
Allatamatha R.
Fort St. Augustin a Spanish F.
Note 10 of 11 Plate Fleet Ships were Lost off the Coast of Florida in the Terrible Hurricane of 1715.
Barmudas Isl.
English
The Gallions and Flota usually Joyning at the Havana & whole Armada Sails for Spain thro this Gulf
Variable Winds
Ouabach R.
Charakeys
Charles Town
Georgia
Apalata
Mississipi R.
FLORIDA
C. Florida
G. of Florida
MEXICO
BAHAMA
ISLANDS
Eleuthera
St. Salvador
Tropick of Cancer
Crooked I.
Maguana
Caicos B
HISPANIOLA
St. Domingo
CUBA I.
Havana
Greater Antilles Isla
JAMAICA I.
NORTH SEA
Cozumel
G. of Honduras
Honduras
Comayagua
Pearl I.
Mosquitos
Catalina
Roncadore
St. Andero
Nicaragua
Nicaragua R.
Costarica
Veragua
Panama
Bay of Panama
Burica P.
P. Mala
SEA
Cartagena
Lit. Antilles
New Granada
Truxillo
Caracos
TERRA FIRMA
65

Plastic marker buoys bob 15 feet above the bones of a treasure ship. Silt stirred up by dredging discolors waters at the stern of the 50-foot ex-Navy launch *Dee Gee*, one of three workboats used by the treasure seekers. Shallow-draft skiff at right ferries crewmen to and from shore.

Down, down, down sinks an Indian diver in a painting (opposite) depicting Spanish salvage operations following the disaster. Holding his breath and clutching a stone to speed descent, he joins another diver who signals the surface to pull up the lift line. After four years of salvage, the Spanish left at least half of their loss unrecovered.

Duro, is the melancholy tally of the tragedy:

"*Flagship of the Commanding General.* Opened suddenly, and sank in relatively deep water with the loss of General Ubilla and 275 others. Only a few reached shore.

"*Flagship of the Admiral under Ubilla.* Although she ran aground only a stone's throw from the coast, the sea swept away 125 men.

"*Urca de Lima.* Grounded at the mouth of a river, and the waves swept off 60 men, of whom 33 were drowned.

"*First patache* [a patrol vessel] Only 25 of her people perished, because the deck was detached and floated in the manner of a raft.

"*Second patache.* Twelve men drowned.

"*Flagship of the Admiral under Echeverz.* Completely broken up with the loss of 124 men.

"*Nuestra Señora de la Concepción.* In her perished the captain, Don Manuel de Echeverz, son of the owner, and 135 persons.

"*La Holandesa.* Cast up high and dry by the hurricane and the crew escaped without hurt.

"*La Francesa.* Lost with all hands.

"*San Miguel.* Same fate."

Treasure seekers often overlook the obvious fact that when richly laden ships go down, salvors immediately set to work. So it was in this case. Within weeks after word reached Havana, salvage began.

"The undertaking," continues historian Fernández Duro, "was entrusted to the Sergeant Major of Havana, Don Juan del Hoyo Solorzano, a man suitable for the task, considering his importance, as the fleet carried no less than 14 million pesos in silver."

Not the least interested were the pirates of the Bahamas, to whom the news was like the scent of blood to sharks. An Englishman, Henry Jennings, acquired five vessels and took on a following of adventurers recruited

In murky waters where visibility of 10 inches is considered good, divers pry loose crusted metal. Searching shallows, the men wear Desco masks equipped with air hoses suspended from a launch. Such equipment limits maneuverability but permits lengthy stays below.

Slit golden circlet adorned with rosettes adjusts to fit the finger; wire loop that looks like woven cord limits the expansion.

Miraculously preserved K'ang-hsi porcelain rode in the hold packed in the same clay from which it was fashioned. Shipped from the Orient by way of Manila, the dishes landed in Acapulco, Mexico, traveled overland by mule caravan, and sailed from Veracruz. Here the author's wife repairs a fragile cup.

Encrusted anchor from one of the ill-fated Spanish ships comes ashore.

Prizes from the sea

THE VAST EXPANSE of water mantling seven-tenths of the globe might be likened to an enormous bank. For tens of centuries, from the time King Solomon brought shiploads of gold from the land of Ophir, it has swallowed a large share of man's material wealth. Each ship that sinks makes a deposit, every successful salvager a withdrawal. So far, deposits enormously exceed withdrawals.

Mr. Wagner's group recovered the biggest treasure since William Phips of Boston salvaged a reported $1,000,000 off Hispaniola in 1687. The Florida find included not only gold and silver coins, silver bullion, gold ingots, and jewelry, but other artifacts such as silver tableware, copper pots, sounding weights, navigator's dividers, pottery shards, and earthenware jars once filled with olives, wine, oil, water, and other provisions.

Silver moth with coiled proboscis embellished the lid of a jar or urn. Another utensil cover bore a winged figure of the Greek god Pan blowing a trumpet.

Nested weights used for precious metals resemble a set in an engraving of the 1600's. They fitted into a covered container with a sea-horse latch. Another set (upper) remains cemented together.

Fifty-six-pound clump of sea-blackened silver hides shiny, almost mint-fresh pieces of eight in its center. For cold water, diver Dan Thompson wears a neoprene suit.

largely among out-of-work sailors from the warships of various nations.

An account published only eight years after the event in *A General History of the Robberies and Murders of the Most Notorious Pyrates*, tells of Jennings's exploit of 1716:

"Several vessels from the Havana were at work, with diving engines [diving bells], to fish up the silver that was on board the galleons.

"The Spaniards had recovered some millions of pieces of eight and had carried it all to the Havana, but they had at present about 350,000 pieces of eight in silver, then upon the spot, and were daily taking up more. In the meantime, two ships and three sloops, fitted out from Jamaica, Barbadoes, etc., under Captain Henry Jennings . . . found the Spaniards there, upon the wreck. The money before spoken of was left on shore . . . in a store-house under the government of two com-

Salvors invade a galleon's grave. Dredging for treasure under the vessel's ballast stones, three divers "vacuum" the sea floor with a suction tube. Sheepshead flit like birds around Aqua-Lungers at left as one hunter starts up with a ship's bell. Platoon of sleek sparlefish at lower right swims toward a diver who searches the bottom with a metal detector. Rounded ballast stones and cannon strew the floor. On the surface a skiff tows a sensitive magnetometer that detects ferrous metal buried in the sand 20 feet below. Hoses dangling from the launch *Sampan* feed air to divers in Desco masks. Shark in the distant gloom cruises slowly—and, fortunately, incuriously—past the divers. NATIONAL GEOGRAPHIC artist Robert W. Nicholson exaggerated water clarity to show an over-all view of the archeological operation. Actually, except for a few days a year, men working side by side can barely distinguish one another.

Exquisite gold chain contains 2,176 hand-made links, each faceted with rosettes. The four-strand necklace, so intricately joined as to baffle modern jewelers, has been appraised at more than $50,000. Dragon pendant has a toothpick in the belly and an ear-cleaning spoon at the tail; the gaping mouth forms a whistle. Crudely made gold ringbetween the coins holds a rough-cut 2½-carat diamond flanked by six smaller stones.

missaries and a guard of about 60 soldiers.

"The rovers came directly upon the place, bringing their little fleet to an anchor, and . . . landing 300 men, they attacked the guard who immediately ran away: and thus they seized the treasure which they carried off, making the best of their way to Jamaica."

Jennings by this act established the golden age of piracy in the Caribbean. Theretofore, gentlemen of his type had some semblance of legality: the major powers were at war, and one man's pirate was another man's privateer. But the Treaty of Utrecht had been signed in 1713, and Jennings committed outright piracy by anyone's standards.

He missed the big haul, however. Before the raid, Hoyo Solórzano had recovered and shipped to Havana at least four million pesos for the royal treasury.

Beachcomber Turns Treasure Hunter

On that gray day following the hurricane, when I sat on the bluff a decade ago and looked out at the heaving sea, I think I made my decision without being conscious of it. From that moment began a series of circumstances that changed me from a curious beachcomber into a serious searcher after treasure.

Everyone knows that to be a proper treasure hunter you must find an old map, preferably a yellowed and frayed parchment with an X to mark the spot. My map, however, was a crisp photostat of an early chart of Florida, drawn by Bernard Romans in 1774 (page 9). Cape Canaveral bulged in unmistakable outline. Near the confluence of Sebastian Creek and Indian River, I read:

"Opposite this River, perished, the Admiral, commanding the Plate Fleet 1715, the rest of the Fleet . . . between this and the Bleech Yard."

I carefully checked the landmarks. The "Bleech Yard"—that would be the peninsula near the mouth of the St. Lucie River, a flat open place near fresh water for washing salt-encrusted sails, which were then stretched on grass to dry and bleach in the sun. "El Palmar"—this would refer to a palm grove belonging to the Ais Indians whose midden heaps still dot our shoreline.

Early in the game I sought an expert opinion on the coins I had found. Robert I. Nesmith, one of America's foremost authorities on Spanish colonial coinage, wrote:

"I have examined the silver 'pieces of eight' and of four reales. The coins are exactly as struck in the Mexico City mint. This type of coin was made during the early days of Spanish colonial mints and was, until the screw

press was installed in 1732, hand-hammered between dies. These crude coins have always been rare and, due to the method of cutting the blanks in odd shapes, seldom show the date, the mint mark, the assayer's sign (J), or any of the letters in the legend.

"In my opinion, these are the most important finds from a Spanish Plate Fleet ever made in Florida, both historically and numismatically, as the future will prove. . . ."

How important this find was to become neither Mr. Nesmith nor I could conceive at the time.

I did not give up my regular trips to the "money beach" after the hurricane, but now I broadened my quest. Clambering through dense growths of spiky palmetto scrub, I searched for the inland campsite where the Spanish survivors and salvors had lived, on and off, for at least three years.

In one area I thought I detected depressions and mounds in the sand. Now the fever had me in its grip. I made my first investment in salvage equipment—$15 for a surplus military mine detector. This stove-lid-on-a-broom-handle device had earphones that whined

hopefully whenever it approached buried metal (page 4).

A high-pitched whine. Metal! I quickly dug into the loose sand—only to come up with a rear spring from a Model-T Ford. This same process soon produced dozens of tin cans, two bedsprings, and the remains of a coffee grinder of the 1920's.

I moved my search operation half a mile to the north. Almost immediately I turned up a ship's spike and a cannon ball—then an entire clump of cannon balls. Now, instead of digging at each signal, I began to draw a chart, staking out the limits of the metal-bearing zone.

The area covered barely half an acre. I began organized excavation. I was convinced that I had hit my target, the fortified warehouse. Clusters of cannon balls marked the gun sites, though someone had removed the guns themselves. The digging also turned up many pieces of broken earthenware. Another early find encouraged me—a pair of cutlasses buried under a few inches of sand. They lay side by side in opposite directions, as if fitted into a case. There was no sign of the case and the blades were half rusted away.

Another ping in the detector led me to three blackened metallic rectangles. Scraping and testing soon proved that my search had brought its first modest rewards. They were channel-shaped silver fragments. I theorized that some bricks nearby were part of a small kiln used to melt the silver coins into more easily transported bars. This, I guessed, would have been the work of the English freebooters. Or could it be that the Spanish salvagers melted down the King's plate to make it easier to conceal and carry off their personal share of the proceeds?

Glint of Gold Stirs Excitement

On the following day I had just put my shovel down near the edge of the hole when a yellow glint caught my eye. I bent over and retrieved a gold ring set with a large, crudely shaped diamond. On this shortest and most profitable day of salvage, I think Henry Jennings's grinning ghost sat on my shoulder all the way home.

The rudely made ring is of gold so soft that the large diamond was of necessity half buried in its setting, and its weight of 2½ carats is only an estimate. Round the central stone are grouped six others about the size of a match head (page 19).

Logging one day's finds, divers Mel Fisher (opposite, left) and Del Long record one doubloon, several pieces of eight, one gold earring, two silver forks, fragments of silverware, and coral-sheathed chunks worthy of further examination.

Bearded and haloed saint embosses one side of an engraved pendant that may have been a religious medallion. Cup at mid-stem might have held a pearl. "It showed up suddenly in front of my mask as I was dredging," says diver Lou Ullum. "I was afraid to pick it up; it looked so delicate I thought it might crumble in my fingers." Photograph shows the golden ornament slightly over twice actual size.

So close and yet so tragically far. View from shore of a work barge and skiff vividly illustrates the drowned fleet's nearness to land. The launch *Doc Cox* shuttles divers to the "gold wreck" only 1,100 feet from the tumbling surf. Undertow from breakers, roiling the shallow water, sharply reduces the visibility of divers.

A diamond cut in the shape of an uneven truncated pyramid is not the fiery, multi-reflecting thing that all girls yearn for, but the effect of this drab stone on the treasure seeker's heartbeat is identical.

Now I was really hooked. I combed the campsite, carefully plotting the location of each find and digging at every hint of a metallic sound. My only companions were formations of pelicans. They seemed to develop a gnawing curiosity about my reappearances among the dunes and scrub near the beach. Each evening toward sunset they came, some of them evidently flying out of their way to pass over my excavations, wheeling and looking downward, as if searching for anything new among the multiplying sand heaps and potholes.

I envied the pelicans their power of flight. I knew that other wreckage from the fleet lay along this shore, and perhaps from the air I might see something. Actual hulks might be found. I tore myself away from the heavy spadework with no great regret and went

Scanning the ocean from the air, spotters seek signs of a sunken ship. When they spy a dark patch, they radio word to the launch *Sea Dragon*, which turns toward the exact location, where it will drop a marker. One factor aids aerial reconnaissance: Ships' cannon, ballast stones, and decayed timbers usually produce a darker pattern in marked contrast to the color of the surrounding sand.

Gold plucked from the ocean: every man's dream of discovery. But the author put a foundation under his dream. "I spent 18 years in research," says Mr. Wagner. "I had a crew of hard-working divers and three boats crammed with gear. And, above all, I had phenomenal luck."

Vacuum-cleaning the sea floor, a diver with suction pipe scoops up debris. Another searcher (not visible) examines the material ejected by the pipe. Later, men will reinspect the heap of tailings to be sure nothing valuable has been overlooked. The underwater hunters drew exact plans of each ship site—as archeologists do in land excavation—before disturbing any part of the wreckage. Rare clear water here appears blue; in the photograph on the opposite page, green algae cloud the scene.

to our local airfield to hire a small airplane.

I had no idea what an old wreck should look like, and my first flight showed the sea bottom as an almost featureless mass of grays and blacks. Flying at times dangerously close to stalling speed, I still found my wave-hopping too fast. I turned to a pilot friend who is also a diving enthusiast, and we retraced my flights along the shore. He attended to the flying, while I hung out the cabin door on my safety belt to get a longer look at the blurred images of the sea bottom.

Sunken Cannon Glimpsed Below

As we passed south of Palmar de Ais, I suddenly tapped him on the shoulder, signaling for a steep turn. Banking sharply, he also sighted the long dark area that had caught my eye. From the dark ellipse protruded regular shapes, rows of objects that could only be cannon, lying slightly askew. The dark itself must be ballast stones. We carefully took a compass reading on the site and headed home.

Now to get our feet wet! The next day the pilot and I launched a skiff through light surf that curled over the reefs. Clear October seas made our search easy. Within minutes we were in the water, gazing down through face masks at the heaps of ballast that we had sighted from the air.

I had a hard time matching what I saw underwater with my imagination's image of a treasure wreck. No timbers remained—probably all having long since passed through the digestive tracts of the soft, insatiable teredos, or shipworms. Then I swam over my first gun. It loomed larger than its original bulk. The sea had wrapped it in a limy crust embedded with shell fragments and plumed it with streamers of bright green seaweed that fanned with each surge of current. Swimming along the edges of the heaped-up ballast stones, we counted the guns, 18 in all, that marked the final resting place of the ship.

Unless buried in mud or sand, all that remains of a treasure ship itself are these ballast stones. They vary from one to 50 pounds, the smaller ones being packed expertly to keep the big ones from shifting.

I had to admit to myself that this first look at a sunken Spanish ship was far from

encouraging. Sand had flowed in from the east, or seaward, side, burying many ballast stones and some of the guns. The bones of this vessel had lain here almost 250 years; perhaps another 250 years would be needed, I thought, to move enough sand and ballast to permit even a cursory search of the wreck.

And so I launched myself with a modest splash into the vast ocean of underwater archeology. From a surplus equipment outlet I bought a 40-foot Navy shore-leave launch. She was sturdy enough, but ungainly would be a kind word for her appearance. I christened my vessel *Sampan* and set about recruiting a crew.

Florida Issues "Gold Fishing License"

In a few weekends I had a team of eight hardy souls. Dr. Kip G. Kelso, a neighbor and family physician, became curator, translator, and librarian. Colonels Dan F. Thompson and Harry E. Cannon from Patrick Air Force Base, headquarters of the Atlantic Missile Range, signed on as diving specialists and navigational consultants. Ex-Navy demolition diver Louis Ullian was a valuable man under water and also served as chief technician for salvage equipment.

Lisbon Futch, a longtime river and waterways expert, skippered the *Sampan*. Our hardest-working mates were Delphine Long and Ervin W. Taylor, both expert boat handlers with a knowledge of the shores and inlets in our area. C. R. Brown, a banker, came in as business consultant.

Later we added Capt. John Jones and Warrant Officer Robert Johnson, both from the rocket range, to our underwater crew.

Our swashbuckling predecessor, Henry Jennings, while not actually authorized by the English authorities, had counted on their looking the other way. For our bloodless archeological invasion, we consulted the Trustees of the Florida Internal Improvement Fund, which controls, among many other things, the recovery of sunken treasure. The State of Florida permits the salvager to keep 75 percent of all valuables recovered.

To apply for the right to prospect, we banded ourselves into an entity known as the Real "8" Co., Inc. The name was taken from *ocho reales*, Spanish for the value of a piece of eight. By paying fees and submitting regular reports, we could renew our "fishing license," and if we showed evidence of valuable archeological finds, the authorities would protect our rights against any piratical interlopers.

Experts from Florida museums and universities are among advisers to the Improvement Fund Trustees. This assures state protection of historical relics, and it gave us the aid of such men as Dr. J. C. Dickinson, Jr., Director of the Florida State Museum at Gainesville, and Dr. William H. Sears, Chairman of Anthropology, Florida Atlantic University at Boca Raton.

Putting out to sea in the *Sampan* during our first diving excursions always reminded me a little of "The Owl and the Pussy-Cat." We had

Heedless of pelting summer rain, a happy

no cabin, so we nailed a tentlike canopy of sailcloth on a four-poster arrangement of two-by-fours. Our diesel engine chugged mightily to maintain headway in the rolling swells at Sebastian Inlet. Once anchored, *Sampan* settled herself over the wreck site like a nesting sea gull, lifting with a restless flutter to let a large swell roll under her, then squatting down again over her ballast-stone eggs.

At the site, all hands begin tossing things overboard: hoses for the shallow-water diving masks, the bulky boarding ladder, dredge hoses, extra marker buoys, haul-up baskets on hand lines. In a few minutes larger splashes mark the descent of divers wearing black

neoprene suits and compressed-air tanks.

Below water the sudden silence gives you a feeling of total isolation. *Sampan's* hull looms above, a dark presence on a ceiling of dim green light. Bubbles shimmer upward past face masks. Visibility is about elbow length. Sinking deeper, you find your hands touching down at 20 feet on hard ridges of gray sand.

Now, just as you reach bottom, the same surge lifts you and sweeps you along over sand hillocks and waving sea grass. You grasp

diver emerges with gold in his grasp.

a stone to keep the return flow from sweeping you back. You stay put, but your feet swing up with the surge, turning you heels-over-head in an awkward underwater ballet.

When you are upside down, turning with each pull of the surge, you swear the whole world is in topsy-turvy motion. Swirls of seaweed, bubbles, and dark sand clouds eddy around you. At times this disorientation has made some of our divers seasick. This can be a dangerous situation down here. You have no ship's railing to lean over. Your mouth is plugged with a vital tube that brings you the air on which your life depends.

Our method of working evolved through more than a decade of trial and error. First we carefully examine our rockpile. Staking it out, we map it by squares, indicating guns, ballast stones, and sand overburden. Then we start shifting things around.

Our earliest finds were not very encouraging, mostly brown earthenware potsherds. We turned up so many pieces that the divers rebelled at bringing them up, and the 18-year-old apprentice, Michael Hreben, got the job.

Finally even Mike grew weary. We rang up the museum, asking if they had enough. They replied, "Gather up every potsherd and ship at once." When we told the apprentice, he said glumly, "We'll never get them all; the confounded things multiply like oysters!"

Terra Cotta Yields to Something Better

On the fourth visit to our original site, Lou Ullian surfaced after a short stay below. "What did you forget?" He was back too soon to have done any real work.

Lou did not answer, but climbed up the boarding ladder. On deck he sat on the rail and very deliberately removed his diving mask, shutting off his hissing air valves. Then he began to pull off the heavy rubber glove that covered his right hand. His palm held six blackened pieces of eight.

Suddenly everyone was climbing into diving gear. In the next half hour we moved more ballast than in all our previous days of work. A three-foot swath of sand had been cleaned by the current in the lee of our ballast-stone heap. The clean sand, it seemed, was part of the original bottom, undisturbed since the day of the wreck. Along this newly uncovered shelf lay individual coins, most of them coated with corrosion that hid their characteristic straight edges. In all, we found some 11 coins that day.

"We've got to move sand." This was the sum of our salvage problem. To solve it we built a dredging apparatus. We used a water pump and hose from *Sampan* to create suction through a chimney-flue-size pipe. Hose water flowing at high pressure into the open-ended pipe starts the suction, and the sea rushes in, dragging with it sand, shell, and small objects. This overburden is ejected a few feet from the area being worked (painting, page 16).

Now, instead of passively seeking the few coins bared by the currents, we were ready to begin a careful dissection of the ship's remains. Our dredge proved itself on the first trials, sucking up great gulps of loose sand, shell, and stony fragments.

Golden doubloons and silver pieces of eight

COINS RECOVERED FROM THE 1715 TREASURE *fleet bear cross on one side, coat of arms on the other. The gold, a noble metal, resisted corrosion during its centuries of submersion, but some of the silver shows the effect of sea water. Symmetrical doubloons were struck more precisely than the angular, oddly shaped silver pieces, which probably were destined to be restruck in Spain. In terms of today's monetary value, each doubloon had a purchasing power of several hundred dollars in the early 18th century; each silver coin $10 to $15. On the modern coin-collector's market, doubloons fetch $400 to $1,000 apiece; the silver coins as much as $100 each.*

The best way to use it is to straddle the tube, lying face down along its length. One hand helps to guide the tube; the other hand rakes loose material toward the maw, turning away larger stones and filtering smaller objects through the fingers for interesting finds.

As you dig, you find you have a curious audience. Formations of small drum and sheepshead hover just at the edge of your vision. When you lift a stone the fish rush to nip at the minute sea animals uncovered.

But none of us has found sea life to be a threat. Once Harry Cannon did come up complaining about small fish. "Those little devils! My arms are peeling from sunburn and those fish are driving me crazy trying to nip off the loose skin—I'm being nibbled alive!"

Divers Have Understanding With Sharks

Through the years we have observed a curious phenomenon. Fifty or sixty yards to the north of the site there is a spot where sharks gather by the dozens. They swarm along the edge of a shallow reef, where we see them, like rafts of submerged driftwood, or as a formation of dark fin tips cutting the trough of the next wave. Since they have left us strictly alone, we try to disturb them as little as possible.

Only at this one spot have any of us ever seen sharks along the coast in such numbers. Could it be that this particular school retains a "tribal memory" of the Great Feast of 1715? We prefer not to think of it that way.

With our sand dredge we dug a trench along the length of our first ballast-stone heap, until we reached the hard coquina, or concreted lime-and-shell layer which, we assumed, was here long before the shipwreck. Then we began to transfer ballast stones into this new trench.

When the divers had moved the last ballast stone from one section, they exposed timbers of black, rotting wood. Now we were certain we were "inside" our ship. The remaining wood of the timbers was a fragile dark substance. Great pieces came away in the divers' hands, dissolving into inky clouds that dispersed like smoke in the surging current, before they realized what it was.

Spain's imperial grandeur imprints a golden doubloon found by the treasure hunters. About the size of a silver dollar, it is here enlarged to show markings. "Philip V, By the Grace of God, 1714," reads the outer ring of lettering. "M" at left signifies minting in Mexico City. "J" is the mark of the assayer, José Eustaquio de León. "VIII" tells the value, eight escudos.

The shield combines coats of arms of Spain's provinces and possessions. Fleur-de-lis of the Bourbons, the King's family, fills the center. Castle tower in upper left symbolizes Castile. Rampant lion at top represents León, those at the bottom the Low Countries, then the Spanish Netherlands. Vertical bars at top right denote Aragon; elongated bars with crossbeams stand for Naples and Sicily.

"I've found the captain's easy chair," said Del Long as he handed up a fuzzy lump. "Here's some of the stuffing!"

The "stuffing" we later identified through the good offices of the Smithsonian Institution's Chairman of Armed Forces History, Mendel Peterson, as a mixture of cow hair and pitch with which the Spaniards sometimes coated their wooden hulls to discourage the ever-present teredos.

In a basketload of litter sent up from the bottom one day we found a lime-encrusted fist-size lump, which when exposed to a metal detector spoke strangely. The next basket brought up five wedges of blackened silver. Laid in a circle eight inches in diameter, the wedges made a silver "pie" with a gap for the encrusted piece. Three layers of these "pies" would fill a small keg, a 100-pound load for an Indian bearer. Two barrels made a full load for a donkey.

Probing under the ballast, we found three more of the silver wedges, but we are still searching for the rest of that barrel of silver. In the process, however, we convinced ourselves that we were over the keel of the ship. Our hard-won experience was beginning to teach us something of the process by which a ship decays. Lighter materials had all disappeared years ago. The superstructure may have survived for no more than a few years, during which Indians, the Spanish, and English freebooters would have made off with everything worth carrying away.

Still, we surmised, much of the cargo would be inaccessible to divers who had to hold their breath. Heavier objects—like the guns—would settle to the bottom practically on the spot. And, since the precious metals are also extremely heavy, we centered our search along the lower area of the ballast heap where the ship's ribs join the keel.

Sea Seems to Deliver on Schedule

New finds turned up with a regularity that surprised all of us. Once it was a silver cup, and one weekend we uncovered matching silver dishes, a gilded inkwell, and a shaker for blotting sand.

On another trip we found a set of bronze weights, all nested together like graduated cups (page 15). In the meantime we continued to find occasional coins—sometimes the smaller pieces of four or two reales.

To me, some of the most fascinating prizes have been pieces of seaman's equipment of that far-off day. We turned up three pairs of brass navigation dividers, one still in working condition, and a 20-pound sounding lead, dated 1712, that is almost an exact counterpart of the weights still in use today—a striking example of the functionalism of a sailor's tools, as well as the conservatism in the ways of the sea (page 36).

Mass of "Rock" Holds a Surprise

"I'll need a rope!" Dan Thompson seemed strangely excited. He took a nylon line and went over the side.

"Help me pull." He handed up one end of the line and dived again. I assumed we were helping him move some larger ballast stone or piece of debris. We heaved on the line. We could see he was treading water as hard as he could.

"Easy . . . careful! . . ." he called, but the weight of his burden took him under again.

We pulled the line until he was alongside the boat, then released it as we all rushed to the rail. Dan went under again with his arms wrapped around something dark. Many hands seized the line; we heaved together and Dan pushed as we raised a greenish-black mass over the rail (page 15).

When I tugged at one edge it came away, and silver gleamed from the heart of the dark mass. Here in one clump were more than 50 pounds of silver coins!

We expected a few coins, perhaps even a hatful at a time, but this was something out of all proportion. In one brief dive we had more than doubled the value of all our previous finds.

Before our astonishment could wear off, Dan went down again, taking Harry Cannon with him, and the two brought up another coin clump nearly as big as the first.

The outermost layer of these coins is totally blackened, but by a treatment called electrolytic reduction, a solution of zinc and caustic soda reconverts the corrosion to metallic silver.

Coins in the center of the clumps remain almost untouched. Some are as bright and undamaged as the day they were minted.

These angular coins look crude compared to the well-minted coins of other eras. Part of their fascination, however, lies in their irregularity. No two coins are alike (pages 26-7). Each piece was chiseled from a flat bar of silver and then stamped with the royal coat of arms on one side and a cross on the other.

X-ray picture of a stony mass confirms what protruding tines hint: A silver fork lies buried in the chunk, together with several coins and a ship's spike. A practicing physician, Dr. Kip Kelso (wearing eye patch) used medical X-ray equipment to make scores of such radiographs. Here he confers with the author, his neighbor and partner in the quest for sunken treasure.

Strange shape attracted the salvagers, who brought up the shell-and-lime-encrusted lump at left. X-ray picture at right reveals a hidden sword hilt. Shells and other limy objects appear nearly transparent to X rays; because the sword hilt left an even fainter shadow on the film, technicians deduce that the iron of the weapon has rusted completely away, leaving only an empty mold in the matrix.

The mark "M" on many coins identifies them as products of the Mexico City mint. In the home country these cobs were probably to be reminted into more regular coins. For this reason and because of shipwreck and the scarcity of transport during the War of the Spanish Succession, museums and collectors own few examples of New World cobs from the 1700-1715 period.

Single Most Valuable Find Not in Sea

During the autumn of 1962, water conditions went from bad to impossible. Still, we tried. During one short spell of clear water, we struck a vein of silver forks (below). These make an interesting set with our silver dishes. We also found the finial of what may have been a silver pot, cast in the shape of a moth (page 13).

One especially bad storm period lasted nearly two months. Since we could not dive, we reverted to our mine detector and began to search the beach again for loose coins. My nephew, Rex Stocker, took turns with me on the detector. Our electronic beachcombing had produced very little, and I was readjusting the controls when I heard Rex cry out "Kip!" He had been above me on the high bluff, digging and screening the loose sand. Now he was hopping on one foot and holding something out to me in his hand. Snake? I was sure he had been bitten.

"Look!" Rex came running to me. Wrapped around his hand and arm was a glittering gold chain. Rex's "snake" was 11 feet 4½ inches of finely wrought gold chain made up of 2,176 flower-shaped links, weighing nearly half a pound (page 18). Pendent from the chain is a golden dragon about the size of a man's thumb. From the dragon's belly opens out a gold toothpick, the tail forms an ear-cleaning spoon. When you blow into the half-open mouth, the dragon emits a shrill whistle—altogether a very unusual ornament, something for the man who has everything. The dragon chain is the single most beautiful and

Up from the chill 20-foot depths, his reward in hand, diver Harry Cannon passes a heavy gold ingot to Bob Johnson aboard the *Sampan*.

Handmade silverware may have graced the dining table of a captain in the Plate Fleet. Or it may have been part of the cargo, bound for a castle in Spain. One-fifth of all New World treasure—known as the Royal Fifth—went into the King's coffers.

valuable find yet given up to us by the ships.

It was winter before good diving weather returned, and we found that nearly four feet of sand and shell lay over the timbers we had exposed the summer before. Even large cannon that once lay exposed were now buried.

While digging out a gun, Bob Johnson uncovered another gold chain. This one was smaller than the first one, only some 8 feet 5 inches in length. From it hung a small gold glass-paned pendant with a border of gold filigree. Sea water had discolored the glass, making it almost opaque, but we thought we could see the dim outlines of a miniature portrait on each of its sides (page 35).

New finds continued to whet our enthusiasm: a ship's bell, many large earthen jars—several of them intact or nearly so—and a small silver crucifix heavily encrusted with shell fragments (below).

The year before, when almost all our finds were silver, we had decided that this was a ship that carried little gold, or else that early salvors had carried off all the more valuable metal. Now we began to change our minds. Within the next few weeks Lou Ullian recovered another small gold object. We first thought it to be an earring, though it may be part of a rosary. It is a medallion rimmed in gold filigree and bearing an incised likeness of Christ on one side, and the portrait of a haloed saint on the other (page 20).

Winter became summer, bringing more good weather, and we were diving regularly. Soon our own efforts and the scouring action of spring tides had cleared the wreck down to the levels where we had worked during the previous summer.

"Which do you prefer, Kip, gold or silver?" I thought Mike Hrebec was playing tricks as he held out both hands.

"Never mind the silver; we've got too much of that already."

"Well, if you don't want that . . ." he showed me a blackened four-real piece in one hand . . . "maybe you'd rather have this!"

Silver crucifix, encrusted with multicolored shell fragments, may have hung at the end of a rosary.

In his other palm lay a yellow gold coin, almost too bright to be believed. Its marking, a clearly stamped *escudo*, or royal shield, shone in sharp relief. Gold, a "noble" metal, remains untouched even by 250 years in salt water. This was an eight-escudo piece, thicker and more nearly round than the silver coins and weighing considerably more. We had struck gold at last.

Within minutes every diver was dressed and below, with Mike leading the way. Soon they began to return, first one and then another, each bringing a bright gold coin.

Seven gold coins came aboard that afternoon, and three more the following day, all in nearly perfect condition. One piece showed signs of having been struck twice at the mint. On the second stroke, the die evidently jumped, making an extra Roman numeral I, so instead of an eight, we call it our nine-escudo piece.

With improved visibility, we began a new trench across the area from which we had already removed all ballast. I was below on a scouting dive. Dan had told me:

"We've run into a muddy place. It's like clay. I thought this bottom should be nothing but sand, shell, and coral."

On the bottom I was amazed to see how clear the water seemed despite the clouds of debris that billowed from the exhaust end of the dredge. Suddenly a rustling sound in the pipe was followed by a shower of white and blue tatters that settled to the sea floor at my elbow. I reached for one of the "tatters," then practically snatched the dredge out of Dan's hands, signaling him to stop.

Together we took a close look at the wall of the trench which, as he had said, seemed to be mud or clay. It was studded with fragments of blue-and-white porcelain.

I signaled to Del Long, who was hovering

Seven-pound biscuit of gold bears the stamp XI, which the finders believe to be an inventory number. Other ingots bearing Roman numerals VII, VIII, IX, and XIII have been brought up. Uncovered beneath six feet of ocean floor, the ingot contains metal worth an estimated $3,000—only a fraction of its value as a museum piece. Surrounding spatters of pure gold could have spilled from the pot of British freebooters who attempted to melt down coins recovered from the Plate Fleet wrecks. The bits lay in the sand and scrub near other evidences of a camp established by the Spanish salvagers, which pirates later raided and sacked. Mr. Wagner theorizes that the Spanish probably would have kept the gold in coin form, whereas the intruders might have hurriedly and surreptitiously melted down the doubloons.

Pride of a grandee, this lovely gold chain carries a pendant with tracings of miniature paintings on both sides. Though covered with glass, the portraits were eroded by centuries of immersion in sea water.

nearby, to gather the other bits and pieces that had spewed from the dredge. Then Dan and I went to work with our fingers, probing into the clay and washing away a small area at a time. Only inches deep I felt something solid. Another fifteen minutes of gentle labor released a perfect white porcelain bowl traced with delicate blue designs. Two more bowls and four cups came to light.

K'ang-hsi Chinese porcelain, more than 250 years old! Here is another of the sea's ironies—a great ship broken in the surf, its timbers smashed, but these fragile porcelains survived in all their delicate beauty. They had come more than halfway around the world: By traders' caravan and Chinese junk to a bazaar in the Philippines, then aboard the annual Manila galleon to Acapulco, by mule over the mountains to Veracruz, embarked again in the Plate galleons, sent to the bottom in a ship-rending storm, preserved more than two centuries in the restless ocean, and now restored to the hand of man (page 14).

Our finds date from the last half of the 17th century, during the K'ang-hsi Period (1662-1722). We found three distinct styles of china. Besides our blue-on-white, later finds have turned up a pure white, with only a faint tracing visible where a decorative border once circled the rim. A third type is covered with black enamel with traces of gold decoration. It, too, shows traces of a decorative trim, probably a gilded border, of flowers, foliage, fish, and shrimp, but the thin gold has nearly all peeled away.

Researches by Dr. Kelso, our curator, reveal that such porcelain was often packed in the same clay, or petuntse, from which it was made. This, we think, was our muddy clay that protected these delicate objects through two and a half centuries. Thus the china was probably new—never used by man.

As our diving trips grew more regular, we simplified logistics by purchasing a beach cottage near the diving site. Now divers can climb into gear at the cabin and swim out to the boat. Two-way radios provide a ship-to-shore link. Light planes scout any unusual spots on the sea bottom. Our dredges, more powerful now, move great quantities of sand in a fraction of the time it used to take.

A hurricane, which was the start of my personal adventure, can be the treasure diver's friend or enemy. Usually we welcome a heavy blow, be it hurricane or northeaster, because the scouring action of the sea may uncover new areas of search, or undercut the beaches for our metal detectors. But the hurricanes of 1964 nearly undid our whole season's work. Nine of them, from Abby to Isbell, deposited a total of two to three feet of sand on our sites. Next season we shall need days of dredging to reach the levels we worked at the beginning of 1964.

Clouds Open Over a Carpet of Gold

We have expanded our group by joining forces with a highly competent professional salvage team from California under the leadership of Mel Fisher. Fisher's men brought with them a sensitive magnetometer to locate sunken ferrous metal, and other detectors that can locate either iron or gold, silver, and other nonferrous metals.

It was Fisher's group that made one of our most spectacular strikes. A local history teacher, Frank Allen, had found four gold coins on a beach that fitted a description he had read while doing research on the 1715 disaster. He advised us to dive nearby. Divers of both groups were working there one day, scouring the bottom with a water jet. Suddenly the clouds of sand and shell parted. There, before our unbelieving eyes, lay a carpet of more than 1,000 golden doubloons. We have since found more than twice that number, plus silver coins by the thousands.

As I write this, I have spread before me on my desk a few samples of the finds from only the past few months. Here are two round ingots; one weighing three pounds and the other eight pounds, of solid gold. Here is a 26-pound ingot of silver and a two-foot-long silver bar dated 1659. There are gold rings, religious medallions, and a collection of gold coins. But this is only a sampling.

As I said, we now estimate our total finds at more than a million dollars. But when I look back on our struggles over the years, the money value seems almost meaningless. The real treasure lies in our having touched hands with history.

Slowly we are filling gaps in the knowledge of the Plate Fleets. And we have only begun. We have definitely located several more wrecks, and in coming years we hope to fit together more pieces of the puzzle, the fascination of my life.

The excitement of the search, even the months of waiting and despair, have provided moments that could not be bought. Every find comes as a gift from the sea, and our best reward will always be the unforgettable thrill of discovery. THE END

King's ransom covers weather-beaten steps of the treasure hunters' beach cabin. Beyond the sands, only a few hundred feet from shore, lie remains of the 1715 fleet. Spread of artifacts includes a needle-eyed 20-pound sounding lead (center), almost identical with weights being made and used today. The State of Florida retains one-fourth of all finds under a licensing agreement.

Glint of gold, too bright for a shell, catches the eye of a beachcomber as he strolls the strand. Stooping, he lifts the object from the frothing surf. A golden doubloon! What incredible luck! "It happens," says the author. "I know, because it happened to me."

American Special Forces

HOW COOLNESS AND CHARACTER AVERTED A BLOOD

Article and photographs by
HOWARD SOCHUREK

WHEN IT STARTED, I was sitting with Special Forces Capt. Vernon Gillespie on a sandbagged bunker protecting one of his 81-mm. mortar emplacements. Gillespie's camp at Buon Brieng lay deep within Viet Nam's highlands in an area partly controlled by the Communist Viet Cong.

Overhead, low, scudding clouds obscured the moon, giving promise of rain. The captain was talking about the daily ambushes and the nightly Viet Cong probes of the camp's perimeter and about the school he was building for the children of the local village.

Suddenly he stopped in midsentence. He pointed, and I saw a flare arching up from the Communist-held summit of 2,772-foot Chu Muang. The flare exploded, drifting slowly down on its parachute. Two more followed. Their glare outlined the ridges of the forest-covered hills that hemmed us in.

"This," Gillespie said, "is trouble."

Little did I realize the kind of big trouble the captain meant. I had no idea that these three flares last September 19 signaled the beginning of a revolt against the Republic of Viet Nam by more than 3,000 heavily armed mountain tribesmen in five Special Forces camps . . . that on this signal the rebels would be killing 20 Vietnamese, capturing a hundred more, and seizing 20 Americans as hostages. These softly drifting flares ushered in a revolt that might have delivered more than half of South Viet Nam to the Communists.

The Author: Howard Sochurek's memorable "Slow Train Through Viet Nam's War" in the September, 1964, NATIONAL GEOGRAPHIC had been off the presses only a few days when he returned to Southeast Asia with another assignment: the United States Army Special Forces. The historic account he brought back demonstrates not only the reportorial skill that in 1955 won Sochurek the Robert Capa Award for "superlative photography requiring exceptional courage and enterprise abroad," but that other essential of every successful foreign correspondent: the uncanny ability to be in the right spot at the right time.

American and Communist, meeting briefly in an accident of war, flank an injured *montagnard,* one of the mountain tribesmen who revolted last fall against the Government of South Viet Nam in a

in Action in Viet Nam

BATH WHEN MOUNTAIN TRIBESMEN ROSE IN REVOLT

bid for autonomy. Gunman at left, a fomenter of the revolt, later proved to be a member of the Communist Viet Cong. He and the American at the wheel, United States Army Special Forces Capt. Vernon W. Gillespie, Jr., of Lawton, Oklahoma, represent forces striving for the allegiance of 700,000 tribesmen living athwart the Red infiltration and supply lines.

Armed outpost in a hostile wilderness, Buon Brieng shelters montagnards oppressed by marauding bands of Communist Viet Cong guerrillas. Here refugees find food, schooling, medical aid, and, above all, a measure of safety. They owe their survival to the Army's Special Forces, a new breed of American servicemen trained in guerrilla warfare.

Last March, the Special Forces arrived at this spot, then an embattled village of longhouses. With bulldozers they cleared the land and fortified it with barbed wire, trenches, mines and mortars, bamboo walls, machine-gun stations, and floodlights. They erected quarters for themselves and shelters for supplies within the inner wall (center) and scraped out the airstrip. The sanctuary soon filled with refugee tribesmen.

To protect the encampment, the Americans—two officers and ten enlisted men—trained and equipped a montagnard "strike force" of 700 men. The fighters man the barricades, range the forest on nightly patrols, battle the enemy in ambush, and spy out his strength. To aid the community, the Special Forces cleared the forest at upper left for vegetable gardens. Alongside the airstrip, they erected a cluster of huts, a white-roofed school, and tents to serve the refugee overflow.

Buon Brieng thus stands like an island—one of many such—in a sea of terror. It endures because of respect the montagnards like the Americans, who in turn admire the simple, honest mountaineers. But trouble arose, fanned by Viet Cong sympathizers within the encampment. Long-time enmity between the montagnards and the Vietnamese, who call the hill people "Moi," or savage, erupted anew.

On the night of September 19, the author saw three flares soar from a nearby mountaintop. They signaled the revolt.

SPECIAL MAP SUPPLEMENT

WITH AMERICANS dying in far-off Viet Nam, strange place names have burned into our consciousness—names like Gulf of Tonkin, and Buon Brieng, and Bien Hoa, where Communist mortar fire last November caused many casualties.

To enable National Geographic members to follow portentous events in that embattled part of the world, the Society's cartographers worked day and night to prepare a special four-color map of Viet Nam and its neighbors, backed with a complete index to its 1,558 place names. Small maps trace the emergence of today's troubled nations from old French Indochina.

This timely map, **Viet Nam, Cambodia, Laos, and Eastern Thailand,** reaches the Society's 4,475,000 members as an addition to the regular program of United States and World Atlas maps and large wall maps scheduled for 1965.

Scaled at 74.3 miles to the inch, the map gives up-to-date information on airfields, highways, and railroads, including Communist North Viet Nam's links with Red China to the north.

From this moment I was caught up in a war within a war, the revolt of the mountain people. Few reports of this fateful uprising filtered out of the highlands. But I saw it in all its confusion and terror, and I saw the handful of heroic Americans who—through sheer force of will—turned the tide.

I had come to South Viet Nam to report on the United States Army Special Forces there. To see them in action, I had visited Captain Gillespie's isolated camp. In this area the Special Forces employ *montagnards*, or hill people, as their "strike force." Some 30 tribes inhabit the highlands, many of them straddling the vaguely defined border with Cambodia.

The Special Forces have trained and armed almost 10,000 montagnards. Hardy and independent, these troops harry Communist infiltrators traveling the Ho Chi Minh Trail and form the backbone of Vietnamese resistance to a Communist take-over of the strategic highlands.

SPECIALISTS © NATIONAL GEOGRAPHIC SOCIETY

Bad news for the captain—five camps in revolt. But V Jhon Nie sat right beyond sandbagged, montagnard battalion commander at Buon Brieng, disregards radioed orders to attack the Vietnamese and instead defers to his friend Captain Gillespie, ranking American in the camp. Though his men fin-ger their weapons, V Jhon tells the tall American, "I trust you. We will wait. We will make a sacrifice, and the sorcerer will invoke the spirits to help us."

In tribal dress, Gillespie, V Jhon, and Captain Truong, the Vietnamese camp commander, march to the ceremony through clammy mist.

The forces at Buon Brieng included a montagnard battalion of 700—all drawn from the Rhadé tribe—commanded by Captain Gillespie's friend, Y Jhon Nie. The 12-man U.S. Special Forces team, plus 12 of their Vietnamese counterparts, rounded out the complement. The senior Vietnamese officer, Captain Truong, served as camp commander.

As we watched the flares die above Chu Mnong, Gillespie confided that a message had come earlier that evening from his headquarters detachment in Pleiku, alerting all Special Forces teams to demonstrations being planned by the montagnards against the Vietnamese Government. At that time, of course, neither of us linked the message with the flares. Gillespie explained the montagnard-government hostility as a continuing problem.

"The mountain people," he said, "just don't get on with the lowland Vietnamese."

"But what will you do about the message?" I asked.

"I'll call an alert sometime during the night. Concern over the Viet Cong will keep everyone occupied."

Camp Besieged by Constant Danger

Frankly, our situation, as I pieced it together, unnerved me. Here we are, I thought, surrounded by Viet Cong who nightly harass the camp with mortar and sniper fire. That isn't enough. The camp itself is indefensible against a large-scale attack. It could be overrun by a full battalion any time the Communists chose to do so—as they had done in July at another camp exactly like Gillespie's. Even that isn't enough. The camp is full of armed montagnards who resent the Government of South Viet Nam and the Vietnamese officers on the spot.

In a capsule, I thought, our situation here mirrored the complexity of the problem that the United States faces in Viet Nam.

As Gillespie and I left the bunker, I noticed that clouds now blotted the moon completely. Almost immediately the rain began—an ominous, chilling rain that made me shudder. I thought what a God-awful place this would be to die in. I wondered at the motivation of people like Gillespie. Why was he here? Why was I here? And I remembered a soldier's phrase, "Every man must face himself in a mirror every morning."

Before turning in, I visited the mess hall—a room built of split bamboo with an old camouflage parachute for a ceiling. Ammunition belts and grenades littered the tables. Two kittens gamboled on the concrete-slab floor. A Japanese tape recorder hummed unattended against a wall. In one corner, Sgt. Earl Bleacher tapped out Morse code to detachment headquarters.

Maybe I had grown paler as the night grew older, but I could tell the sergeant was concerned for my welfare. Maybe *this* was the night the Viet Cong would attack.

"You shouldn't worry," he said. "If things get too hot around here, we'll blow up the ammo bunker. That will divert attention long enough for all of us to gather at the mortar bunker. From there we'll make it through the barbed wire and out of the camp."

Summoning the spirits, the sorcerer sips rice beer through a bamboo straw. A chicken, dedicated as an offering to the gods, provides feathers for a ceremonial stirring of the potent brew (below).

Throughout the proceedings, a rhythmic beating on brass gongs accompanies the sorcerer's chanting. Intoxication from the beer comes as

part of the ritual. At its end, Captain Gillespie and Captain Truong pledge their allegiance to the Rhadé tribe (page 47), a device proposed by Y Jhon to safeguard them from the Rhadé rebels and assure himself of American protection.

Consoling words, I thought, to sleep upon.

It was after ten when I finally settled in my canvas army cot and tucked a moth-eaten mosquito netting under the blanket that served as a mattress. Two rats rummaged in a sack of rice in one corner of the hut. One bold giant, nearly a foot long, jumped on the night table where I had just put my watch and flashlight, knocking both to the ground. At least, though, I had a bed. About 200 of Gillespie's montagnards, led by Lt. John T. Horn, were out in the rain on patrol.

The night was quiet but I couldn't sleep. Suddenly a submachine gun stuttered somewhere nearby—then rifle fire erupted. I pulled on my boots and green fatigues and headed for the nearest bunker. Gillespie intercepted me, and I asked about the firing.

"Oh, that was the battalion commander, Y Jhon Nie, firing. It's our alert signal."

He invited me to tour the defenses with him. "It will settle your nerves," he said.

Radio Station Falls to Rebels

Together with Y Jhon, in the cold drizzle, we tramped around the camp perimeter. The two officers checked weapons, ammunition supplies, and defense posts. As we walked, Special Forces Sgt. Gene Bell lobbed flares from his mortar position for illumination. The shells exploded high above us, shedding an eerie on-off light as they drifted through the low rain clouds. By the time we finished, the rain had become hard and driving. I headed back to the bunkhouse. The rats prowled throughout the night as I slept fitfully.

Council of leaders assembles around an offering of food and seven jugs of rice beer. Large number of jugs indicates the gravity of the crisis and the urgency of the need for spirit guidance. Captain Gillespie, Y Jhon, and Captain Truong face the sorcerer. At times, participants lean forward and sip brew through one of the long bamboo straws, as Gillespie does during loyalty rites (opposite).

Clamping a bracelet about Gillespie's wrist, the sorcerer binds the tall American to the Rhade, one of some 30 tribes among the montagnards. By pausing in this time of extreme tension to take part in the two-hour ceremony, Gillespie exhibits his understanding of the mountain people he has been sent to guide and protect.

The following morning at 8:40 I was in the mess hall when a first radio message came from Ban Me Thuot, the provincial capital to the south. Sergeant Bell decoded it and gave it to Captain Gillespie who passed it on to me. It stated that the montagnards had rebelled against the Vietnamese Government. During the night, montagnard troops had marched on the city and taken the radio station on its outskirts.

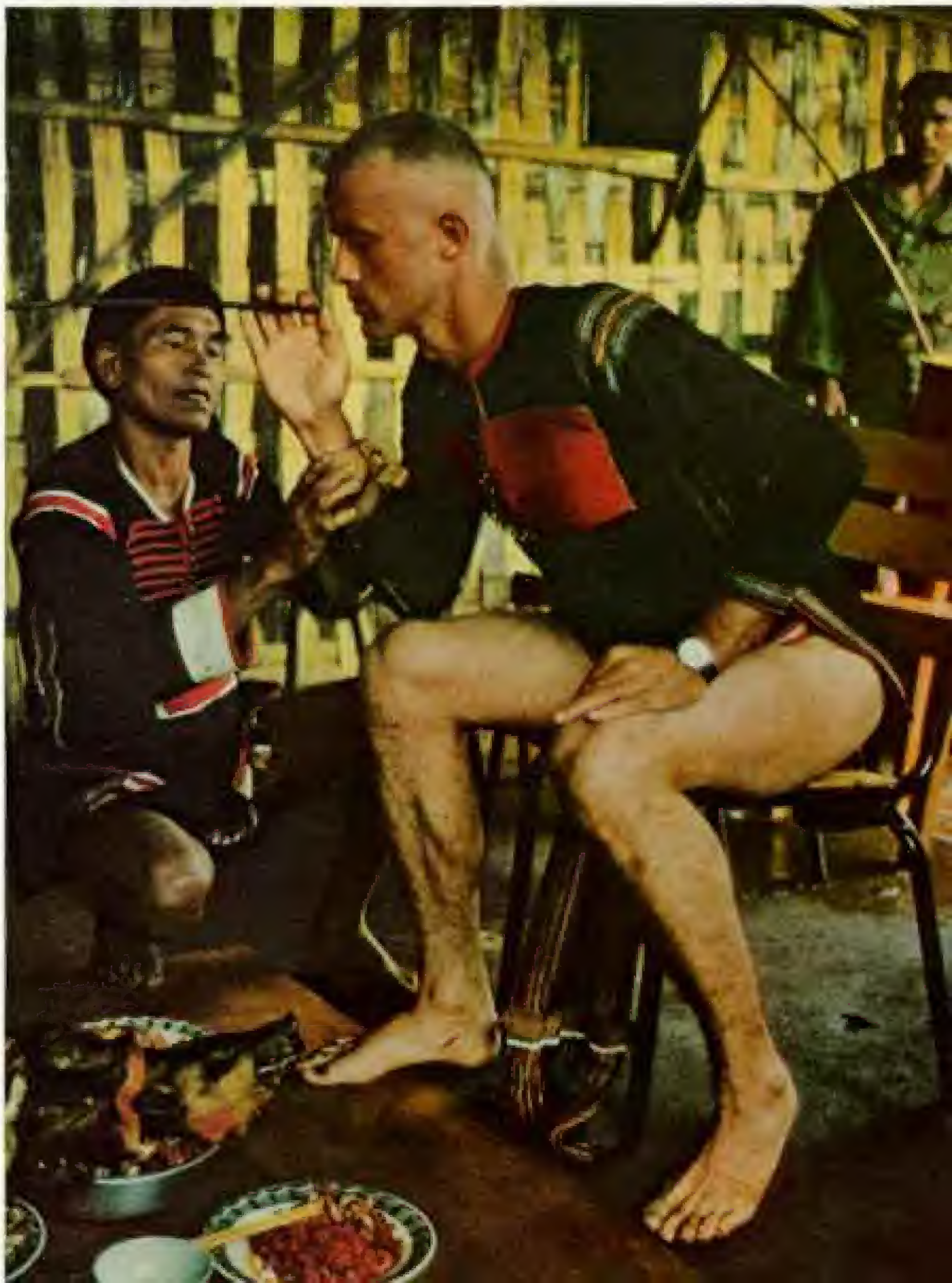
The parachute flares launched from the mountain the night before had started it all.

Captain Gillespie Takes Command

Before I could finish reading the message, Gillespie swung into action. Crisply, rapidly, he issued orders to his sergeants. Sgt. Gene Bell dashed out to tell Y Jhon Nie to bring his company commanders to the mess hall for a meeting "right now." Sgt. Billy Ingram, told to wire the ammo dump for electrical detonation, grabbed his wire cutters and ran. Sgt. Vincent Skeeba hustled over to the Vietnamese Special Forces to summon Captain Truong. Gillespie sent Sergeant Bleacher to round up all the Vietnamese Special Forces enlisted men and bring them to the American mess hall, *soonest*.

Y Jhon Nie arrived first, followed by his four company commanders. All wore full uniform and bush hats. Automatic rifles were slung over their shoulders. Captain Truong arrived poking his khaki shirt into his trousers.

Gillespie spoke. "I am taking command of this camp. A montagnard revolt has started.



Y Jhon, do not move against the Vietnamese here. They are under my protection. To kill them, you'll have to kill me first." He paused, the protruding vein in his right temple pulsing visibly, then continued more softly: "Y Jhon, your own life is threatened. The Viet Cong have infiltrated this camp. You and I both know it. Particularly watch your S-4 [Y Jhon's supply officer]. I want you to find four completely loyal men to guard you day and night. Take this seriously, Y Jhon, it is important."

After dismissing the group, Gillespie accompanied Y Jhon out of the mess hall. They stood alone. I overheard Gillespie, his right hand now on Y Jhon's shoulder, say, "I want no troops moved out of this camp until I say so, Y Jhon."

Spirits Dominate Mountain Tribes

His head bowed, Y Jhon moved a few paces off, then returned. In his fractured English he explained that he had just thought of a plan to keep the Vietnamese in the camp from harm at the hands of his montagnards. He and Gillespie —who were already blood brothers in the Rhadé tribe—would undergo a ceremony of alliance with Captain Truong and invoke the protection of the spirits. Gillespie agreed and Y Jhon hurried away to alert his sorcerer.

For the mountain people, life is dominated by an endless number of spirits that rule the fate of

Handshake seals agreement to keep the peace between a U. S. officer and montagnard, whose white arm band identifies him as a rebel.

LONE AMERICAN, *Maj. Edwin E. Brooks of Belleville, Michigan, leads a band of armed rebels away from the town they were about to attack. At the major's terse order, they abandon the radio station on the outskirts of Ban Me Thuot and follow the American back toward their base.*

By such acts a handful of officers and men of the U. S. Army Special Forces pulled the firing pin from the revolt of 3,000 mountain soldiers.

Bone-tired patrol sleeps on bare communal boards in a mountain barracks. Persuaded not to join the rebels by American officers, tribesmen at two camps continued their battle with the Viet Cong. Guns and packs hang at the ready.

Wounded by a grenade in a Viet Cong ambush, a montagnard gets an injection from a U. S. Army staff sergeant. Though montagnards killed Vietnamese Special Forces soldiers, no harm befell Vietnamese nurses in the camps.

men and animals, control the elements, and govern the harvest. These spirits must be cultivated and placated through sacrifices. The sorcerer, who possesses high status and great influence, deals directly with the spirits. To appease them, the montagnard may progressively offer a chicken, then a pig, finally a buffalo. Sometimes these sacrifices deplete the entire livestock population of a village.

So, in his difficulty, Y Jhon had turned naturally to the spirits. If he became allied to both Captain Gillespie and Captain Truong, he could not move against them, kill them, or harm them; at the same time, they would protect him. A simple solution for a simple man. At a time like this, I thought, a lesser man than Gillespie would not have realized the necessity of, or taken the time for, the ceremony. Gillespie's understanding may have been the decisive factor in keeping control of Y Jhon and the camp.

While Y Jhon summoned the sorcerer, a patrol returned to camp. Sgt. Ronald Wingo, soaked to the skin from the all-night rain that continued only as a gray drizzle, reported to Gillespie. Wingo, who had been out for 72 hours and had marched more than 40 miles, looked dead tired. But he found no rest. Gillespie ordered him to the motor pool to disable all vehicles. If they left camp, the montagnards would have to walk.

My admiration for Gillespie and his Special Forces unit increased. All 12 were professional American soldiers, superbly trained and superbly disciplined.

In a crisis, Gillespie moved—moved quickly and decisively to cover every possible eventuality ... yet he could put his arm on the shoulder of his good friend Y Jhon, in sympathy with his dilemma.

I went back to the mess hall. The radio crackled out another message concerning American hostages in two of the rebelling camps. Sergeant Bleacher scribbled the words as they came in. "Are you in the same boat with Bon Sar Pa and Bu Prang [both Special Forces camps]?" Sergeant Bleacher answered, "Negative, negative, all's well. Out."

American Dons Loincloth for Ceremony

Y Jhon arrived with ceremonial garb for both Captain Gillespie and Captain Truong. To me, the situation was fantastic. Here we were caught in the middle of a rebellion in a camp with 700 tough soldiers—all potential enemies. In one corner of the hall, a sergeant connected a storage battery to two wires that would blow five tons of ammunition, and maybe us, to kingdom come; in another corner his captain donned an embroidered loincloth, readying himself for a spirit sacrifice. The scene was grimly ludicrous.

Shortly after 10 a.m. we walked to the ceremonial hut. Huge brass gongs announced the arrival of the sorcerer, a sunken-faced man with watery eyes. A delegation of camp and village dignitaries faced a row of seven jars, each brimful of fermented rice mash and water—a potent concoction.

Food offerings lay beside the jars: one pig and a chicken as an offering for Gillespie; a chicken each for Y Jhon, Captain Truong, and the sorcerer. Chanting, the sorcerer communicated with the spirits. After each communication the participants sipped rice beer.

The climax of the ceremony came when the sorcerer, after one particularly long draught of brew, crouched alongside Captain Gillespie and fastened a brass ring to his right wrist. This—joining a twin ring from the previous ritual that had united Gillespie and Y Jhon—would give notice to the spirits that a suitable offering had been made.

Captain Truong, too, received a like bracelet, as did Y Jhon. Now all three were bound in alliance. The spirits having been appeased, the ceremony ended (pages 43-47). The rice liquor that remained in the seven jars was distributed to the soldiers in the strike force, as were the sacrificial chickens. The tension in the camp eased considerably.

During lunch, however, a message arrived from the Rhadé radio bunker just below the mess hall. Y Jhon wanted Captain Gillespie immediately. The Rhadé commander at Ban Don was ordering Y Jhon to join the rebellion and to march on the provincial capital. Gillespie and I hurried below. We found Y Jhon at the microphone, stalling for time.

Sandbagged timbers formed the roof of the underground radio room. The only light came from two eerily blue fluorescent bulbs attached to a gasoline generator chugging away outside. Water seeped from the clay walls, creating pools on the floor.

Y Jhon sat at a table holding a hand microphone. His eyes were frightened and wide.

Around him stood his four bodyguards. One wore a vest festooned with grenades, another kept popping the safety on his carbine . . . in and out . . . in and out. Y Jhon began to speak rapidly in Rhadé.

I looked for the interpreter to ask for a translation but Gillespie snapped, "Don't interrupt. Y Jhon has a lot on his mind."

The radio conversation continued as tension mounted. I prayed that the spirits would work their magic and keep Y Jhon on our side. Finally I managed a translation from the interpreter. Y Jhon had refused to join the rebellion. He was saying, "The great man in the sky knows that what we do is right."

Then Ban Don came through with a last transmission. "We cannot return to our camp. We go now to die. Out."

Y Jhon looked at Captain Gillespie with a pleading expression as if to say, "What shall I do?" Sensing the question, Gillespie said quietly, "Assemble the strike force."

The montagnards marched onto the parade ground, platoon by platoon. They were impressive soldiers, clean and well equipped. All carried weapons and ammunition. One husky, five-foot Rhadé machine gunner had slung 30-caliber ammunition belts over each shoulder. They enveloped him like huge shiny serpents. The soldiers stood in place, silent and tense.

Speaking first, Y Jhon explained frankly the details of the rebellion. The troops listened, grim-faced. I stood on the fringe of the parade ground with an interpreter, trying to sense the reaction of the troops. If they disagreed with Y Jhon's decision, they certainly didn't show it.

Lone Soldier Sways Tense Montagnards

Then Y Jhon introduced Captain Gillespie, saying: "The United States is the father of the Rhadé and we are the sons. When there is trouble between father and son, the son must listen to the father's advice."

As Gillespie stepped forward, the troops snapped to attention. He put them at ease. An interpreter at his side translated each phrase. He began, "The hearts of the Americans and the Rhadé are as one heart. The United States has come to help the Rhadé, to give food, to build schools, to plant rice. Our hearts are together now, but if the Rhadé change heart and fight the Americans, we will fight the Rhadé."

I winced. Strong words, I thought nervously.

Flying lifeline remains intact throughout the revolt at Buon Brieng: the United States Air Force C-123 cargo plane offloads supplies. With a capacity of as much as 12 tons, such aircraft bring everything the hamlet requires—food, clothing, building materials, medicines, ammunition, weapons. In good weather as many as three U. S. Air Force planes a day fly into Buon Brieng and other strategic camps.

Other American services lend strong arms to the Special Forces effort among the mountain people. The U. S. Navy keeps supplies pouring into depots for transshipment by the Air Force. And Marine helicopters stand ready with reinforcements whenever Special Forces under massive attack radio for help.

Climax of rebellion: Words—not bullets—win the day at the rebel command post, six miles from Ban Me Thuot. Speaking fluent French, Col. John Freund (opposite), from Vienna, Virginia, urges tribal leaders to stop the revolt. "If you don't leave here, the Vietnamese will bomb you," he says. Cham tribesman at right in red neckerchief, eventually revealed as a Communist, argues for a fight. Moments later, when Vietnamese fighter planes roared overhead, Colonel Freund's words struck home. Shortly, troops piled into trucks and rode back to their camp. The colonel went along as a willing hostage and remained a week.

coming from a lone soldier surrounded by a near-rebel battalion 700 strong. But Gillespie understood these men. It was obvious that he held their respect and, I think, their affection.

A helicopter that Gillespie had ordered earlier now droned overhead. Sergeant Wingo signaled the chopper that it was safe to land.

Y Jhon dismissed his troops. Smartly, company by company, they marched from the parade ground. Gillespie then told Y Jhon that he was going by helicopter to the provincial capital to see the rebellion at firsthand. He finished by saying, "I'd like you to come with me, Y Jhon." Turning half away, Y Jhon shifted his weight from side to side. Finally, with obvious reluctance, he agreed to go.

Maj. Edwin E. Brooks, over-all commander of United States Special Forces in the area, met us at the grass auxiliary airstrip in Ban Me Thuot. I already knew Brooks, a fine-boned, handsome man of wide-ranging interests. Soft-spoken and intense, he briefed us immediately: "Rebel troops are at the radio station on the outskirts of town. I'm

going down there now. We've got to get them turned around."

The three of us joined him. Our jeep raced past Vietnamese Army units—part of the permanent security force of the city—forming up to resist the rebel attack. I thought of how bloody an affair this well might become.

At the radio station, Brooks vaulted from the jeep. A fenced field of knee-high grass surrounded the two-story cement building. Rebel troops, in camouflaged jungle green, had dug in along the fence. They trained their automatic weapons on the major and on us.

Alone, Ed Brooks advanced toward the building. Alone, he strode to the center of the rebel perimeter. He could have been shot at any moment. But not a man moved. Brooks motioned Y Jhon to join him. I marveled at his coolness. This was raw heroism.

He summoned the rebel platoon leaders and explained, as Y Jhon interpreted, that the revolt was over. They were to return to their camps. Then he raised his right arm over his head in the military signal, "Follow me."

Insurgents Trail American "Pied Piper"

Brooks headed down the road that led out of the station, the rebellious troops following him. He was like the Pied Piper of Hamelin. What an incredible moment! Scores of tough soldiers, armed to the teeth, submitting to the will and leadership of a lone American major (page 49).

At the station gate, without breaking step, Brooks ordered Gillespie to get trucks for the troops from wherever he could, as soon as he could. Brooks knew that if he could keep these troops moving, the revolt would end. So he walked on. I walked with him. As we marched, Brooks signaled to other units dug in along the roadside. They fell in behind us.

Soon a jeep carrying other Special Forces officers skidded to a halt. They told Brooks that the rebels had set up a command post six miles down the road. Would he go there and deal with the leaders?

Leaving these officers to direct the exodus he had started, Brooks drove to the rebel command post. Two armed guards manned a closed gate. As we approached, they opened it just enough for the jeep to squeeze in.

The rebel leaders had moved here the night before to launch the attack on the provincial capital. Looking at the hundreds of grim montagnards and their heavy weapons, I asked myself again, "What am I doing here?" And I wondered if I would ever get out alive.

As we searched for the leaders, a truck arrived carrying closely guarded Vietnamese prisoners—mostly young civilians. Soon after, Captain Gillespie and Y Jhon arrived with the three truckloads of montagnards Brooks had persuaded to leave the radio station.

Just then Brooks spotted the leaders on the balcony of a montagnard house, their hard faces drained of color. Waving their pistols, they shouted obscenities at the returning troops—furious at this frustration of their plans. Brooks said, "Let's give them a little time to cool down." He sat on a log in the center of the compound.

As Gillespie walked from his truck, he spotted the Vietnamese captives, securely tied, huddling squat-legged in the yard.

I couldn't believe my eyes. Gillespie coolly walked over, drew his knife, and started cutting their bonds. Y Jhon, at his side, helped him. A Special Forces surgeon, Capt. Richard Haskell of Old Town, Maine, also lent a hand. A few rebels threatened Gillespie with their guns. I could hear safeties snapping off automatic weapons, but he continued cutting away until he freed them all. What a man!

When he had finished, Gillespie addressed a rebel interpreter. "Why do you risk all these lives?" he demanded. "Don't you know you may all be killed?"

The interpreter shrugged. "If I die here, the grass will be greener, the tree will grow taller, and the land will be free."

As a jeepload of other rebel leaders came through the gate, Y Jhon's face twitched with fearful recognition. These men, he confided to Captain Gillespie, were Communist montagnards from Cambodia. They disappeared inside a house at the center of the compound. Communication with the rebel leaders was clearly impossible for us.

"High Committee" Lists Rebel Demands

Shaken by the events of the day, I decided to leave this problem to the soldiers. I told Gillespie I would like to leave. He said, "We may all be held hostage. Get out if you can. Tell the rebels you are a journalist and will tell the story of the uprising to the world."

With rebel permission, I hopped aboard a messenger jeep and, unmolested, we headed back to Ban Me Thuot. I felt the moisture return to my palms and the perspiration well up on my forehead.

Once in the city, I checked in for the night

Heroic rescue under the guns of the rebel guard: V Jhon (left), Captain Gillespie (standing), and Capt. Richard Haskell from Old Town, Maine, cut the bonds of captured Vietnamese at the rebel command post. Twitch of a trigger finger on a burp gun could have cut them in two at any moment. By helping the Americans quell the revolt, V Jhon won enemies among his own people. He subsequently fled into hiding in the hills.

Faces that looked at death: Special Forces men and 20-year-old Tracy Atwood of Falls Village, Connecticut, an agriculturist with the International Voluntary Services, saw rebels massacre nine members of the Vietnamese garrison here at Ban Sar Pa.

with the U. S. Advisory Group. The group is housed in former Emperor Bao Dai's hunting lodge. Two pet honey bears were tied to the porch rail in front of my room. As I watched them roll on their backs and play with their toes, I was struck by the terrible incongruity of this peaceful frolicking while my friends risked their lives among the rebels.

At dinner I learned that circulars had been secretly dropped all over town that afternoon. Noting the grievances of the montagnards, the circular had been signed by the High Committee of the United Front for the Struggle of the Oppressed Race.

Table talk developed further that five Special Forces camps were involved in the revolt, or more than 3,000 men. A thousand montagnards had moved on Ban Me Thuot. The Vietnamese Special Forces in some camps had been killed, 29 men in all. In three camps, American officers had been held as hostages. Reference to "American imperialists" in the declaration of the High Committee smacked of Viet Cong terminology.

To quote the circular directly, "The American imperialists seek by all means to bring the nations of Southeast Asia into their war bloc . . . and shrink from no crime . . . to attain their goal."

Montagnards Threaten a New Attack

The next morning Col. John F. Freund of Vienna, Virginia, Deputy Senior Adviser of the Second Corps Tactical Zone, told me he was heading for the rebel command post. I joined him. On the way, we met Major Brooks hurrying to Vietnamese Army Headquarters with a rebel ultimatum. They threatened to resume their attack on the capital at 8:30 a.m.

"What are their demands?" Col. Freund asked.

"That all Vietnamese leave the highlands," Brooks answered.

We continued to the rebel command post, where the eagle on Freund's collar gained a speedy admission. Captain Gillespie and Y Jhon were standing in the yard. They had survived a spine-chilling night under armed guard. Alcohol had flowed freely and occasionally a drunkard had discharged a pistol or carbine.

Gillespie told Colonel Freund that he held little hope for regaining control of the situation. To his mind the montagnards had been duped into an uprising by hard-core Communists of the Viet Cong.

Colonel Freund, however, was confident. He mounted the ladder at the center of the balcony of the rebel leaders' quarters and addressed the troops in fluent French (page 54). The platoon commanders gathered to listen, and a few leaders came from the house. Colonel Freund spoke of the United States' friendship and help for the Rhadé. He posed the question, "Who will now continue this role? Where will you get rice and clothing and medicine?" Their cause, he said, was hopeless without United States aid.

He pointed at the leaders, asking them, "Who of you will be responsible for the blood of these men?"

Mountain madonna, with one child at her breast and another laughing into her face, sees her way of life threatened. Her people, of Malayo-Polynesian origin, took refuge in the hills centuries ago. Now they live among thousands of newly settled Vietnamese, who clear tribal areas for themselves, while Viet Cong guerrillas make the highlands a battleground. Thus thrust into the 20th century, the montagnard strives to find his footing in the tides of change.

Stilted, thatched huts shelter some 25 families near the protected hamlet of Gia Vuc (page 61).

As if on prearranged cue, two Vietnamese fighter planes roared across the compound at treetop level. Murmurs came from the troops. Colonel Freund's words—backed by air power—were convincing the men, if not their leaders. The tide was turning.

Finally, Freund made a face-saving offer. He would return to the rebels' Bon Sar Pa camp with them to prevent reprisals by the Vietnamese. This proved to be the deciding gesture. In mere minutes, a force of 400 men struck camp and piled into trucks to take up the long trek started by Major Brooks. The Communist leaders made no effort to resist. They stood glumly on the balcony, wordlessly watching their plot collapse.

White-tailed Birds Provide an Omen

Freund ordered Gillespie to take the lead in the convoy. He would follow in a second jeep with the rebel company commanders.

The route wound through treacherous ambush country. I remember discussing with Gillespie the fact that throughout the rebellion there had been no serious Viet Cong attack in the area—one more indication of Viet Cong involvement.

Around a sharp turn we came upon an overturned jeep with five rebels sprawled across the road. Gillespie braked, jumped out, and gave first aid. We loaded the men into our jeep.

As we continued, I sat on the hood. At my side was Y Jhon. Two beautiful, small white-tailed birds winged out in front of us and led our way for a mile or so down the road as it passed through dense forest. Y Jhon—ever

Youth and age reflect the plight of a people caught in the middle of rebellion: a barefoot youngster, with a baby brother on his back, and an old man with his pipe.

No man's land known as Viet Cong Valley leads to Gia Vuc, a walled village of montagnards protected by a nearby Special Forces encampment (out of picture at lower left). Red guerrillas, who control the road, so harass convoys that only five have managed to get through in the past five months—and they suffered 10 percent casualties.

Night after night, the Viet Cong hits this hamlet in the Valley of the Wind. Special Forces men realize that one day enemy fighters may overrun the camp. "When they do," says one officer, "we will stand right here and die if we have to."

Rendezvous at dawn: Helicopter pilots breakfast beside their aircraft at Ban Me Thuot, awaiting the signal to evacuate Special Forces units from rebel camps. The decision to pull the Americans out came after the Vietnamese Army was ordered to retake the camps, by force if necessary. The rebels capitulated peacefully, and within a few days Special Forces teams returned to duty at their mountain posts.

Three stars on rebel flag represent the three largest mountain tribes. The banner, briefly flown over a rebellious hamlet, was given by montagnards as a souvenir to Capt. Edward A. Spencer of Albuquerque, New Mexico, and 1st Lt. George Markos of Fort Worth, Texas.

alert for omens—smiled, saying, "It's good, it's good."

A two-hour drive brought us to Bon Sar Pa. On the veranda of the mess hall I spotted a young man with a cowboy hat and a blue 4-H blazer—Tracy Atwood, an International Voluntary Services agricultural adviser who had been caught in the camp during the revolt. The IVS is a kind of privately sponsored Peace Corps. Tracy's first words to me were, "Don't take my name. If my mother knew about this she'd have a heart attack."

When Colonel Freund led the montagnards back into the camp, he became a willing hostage. He sent Y Jhon and Gillespie out by helicopter along with a frightened Vietnamese lieutenant who had been captured. But true to his word, he remained. I returned to the provincial capital with Tracy Atwood. Later he told me what had happened on Saturday night in Bon Sar Pa.

Bullets Ricochet From Mess Hall

Because of the possibility of a Viet Cong attack, Tracy had pulled into the camp from a village where he had been instructing tribesmen in potato planting. The montagnard battalion commander, Y Mut, warned Tracy of impending trouble.

At 1 a.m., four of the montagnards awoke the Americans saying, "This is our night. We are taking over." Having disarmed the U. S.

Special Forces detachment, the rebels ordered the Americans to go to the mess hall.

"On our way," Tracy told me, "shooting started at the Vietnamese Special Forces quarters. We hit the ground and crawled the last few feet to the mess. Shooting continued for half an hour, and some bullets ricocheted from the mess hall walls. I saw one Vietnamese killed as he ran toward the mess hall seeking protection. His head hit the front step and his body convulsed as he died there. At 2 a.m. the montagnard leaders told us that all troops save a rear guard had left the camp. They planned to take Ban Me Thuot at 7 a.m."

In the morning, several American supply planes had flown overhead, but none landed. All through Sunday Vietnamese captives were herded into the camp. Tracy told me, "One of the Vietnamese was my friend the District Chief. He saw me and said 'Hi, Tracy.' I thought: Good God, I'm going to be shot because he knows me!"

Anxious to learn the causes of the rebellion, I accompanied the Special Forces surgeon, Captain Haskell, to another rebel camp. Haskell went by helicopter to treat 13 montagnards caught in a Vietnamese ambush.

When we arrived, three of the wounded had already died. While the doctor operated by flashlight on a man with grenade fragments in his leg, I talked to one of the montagnard leaders. He was an old soldier who had

Target of terror, a child peers into an uncertain future. With her mother and brother, the youngster listens as her father, a montagnard who works with the Vietnamese in Ban Me Thuot, explains to the author the aspirations of his people: "We need education and direct American aid to develop the land. We need an opportunity to travel and representation in the government. Revolt may not be the answer, but we need help."

Sleep of exhaustion overtakes Captain Haskell after 72 hours of ministering to the wounded and dying of both sides in camp after camp. Here at Buon Mi Ga the Special Forces surgeon has just finished operating on five montagnards, wounded in a Vietnamese ambush.

personally killed more than a hundred Viet Cong. He told of many grievances against the Vietnamese.

He accused them of selling antibiotic pills —gift medicine from the United States—to the montagnards for a dollar apiece. Vietnamese officers, he said, had withheld pay from wounded soldiers. The bill of particulars seemed endless.

"If the Americans don't support the Rhadé people now, the Rhadé will never forget," he concluded. "We want independence. If you don't help us, we'll take to the jungle. . . . Our leader, Y Bhum, is in Cambodia. He wants to meet with the United States Government in the next 90 days. See Y Bhum quickly before he goes elsewhere for help."

At lunch Captain Haskell, who had operated all morning, fell asleep at the table. He couldn't eat. He had been up for 72 hours.

The next day I visited still another rebel camp. The leaders mentioned six demands: (1) a representative in the Vietnamese Government; (2) direct military and economic aid from the United States, not Vietnamese administration of aid; (3) command of their own troops by their own officers; (4) province and district chiefs all to be montagnards; (5) permission to travel abroad; (6) return of tribal lands and removal of Vietnamese colonizers.

Revolt Ends, but Old Hatreds Survive

A week of delicate negotiations, climaxed by a Vietnamese ultimatum to the rebels to surrender or face an all-out attack, ended with the capitulation of the montagnards. Colonel Freund and all the other Special Forces hostages returned by helicopter to the airstrip at Ban Me Thuot, their ordeal successfully ended.

This handful of dedicated Americans, with an awesome display of personal courage, had managed to halt the revolt—a revolt that could have drenched the central highlands in blood and perhaps delivered this vital area to the Communist Viet Cong.

Within a few days, my friends of the Special Forces were back at their posts in the mountains, fighting their lonely, bitter war. Linked once more by an uneasy truce, the montagnards and Vietnamese fought side by side against the Communists.

But old grievances and old hatreds remained unresolved: any night another flare from the summit of Chu Mnang could spark another uprising. And out in the shadowy jungle, ever ready, ever waiting, ever plotting, lurked the Viet Cong. THE END

Royal Wedding at

Jaisalmer

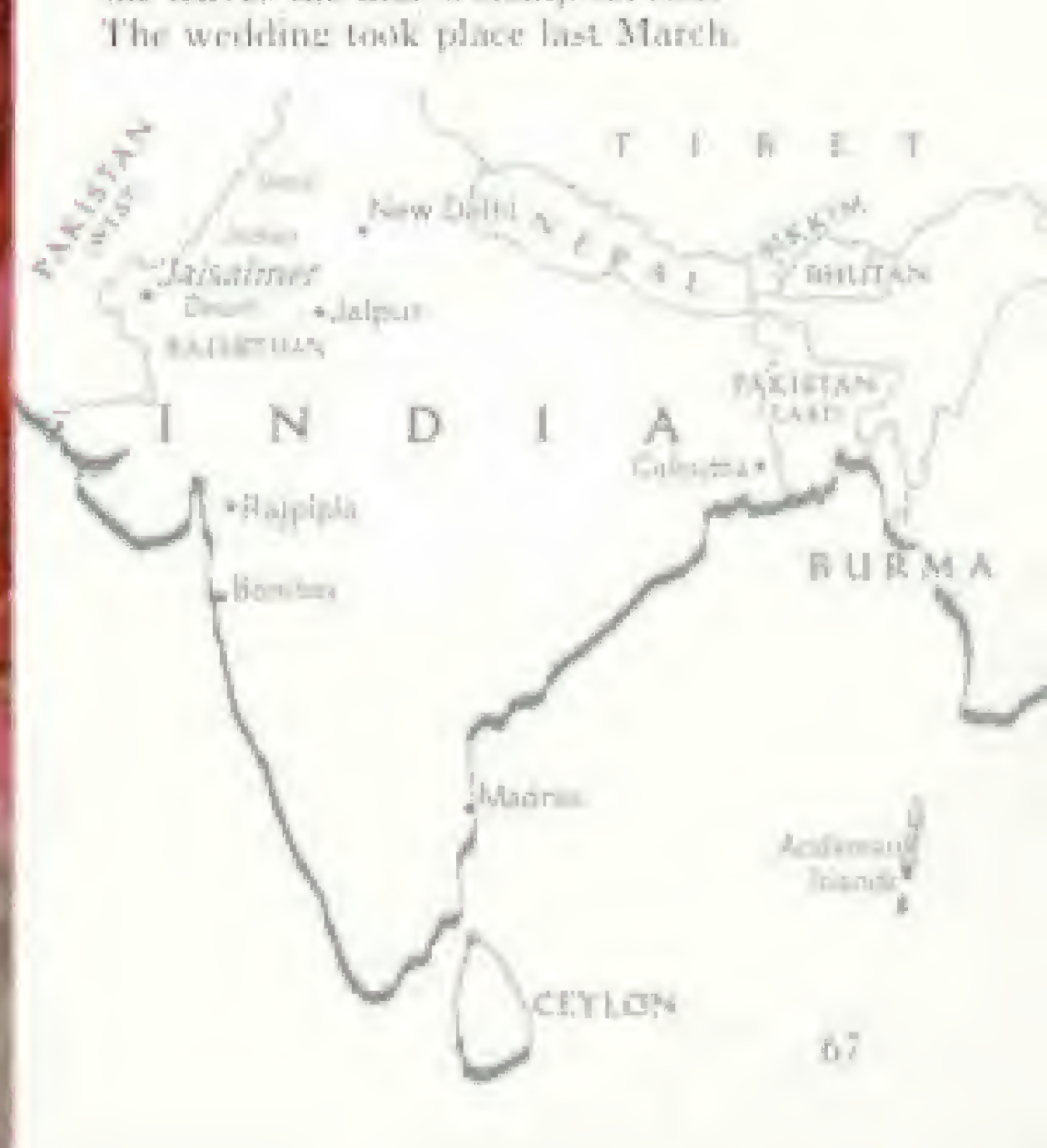
Picture Story by
MARILYN SILVERSTONE

OUT OF AN AGE THAT HAS ENDED—the splendid, doomed world of India's maharajas—comes a moment of princely pomp and power, a royal wedding. Perhaps the last of its kind, it glows with sunset glory. In four days of ceremony and celebration, Rukmani Kumari, Princess of Jaisalmer, becomes the bride of His Highness Raghubir Singh, Maharaja of Rajpipla.

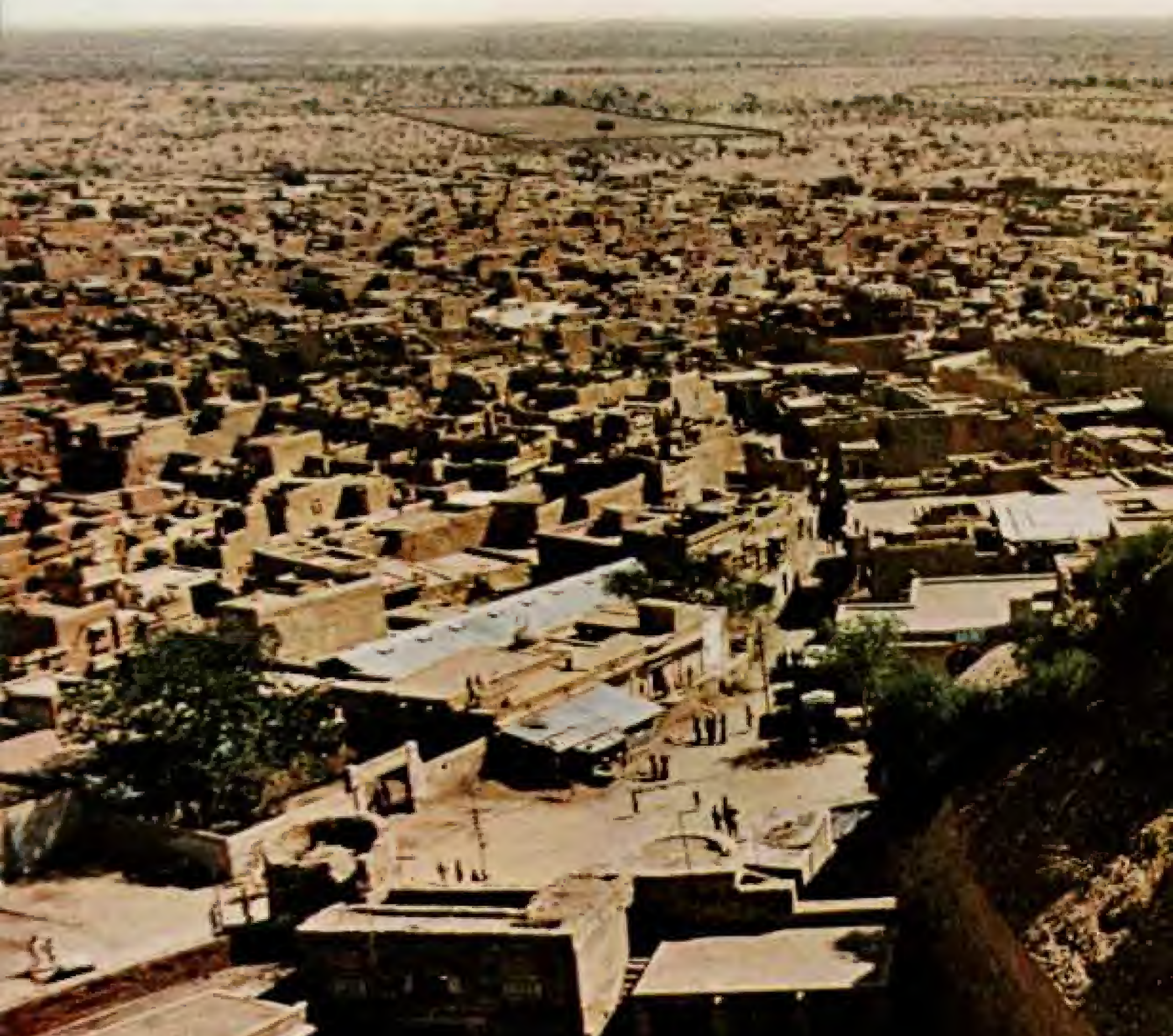
The bride's ancestor, Rawal Jaisal, founded the kingdom of Jaisalmer eight centuries ago in a rocky oasis of the Great Indian Desert (map, below). He and his descendants exacted loyalty and taxes from villagers in exchange for protection. Members of the warrior caste, Rajput maharajas of Jaisalmer defended their Hindu faith against Moslem invaders, fought honor-proud battles with nearby kingdoms, and pledged allegiance to British India.

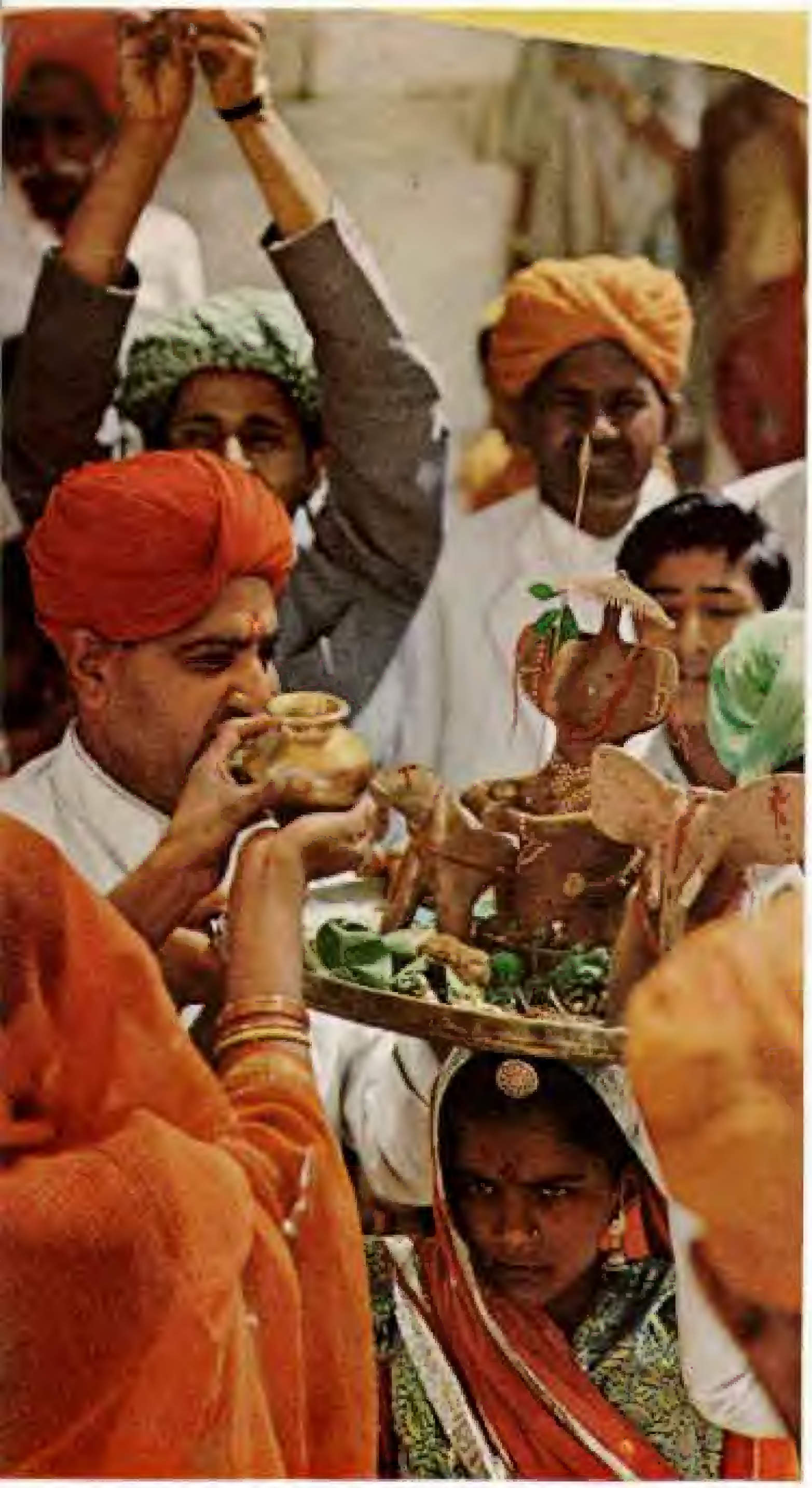
Deposed with other local rulers by independent India in 1947, the Princess's grandfather, Sir Jawahir Singh, exchanged his lands for a tax-free stipend of $37,800 a year and retention of his title. Today the bride's elder brother heads the family. Her mother, in accord with tradition, arranged the union with the couple's consent.

Saffron canopy shades the bride as she leaves the first worship service. The wedding took place last March.



HOWL OF WIND AND BLAST OF SAND *pose the last threats to the fortified palace of Jaisalmer and its half-abandoned city. Once the desert citadel welcomed caravans of laden camels; soldiers on its ramparts guarded against invaders from the west. Now the Maharawal, as Jaisalmer calls its maharaja, lives in another palace and uses his ancestral home only for special occasions. Here a festive crowd mills about the outer gate to the fort.*





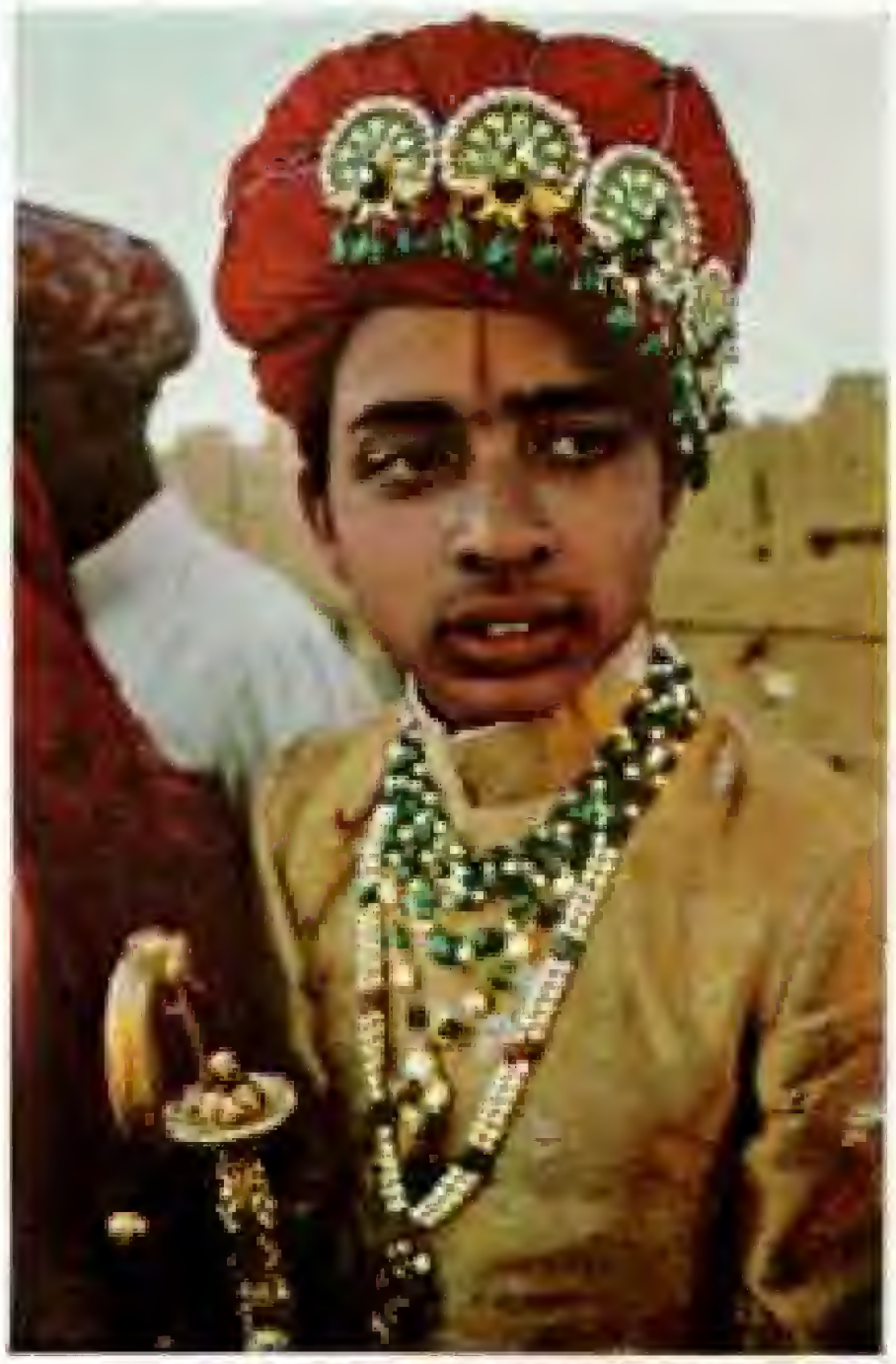
"**Remover of Obstacles,**" the elephant-headed God of Success, Lord Ganesa, arrives. A young girl carries the clay image, here flanked by figures of a horse and elephant. Pious Hindus invoke this deity's name at the beginning of business and religious functions. Orange-turbaned priest will install the god at the bride's first worship ceremony. To provide additional insurance for marital success, astrologers months earlier chose the most favorable moment for each event in the nuptials.

Wanderer in desolation, a sacred cow walks empty Jaisalmer streets lined with crumbling mansions, known as *havelis*. Stone latticework of the balconies offers privacy while allowing breezes to blow through rooms beyond. Moslem masons carved some of the balconies from single blocks of locally quarried yellow stone.

Rich merchants built the houses in the 19th century when Jaisalmer was a way station of 35,000 inhabitants on the caravan trail. Bypassed by the construction of a railroad 90 miles away and sidelined by the partition of the Indian subcontinent into India and Pakistan, Jaisalmer today shelters only 8,000.

Some deposed maharajas turn their palaces into hotels, some enter government service, some retire to Europe. The Maharawal of Jaisalmer, who served after partition in the Indian Parliament, works to preserve the havelis for their historic and architectural value.

Family jewels embellish the bride's 15-year-old brother, Maharaj Chandravir Singh. Emeralds and pearls form peacock designs on his turban. Royal sword—once worshiped as a protector—recalls the powerful Rajput oath, "By this weapon." *Tilak* or red streak on his forehead indicates participation in a Hindu ceremony.



O bounteous Indra,
make this bride blest in
her sons and fortunate!

RIG-VEDA

Gowned in saffron for dedication, the bride walks to a religious service on the wedding day. Her sister-in-law, the Maharani of Jaisalmer (left), wears a Rajasthani dress of five colors. Gay flags flutter beyond the window.

An impressive heritage imbues Rajput princesses. Traditionally adept in swordplay, they have led armies and directed governments. Rather than face dishonor, women have thrown themselves on burning pyres. Religious Rajputs practiced suttee—widow-burning—until the mid-19th century, long after the British outlawed it. "A husband must be constantly worshiped as a god," say the Laws of Manu, and the faithful wife wished to follow her lord in death.

Sacred fire burns under the wedding *mandap*, or tent (right). Priests prepare uncooked rice, barley, and sesame. Each step in the preliminaries must be faithfully followed. To the orthodox Hindu, marriage is a holy, indissoluble union of families as well as individuals.

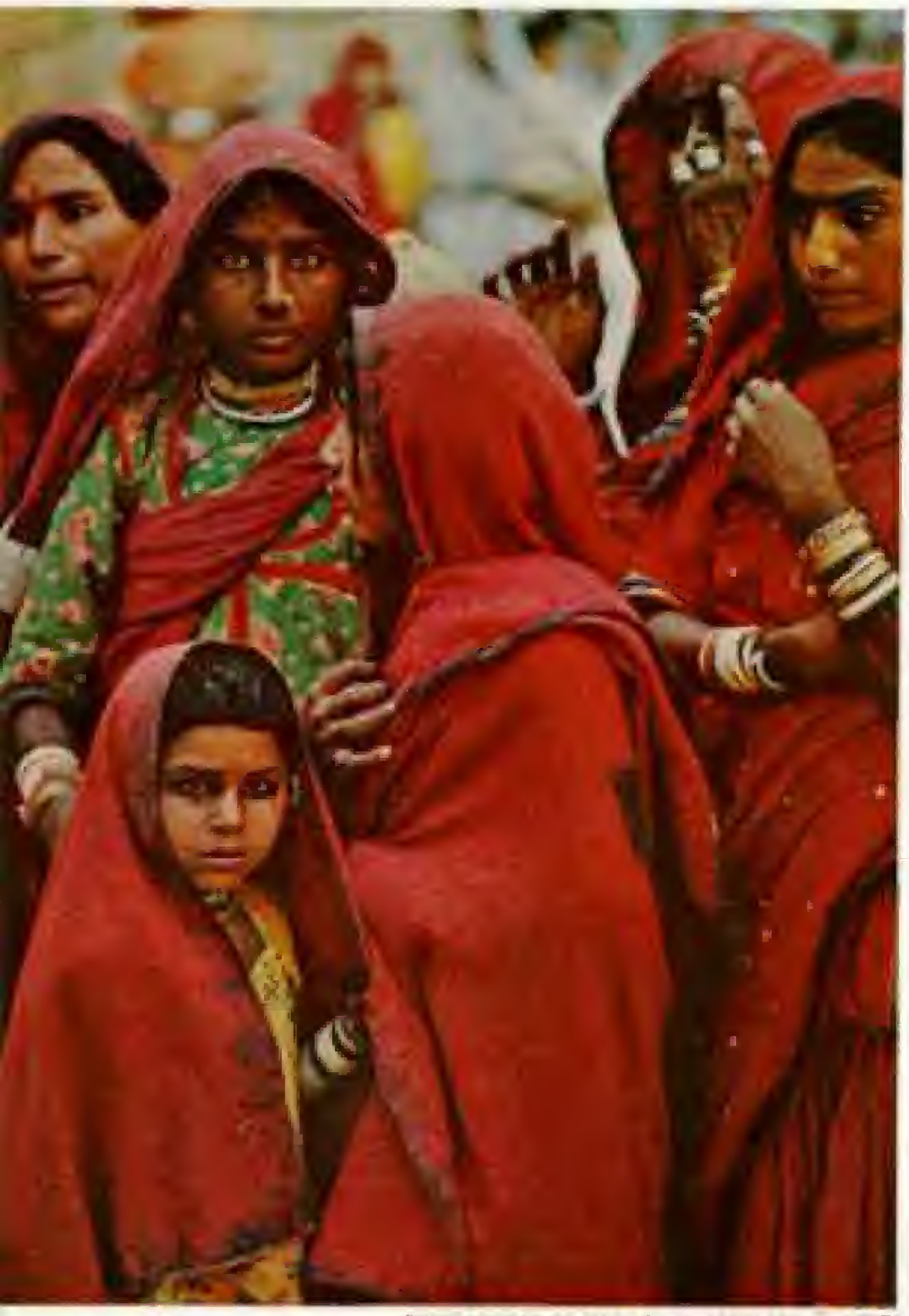
For good luck, the Maharani paints the bride's hand with henna. If the color remains bright, Hindus believe, her husband's love will endure.

Let women be constantly supplied with ornaments at festivals and jubilees.

LAWS OF MANU

Townswomen wear their best jewelry and the traditional garb of Rajasthan. Inside the Jeep another woman guest keeps purdah, a way of life which hides her from all men save those in the family. From the vehicle she steps into the yellow *chattri*, a curtained umbrella, that will be trundled to the palace doors. Only women, the bride's male relatives, and the groom attend the ceremony.

Eyelids rimmed with antimony, heads draped in red *odhnis*, curious villagers watch the procession of gifts and glimpse the Maharaja who comes to claim their princess (pages 76-7). Nose studs identify married women; ivory, bone, and silver jewelry proclaims a husband's wealth.



Gifts from the groom: Attendants carry 51 trays of saris, slippers, dried fruits, jewelry, and sweets. The men come from an elaborate camp outside the city where the bride's family houses the groom's party of more than 200.

The bridegroom cometh! Crowds surge forward and the drama unfolds in accordance with tradition. The Maharaja of Rajpipla, leaving the satin-covered Jeep, mounts a horse and signals his safe journey through once-dangerous desert. Stretching tall, he strikes the gilded toran above the fort's Sun Gate with a wand. From this instant —a moment chosen by astrologers—the life of his bride is set. Should he die, custom decrees that she be considered a widow, never to remarry. Within the palace, the bride pays final obeisance to the God of Success and is anointed and dressed for the actual wedding ceremony. Fluorescent lights in V shape flank the gate.

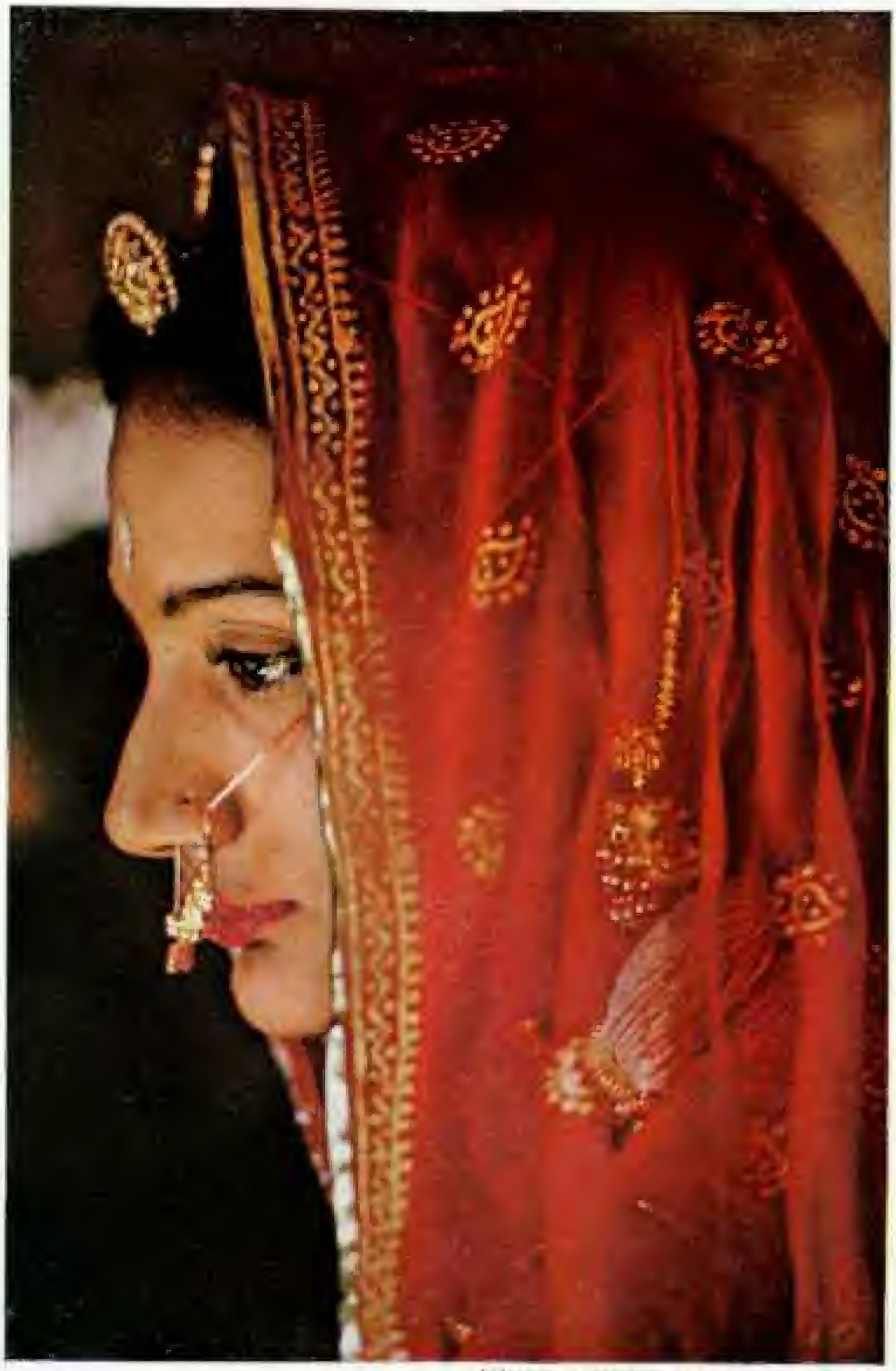
Resplendent in wedding crown and brocaded *achkan*, the bridegroom enters to meet his wife-to-be; as a Hindu, he looks on her as a gift from the gods. Symbols of royalty surround him: the ceremonial umbrella, yak-tail whisk, sword, and jewels. Policemen hold back a throng of well-wishers. Distant camels form part of the guard of honor sent by the bride's family to escort him from his camp.

Without my lord, my life to bless,

Where could be heaven or happiness? RAMAYANA

Before the sacred fire, symbol of purification, the couple exchange solemn vows with their right hands bound. During the hours-long ceremony, the priest reads in Sanskrit from Vedic texts. Toward the end, the couple take ritual steps around the fire, sealing their marriage.

Wife of two worlds: Though married in the old tradition, the new Maharani of Rajpipla is a matron of progress. She holds a master's degree in philosophy from Rajasthan University in Jaipur. The new Hindu code safeguards her property rights, assures her a share of her husband's estate, and guarantees that he will take no other wives. Only on festive occasions will she wear the jewel-weighted nose ring of the married woman. Soon she will accompany her husband to the United States for his advanced studies. But traditional or progressive, the bride believes with the Rig-Veda: *"Perfect, O Gods, the union of the wife and husband."*



Profiles of the Presidents: The second of four articles

A RESTLESS NATION

FROM ANDREW JACKSON through James Buchanan, a generation of Presidents faced westward. In this age of "manifest destiny," ambitious, restless settlers surged ever farther beyond the old frontiers. It became the task of Presidents to push the national boundaries to the Pacific—an American dream finally realized by James K. Polk.

Presidents of this era also faced the hopeless task of mediating the bitter quarrel between South and North over whether western areas should become slave states or free.

Jackson was the first westerner in the White House; three other Presidents of the period—Harrison, Polk, and Taylor—also came from the West. Their nicknames suggest the aura of western informality that surrounded them: "Old Hickory," "Old Tippecanoe," "Young Hickory," and "Old Rough and Ready." Three first won renown as Indian fighters on the frontier; the fourth, Polk, gained election by advocating sweeping expansion.

MOVES WEST

By FRANK FREIDEL

Professor of History, Harvard University

During these years, even Presidents from the seaboard wrestled constantly with western problems: Martin Van Buren and John Tyler with the question of Texas; Millard Fillmore with the territorial quarrels following the Mexican War; and Franklin Pierce and James Buchanan with "bleeding Kansas." The fact that during this 32-year span no President save Jackson succeeded in winning re-election indicates to some degree the difficult nature of these problems.

The spirit of westward expansion cannot be dismissed as merely one of selfish aggrandizement. It was accompanied by a sense of mission, a desire to see the inhabitants of areas outside the boundary of the United States join the great democratic experiment of their own free will. Ex-President Jackson, advocating the annexation of Texas, wrote in 1843 of "extending the area of freedom." At the close of the Mexican War, Albert Gallatin, who had served as Secretary of the Treasury in the Jefferson Administration, exhorted the American people: "Your mission is to improve the state of the world, to be the 'model republic,' to show that men are capable of governing themselves. . . ."

Inevitably, the wave of settlers forced back the Indians, who fell victim to a great tragedy of American history. Jackson, like most frontier figures, felt scant sympathy for them; as President, he authorized a long-planned removal policy, transferring them beyond the thrust of settlement onto the western plains.

In 1843 when a group of Wyandots, the last Indians to be removed from their traditional lands in Ohio, journeyed by steamer down the Ohio River, they stood in silent respect as they passed the tomb of President Harrison, under whose command a number of them had fought. Their chief proclaimed, "Farewell, Ohio, and her brave."

Soon the Indians were gone, the hunting grounds of their fathers transformed into plantations and farms. The "star of empire" unswervingly continued its move westward.

From the courthouse steps, an official proclaims election results. Young democracy flexes its muscles in an exercise at the polls, building strength for greatness. In the generation between the tough Andrew Jackson and the cautious James Buchanan, the United States grappled with the burning issue of slavery that later exploded into the Civil War. By 1855, when Missouri artist George Caleb Bingham painted "Verdict of the People," property qualifications for voting had vanished; citizens trooped to the polls in lusty fashion. Jug and keg in wheelbarrow served to cut the dust from dry throats.

SEVENTH PRESIDENT 1829-1837

ANDREW JACKSON's Inauguration in March, 1829, celebrated the coming into political power of a new America. Farms and plantations were spreading rapidly westward beyond the Mississippi River; newborn cities were revolutionizing commerce and manufacturing.

Countryside and cities alike stirred with ambitious men striving to improve their lot, impatient to overthrow older, more aristocratic political and economic institutions. In President Jackson they found their hero and their spokesman. Jackson, in his rise from a Carolina log cabin to The Hermitage, a gracious plantation home in Tennessee (page 89), typified their aspirations; in his insistence that Americans should enjoy equality of opportunity, he voiced their credo.

More nearly than any of his predecessors, Jackson was elected by popular vote, and as President he acted as the direct representative of the common man.

Nine-year-old Shows Off His Learning

Jackson was born in the Waxhaws, a backwoods settlement on the border between North and South Carolina, in 1767, two years after his Scotch-Irish parents had migrated from northern Ireland. His father died shortly before he was born. Jackson received scant education, but liked to recall with pride that as a 9-year-old he had read a newly arrived copy of the Declaration of Independence to a group of illiterate frontiersmen.

At 13 he served as a messenger with American troops, surviving several skirmishes; captured, he refused to polish a British officer's boots and received a saber blow on his head that scarred him for life. His mother died when he was 14. In his late teens, he read law for about two years, but was more interested in cockfighting, horse racing, and wrestling.

Jackson and a friend joined the first party to traverse a new wagon road to the settlement of Nashville in the fall of 1788. Remarkable for his physical courage and audacity rather than for his legal knowledge, Jackson commanded respect on the frontier. He rapidly established himself as one of Tennessee's outstanding young lawyers.

In many respects Jackson epitomized the frontier ideal—fiercely jealous of his honor, he engaged in brawls, and, in one duel, killed a man who cast an unjustified slur on his wife Rachel (page 88).

He speculated in land and assorted business ventures, losing money to banks and eastern financial interests in time of panic, but prospering sufficiently to buy slaves, plant cotton, and build a splendid mansion. He was the first man elected from his state to the House of Representatives, served briefly in the Senate, and became a judge notable for his practical approach to the law. In 1801, he was elected to be major general in the Tennessee Militia by the field officers.

Taking to the field despite a wounded arm, he punished the Creek Indians for their massacre of frontiersmen and in 1814 gained a commission as major general in the United States Army. Imposing an iron discipline on mutinous regiments from the southwestern frontier, he beat back seasoned British troops that had earlier won victories under Wellington in Europe. Jackson's final triumph in the Battle of New Orleans, January 8, 1815, established him as the hero of a generation of Americans (pages 84-5).

Inauguration Nearly Wrecks White House

In the chaotic politics of the 1820's, as national party lines and issues were obliterated by sectional tensions, the increasing number of voters led to the building of new-style parties and factions in state after state. Already in 1824 some of these rallied around Jackson; by 1828 still more raised his standard.

By proclaiming their allegiance to "Old Hickory," who had committed himself on scarcely any of the troublesome issues of

Tempestuous Andrew Jackson, whose frontier reputation horrified the genteel, won the hearts of the people. John Quincy Adams remonstrated when Harvard conferred a doctorate of laws on a "barbarian who could . . . hardly spell his own name." Jackson killed one man in a duel and was shot while threatening to horsewhip another. He often clashed with Congress, fought anything smacking of special privilege, and by the force of his personality strengthened the office of the Presidency.

the day, these factions lured to the polls in 1828 more than three times as many voters as four years previously, and thus won numerous state elections and control of the Federal administration in Washington.

Jackson's Inauguration was "a proud day for the people," a Kentucky follower, Amos Kendall, reported in his newspaper. "General Jackson is *their own* president." But Justice Joseph Story of the Supreme Court, distressed by the jam of people that nearly wrecked the White House, lamented, "The reign of King 'Mob' seemed triumphant."

Although such scenes bracketed his terms of office—another boisterous throng hacked up a 1,400-pound cheese at Jackson's last public reception in 1837—Old Hickory brought sophistication to the White House. More than $50,000 went into renovations and furniture. Excellent foods and fine wine graced his table which, in the words of one guest, featured "every good and glittering thing French skill could devise."

Among his first acts, the new President tried to open Federal jobs to any competent citizen. Already state machines were built

Battle of New Orleans, a smashing American victory in the War of 1812, started Andrew Jackson toward the Presidency. General Jackson united regular troops, Jean Lafitte's pirates, Santo Domingo "free men of color," Choctaw Indians, and his own backwoodsmen (left), to defeat veteran British regiments (right). Jackson directed a withering fire in which 2,000 invaders fell. Americans lost but a few score.

Man on horseback. Jackson became a national figure, even though his victory came after peace had been signed. For British Gen. Sir Edward Pakenham, the battle brought death from wounds and a voyage home in a cask of rum.

PAINTING BY ALONZO CHAPPEL, COURTESY MUSEUM OF THE CITY OF NEW YORK

on patronage, and Senator William L. Marcy openly proclaimed, "To the victors belong the spoils."

Jackson took a milder view. Decrying indifferent or corrupt officeholders who seemed to enjoy life tenure, he complained: "Office is considered as a species of property, and government rather as a means of promoting individual interests than as an instrument created solely for the service of the people." He thought that Government duties could be made "so plain and simple that men of intelligence may readily qualify themselves for their performance. . . ." Opponents charged Jackson with a "general proscription" of officeholders, yet he removed only about one-fifth during his two terms, and some of these for sound reasons.

A complete turnover of Federal offices when a new party came into power did not begin until 1841. By that time much of the apparatus of the new politics had been developed: national organizations, nurtured through patronage and spreading their views through a party press; nominating conventions to choose candidates, draft platforms, and proclaim slogans.

Celebrators storm the White House after Jackson's Inauguration in 1829. Inside, muddy boots climbed silk chairs, fists flew, china crashed, and ladies fainted in the crush to greet the President. Jackson retreated out a back door; tubs of punch placed on the lawn lured the crowd outside. British caricaturist Robert Cruikshank recorded the tumult in "The President's Levee, or all Creation going to the White House."

Jackson escapes death at the Capitol—the first assassination attempt on a President, January 30, 1835. A tall stranger aimed a pistol at Jackson (shown carrying a walking stick), but the weapon misfired. Before the officer at left could seize him, the gunman raised a second pistol, which also misfired. Reacting fast, Jackson went for the assailant with his stick. The attacker later was committed to an insane asylum.

As national politics polarized around President Jackson and his opposition, two parties emerged—the Democratic Republicans, or Democrats, adhering to Jackson, and the National Republicans, or Whigs, opposing him.

Henry Clay, Daniel Webster, and the other Senatorial leaders in the forefront of the Whigs proclaimed themselves defenders of popular liberties against the usurpation of President Jackson. Hostile cartoonists portrayed Jackson as King Andrew I.

Behind the Whig accusations lay the indisputable fact that President Jackson, unlike his immediate predecessors, did not defer to Congress but used his veto power and his party leadership to assume command. Much of his policy making seemed intertwined with personal prejudices; but his prejudices reflected those of the American people.

In his contests with the master politicians in the Senate, Jackson proved himself the shrewdest politician of all. Thus Jackson vetoed Clay's Maysville Turnpike bill, which proposed national funds for a road entirely in Kentucky, on the ground that Federal funds should go only to internal improvements that transcended state lines.

Electorate Ratifies Jackson's Veto

Jackson's greatest political battle centered around the Second Bank of the United States, a private corporation with a near monopoly on the currency. Despite its considerable merits, the Bank was viewed with abhorrence in the West, where, during the depression of the 1820's, it had engaged in widespread foreclosures. Because of its size and wealth, it had considerable power and, when Jackson appeared hostile, the Bank threw its influence against the President.

Clay and Webster, who had acted as attorneys for the Bank, fought for its recharter in Congress, confident that Jackson's veto of the recharter would result in his defeat in 1832

"The Bank," Jackson told Van Buren, "is trying to kill me, *but I will kill it!*" The President, in vetoing the bill, raised questions of constitutionality but, more than this, charged the Bank with undue economic privilege.

"There are no necessary evils in government," he declared in his Veto Message: "Its evils exist only in its abuses. If it would confine itself to equal protection, and, as Heaven does its rains, shower its favors alike on the high and the low, the rich and the poor, it would be an unqualified blessing." Jackson's views were in touch with the spirit of the American electorate; in 1832 he received more than 56 percent of the popular vote and almost five times as many electoral votes as Clay.

As a nationalist, Jackson was equally forthright in meeting the challenge of John C. Calhoun. Formerly a nationalist himself, Calhoun had become the spokesman of South Carolina forces which proposed nullification by the states to rid themselves of a high protective tariff they disliked. They hoped to win Jackson to their views, but at a Jefferson Day banquet Jackson, who had written out some words and underscored several of them, arose, looked sternly at Calhoun and proposed a toast: "Our *Federal* Union—*It must be preserved.*"

When South Carolina undertook to nullify the tariff, Jackson issued a proclamation declaring: "... our present happy Constitution was formed ... in vain if this fatal doctrine prevails." He ordered armed forces to Charleston and privately threatened to hang Calhoun. For several months violence seemed imminent, but Clay negotiated a compromise which resulted in a lowering of tariffs and a dropping of nullification.

Van Buren Becomes Jackson Running Mate

In January, 1832, a visitor was waiting in the White House to meet the President, who was dining with friends: "It was not long before the doors were thrown open," the man wrote later, "and General Jackson entered at the head of his company, talking and laughing with much animation. . . . Seating himself near the fire, his friends formed a group about him. I was absorbed for some minutes scanning the face and mien of this remarkable man. In person he was tall, slim, and straight. . . . His head was long, but narrow, and covered with thick gray hair that stood erect, as though impregnated with his defiant spirit; his brow was deeply furrowed, and his eye, even in his present mood, was one 'to threaten and command.' His nose was prominent and indicated force. His mouth displayed firmness. The whole conveyed an impression of energy and daring."

Before the young man could be introduced, someone came to whisper to the President that the Senate had rejected the nomination of Martin Van Buren as Minister to Great Britain. Jackson jumped to his feet and exclaimed, "By the Eternal! I'll smash them!" So Jackson did. Van Buren became Vice President, and gained the Presidency when Old Hickory retired to The Hermitage.

There Jackson remained, a hero of legendary proportions and a force in the Democratic Party, until his death in 1845.

Stately portico of The Hermitage near Nashville, Tennessee, a National Historic Landmark, reflects Jackson's success as a cotton planter. Guests ate roast pig and drank fine brandy while a guitarist strummed the General's favorite tunes. He and his wife lie buried in a far corner of this garden.

Rachel Jackson smoked a pipe "to fight off the asthma," but she had no cure for scandal. She married Jackson in the mistaken belief that her first husband had divorced her. Hurt by unjust campaign slurs, Rachel died on December 22, 1828, less than three months before Jackson entered the White House. He wore next to his heart this ivory miniature, painted when she was 48.

Martin Van Buren

EIGHTH PRESIDENT 1837-1841

MARTIN VAN BUREN, the "Little Magician," inherited more of the troubles than the glory of Jacksonian Democracy. Loyal to President Jackson, he continued faithfully the policies of his predecessor but reaped a painful economic depression. For good measure, the Whigs defeated him for re-election in 1840 by turning against him the same political techniques with which he and his fellow Jacksonians had engineered their earlier victories.

Van Buren, born in 1782, was of Dutch descent, the son of a tavernkeeper and farmer in Kinderhook, New York. At 14 he became a law clerk, soon distinguishing himself for his cleverness in debate. As a young lawyer, he upheld Jeffersonian principles with zeal, becoming deeply involved in New York politics.

A sound administrator, Van Buren once wrote, would bring to the support of "the governmental standard the good the virtuous & the capable." However, as leader of an effective New York political organization, the Albany Regency, he shrewdly dispensed public offices and bounty in a fashion calculated to bring votes, and in 1821 was elected to the United States Senate.

There he came to oppose Federal subsidies for internal improvements, a position pleasing to his constituents, who were afraid the money would help construct routes rivaling the Erie Canal. By 1827 he had emerged as the principal northern leader for Jackson.

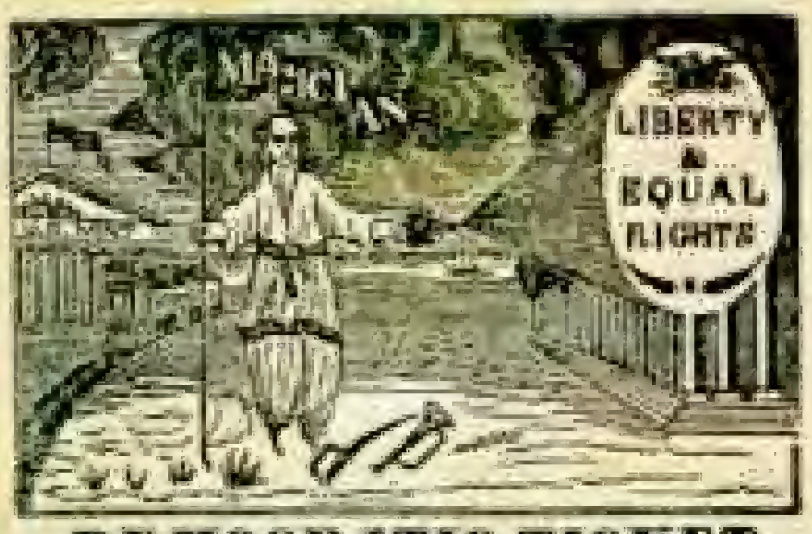
President Jackson rewarded Van Buren by bringing him into the Cabinet as Secretary of State. As those members of the Cabinet appointed at Calhoun's recommendation began to demonstrate that they held only secondary loyalty to Jackson, Van Buren emerged as the President's most trusted confidential adviser. Jackson referred to him as "*a true man* with no guile."

Rumors Widen Rift in Cabinet

The rift in the Cabinet became serious because of Jackson's differences with Calhoun, a Presidential aspirant; but on the surface it developed over the coldness of Cabinet wives toward the wife of the Secretary of War, Peggy O'Neale Eaton, the object of unsavory rumors. Jackson, remembering the injustices that had afflicted his own wife, defended Mrs. Eaton, and Van Buren, also a widower, gallantly befriended her.

The stubborn Cabinet became unacceptable to Jackson. Van Buren suggested a way out of the impasse; he and then Eaton resigned, causing the Calhoun men also to resign. Jackson appointed a new and loyal Cabinet and sought to reward Van Buren by appointing him Minister to the Court of St. James's. Vice President Calhoun, as President of the Senate, cast the deciding vote against the appointment—and made a martyr of Van

Blue eyes twinkling and muttonchop whiskers flanking a cherubic mouth, sunny-tempered Martin Van Buren exchanged jokes with his deadliest political foes. Washington Irving called him "one of the gentlest . . . men I have ever met with." He spoke softly and sometimes changed his mind. Enemies accused him of expediency, but Van Buren argued: "To yield to necessity is the real triumph of reason." He was the first President born under the U.S. flag.



Democratic handbill of 1840 shows Van Buren producing Liberty and Equal Rights with a magic lantern. His political success earned him the nickname "Little Magician." Mint in background suggests his hard-money policy in the face of wild issuance of paper currency by private banks. The 1837 panic defeated his bid for re-election.

Buren in the eyes of western Jacksonians, who until then had scarcely known of his existence. He was elected Vice President on the Jacksonian ticket in 1832, and nominated for the Presidency in 1836.

The Whigs tried to defeat Van Buren by running several candidates, each strong in his own section of the country, but Van Buren won 170 electoral votes compared with 124 for his four opponents combined. One of the Whig leaders, William H. Seward, explained Van Buren's triumph. "The people are for him," Seward pointed out. "Not so much for him as for the principle they suppose he represents. That principle is Democracy."

In his Inaugural Address, Van Buren held up the American experiment as an example to the rest of the world. At that particular moment the experiment seemed highly successful, for the Nation enjoyed unprecedented prosperity and serenity. But less than three months later the Panic of 1837 punctured the economic bubble.

The 19th-century cyclical economy of "boom-and-bust" was merely following its regular pattern, but Jackson's financial measures contributed to the crash. His destruction of the Second Bank of the United States had removed restrictions upon the reckless and inflationary practices of some state banks; wild speculation in lands, based on easy bank credit, had swept the West. To put an end to this speculation, Jackson in 1836 had taken a deflationary step; he issued a Specie Circular requiring that lands be purchased with hard money—gold or silver.

Nation Wracked by Five Lean Years

In 1837 hundreds of banks and businesses failed. Unemployment became serious in towns and cities. Thousands of speculators lost their lands. Railroad and canal construction almost halted, and several states temporarily repudiated their debts. For some five years the United States was wracked by the worst depression of its young history.

It did not occur to President Van Buren or his advisers that the Government should try to alleviate the crisis. They followed the policies that President Jackson had initiated. If these had any effect at all upon the depression, it was to deepen and prolong it.

Declaring that the panic was due to recklessness in business and overexpansion of credit, Van Buren devoted himself to maintaining the solvency of the Government. He wished the "money power" to be cut off completely from access to Federal funds, and opposed not only creation of a new Bank of the United States but also the placing of Government funds in state banks. He fought for an independent treasury system to handle Government receipts and disbursements. He cut Federal expenditures so deeply that the Government even sold the tools it had used on public works.

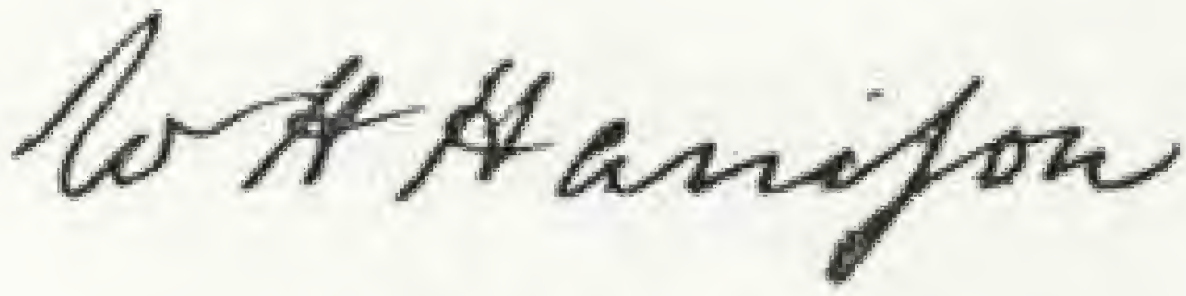
Symbols of Luxury Led to Defeat

Despite his humble background, Van Buren had developed a taste for elegance. He was only about 5 feet 6 inches tall, but trim and erect, and he dressed fastidiously. An observer, seeing him attired for church one Sunday in 1828, described him in these words: "He wore an elegant snuff-colored broadcloth coat with a velvet collar; his cravat was orange with modest lace tips; his vest was of a pearl hue; his trousers were white duck; his shoes were morocco; his neatly fitting gloves were yellow kid; his long-furred beaver hat with a broad brim was of a Quaker color."

As President, Van Buren rode in an olive-green carriage attended by liveried footmen and pulled by fine horses with silver-mounted harness. These touches of luxury, belying Van Buren's amiable accessibility, made him an easy target for the Whigs in 1840.

Out of office, Van Buren inclined more and more to oppose the expansion of slavery. Indeed, as President, he had blocked the annexation of Texas because it might bring war with Mexico and assuredly would add to slave territory. In 1848 he ran unsuccessfully for President on the Free Soil ticket, and by the time of his death in 1862 had placed his faith in Abraham Lincoln. The House of History in Kinderhook preserves mementos of Van Buren the man and the President.

Ninety-nine-step tower of Van Buren's Lindenwald estate at Kinderhook, New York, overlooks the lush valley of the Hudson River. Ex-President Van Buren, born nearby, bought this farmhouse, turned it into a mansion, and added the Italianate tower, in the hope that his home of retirement would become another Monticello. It never did, and survives today in private ownership. "Old Kinderhook," abbreviated to "O.K.," became a Democratic catchword in the 1840 campaign, thus popularizing the slang synonym for anything that was all right.



NINTH PRESIDENT 1841

WILLIAM HENRY HARRISON, known only as a military hero, served perfectly the purposes of the divided Whig Party. Casting Harrison as another General Jackson, Whigs rallied the Nation around his standard in 1840 and won victory. Then, ironically, he died, leaving a hostile successor who vetoed their measures.

Harrison, a scion of Virginia aristocracy and son of a signer of the Declaration of Independence, was born in 1773 at Berkeley on the James River. The plantation house, some six miles from Charles City, still stands and has opened its doors to the public. Harrison studied classics and history, for which he had a lifelong affection, at Hampden-Sidney College, then began the study of medicine in Richmond, and continued it in Philadelphia under the renowned Dr. Benjamin Rush.

Suddenly, in 1791, young Harrison obtained a commission as ensign in the First Infantry Regiment of the Regular Army and headed to the Northwest Territory—the frontier region between the Ohio and Mississippi Rivers.

Harrison served as aide-de-camp to Gen. "Mad Anthony" Wayne at the Battle of Fallen Timbers, which opened most of the Ohio area to settlement. Resigning from the Army in 1798, he became Secretary of the Northwest Territory and, in 1799, its first delegate to Congress. There he helped obtain legislation that split the Indiana Territory from the Northwest. When only 28 he became Governor of the Indiana Territory; his 12 years in that post won him a national reputation.

When the Indians attacked Indiana's frontier settlements, upon Harrison fell the responsibility of defense. The problem came to a head in 1809 when an eloquent and energetic chieftain, Tecumseh, together with his brother, the Prophet, began to rally the tribes.

Harrison received permission in 1811 to attack. He marched with about a thousand men toward the Prophet's town. Suddenly,

Short-lived President, William Henry Harrison was first to die in office. A ruddy-faced outdoorsman, he refused to wear hat or coat in a chilly March wind while giving the longest Inaugural Address on record: one hour and forty minutes. Three weeks later he went walking in slush, caught cold, and died. While in the White House, he liked to do his own marketing before breakfast.

Silk mourning ribbon commemorates the death of Harrison. First buried in the Congressional Cemetery in Washington, his body was later moved to a tomb—now a state memorial—overlooking the Ohio River at North Bend, Ohio.

before dawn on November 7, while Harrison's small army lay encamped on the Tippecanoe River, the Indians attacked. After heavy fighting, Harrison succeeded in repulsing them, but lost 190 dead and wounded. He went on to destroy the Prophet's settlement and returned to Vincennes.

Scarcely a notable triumph, this was the Battle of Tippecanoe upon which Harrison's future fame was to rest. It disrupted Tecumseh's confederation but failed to diminish the Indian raids, which, by the spring of 1812—under British encouragement—terrorized the frontier. In the War of 1812, Harrison won more substantial military laurels when, after American forces had been trounced, he took command of the Army in the Northwest with the rank of brigadier general. At the Battle of the Thames, north of Lake Erie, on October 5, 1813, he defeated the combined British and Indian forces. With Tecumseh dead, the Indians scattered and never again offered serious resistance in the Northwest.

Debts Plague Future President

Thereafter Harrison served briefly in Congress and later as Minister to Colombia, but primarily devoted himself to management of his Ohio farm. He lived in an impressive house but debts plagued him. In the 1830's he served as clerk of a county court in order to augment his slender income.

Attack by Indians shatters the dawn of November 7, 1811, beside the Tippecanoe River in Indiana Territory. Harrison, leading a thousand soldiers into the wilderness to smash a gathering of tribes, beats off repeated assaults, burns a village nearby, and becomes a hero. Years later, the victory swept him into the Presidency on the slogan, "Tippecanoe and Tyler Too."

Still, people remembered Tippecanoe. Harrison was a national hero, and the Whigs needed one. Clay and Webster, their famous leaders in Congress, held well-known views that were not acceptable to all of the country.

As the Whig candidate for President in the Northwest, Harrison ran well in 1836; hence, in 1839, he received the national nomination. A Democratic journalist foolishly gibed, "Give him a barrel of hard cider and settle a pension of two thousand a year on him, and my word for it, he will sit . . . by the side of a 'sea coal' fire, and study moral philosophy." The Whigs, eagerly seizing upon this misstep, utilized all the new paraphernalia of politics to present their candidate as a simple, straightforward man of the frontier, an Indian fighter living in a log cabin and drinking hard cider, in contrast to the aristocratic Van Buren, allegedly dabbing himself with cologne and sipping champagne poured from a silver cooler.

One of the campaign stunts of the Whigs was to roll a huge paper ball through the countryside, shouting slogans like "Keep the ball rolling on to Washington." By means of such excitement, they brought out a popular vote more than double that of 1836; about 78 percent of those eligible went to the polls. Harrison won by a majority of fewer than 150,000, but swept the Electoral College, 234 to 60.

Proconsuls Killed "as Dead as Smelts"

When Harrison arrived in Washington in February, 1841, he let Webster edit his Inaugural Address, ornate with classical allusions. Webster succeeded in obtaining some deletions, boasting in a jolly fashion that he had killed "seventeen Roman proconsuls as dead as smelts, every one of them."

Webster had reason to be gay, for Harrison emphasized in his Inaugural that he would be obedient to the will of the people as expressed through Congress.

He said of the Constitution: "I can not conceive that by fair construction any or either of its provisions would be found to constitute the President a part of the legislative power. . . . And it is preposterous to suppose that a thought could for a moment have been entertained that the President, placed at the capital . . . could better understand the wants and wishes of the people than their own immediate representatives, who spend a part of every year among them . . . and [are] bound to them by the triple tie of interest, duty, and affection."

Whigs in Congress were confident that the President would accept their policies; he called Congress to meet in special session on May 31. But when he had been in office only three weeks, he caught a cold that developed into pneumonia. On April 4, 1841, he died—the first President to do so in office—and with him died the Whig program.

John Tyler

TENTH PRESIDENT 1841-1845

JOHN TYLER was the first Vice President to be elevated to the Presidency by the death of his predecessor. His detractors, claiming that he should function only as acting President, dubbed him "His Accidency."

Tyler refused to accept a mere regency and set a momentous precedent by insisting that he had succeeded to the full powers of his office. He pursued the states' rights course in which he believed, even though he soon found himself a President without a party.

Born in Virginia in 1790, the son of one of Jefferson's friends and adherents, he was reared believing that the constitutional powers granted to the Federal Government must be strictly, or narrowly, construed. He never wavered from this conviction.

Tyler attended the College of William and Mary and later studied law. Serving in the House of Representatives from 1816 to 1821, he voted against most of the nationalist legislation of the time. After leaving the House, he served twice as Governor of Virginia. Later, as a Senator, he reluctantly supported Jackson for President as a choice of evils, but regarded many of his actions and measures as unconstitutional.

Tyler soon became one of the states' rights southerners in Congress who banded with Clay, Webster, and the newly formed Whig Party in opposing President Jackson. He resigned as Senator in 1836 rather than follow the instructions of the Virginia Legislature that he vote to expunge a Senate resolution censuring Jackson. In Virginia politics, he was nominally a Whig, and even though he disapproved of Clay's nationalistic program, he remained a personal friend of Clay.

Tyler's Name Lures Southern Votes

Thus the Whigs nominated Tyler for Vice President in 1840, hoping that his name would bring to the polls southern states' righters who could not stomach Jacksonian Democracy. The slogan "Tippecanoe and Tyler Too" implied flag-waving nationalism plus a dash of southern sectionalism.

Clay, intending to keep party leadership, minimized his own views during the campaign. Webster proclaimed himself "a Jeffersonian Democrat." With the election won, both discarded these habiliments and tried to dominate the President-elect. "Old Tippecanoe" was a bit disturbed, but appointed

Man without a party, John Tyler clutches a copy of the *National Intelligencer*. The paper printed the first rumors of his secret moves to annex Texas, the brightest achievement in a troubled tenure. His veto of a bank bill caused all but one member of his Cabinet to resign, and his party spurned him.

Jagged metal rakes deck of the frigate *Princeton* as the Navy's largest gun explodes during a Potomac cruise. Tyler, going topside to see the firing, paused on a ladder, and by that margin escaped the blast. Eight dead included the father of Julia Gardiner, 24, who became Tyler's second wife.

Whale-shaped Independence Rock rises above the Oregon Trail, heavily traveled during Tyler's Presidency. Beside the Sweetwater River, the rock marked the only safe water for 50 miles west from Casper, Wyoming. Spirits refreshed, pioneers camp near the trail and exchange news. Wagons form protective rings in case of Indian attack.

Webster as Secretary of State and put four of Clay's supporters into the Cabinet.

Suddenly President Harrison was dead and "Tyler Too" in the White House. He insisted upon assuming the full powers and privileges of a President rather than narrowly interpreting the constitutional provision to "act as President." He even delivered an Inaugural Address, full of good Whig doctrine.

Further, Tyler retained Harrison's Cabinet. Tyler's applications of states' rights dogma in the past had led him to oppose many of Jackson's executive actions, including removal of the deposits from the Bank of the United States; Whigs were optimistic that Tyler would consequently accept their program. They soon were disillusioned.

Webster asked the President (as Tyler's son later recounted) whether he intended to continue Harrison's procedures. When Tyler nodded slightly, Webster told him that Harrison had agreed that at Cabinet meetings questions were "to be decided by the majority [of votes], each member of the Cabinet and the President having but one vote." Tyler retorted, "I, as President, shall be responsible for my administration."

When Senator Clay brought forward the national program that had been obscured during the campaign, Tyler interpreted it as bad faith. Tyler was ready to compromise on the banking question, but Clay would not budge. He controlled a majority in Congress, but the President had the veto. Clay would not accept Tyler's "exchequer system," and Tyler vetoed Clay's bill to establish a national bank with branches in several states. A second bank bill, similar to the first, passed Congress. "I will drive him before me," Clay vowed. But again the President vetoed it.

First Impeachment Attempt Fails

In retaliation, the Whigs expelled Tyler from their party. All of the Cabinet resigned but Webster, who suspected Clay's hand in the dissolution of the Cabinet and distrusted the Senator's ambitions for power. Webster, therefore, stayed on as Secretary of State and Tyler, who had no intention of abandoning his office, replaced his Cabinet immediately. A year later, when Tyler vetoed a tariff bill, an impeachment resolution against a President was introduced in the House of Representatives for the first time in American history. A committee headed by Representative John Quincy Adams reported that the President had misused the veto power, but the resolution failed.

Despite their differences, President Tyler and the Whig Congress enacted considerable positive legislation. To the delight of westerners, the President in 1841 signed the "Log-Cabin bill," which enabled a settler to claim 160 acres of land before it was offered publicly for sale, and later pay $1.25 an acre for it. In foreign affairs, the Webster-Ashburton Treaty ended a dispute between the United States and Great Britain over the Canadian

boundary, and, at the end of the administration, Texas was annexed.

To his friends, President Tyler was an attractive figure. "In his official intercourse with all men, high or low, he was . . . approachable, courteous, always willing to do a kindly action. . . . He was above the middle height, somewhat slender, clean-shaven, with light hair. His light blue eyes were penetrating, and had a humorous twinkle. . . ."

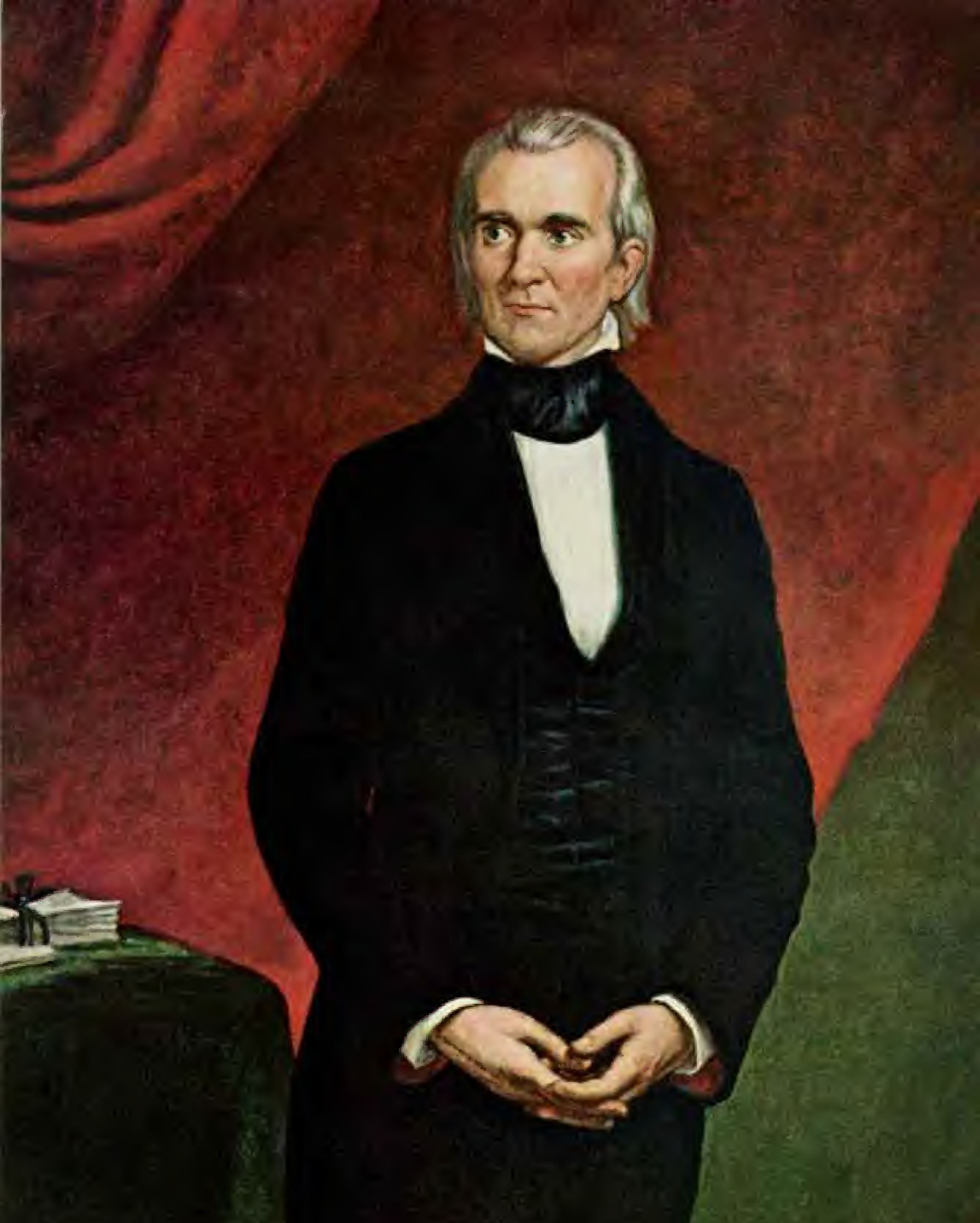
Ex-President Helps Create Confederacy

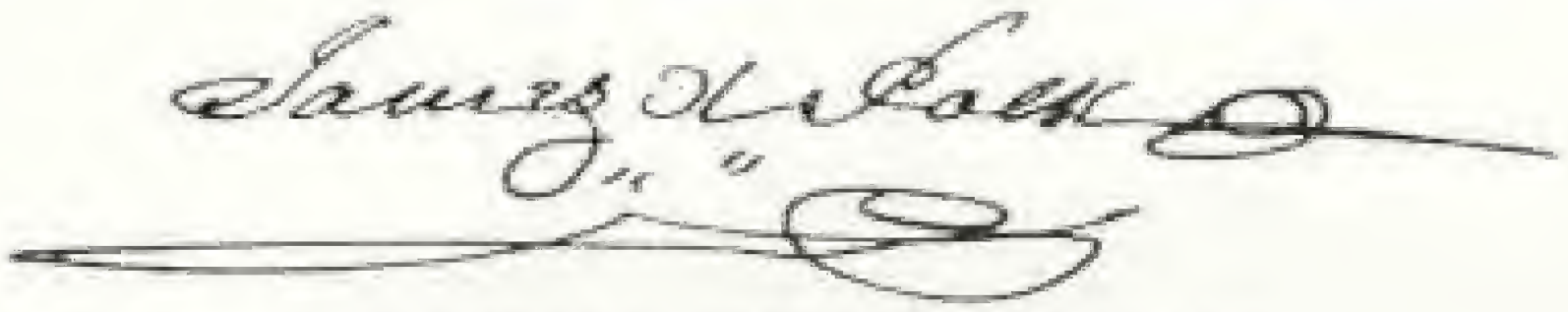
The over-all effect of the administration of this states' righter was to strengthen the Presidential office. It also increased the sectional cleavage that led toward the Civil War.

Five Whigs resigned from the Cabinet in 1841. Thereafter Tyler sought the counsel of southern conservatives, former Democrats like himself. In 1844 Calhoun became his Secretary of State. Later, all these men rejoined the Democratic Party. With like-minded southerners, they directed it toward preservation of states' rights, planter interests, and the institution of slavery, while the Whigs became more representative of northern business and farming interests.

When the first southern states seceded from the Union in 1861, Tyler led a compromise movement; failing, he participated in creation of the Southern Confederacy. He died in 1862 after winning election to the Confederate House of Representatives.

In 1915, the U. S. Congress erected a monument to Tyler at his final resting place, Hollywood Cemetery in Richmond, Virginia.





ELEVENTH PRESIDENT 1845-1849

IF JUDGED BY HIS SUCCESS in fulfilling campaign promises, James K. Polk was one of the most notable of Presidents. He ran in 1844 on a spread-eagle expansionist platform; by the time he left the White House in 1849, the Stars and Stripes flew from San Diego Bay to Puget Sound.

Polk, often referred to as the first "dark-horse" President, was scarcely as unknown as his Whig opponents wished voters to think, since he had served four years as Speaker of the House of Representatives. Last of the Jacksonians to sit in the White House, and the last strong President until Lincoln, he became the first to conduct a war in all its phases—fulfilling to the constitutional limits his role as Commander in Chief.

Polk was born in Mecklenburg County, North Carolina, in 1795, the son of a Scotch-Irish farmer. A stone pyramid marks the site of his birthplace, near Pineville. The family moved to Tennessee in 1806. Studious and industrious, but too frail for farm work, Polk graduated in 1818 with top honors from the University of North Carolina.

As a young lawyer he entered politics, and through serving in the Tennessee Legislature became a friend of Jackson. In the House of Representatives, Polk aided Old Hickory in his Bank war, and, as Speaker between 1835 and 1839, endured the heckling of Davy Crockett and other anti-Jacksonians. He left Congress to become Governor of Tennessee.

Until circumstances raised Polk's ambitions, he was a leading contender for the Democratic nomination for Vice President in 1844. Both Van Buren, who had been expected to win the Democratic nomination, and Clay, who was to be the Whig nominee, tried to mute the expansionist issue by declaring themselves opposed to the annexation of Texas. Polk, in contrast, publicly asserted that Texas should be "reannexed" and all of Oregon "reoccupied."

The aged Jackson, summoning political friends to a conference at The Hermitage, correctly sensed that the electorate favored territorial expansion. He urged the nomination of a candidate committed to the Nation's "Manifest Destiny." At the Democratic Convention, when more prominent candidates deadlocked, Polk was nominated on the ninth ballot.

"Who is James K. Polk?" jeered the Whigs. Jackson answered in a widely published letter. "His capacity for business [is] great... and to extraordinary powers of labor, both mental and physical, he unites that tact and judgement which are requisite to the successful direction of such an office."

Voters Attracted by Expansionist Aims

What finally elected Polk was the fact that he stood for expansion, linking the Texas issue, popular in the South, with the Oregon question, attractive in the North.

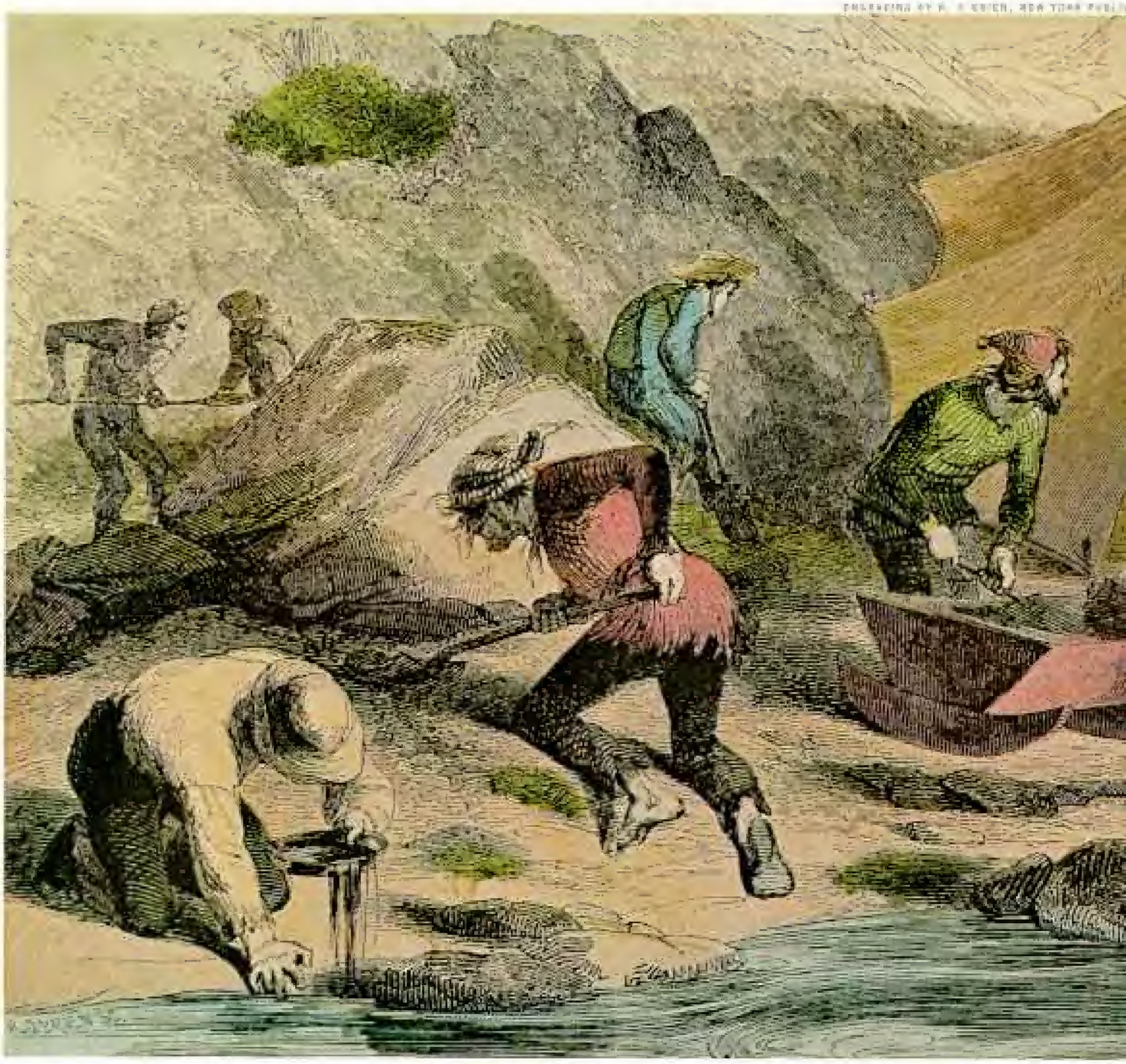
"There are four great measures which are to be the measures of my administration," President Polk told George Bancroft, the historian, shortly after his Inauguration; "one, a reduction of the tariff; another, the independent treasury; a third, the settlement of the Oregon boundary question; and, lastly, the acquisition of California."

Taking firm command of both his Cabinet and the Democrats in Congress, by the end of his administration he attained all four goals. The first two, the Walker Tariff Act and the Independent Treasury Act, passed Congress and became law in 1846.

The other two, however, absorbed Polk's years as President. Before he took office, Congress passed a joint resolution offering annexation to Texas, thus bequeathing Polk the probability of war with Mexico.

In his strong stand on Oregon, the President seemed to be risking war with Great Britain also. The migration of thousands of

First "dark-horse" President, James Knox Polk defeated famed Henry Clay by forthrightly declaring himself for Texas annexation. Not only Texas, but lands westward to the Pacific and northward to Puget Sound came under the U. S. flag during his administration, increasing the Nation's size by two-thirds. Congressmen like Abraham Lincoln charged that Polk "unnecessarily and unconstitutionally" started the Mexican War, but other Americans hungered as he for new lands in the West. Polk extended the frontiers of the mind as well: On August 10, 1846, he signed the bill creating the Smithsonian Institution, "for the increase and diffusion of knowledge among men."



Frenzied forty-niners scramble for gold: a contemporary engraving. Heavy metal settles through

American settlers, traveling by covered wagon over the Oregon Trail to the rich farmlands of the Willamette Valley, had brought pressure for an end of the joint Anglo-American occupation of the Oregon country.

Although almost all the Americans had settled south of the Columbia River, the Democrats in their 1844 platform laid claim to the entire Oregon area, stretching from the California boundary northward to a latitude of 54° 40′, the southern boundary of the Russian territory that became present-day Alaska.

Looking John Bull "Straight in the Eye"

Extremists proclaimed "54° 40′ or fight," but Polk, aware of diplomatic realities, knew that only war could obtain all of Oregon. Happily, neither he nor the British wanted to fight. He offered to settle by extending the Canadian boundary, which ran along the 49th parallel, from the Rockies to the Pacific.

When the British Minister in Washington declined, Polk withdrew his offer and reasserted the American claim to the entire area. To a worried Congressman he remarked that the only way to treat John Bull was "to look him straight in the eye." And indeed the British did settle for the 49th parallel, except for the southern tip of Vancouver Island. The treaty was signed in 1846.

Acquisition of California proved more difficult. Polk, hoping to purchase the sparsely populated but potentially valuable area, sent an envoy to offer Mexico as much as $20,000,000, plus the settlement of damage claims owed to Americans, in return for California and New

sand and water to bottom of pan and cradle.

Sailing card helped fan gold fever. Despite the card's claim of a 94-day passage from New York to San Francisco, history records *Witchcraft's* best time as 98 days. In 1849 alone, almost 100,000 treasure seekers reached California.

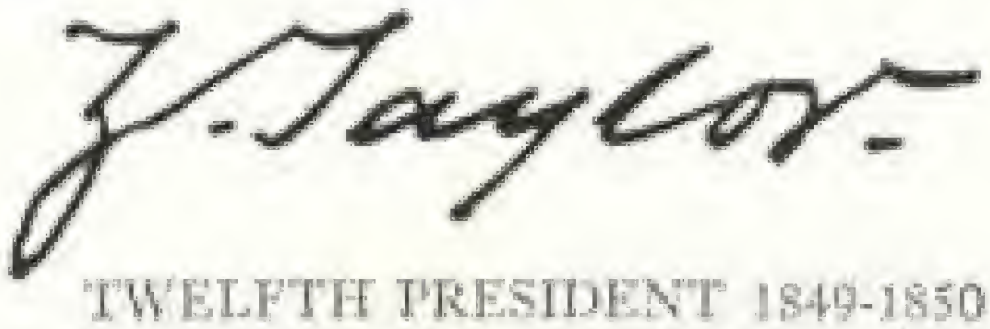
Mexico. Since no Mexican leader could cede half his country and hope to remain in power, Polk's envoy received no audience. The President, in a bold application of pressure, sent Gen. Zachary Taylor to the disputed area on the Rio Grande. To the Mexicans, this represented a clear act of aggression.

Polk and his Cabinet were discussing the possibility of war when word arrived that Mexican troops had already attacked Taylor's forces. Polk drafted a war message. "Mexico has passed the boundary of the United States," he informed Congress on May 11, 1846, "has invaded our territory, and shed American blood on American soil."

Congress promptly declared war and, despite considerable northern opposition, supported the military operations. American forces won repeated victories and even occupied Mexico City, but the Mexicans rejected treaty offers. Finally, in 1848, Polk's envoy, Nicholas P. Trist, negotiated an agreement by which Mexico ceded New Mexico and California in return for $15,000,000 and American assumption of damage claims.

Polk added a vast area to the United States, but its acquisition precipitated a bitter quarrel between the North and South over whether the new territory should be free or slave.

Polk, leaving office with his health undermined from hard work, died in June, 1849. Bancroft eulogized him as "one of the very best and most honest and most successful Presidents the country ever had." With his wife Sarah, Polk lies entombed on the grounds of the State Capitol in Nashville, Tennessee.



TWELFTH PRESIDENT 1849-1850

ZACHARY TAYLOR, acclaimed for his military victories in the Mexican War, was elevated to the White House in 1849, and as President had to grapple with the acute political problems these victories had helped create.

Northerners and southerners disputed sharply whether the vast lands wrested from Mexico should be opened to slavery, and some southerners even threatened secession. Standing firm, "Old Rough and Ready" was prepared to hold the Union together by armed force rather than promote a compromise of which he disapproved. In the summer of 1850, as he faced this issue, he suddenly died.

From his background, Taylor would have seemed likely to become a southern sympathizer. Born in Virginia in 1784, he was taken as an infant to Kentucky and raised on a plantation. He was a career officer in the Army, but his talk was most often of cotton raising. His home was in Baton Rouge, Louisiana, and he owned a plantation in Mississippi.

Being a slaveholder did not make Taylor a defender of slavery or of southern sectionalism; rather, his forty years in the Army imbued him with a strong nationalist spirit. He received a commission in the Regular Army in 1808 and spent decades policing the frontiers against Indians; during the War of 1812, in the Indiana Territory during the Black Hawk War, and in Florida during the long struggle against the Seminole Indians and escaped Negro slaves. In the Mexican War, using much the same direct offensive tactics he had employed against the Indians, he won victories at Monterrey and Buena Vista.

Polk Restricts Field of Battle

President Polk, disturbed by Taylor's informal habits of command (and perhaps by his Whiggery as well), regarded him as a "narrow-minded bigotted partisan, without resources, and wholly unqualified."

Restricting Taylor to northern Mexico, Polk sent an expedition under Gen. Winfield Scott (also a Whig) to capture Mexico City. Taylor, incensed, thought that his victory in "the battle of Buena Vista [had] opened the road to the city of Mexico and the halls of Montezuma, that others might revel in them."

While not a remarkable general, Taylor did possess very solid merits that U. S. Grant, who served under him, pointed out years later: "No soldier could face either danger or responsibility more calmly than he. These are qualities more rarely found than genius or physical courage... General Taylor never

ROUGH AND READY

Battered straw hat helped give Zachary Taylor his nickname: "Old Rough and Ready." His sloppy dress increased with rank; as a general in the Mexican War, he wore old farm clothes. Taylor treated bullets as trifles and never lost a battle. He had legs so short that an orderly had to assist him in mounting his horse.

First professional soldier in the White House, tobacco-chewing Taylor had never voted and lacked political experience. The question of slavery expansion threatened the Union which Taylor, a southerner, staunchly upheld. He fell ill and died, a bitter man. "My motives have been misconstrued," he said, "and my feelings grossly betrayed."

wore uniform, but dressed himself entirely for comfort. He moved about the field in which he was operating to see through his own eyes the situation. . . He was very much given to sit on his horse side-ways—with both feet on one side—particularly on the battlefield."

Taylor's homespun idiosyncrasies were political assets. Americans preferred a general who wore a straw hat and gingham coat as he led his men into battle to a punctilious military man like his rival, Winfield Scott, nicknamed "Old Fuss and Feathers."

While Taylor's long military record would appeal to northerners, his experience as a planter and his ownership of a hundred slaves would lure southern votes; his apolitical background—the fact that he had never bothered to vote—meant he had not committed himself on troublesome issues. Hence the Whigs nominated Taylor to run against the Democratic candidate, Lewis Cass of Michigan, who favored letting the residents of territories decide for themselves whether or not they wanted slavery.

In protest against Taylor the slaveholder and Cass the advocate of "squatter sovereignty," northerners who wanted no extension whatever of slavery formed a Free Soil Party that nominated Van Buren. It was a close election in which the Free Soilers pulled enough votes away from Cass, especially in New York, to elect General Taylor.

Rule of Thumb Supplants Whig Policies

Although Taylor had subscribed suitably to Whig principles of legislative leadership, he soon demonstrated no inclination to be a puppet of Whig leaders in Congress. To their distress, he acted at times as if he were above parties and politics. His inexperience and lack of knowledge of the office of President led him to too heavy a reliance at first upon the advice of others, and later, to too great

Mexicans attack through their Sierra Madre pass in the Battle of Buena Vista, February 23, 1847. Gen. Antonio de Santa Anna's 15,000 troops, advancing along the base of the mountains, hoped to crush Taylor's 4,700 inexperienced invaders. But the Americans (foreground), matching long-range mountain howitzers against less efficient Mexican artillery, won the victory, making Taylor a national hero.

a faith in his own judgment, regardless of political complications

As disheveled as always, garbed in a black broadcloth suit purposely cut too large, Taylor tried to run his administration in the same rule-of-thumb fashion that he had used in fighting Indians.

He accepted a simple formula for ending the dispute over the new possessions, ignoring the fact that it appealed to the North rather than the South. He reasoned that the easy way to decide whether the new areas were to be free or slave was to encourage their organization into states, since, traditionally, the citizens could decide the question for themselves when they drew up a state constitution. Therefore, he urged settlers in New Mexico and in California—flooded with nearly 100,000 gold-seeking forty-niners—to draft constitutions and apply for statehood.

Southerners were furious, since neither state constitution was likely to permit slavery;

members of both houses of Congress were also dismayed, since they felt the President was encroaching upon their policy-making prerogatives. In addition, Taylor's solution ignored several acute side issues, the northern dislike of the slave market operating in the District of Columbia, which was Federal territory, and the southern demands for a more stringent fugitive slave law to prevent northerners from harboring runaways.

Taylor Threatens to Hang Secessionists

Three of the great statesmen of the previous generation—Webster, Clay, and Calhoun—still sat in the 31st Congress. Many zealous young men destined for fame in coming years were also there, eager to make their marks. Debate, reaching fever pitch, threatened to rend the Union. Clay's proposals for compromise made little headway, in part because they were embodied in one great bill few members of Congress would accept in totality, and in part because President Taylor still stubbornly persisted in his demand that first California and New Mexico should be admitted as states.

In February, 1850, President Taylor held a stormy conference with several southern leaders who threatened secession. Taylor told the southerners that to enforce the laws he would lead the Army in person, and if they were "taken in rebellion against the Union, he would hang them with less reluctance than he had hanged deserters and spies in Mexico." He never wavered.

Then events took an unexpected and tragic turn. After participating in ceremonies at the Washington Monument on the sweltering afternoon of July 4, Taylor fell ill; five days later he was dead. After his death, the forces of compromise triumphed, but the war Taylor had been willing to face came 11 years later. Ironically, his only son Richard served as a general in the Confederate Army.

Taylor lies buried in a cemetery named for him—Zachary Taylor National Cemetery—not far from Louisville, Kentucky.

Millard Fillmore

THIRTEENTH PRESIDENT 1850-1853

UNEXPECTEDLY taking office in July, 1850, at a time of acute sectional crisis, Millard Fillmore lent his political skills and the prestige of the Presidency to the enactment of the Compromise of 1850. This attempt to satisfy both slavery and anti-slavery forces temporarily abated the crisis, but brought down upon Fillmore the wrath of some northern Whigs who deplored his moderation. He was the last Whig President.

In his rise from a log cabin to wealth and the White House, Fillmore demonstrated that an uninspiring man, through industry and competence, could make the American dream come true. He was born in the Finger Lakes section of New York in 1800, and in his youth endured the privations of frontier life. The log cabin of his birth no longer exists; a reproduction, however, stands in Fillmore Glen State Park, near Moravia.

Young Fillmore worked on his father's farm, and at 15 was apprenticed to a wool carder. When he could, he attended a one-room school, and in 1818 fell in love with his red-haired teacher, Abigail Powers, whom he later married. She tutored him so efficiently that he was able to teach school as a means of financing his study of law.

Admitted to the bar in 1823, he moved his law practice to Buffalo in 1830. As an associate of the Whig politician, Thurlow Weed, Fillmore served in the House of Representatives. In 1848, while Comptroller of New York, he was elected Vice President.

Fillmore Outshines Chief Executive

In this office, Fillmore presided over the Senate during the months of nerve-wracking debate over the Compromise of 1850. Fillmore looked more the part of a President than Taylor, a diarist commented, as the tall, handsome, impeccably groomed, good-natured man labored to maintain an atmosphere of fairness in the Senate Chamber. He made no public comment on the merits of the compromise proposals, but a few days before Taylor's death intimated to the President that if there should be a tie vote on Clay's bill in the Senate, he would vote in favor of it.

Thus the sudden accession of Fillmore to the Presidency brought an abrupt political shift in the administration. Taylor's Cabinet resigned, and President Fillmore at once appointed Webster as Secretary of State, thus proclaiming his alliance with the moderate Whigs, who favored the compromise.

Conciliatory President Sways Congress

On the last day of July, Clay's compromise bill was defeated except for a provision giving Utah territorial status. A separate bill for California statehood, then introduced by Sen. Stephen A. Douglas of Illinois, brought forth once again all the violent arguments for and against the extension of slavery, without any progress toward settling the major issues. Clay, exhausted, left Washington to recuperate, throwing leadership upon Douglas.

At this critical juncture, President Fillmore aligned the full weight of his administrative and party leadership in favor of compromise. On August 6, 1850, he sent a message to Congress recommending that Texas be paid a substantial sum to abandon her claims to part of New Mexico. Significantly he asserted near the end of the message:

"I think no event would be hailed with more gratification by the people of the United States than the amicable adjustment of questions of difficulty which have now for a long time agitated the country and occupied, to the exclusion of other subjects, the time and attention of Congress."

Fillmore's message, coming at a time when public opinion throughout the Nation was increasingly favoring conciliation, helped influence a critical number of northern Whigs in Congress away from their adamant insistence

Erect, impeccably dressed Millard Fillmore, a dramatic opposite in appearance to squat, unkempt Zachary Taylor, carried the contrast into politics as well. Old-soldier Taylor, though a Virginian, warned secessionists he would hang them as traitors. New Yorker Fillmore favored conciliation and endorsed the Compromise of 1850. The Fugitive Slave Act, one provision of the Compromise, so outraged the North that it ended Fillmore's career. His Presidency foreshadowed the end of the Whig Party.

LITHOGRAPH FROM PAINTING BY WILLIAM HENRY, COURTESY MRS. MARY CRAIG OWENS, GREAT FALLS, VA.

upon the Wilmot Proviso—the stipulation that all the territory gained as a result of the Mexican War must be closed to slavery.

Representative Horace Mann of Massachusetts wrote: "Here are twenty, perhaps thirty, men from the North in this House, who, before General Taylor's death, would have sworn, like St. Paul, not to eat or drink until they had voted the proviso, who now, in the face of the world, turn about, defy the instruction of their States, take back their own declarations, a thousand times uttered, and vote against it."

Five Bills Take the Place of One

Senator Salmon P. Chase of Ohio, reporting that the President had changed the votes of six New England Senators, lamented, "The Texas Surrender Bill was passed by the influence of the new administration which is Hunker & Compromise all over. The Message of Fillmore asserting the right of the United States and declaring his purpose to support it *and then* begging Congress to relieve him from the necessity of doing so by a compromise—that message did the work."

Douglas's strategy in Congress combined with Fillmore's pressure from the White House to give impetus to the compromise movement. Breaking up Clay's single legislative package, Douglas presented five separate bills to the Senate, each of which obtained a reluctant majority. These bills (1) admitted California as a free state; (2) provided for settlement of the Texas boundary; (3) granted territorial status to New Mexico; (4) placed Federal officers at the disposal of slaveholders seeking fugitives; (5) abolished the slave trade in the District of Columbia.

By September 20, President Fillmore had signed all these measures. Collectively, history knows them as the Compromise of 1850. Webster wrote, "I can now sleep of nights."

Some militant northern Whigs, refusing to forgive Fillmore for having signed the Fugitive Slave Act, helped deprive him of the

Presidential nomination in 1852. Many southerners likewise viewed the Compromise of 1850 with serious misgivings. The next few years proved that although the Compromise was intended to settle permanently the controversy over slavery, it merely served as an uneasy sectional truce.

After his return to Buffalo, Fillmore continued for the remainder of his life to favor moderation and conciliation. As the Whig Party disintegrated in the 1850's, he refused to join the Republican Party, but instead, in 1856, accepted the nomination for President of the Know Nothing, or American, Party. Throughout the Civil War he opposed President Lincoln, and during Reconstruction he supported President Johnson. He died in 1874.

Japan receives Commodore Matthew C. Perry, who lands near Tokyo, March 8, 1854. Sent out by Fillmore to seek relations with the feudal island nation, Perry had called the previous year to present his request. Now he returns for a reply, flanked by U. S. Marines and backed by a fleet including steam frigates. Japan's answer: Yes.

Fugitive slaves arrive at an Underground Railroad station—Levi Coffin's Newport, Indiana, home. Coffin stands in the wagon while his wife helps an elderly passenger. The cruel Fugitive Slave Act signed by Fillmore moved many citizens to defy the law and help runaways find haven in Canada.

HISTORIC PAINTING BY CHARLES T. WEBBER, CINCINNATI ART MUSEUM © N.G.S.

Franklin Pierce

FOURTEENTH PRESIDENT 1853-1857

FRANKLIN PIERCE became President at a time of apparent tranquility. The United States, by virtue of the Compromise of 1850, seemed to have weathered its sectional storm. By pursuing the recommendations of southern advisers, Pierce—a New Englander—hoped to prevent still another outbreak of that storm. But his policies, far from preserving calm, hastened the disruption of the Union.

Too much blame should not be assessed against Pierce, even though his amiability was more striking than his judgment. It is doubtful if even the wisest and strongest of Presidents could greatly have altered the course of events had he taken office as did Pierce, in the deceptively peaceful eye of a great national hurricane.

Born in Hillsborough, New Hampshire, in 1804, Pierce was a member of the class of 1824 at Bowdoin College, where he became a friend of Nathaniel Hawthorne. After graduation he studied law and entered politics. When his father became governor for the second time, Pierce was elected to the New Hampshire General Court—the state legislature—at the age of 24; two years later, he became Speaker. During the 1830's he went to Washington, first as a Representative, then as a Senator. He was notable only for his unswerving devotion to Jacksonian Democracy and his dislike for the disruptive effects of abolitionist agitation. Since his ailing wife, Jane Appleton Pierce, detested Washington, and he needed a larger income to support his family, he resigned in 1842 to practice law in Concord, New Hampshire.

Pierce Named on 49th Ballot

During the Mexican War, President Polk commissioned Pierce a colonel, then a brigadier general; his only qualification for either rank was the fact that he was a Democrat. Nevertheless, some of his New Hampshire friends decided to promote him for the Presidential nomination in 1852.

At the convention, the delegates agreed easily enough upon a platform pledging undeviating support of the Compromise of 1850 and hostility to efforts of any "shape or color" to agitate the question of slavery. But they balloted 48 times and eliminated all the well-known candidates before nominating Pierce, a true "dark horse."

Thin and careworn, Franklin Pierce suffered from malaria during summers in the White House. Persistent gloom choked the mansion during his Presidency. Two months before Inauguration, a train wreck killed his son; Mrs. Pierce, grief-stricken and hating politics, holed the term in seclusion. An inept leader, Pierce struggled with minor details, bungling major issues. He opened Kansas to slavery by endorsing the repeal of the Missouri Compromise. A costly blunder, the repeal fostered feelings that led to civil war.

Campaign poster helped answer the question, "Who is Frank Pierce?" A "dark horse," Pierce put his picture on brass medals, handkerchiefs, and posters like this one. Pierce's running mate, William R. King, died before he could serve in office.

Probably because the Democrats stood more firmly for the Compromise than the Whigs, and because the Whig candidate, Gen. Winfield Scott, was suspect in the South, Pierce won by a narrow margin of popular votes. Thus this handsome, well-meaning, but indecisive and inexperienced man found himself President at a time when the challenge of the office far exceeded his modest abilities.

Tragedy Clouds Pierce Inauguration

Two months before he took office, a railroad train in which he and his wife were riding was wrecked, and their only remaining child out of three, an 11-year-old boy, was killed before his eyes. He entered the Presidency grief-stricken and nervously exhausted.

In his Inaugural, Pierce proclaimed an era of peace and prosperity at home and vigor in relations with other nations. The United States might have to acquire additional possessions for the sake of its own security, he pointed out, and would not be deterred by "any timid forebodings of evil."

Pierce had only to make gestures toward expansion to excite the wrath of northerners, who accused him of acting as a cat's-paw of southerners eager for areas into which to extend slavery. Thus there was apprehension when he pressured Great Britain to relinquish its special interests along part of the coast of Central America, and even more when he tried to persuade Spain to sell Cuba.

Pierce was successful only in friendlier directions. He continued efforts to open Japan. President Fillmore had sent Commodore Matthew C. Perry, who, acting with skill and firmness, had delivered a message in 1853; returning to Japan the next year, Perry brought back to Pierce a treaty opening two relatively inaccessible ports.

Pierce was also successful in negotiating a reciprocity treaty with Great Britain in 1854. It won concessions off Canadian shores for American fishermen in return for opening the United States to more Canadian products.

At home, almost every measure Pierce favored worked out badly, in considerable part because the conflict between the North and South colored almost all domestic matters. Favoring the South at nearly every point, Pierce signed a lower tariff measure and vetoed an internal improvements bill; southern votes in Congress blocked a homestead bill. Each of these aggrieved northerners.

But the most violent renewal of the storm stemmed from the Kansas-Nebraska Act, which repealed the Missouri Compromise and reopened the question of slavery in the West. This measure, the handiwork of Senator Stephen A. Douglas, grew in part out of his desire to promote a railroad from Chicago to California through Nebraska. Already Secretary of War Jefferson Davis, advocate of a southern transcontinental route, had persuaded Pierce to send James Gadsden to Mexico to purchase lands along the Gila River through which a southern railroad might best run. Gadsden, for $10,000,000, purchased the area now comprising southern Arizona and part of southern New Mexico.

"Bleeding Kansas" a Prelude to War

Douglas's proposal, to organize western territories through which a railroad might run, caused extreme trouble. A proponent of "popular sovereignty," Douglas provided in his bills that the residents of the new territories could decide the slavery question for themselves. The result was a rush into Kansas, as southerners and northerners vied to obtain control of the territorial government. The North sent in more settlers, but Pierce tended to throw his influence toward the South. Shooting broke out, and "bleeding Kansas" became a prelude to the Civil War.

By the end of his administration, Pierce could claim "a peaceful condition of things in Kansas." But, to his disappointment, the Democratic Party in 1856 refused to renominate him, turning to the less controversial Buchanan. Pierce returned to New Hampshire, leaving his successor to face the rising fury of the sectional whirlwind. Obscure and unpopular even at home, Pierce died in 1869.

His house in Concord, now maintained as a museum by the New Hampshire Historical Society, displays relics of the Pierce family.

Lifelong friends, Pierce and writer Nathaniel Hawthorne stroll under the Arch of Titus in the ruins of the Roman Forum. Meeting Pierce in Rome shortly after the President had left office, Hawthorne noted "many a whitening hair" and a "something that seemed to have passed away out of him, without leaving any trace." Hawthorne, who attended Bowdoin College with Pierce, helped propel his friend toward the Presidency by writing his biography.

PAINTING BY NATIONAL GEOGRAPHIC ARTIST JOHN E. ALLEMAN © N.G.S.

Irvin E. Allen

James Buchanan

FIFTEENTH PRESIDENT 1857-1861

JAMES BUCHANAN presided over a Federal Union rushing recklessly toward disintegration. He seemed to think he could stem the course of events only by offering concession after concession to the South regardless of the anger he provoked in the North. When the actual breakup of the Union began, he expressed his disapproval but considered himself legally powerless to stem the course of secession.

Long Apprenticeship Led to Presidency

Born in 1791 in Franklin County, Pennsylvania, Buchanan graduated from Dickinson College. His childhood home, moved from its original site, now stands—after careers as museum and antique shop—on the campus of Mercersburg Academy.

Learned in law and a gifted debater, Buchanan rose rapidly in politics. Only one incident marred his early life: his betrothed broke her engagement and shortly thereafter died. He was the only President who never married.

Although a Federalist of moderate views early in his career, Buchanan found it easy in the 1820's to shift his allegiance to Jackson. After five terms in the House of Representatives, he served as Minister to Russia, then for a decade in the Senate. He became Polk's Secretary of State and Pierce's Minister to Great Britain. His service abroad brought him the Democratic nomination in 1856 because it had exempted him from involvement in bitter domestic controversies.

In a calmer age, Buchanan might have been a successful President. But in the bitter 1850's he failed as abysmally as Pierce—not through inexperience, but because he grasped inadequately the political realities of the time. Tall, stately, stiffly formal in the high stock he wore around his jowls, he acted as if firm adherence to constitutional doctrines would somehow bridge the widening rift. Buchanan failed to understand that the North would not accept constitutional arguments which favored the South. Nor did he realize how sectionalism had realigned political parties.

This sectional cleavage, destroying the Whigs, had brought the rise of the Republicans. The Republican Party, formed in 1854 in protest against the Kansas-Nebraska Act, coalesced northerners and westerners irked with southern domination of the national administration—manufacturers seeking a protective tariff, farmers irritated because the South blocked a homestead bill, westerners wanting subsidies for internal improvements. A common commitment to fight the extension of slavery also united these diverse groups.

To militant southerners, the Republicans seemed an intolerable menace. The fledgling party ran John C. Frémont for President in 1856 and might have defeated Buchanan by polling a few additional votes in Pennsylvania and Illinois.

At the time of his Inauguration, Buchanan thought that the crisis would disappear if he maintained a sectional balance in his appointments and could persuade the people to accept constitutional law as the Supreme Court interpreted it. The Court was then considering the legality of restricting slavery in the territories, and two justices hinted to Buchanan what the decision would be.

Supreme Court Decision Enrages North

Thus, in his Inaugural the new President referred to the territorial question as "happily, a matter of but little practical importance" since the Supreme Court was about to settle it "speedily and finally."

Two days later Chief Justice Roger B. Taney delivered the notorious Dred Scott Decision, asserting that Congress had no constitutional power to deprive persons of their property rights in slaves in the territories. Southerners were delighted, of course, but the decision created a furor in the North; Republicans promptly dedicated themselves to reversing it.

Confirmed bachelor James Buchanan delighted in lively White House parties and the latest Washington gossip, but threatening civil war clouded his Presidency. Stately black suit and white stock enhanced his blue eyes and silk-white hair. People often met him near sunrise or at dusk taking a solitary walk along Pennsylvania Avenue.

Prince and President stand before Washington's tomb at Mount Vernon. The young Prince of Wales, later Edward VII, gazes reverently at the crypt of the man who defeated troops of his great-grandfather, George III. Having been entertained at Windsor Castle while Minister to Great Britain, Buchanan reciprocated by inviting the Prince to visit the United States as his personal guest.

On this occasion the Prince planted a buckeye tree near the tomb. It died. In 1919 another Prince of Wales, now the Duke of Windsor, planted an English yew that survives nearby. At left in this painting, Harriet Lane, Buchanan's niece and White House hostess, holds a parasol.

Wounded John Brown lies outside the fire-engine house where he made his stand at Harpers Ferry. Marines sent by Buchanan subdued the abolitionist and his little band. Brown's bid to provoke slave insurrection enraged the South; his subsequent hanging inflamed antislavery forces in the North. Brown's martyrdom inspired four soldiers to write the words of the ballad, "John Brown's Body." Union troops sang the song as they marched to battle in the Civil War.

Buchanan decided to end the troubles in Kansas by admitting the territory as a slave state. Although he directed his Presidential authority to this goal, he succeeded only in further angering the Republicans. By his rejection of popular sovereignty, he alienated Senator Douglas. Despite all the President's efforts, Kansas remained a territory.

When Republicans won a plurality in the House of Representatives in the congressional election of 1858, every significant bill they passed fell before southern votes in the Senate or a Presidential veto. The Federal Government had reached a point of stalemate.

The strife reached such a fever stage in 1860 that the Democratic Party split into northern and southern wings, each nominating a candidate for the Presidency. Thus, it was a foregone conclusion that the Republican nominee, Abraham Lincoln, would be elected even though his name appeared on no southern ballot. When news of Lincoln's election reached South Carolina, southern "fire-eaters" forced secession. Other states in the deep South followed.

In Washington, President Buchanan, dismayed and hesitant, denied the legal right of states to secede but held that the Federal Government could not prevent them. He hoped to pave the way for conciliation, and directed his most stinging words against the abolitionists. But every proposed compromise, consisting entirely of concessions to the South, proved unacceptable to the Republicans. In any event, southern leaders of the secession movement did not want to compromise.

Then Buchanan took a militant tack. As several Cabinet members resigned, he appointed northerners in their places and sent the *Star of the West* to carry reinforcements to Fort Sumter. On January 9, 1861, shore batteries opened fire, driving the ship away.

Buchanan reverted to a policy of inactivity that continued until he relinquished his office. Basically, he believed in coercing the South, but had he acted more vigorously he would only have precipitated the war several months earlier. He retired to his Pennsylvania home in March, 1861, leaving it to his successor to resolve the frightful issue. As Lincoln acted in April, 1861, Buchanan declared, "The present administration had no alternative but accept the war. . . . The North will sustain the administration almost to a man, and it ought to be sustained at all hazards." Buchanan died in 1868.

END OF PART II

Part I of this four-part series appeared in the November, 1964, NATIONAL GEOGRAPHIC.

The Author: Dr. Robert R. Gilruth directs NASA's Manned Spacecraft Center near Houston, Texas, where Projects Gemini and Apollo carry forward the Nation's space effort. He began his career in flight research in 1937, and later led the group of scientists and engineers whose determination made possible the success of Project Mercury. For contributions to that program, John F. Kennedy in 1962 gave Dr. Gilruth the President's Award for Distinguished Federal Civilian Service.

The Making of an Astronaut

By ROBERT R. GILRUTH

THIS IS THE YEAR of Gemini.

Before 1965 is many months old, a powerful Titan II rocket will blast off from Cape Kennedy, carrying two American astronauts aboard a spacecraft called Gemini—after the twins of the zodiac. For more than two years these men and their fellow astronauts have prepared themselves for Project Gemini and the epochal lunar voyages that will follow. They have pursued a unique training curriculum, and their classrooms lie scattered throughout the country.

They have attended hundreds of lectures, pored over thousands of documents, and sat through countless technical meetings.

They have conditioned their bodies to withstand grueling combinations of stresses: acceleration, weightlessness, noise, heat, cold, vibration, disorientation, and immobilization.

They have learned to survive in Panama's tropical jungles and in Nevada's scorching deserts. They have studied the geology of steaming fumaroles, lava tubes, and ice caves. They have sunk their pickaxes into basalt, shale, and pre-Cambrian rocks.

They have visited factories to watch embryo spacecraft take shape. They have practiced with dozens of training devices, simulating

Spit-roasted boa constrictor served by a Choco Indian turns out to be lunch for 15 spacemen-in-training on a jungle-survival course in Panama. "It tasted like a four-foot-long hot dog," said one diner. Upon their return from space, astronauts plan to land in the ocean, but they do not overlook the possibility of coming down in jungle or desert. Twenty-eight United States spacemen concentrate on the Gemini and Apollo programs, the latter designed to put a man on the moon by 1970. Plans call for orbiting a two-man Gemini spacecraft in the next few months.

possible accidents and how to avoid them.

Such exacting preparations have made American astronauts the world's most active commuters. Flying sleek, white-bellied supersonic trainers, they race the sun from coast to coast, squeezing extra hours out of the day and dragging white contrails in a crazy-quilt pattern across the heavens from Florida to California, Long Island to Oregon, St. Louis to the Nation's Capital.

And, finally, home.

Home is the National Aeronautics and Space Administration's Manned Spacecraft Center near Houston, Texas, 1,620 acres of laboratories, test chambers, and offices. Across its geometrical landscape, the great adventure of our time unfolds: a trip to the moon.*

Blinking light from the hand mirror of a stranded astronaut attracts the attention of a high-flying airplane over the desert, another survival training ground, near Stead Air Force Base, Nevada. Spaceman emergency kits also include flares for night use.

Sunup signals the end of a nightlong moon watch at Kitt Peak National Observatory in Arizona. Astronauts and instructors used the facility's 60-inch mirror, world's largest solar telescope, to study lunar craters. Here they see the rising sun on a viewing table linked to the telescope's optics; pane of glass above also reflects the sun's image. For solar study, they would need dark glasses.

To understand the magnitude of these events, look at the recent history of space. Less than two years ago, I stood in the Mercury Control Center as Maj. L. Gordon Cooper, Jr., hurtled into orbit in his 4,000-pound, one-man capsule on this Nation's longest space flight: 34⅓ hours. Now the 7,000-pound Gemini awaits her two-man crew and much longer orbital journeys.

Rendezvous in Space Comes First

Gemini flights are an intermediate step in our moon-flight program. They will permit us to study the effects of weightlessness for up to two weeks and teach us the technology required to bring two vehicles together in space. We must master space rendezvous if we are to reach for the moon later. In our Gemini program, managed by Charles W. Mathews, astronauts will practice this complex maneuver with the unmanned Agena vehicle, separately launched on an Atlas missile.

Before the end of this decade, the 34-story Apollo-Saturn V vehicle will carry men to the moon. Apollo consists of two spacecraft: the 57,000-pound Command and Service Modules in which three men will travel to and from the moon, and the 29,000-pound Lunar Excursion Module (LEM) in which two of the crew will land on the lunar surface while the third orbits the moon in the Command Module, awaiting their return.

If the Mercury vehicle is the Wright *Flyer* of the Space Age, certainly the Apollo ranks as the jet transport of space flight. Moreover, space progress is accelerating. More than half a century passed between the Wright *Flyer* and commercial jets. Less than a decade will separate earth-girdling Mercury from the lunar touchdown of Apollo. And who knows what lies beyond?

As Director of the NASA Manned Spacecraft Center, I have watched the growth of our Nation's space technology. I remember the makeshift quarters in which a few of us gathered in 1958 to begin Project Mercury. Today, from my ninth-story window in our Project Management Building, I look out on some of the world's finest specialized facilities for manned space flight, now rapidly approaching completion (page 139).

For example, the nine-story building to my left contains a 120-foot-high chamber in which a full-size spacecraft and its crew will experience a simulation of the moon's hostile environment. Chamber walls filled with liquid nitrogen expose Apollo's skin to the −280° F. of the nighttime lunar surface. Through portholes on one side and above, racks of glaring searchlights bake the craft at 260° F., the daytime maximum (page 135).

*See "Footprints on the Moon," by Hugh L. Dryden, NATIONAL GEOGRAPHIC, March, 1964.

Mile-deep Grand Canyon bares earth's secrets for spacemen who study geology to know how to understand the moon's composition. They also use an aerial photograph to locate their position, as they

CREDIT AND MATERIAL RESEMBLING PHOTOGRAPHS FOR MARINER

might do on the moon with pictures taken by Ranger VII and later camera probes.

Our earliest lunar explorers probably will not have to endure such extremes of temperature when walking about the moon's surface; they may land in an area not illuminated by direct sunlight but by earthshine, the reflected light of our own planet. But their space suits must be designed—and successfully tested—to withstand any eventuality. Without the bulky protective suit, a trip into the chamber would be like having one foot in the deep freeze and the other in the barbecue pit.

We expect to take care of the heat and cold with insulation and a small backpack containing a life-support system. But the suit, when pressurized in a vacuum, becomes stiff and hinders movement. The astronauts will need practice working with it under realistic conditions.

They can get much of their training right here at our Manned Spacecraft Center. With more than 20 buildings —ultimately there will be some 60—the center resembles a modern university. Its office buildings surround a quadrangle dotted with live oaks, pines, and pools. Here we see a major segment of accumulated scientific knowledge at work, attacking the unbelievably difficult problems of sustaining man in space.

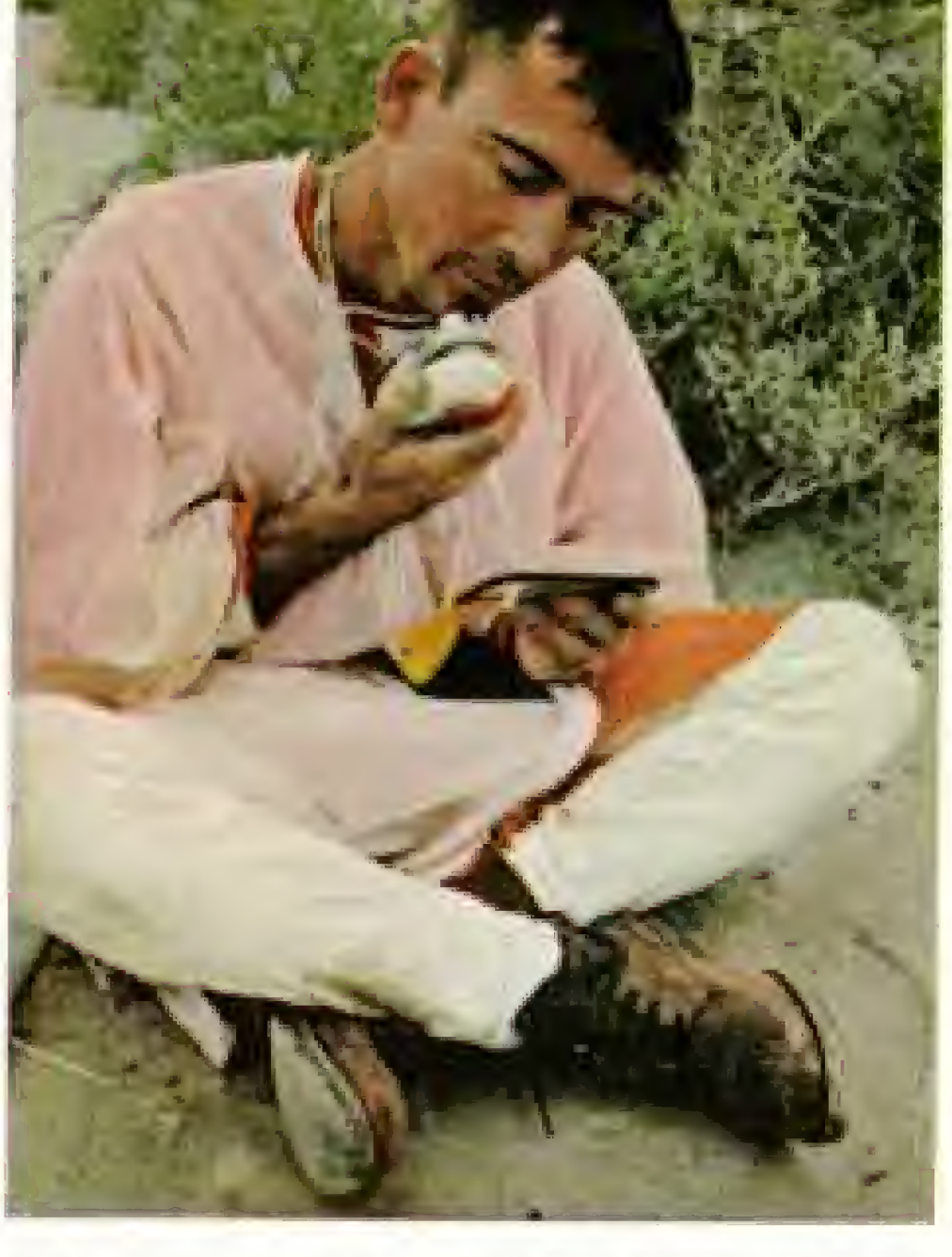
Like a university, this campus has a faculty. 2,200 of

Examining rock strata of State Hill near Cimarron, New Mexico, Astronaut Russell L. Schweickart uses a magnifier to examine fine grains. Lt. Eugene A. Cernan carries a Jacob's staff, a surveying instrument that will help map and measure the moon.

Eye to beady eye with a scaly iguana destined for dinner, astronauts in Panama register skepticism, amusement, determination. Later, one said the lizard tasted like chicken, and heard a colleague rejoin, "Yeah, one with four drumsticks and a long tail." Flown by helicopter deep into the rain forest, train-

ers clamped in pairs. Each team had to skin and cook an iguana. To return to civilization, they hacked trails or floated down streams on rafts.

Succulent palm heart looks like stringy celery but offers nourishing and refreshing juice to Capt. Michael Collins. Insignia shows that he graduated from U. S. Air Force Aerospace Research Pilot School in California.



Battery-powered razor helps Lt. Comdr. John W. Young keep trim during desert survival training at isolated Carson Sink, Nevada.

Masters of make-do, men use parachutes for a tent to shade them against searing desert heat. Inflated life rafts double as mattresses.

this country's most experienced aerospace engineers and scientists, supported by nearly 2,200 technicians, administrators, and clerical workers. Besides managing development of spacecraft, our people pursue advanced research projects; they also spend much time in the classroom, both teaching and being taught.

But our best-known students are the astronauts. Their training is the most intensive and expensive. They spend 50 hours a week for two to five years training for a single flight. On lunar missions, each crew will be responsible for a vehicle costing more than the entire training program for all the astronauts.

We provide only postgraduate training for the astronauts. Their preparation really began years ago in college, where most of them obtained engineering or science degrees. Then came flight training and as many as ten years as jet pilots. Many have had a graduate course in test-pilot school.

Experienced pilots, they have excellent health, emotional stability, and coolness under pressure. They have operated aircraft under the most dangerous conditions; nine have flown in combat. They have faced fear and learned to overcome it.

Our astronaut team now totals 28 members, including six of our original seven-man Mercury team, nine "intermediate" class members brought aboard for the two-man Gemini flights, and 13 of an original 14 "freshmen" just completing their first full year of space training. Later this year we will select a dozen or so additional astronauts with emphasis on their science background.

Studies Include Comets and Computers

Our Astronaut Training Program covers four major areas:

The Spacecraft: Each man must become thoroughly familiar with all the space vehicles, how they are built, and how they fly.

The Space Environment: Each must learn to feel at home in the weightlessness of space; the weak lunar gravity, only one-sixth that of earth; forbidding temperature extremes; and the crushing forces of launch and re-entry.

Space Survival: Each must learn how to eject himself from his spacecraft should something go wrong during launch or re-entry, and to survive wherever he lands, in the water, desert, or jungle, until rescued.

Space Sciences: Each must become a skilled observer, with a knowledge of geology and astronomy, in order to bring back scientific information—a primary NASA goal.

In 200 hours of lectures, an astronaut learns about hypergolic fuels and hyperbolic velocities, about telemetry and temperature control, about everything from comets and cryogenics to computers and communications.

But astronauts need more than books and lectures. Spacecraft change as new systems are added, old systems modified. Astronauts face the problem that troubled an old Swedish friend, who said: "I have hardly learned to say yob, and already they are calling it proyect."

The complexity of the program is such that one of the best ways to keep up to date is to work right with the engineers who design the spacecraft. This is one of the advantages of having the astronauts train at our center side by side with the skilled scientists who manage our spacecraft programs. By sitting in on engineering design meetings, the astronauts hear of modifications as soon as they are initiated.

One man cannot hope to attend all engineering sessions; each of the astronauts takes on a specialty and keeps the other 27 abreast of developments.

As spacecraft systems become more complex, we must use more elaborate training aids. Gemini, for example, uses

Like tumblers in slow motion, Maj. Edwin E. Aldrin, Jr., Capt. Charles A. Bassett II, and Capt. Theodore C. Freeman experience 26 seconds of weightlessness in a KC-135 jet tanker over Wright-Patterson Air Force Base, Ohio. As the plane flies the crest of a parabolic curve, the spacemen "swim" almost effortlessly within the padded cabin. Instructor Philip V. Kulwicki hugs the wall at left. A strap tethered the photographer for this shot. Captain Freeman was later killed in a jet plane crash, October 31, 1964.

"systems trainers"—billboard-size diagrams with special lighting effects to show the astronaut what lies behind the blinking signals and trembling needles of his instrument panel. When he throws switches on a mock panel, relays chatter, indicators flash, and routes light up in various patterns of color to show the flow of oxygen, water, and power through the systems. These devices unwind the intricate wiring of all the black boxes and lay it out in a map that the eye can follow and the mind understand.

So the astronauts acquire a basic understanding of their spacecraft. But that is quite different from actually operating the controls in split seconds and reacting instantly and accurately to emergencies. An airplane pilot can practice in the air with an instructor to take over in case of trouble. But in a spacecraft the astronaut is on his own from the

Wet touchdown, simulated in Galveston Bay, Texas: a Gemini team practicing egress from space-craft. NASA divers stand by in a rubber life raft. Gemini and Apollo space teams coming back from

Lifesaving gestures: An instructor demonstrates to astronauts the correct way to climb into a life raft. Hands must reach up and across the float, grasping the far side to prevent tipping. He lec-

lunar flights hope to drop into the shock-absorbing sea, as Mercury astronauts did

tures beside the swimming pool at the Pensacola Naval Air Station in Florida

first moment of flight. How to practice, then? With mechanical flight simulators.

The idea of simulation is not new. The Romans, faced with Carthaginian sea forces, had to learn techniques of naval warfare. They set up several galley frames on shore, and in these "fixed-base simulators" they trained crews to row and legionaries to board for hand-to-hand combat.

In contrast, space-flight simulation has become so complex that we can take it only in steps. At first the astronaut practices bits and pieces of the total mission in "part-task trainers."

We have converted the old Mercury procedures trainer into a part-task trainer for Gemini. In it the astronaut can practice one of the most difficult parts of the Gemini mission, seeking out and hooking up with the Agena spacecraft.

Out the window of this part-task trainer, the astronaut sees a dark void dusted with stars. As he maneuvers his simulated spacecraft, a blinking light glows brighter and brighter until it finally approaches close enough to reveal the cylindrical shape of the Agena vehicle.

To practice the complete two-man Gemini orbital mission requires a far more complex trainer than that used in Mercury. For this purpose we have had to build a new Gemini Full-Mission Simulator. Whenever I inspect this trainer I am always impressed by the roomful of computer equipment necessary to reproduce intricate Gemini maneuvers. Compared to the spinet-size Mercury trainer control console, Gemini's looks like a pipe organ (pages 140-141).

Earth Floats Outside Trainer Window

Inside, the spacecraft reminds me of a sports car, with a control panel between the seats. Instead of ashtrays and glove compartments, this center console is studded with switches and knobs. From it projects the gearshiftlike control stick. Since both astronauts must be able to fly, the man sitting in the right-hand seat will have to use his left hand.

Squeezing down into the seat and pulling the hatch closed over your head, you find yourself crowded into a space slightly smaller than a phone booth. For an astronaut, this will be "home" for up to two weeks.

Its window is attached to a complex optical and color TV system which reproduces the view of the earth. From a hundred miles up, you see pin-point stars in a black sky, and sunlit blue-green earth stretching almost 900 miles to the curving horizon.

Gemini is a highly maneuverable vehicle. Whereas Mercury, like a cannon ball, was limited to one trajectory or orbit, Gemini can change orbits and maneuver during re-entry to select the best landing point. The instrument panel reflects this complexity. Like a modern jet, it bristles with instruments showing the vehicle's attitude, position, engine status, and fuel supplies. Needles move and lights flicker on and off

realistically as the instructor puts the trainer through its paces.

"4, 3, 2, 1, 0, lift-off."

With a simulated roar of Titan II rocket engines, your imaginary flight begins.

The spacecraft clock is running, and now the altimeter needle comes off the peg as the Titan rumbles its way skyward.

Then, seconds after lift-off, the black-and-white eight-ball attitude instrument rolls slightly to the left and then downward as the rocket arcs over and heads down range from Cape Kennedy.

"Two minutes, thirty seconds. Stand by for BECO."

A yellow light flashes on, indicating booster-engine cutoff. In a moment, a green light and a roar confirm that the Titan's second-stage engine has come to life.

"Five minutes, thirty seconds, guidance looks green. Stand by for SECO."

The read-out display of Gemini's timer slowly counts the seconds to the point of sustainer-engine cutoff. Now the engine roar gives way to silence, and you are in orbit, circling the earth at a speed of some 17,500 miles an hour.

I remember that Maj. Virgil I. Grissom was once asked what part of the Gemini flight would be the most difficult. "I guess the part between lift-off and landing," Gus replied.

LEM Pilot Must Land Carefully

Though the Gemini trainer seems complex, the Apollo simulator will surpass it. Stanley Faber, chief of flight simulation, likes to tell visitors, "It will have everything, including—literally—a bathroom and a kitchen sink."

More than twice as large as the Gemini trainer, the Apollo equipment will actually consist of two units: the simulators of the Command Module and the LEM.

Among the many impressive features, an out-the-window display gives the crew a panoramic, make-believe journey through half a million miles of space. Nine tons of optical equipment produce this celestial extravaganza so accurately that astronauts can practice their critical star navigation and moon landings.

Though the Apollo simulators are not yet operational, we can get a good feel for what the moon landing in the LEM will be like in our Guidance and Control Division. Stepping through a doorway, one enters a cabin somewhat like the bridge of a ship. Instead of a ship's wheel, we find switches that can begin a make-believe landing.

Through a triangular window on the left glares a nightmare surface—red and yellow crosses and arrows grouped in squares like a patchwork quilt. This particular device cannot simulate the valleys and plains of the moon, as the actual LEM simulator will do, so it creates a completely abstract surface in full color.

Docking Trainer Rides Cushion of Air

Test pilot James Brickle describes the landing problem: "The autopilot starts you curving toward the lunar surface. You take over at 200 feet, as the LEM rushes downward. Your job is to slow it with your descent engine enough for a soft landing in a safe place—and you have only two minutes to do it. After that your landing fuel burns out. Without power, and with no air or parachute to slow you down, you would smash into the lunar surface."

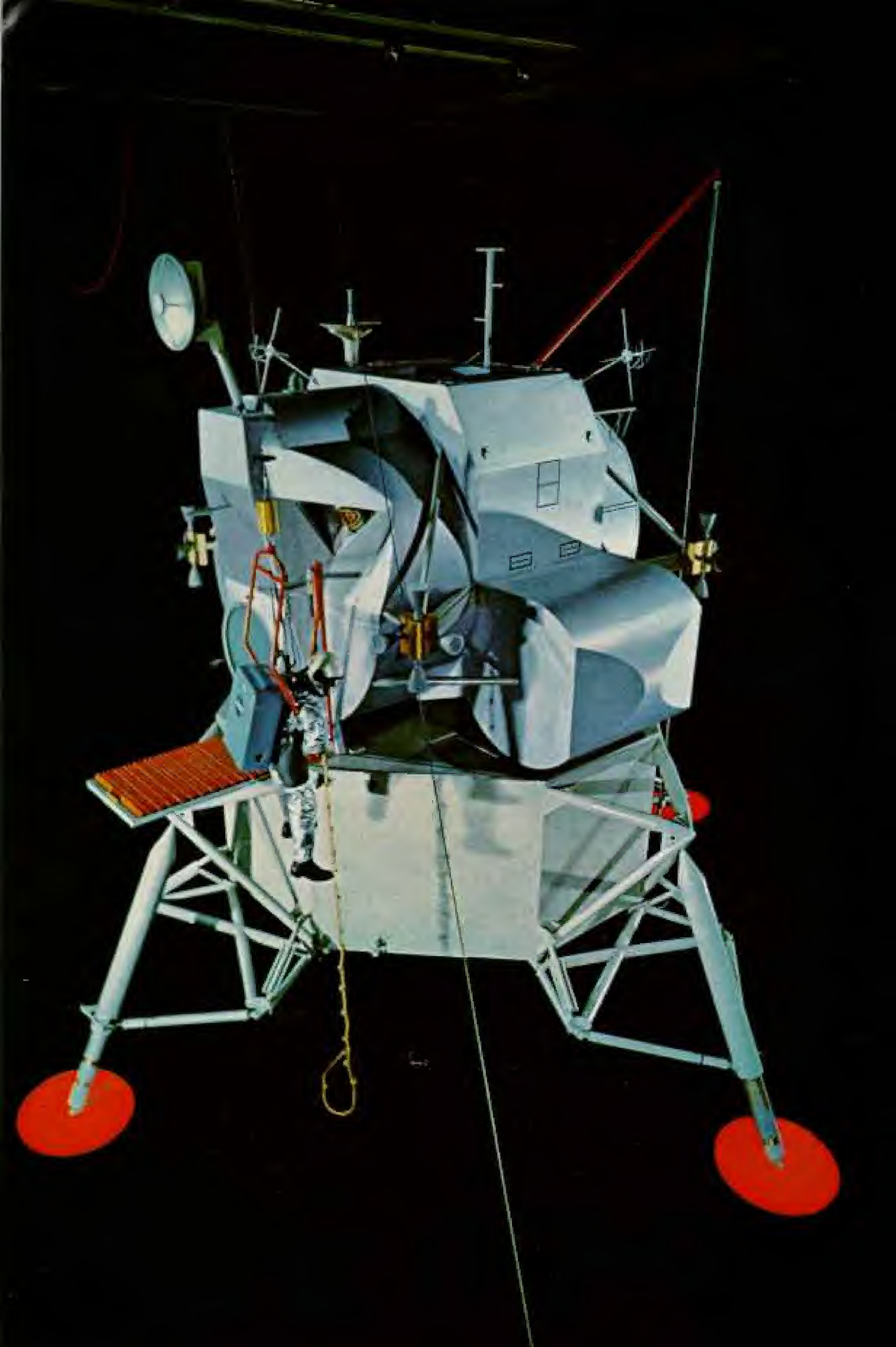
But these stationary simulators have one thing in common. If you make a mistake, you do not smash into anything. You merely press the button marked "Reset" and start over.

For critical piloting tasks, we use simulators that move like the spacecraft themselves. One of these "moving-base" trainers, the Translation and Docking Simulator, is here at the center. It occupies a gymnasium-size building painted black inside to suggest the darkness of space.

Now, with Comdr. Walter M. Schirra, Jr., at the controls, Gemini nods, turns, and rolls. From within the cabin, Wally peers out at the bulky Agena, suspended at the far end of the darkened chamber and half lit by a shower of artificial sunlight.

World's Largest Vacuum Chamber Takes Man to Moon Yet Never Leaves Earth

Now nearing completion at the Manned Spacecraft Center near Houston, Texas, the stainless steel silo stands 120 feet high. In this artist's view, cutaway of the depressurized cylinder shows the Apollo Command Module that will orbit the moon. With hinged nose cap open, one of the three-man crew peers out. Controlled temperatures within the chamber approximate those of the moon's hostile environment. The spacecraft must withstand temperatures reaching −280° F. on the dark side, while the lighted side bakes at 260° F. The 29,000-pound Lunar Excursion Module, here hoisted by crane, will attach atop the Command Module to take on two passengers for a moon landing.



Walking on the wall, a test engineer at NASA's Langley Research Center, Virginia, strides forward as man would in the low gravity of the lunar surface—one-sixth of earth's. Counterbalanced harness supports the other five-sixths of his weight.

First full-scale mock-up of Apollo's LEM: Lt. Comdr. Charles Conrad, Jr., a life-support pack on his back, dangles at the end of a "Peter Pan Rig," a pulley device that simulates the moon's gravity. He descends a knotted rope while his mate waits inside.

Eerie "Moon Room," part of NASA facilities at Ellington Air Force Base, Texas, imitates the satellite's meteorite-battered face. Astronaut in pressure suit examines chunks of volcanic rock, perhaps like those he might collect on the dead, airless sphere. Foot-high model of LEM in background aids to the illusion of a lunar landing.

"Starting docking maneuver," Wally calls as he nudges the propulsion handle. A low hiss issues from the simulated thrusters. But rather than the Gemini moving, as it would in actual flight, the Agena moves. With gathering momentum, Agena rushes silently toward the Gemini cabin on cushioned slippers of air.

"Oops, a little too much," Wally says, and pulls back on the control handle. Gingerly he maneuvers the target, a silver tube with flickering rendezvous light. There is a slight bump as the vehicles come together.

"It always reminds me of inflight refueling," Wally remarks as he nudges the blunt nose of Gemini into the basketlike adapter ring on the Agena.

"Daddy Longlegs" Teaches Lunar Landings

After mastering the moving-base trainers, the astronaut takes the final examination: simulators that actually fly.

In NASA's Flight Research Center at Edwards Air Force Base, California, the astronauts practice landings in the LLRV—Lunar Landing Research Vehicle. This jet-powered "daddy longlegs" performs here on earth as the LEM will on the moon.

A powerful jet engine, almost hidden in the center of its aluminum skeleton, points constantly downward. With its push, the bizarre craft takes off vertically and ascends to more than 1,000 feet. There the astronaut throws a switch that throttles the engine back to compensate for precisely five-sixths the weight of the vehicle. The remaining weight makes the vehicle fall at just the speed with which it would approach the lunar surface under influence of the moon's weaker gravity.

From this point down, the pilot brakes and maneuvers his craft with small rocket motors like those planned for the LEM.

A practice landing on the desert is as close as you can come to the real thing. A mistake could mean ending up in a pile of scrap metal on the desert floor.

With the many simulators in NASA's inventory, the astronauts agree that there is still no substitute for 20 to 30 hours of actual jet flying each month. Lt. Comdr. Charles Conrad, Jr., sums it up well: "It's easy to sit back in a training device and know that if you do something wrong the instructor will push the reset button and you can try again. But in an airplane you're on your own."

But the astronaut must know more than how to fly a spacecraft. He must also learn to handle his own body in drastically changed environments.

The BETA trainer (for Balanced Extra-vehicular Training Aircraft) accustoms him to moving about in frictionless space. This metal saucer floats above a steel floor, as if by magic, on cushions of compressed air. A doughnut-shape tank between saucer and floor emits the sustaining air through tiny jets. The astronaut must balance, surfboard style, on the saucer, and with short bursts of air from a multibarreled pistol, he skims across the floor like an Arabian prince on a flying carpet.

A forward-firing burst from the pistol sends the saucer

Project's pulse, the 179-million-dollar Manned Spacecraft Center spreads over 1,620 acres, 30 miles south of downtown Houston, Texas. Nine-story Project Management Building, one of 60 facilities planned, looms above the campuslike center.

Gemini simulator trains flight and ground personnel in all phases of an actual mission except docking. Astronaut Mike Collins (foreground) and NAS Aerogineer John Sargent share the controls. Hal Parker of Flight Crew Support Division watches through a hatch that would close in flight. Technicians monitor the mission at the control console in background.

MAINTENANCE CREWS ARE RESPONSIBLE BY NATIONAL GEOGRAPHIC PHOTOGRAPHER ALBERT MOLDVAY © N.G.S.

scooting backward: fire to the rear, and the saucer reverses direction. It's the world's lowest-flying aircraft—at one-thousandth of an inch altitude.

"The trick is to shoot from the hip, from the body's center of gravity," BETA inventor Harold I. Johnson points out. "If you hold the gun at eye level, you spin head over heels."

The astronauts experience total or partial weightlessness for just under half a minute in the padded cabin of a modified KC-135 jet tanker as it reaches the peak of a roller-coaster trajectory (page 131).

Lt. Comdr. John W. Young described the sensation as "something like swimming, except that in water you can always get into motion by kicking your feet. Here, with nothing to push against, you just hang there until the plane pulls out of its trajectory."

For Apollo crew training we can also fly the KC-135 in a slightly more shallow parabolic trajectory and produce one-sixth the force of earth gravity. This helps in testing the tools and instruments designed for use on the moon's surface.

Walking on Wall Not Just for Flies

Another device enables the astronaut to move about on earth as he would in the lower gravity of the lunar surface. In this simulator at NASA's Langley Research Center in Virginia, the astronaut hangs in a harness like a puppet and walks flylike on an inclined wall. The angle of the wall is designed so that just one-sixth of his weight rests against it (page 137).

Eventually the space voyager must return —and so must his weight. As he hurtles into our resistant atmosphere, he briefly experiences the unpleasant sensation of weighing more than half a ton.

Gemini pilots have conditioned themselves to endure this phenomenon at the U. S. Naval Medical Acceleration Laboratory in Johnsville, Pennsylvania, where they ride a one-man gondola around a circular course at high rates of acceleration.

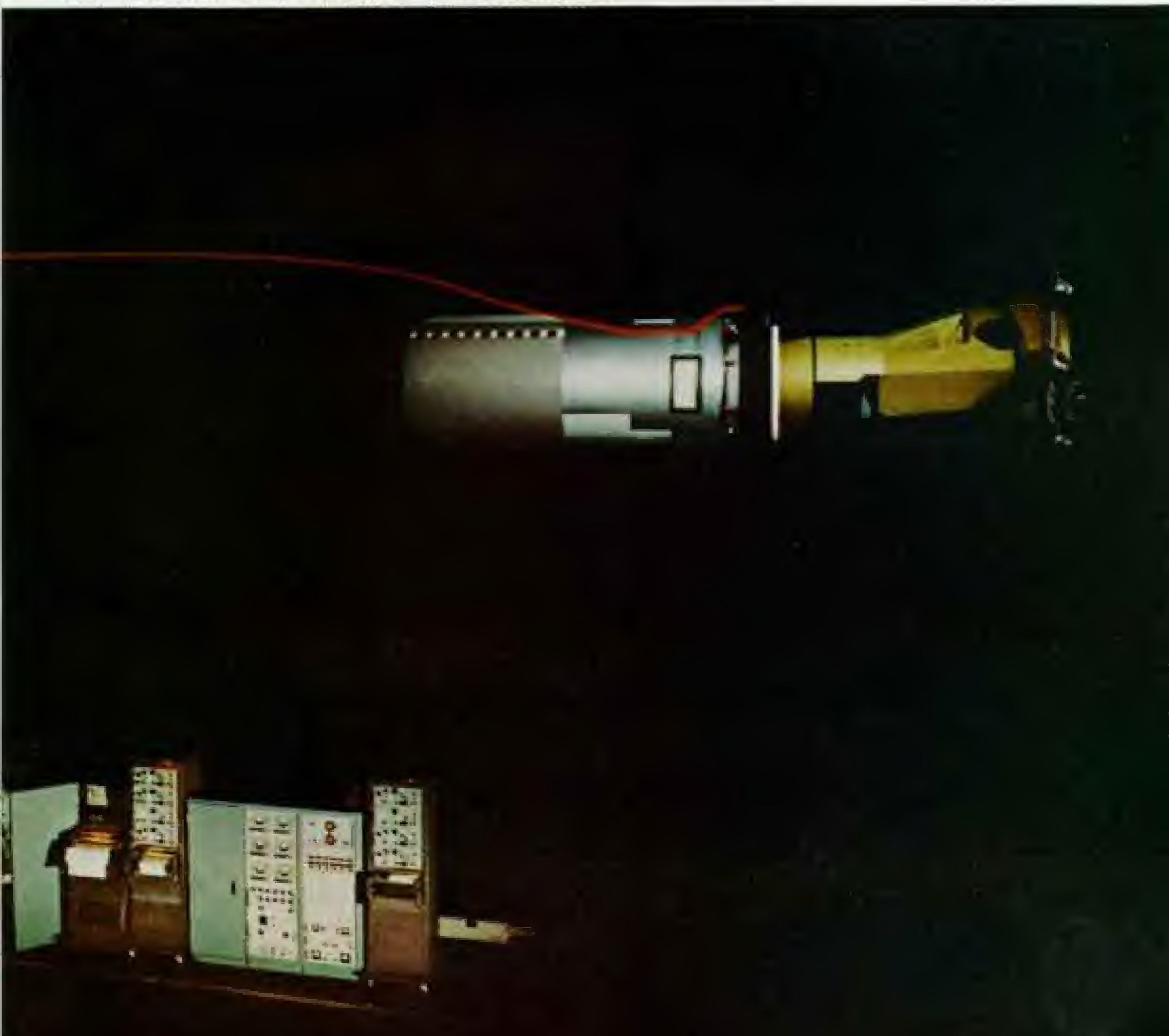
A larger centrifuge is under construction at the Manned Spacecraft Center. The electric motor, which will propel a three-man gondola simulating the Apollo spacecraft, will be one of the world's largest direct-current motors. The rotor alone will weigh almost 100 tons—twice as much as Apollo's payload!

"Much of our training comes under the heading 'preparing for the unexpected.'" Astronaut Neil A. Armstrong says. "We don't expect to abort, or use our parachutes. Nor do we think we'll ever bring a spacecraft down

Two-man space team, John Young (left) and Maj. Virgil I. Grissom practice orbital flight and rendezvous in a Gemini Mission Simulator. While traveling 185 miles above earth at 17,500 miles an hour, astronauts must perform an incredibly delicate maneuver—hooking up with an Agena-D vehicle that can propel their craft farther into space.

Red light traces the path of an Agena in a time exposure as it moves to a mating with Gemini in the simulated darkness of space. Two other exposures with strobe lights show the rocket vehicle at the start of its journey (left) and at its meeting with the spacecraft (right). Computers (below) provide flight information. In space Gemini's radar will locate Agena 250 miles away. At a distance of 20 to 30 miles, Agena's flashing beacons will guide astronauts toward the cone-shaped docking collar. This view shows training at McDonnell Aircraft Corporation in St. Louis, Missouri; the facility has since moved to Houston.

EXPLANATORY TEXT BY RALPH MORSE, LIFE, AND EXECUTED BY MCDONNELL AIRCRAFT



Countdown for launch: At Cape Kennedy, Air Force Titan II stands ready to hurl aloft an unmanned Gemini spacecraft. This first orbit of earth last spring by the 7,000-pound vehicle proved Titan's thrust equaled that of seven Boeing 707 jet airliners. Missile erectors, their job done, fall back into horizontal position. Red gantry will move away before lift-off.

in the Amazon jungles or the Gobi Desert. Still, we take every step to be ready."

Crew members practice their parachute landings in Galveston Bay. A boat tows the astronaut into the air, a procedure cheaper and easier than using a plane. Starting a few feet back from the water's edge, he allows the breeze to fill the canopy before signaling the helmsman to pour on power. The astronaut launches himself with a few running steps, and his chute lifts him as high as 400 feet. Once aloft he releases the towline and floats down to a wet but safe landing.

Getting wet is nothing new in astronaut training, however. "Until we add some sort of gliding capability and landing gear to our spacecraft, ocean recovery is likely to remain the best way of coming down from orbit," says Lt. Comdr. Alan L. Bean, astronaut specialist in recovery systems. "Those thousands of square miles of uncluttered water surface offer a very handy shock absorber."

At the Naval Air Station in Pensacola, Florida, each crew member learns to swim while encumbered by a bulky pressure suit. The Navy swimming pool is also a good place to learn how to untangle himself from parachute shroud lines, how to use his one-man life raft, and how to get into a helicopter rescue sling.

Actual practice in getting out of the Gemini spacecraft begins in the water test basin at Ellington Air Force Base, here at Houston. Using what we call a "boilerplate" Gemini, intended only for tests or training, a two-man team learns to coordinate body movements with the spacecraft to keep from tipping it over. Similar sessions follow in the open water of nearby Galveston Bay (page 132).

Survival "Classrooms": Desert and Jungle

To learn what to do in the punishing sun of the desert, the astronauts travel to Stead Air Force Base in the dry sagebrush country of western Nevada (pages 124 and 128-9).

Before they are turned loose for two days in the wilderness, the astronauts must learn to make emergency clothes of parachute material: sheik-style headdress and flowing robes of orange and white nylon.

Despite dire tales of sidewinders and Gila monsters, we've had only one small incident to mar the training. John Young was stung on the ankle by a scorpion, but he took care of his own wound, refusing offers of medical help from the base. "After all," he reasoned, "I wouldn't find any medics wandering around in the Sahara."

We've also turned space trainees loose in

Clad in hospital white, John Young (center) and Gus Grissom (right) inspect the adapter ring that will join the pilots' cabin of their Gemini craft with a section containing vital flight equipment. An engineer checks connections to the fuel chamber that powers control rockets. In this Clean Room at the McDonnell plant, air filters trap 95 percent of the atmosphere's microscopic dust.

the tropical rain forests of Panama. At the Air Force Southern Command Tropic Survival School at Albrook Air Force Base in the Canal Zone, the jungle training includes instruction on edible wild fruits and insects—even how to skin and prepare snake meat (page 123). Despite initial grimaces, the astronauts found most of the dishes fairly palatable.

"It just depends on your appetite," said Capt. William A. Anders, as he turned down an iguana tidbit. "I've already eaten once this week" (pages 128-9).

Survival exercises have shown the astronauts to be competent outdoorsmen. Still, it's all pretty uncomfortable, as Alan Bean indicated when I asked what the training had taught him: "I learned that the best thing to do is to try very hard to keep from coming down in the jungle."

We hope our trips to the moon will help determine the origin of the moon and the earth. Therefore our space science training stresses geology.

We begin at the level of a college freshman course. But the dosage is highly concentrated. We soon move on to the most recent ideas about lunar geology.

Our geology classroom at Ellington looks like a small museum of mineral science. The displays combine large globes of the moon and models of lunar terrain. There are sample collections of rocks, meteorites, minerals, and crystals.

Spirit of the 20th century, space-suited Astronaut Frank Borman typifies youthful Americans embarked on perhaps the greatest challenge of all time—conquest of the vast wilderness of space.

Moon Vista May Look Familiar

In addition, two acres of craters are being constructed in the Texas soil by trucking in volcanic rock and cinders—materials that geologists consider similar to what we will find on the moon. A full-size mock-up of the Lunar Excursion Module will squat in this moonfield, so astronauts can test methods for getting in and out. Here, too, they will try out their moonboots, gloves, and scientific gear.

"We will keep improving this piece of the moon as new information comes in from our Ranger and Surveyor programs," said Dr. Ted H. Foss of NASA's special geology team.*

Already, from Ranger VII's photographs we have reason to believe that our moonfield does not have to be a deep dustbin. We hope to perfect our simulation to the point that the first astronaut on the moon will say, "Hey, this reminds me of Houston. . . ."

Lunar Hazard: Space Suit Blowout

Field trips give the astronauts a firsthand acquaintance with land forms, rock strata, and the folding, bending forces recorded in layers of stone.

"Grand Canyon makes a magnificent classroom," says geology instructor Uel Clanton. "Several hundred million years of the earth's history sliced into a mile-deep cross section—like a laboratory model blown up to full scale" (page 126).

In addition to Grand Canyon, astronauts have traveled to the Big Bend country of the Rio Grande and to Arizona's Sunset Crater, where they scrambled over contorted black lava flows.

"If the moon is really volcanic," instructor Al Chidester told them, "you may find yourself trying to walk across this kind of lava field in a pressure suit."

Maj. Frank Borman eyed the glass-sharp edges of the rock heaps. "An embarrassing place to have a flat," he noted. "With a slow leak in your suit you might make it back to the LEM—but with a blowout, you're dead!"

At Kitt Peak National Observatory, Arizona, the astronauts took a look at lunar craters through the world's largest solar telescope (page 125).

Geologist Dr. Harold Masursky pointed out that few major telescopes are used for moon observation. "The size of the instrument is not too important for moon viewing," he said. "Our atmosphere is the worst problem."

"What *would* be the best optical system for studying the moon?" Bill Anders asked.

Walter Cunningham offered an answer: "A hand-held magnifying glass—you just have to get close enough to use it."

Getting close enough will take a few years. But, as our NASA team works and plans and trains, the moon becomes a bit nearer our grasp with each passing day.

* See "The Moon Close Up," by Eugene M. Shoemaker, National Geographic, November, 1964.

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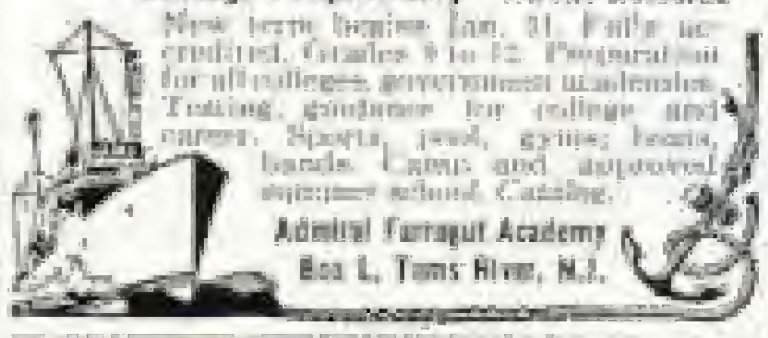

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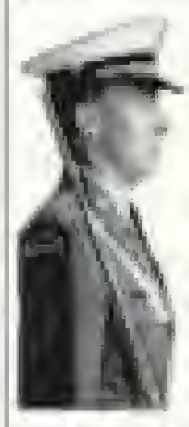

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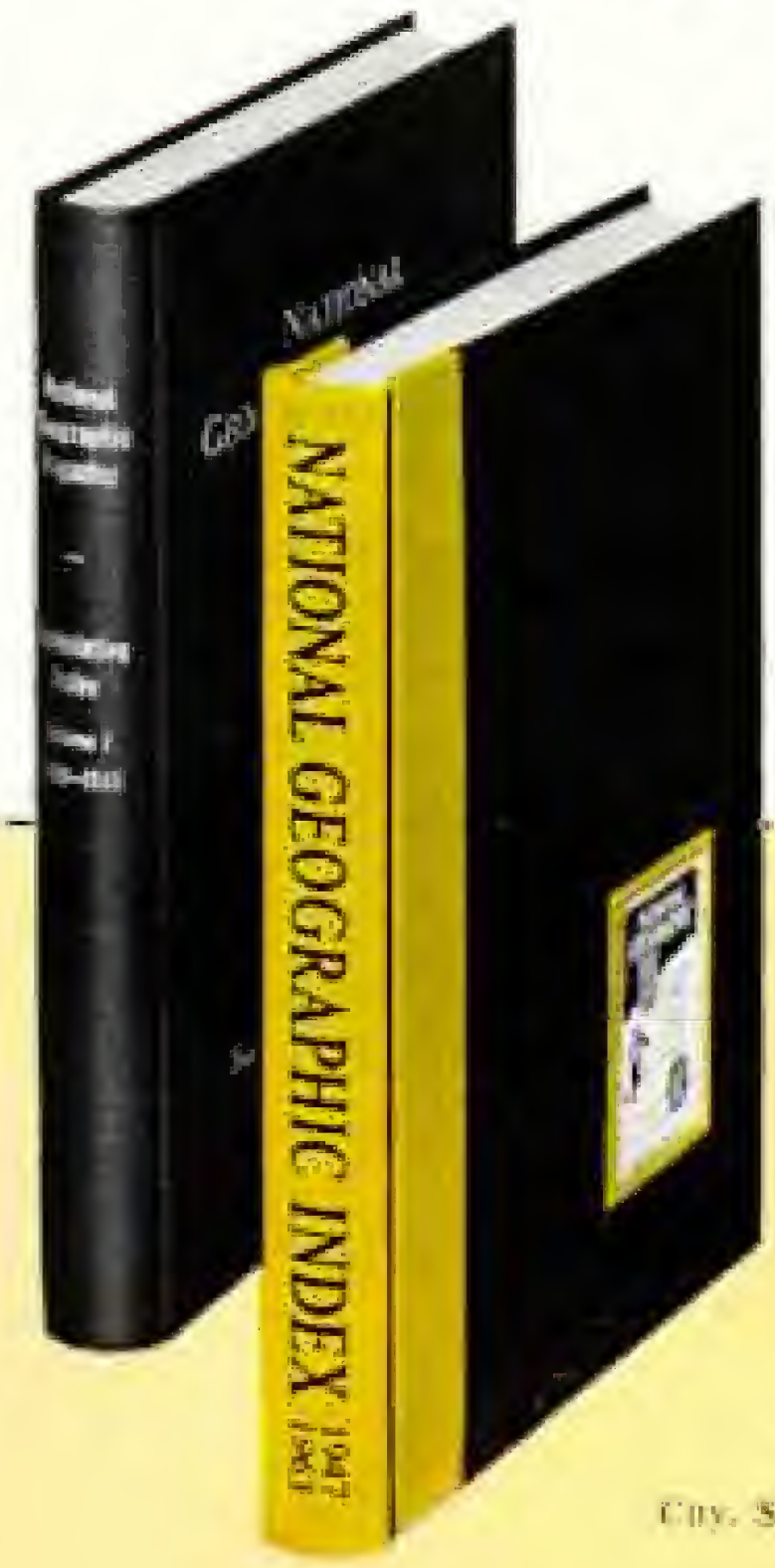

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