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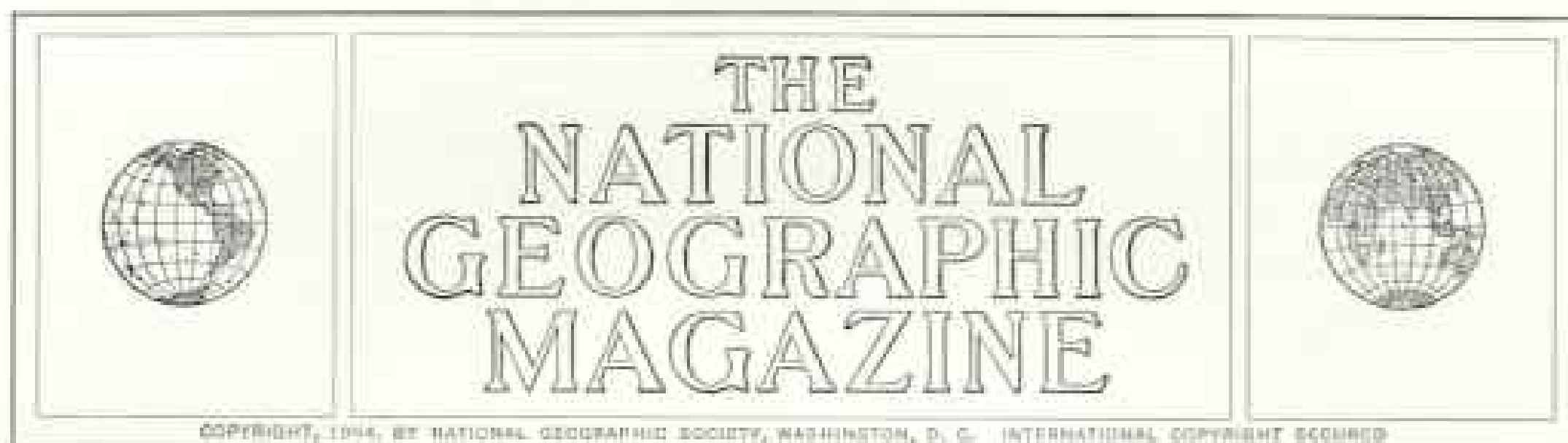
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## Roving Maryland's Cavalier Country

431

A Modern Pilgrim Savors the Free State's Past in Stately Homes  
Along the Tidewater Reaches of Chesapeake Bay

BY WILLIAM A. KINNEY

"**F**OLKS is sho' journey-proud today," said the driver of a car drawn up at Mulberry Fields, one of the picturesquely named old homes of southern Maryland (page 435).

I knew what he meant by "journey-proud"—elated or excited at the prospect of a trip. But the phrase seemed apt in another sense, for these pilgrims exploring the past of Maryland had ample reason to take pride in the history of the Free State, dedicated from the outset to religious and civic freedom.

Each spring thousands come to drink deep of beauty and history in the House and Garden Pilgrimage sponsored by The Federated Garden Clubs of Maryland. In late April and early May scores of historic homes are open to the public—old places with such intriguing names as Rich Neck Manor, Troth's Fortune, The Reward, Providence Plantation, and Old Spout Farm.

### Years Roll Back to 1634

From the Nation's great and comparatively young Capital at Washington, 75 miles away, I drove to a capital far different—sleepy Saint Marys City, once seat of government for the Province of Maryland (color map, page 438).

There on an April day I saw the founding of Maryland come to life. From a bluff above the sun-burnished St. Marys River, I watched a little company moving up the beach under a heraldic banner of gold, black, silver, and blood red, the standard of Lord Baltimore.

It was "The Birth of Tolerance," a pageant

produced in recent years by students of St. Mary's Seminary Junior College. One of them identified key figures in the procession: Gov. Leonard Calvert, leader of an expedition that came from England to these shores in 1634 in the *Ark* and the *Dove*; Father Andrew White, black-robed priest in a shovel hat who became pioneer historian of the Province; and the Indian chief of the Yaocomicos, whose land this was.

"After a friendly reception by the Indians," she related, "Leonard Calvert, the second Lord Baltimore's brother, bought this space for some 30 miles around, paying in cloth, axes, hoes, and knives."

The company of the *Ark* and the *Dove* not only arrived with a prefabricated boat brought "in pieces out of England," but lost little time building others. Their instructions had been to bring "spikes, Nayles, Pitch, Tarre, Ocome [oakum], canvis for a sayle, Ropes, Anchor, Iron for the Ruther [rudder]."

First arrivals in Maryland almost invariably settled on tidewater. Waterways were the only highways, and Maryland had more than 3,000 navigable miles of them, including the majestic inland sea that is Chesapeake Bay.\*

So manors and plantations with private wharves became the rule. There ships discharged cargoes from abroad and picked up golden tobacco. Some estates even had their

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Maryland Presents —," by W. Robert Moore, April, 1941; "Roads from Washington," by John Patric, July, 1938; and "Maryland Pilgrimage," by Gilbert Grosvenor, February, 1927.





← Smiling Rivers Nourish Maryland's Verdant Cavalier Country

Lacking roads, Provincial planters in the Chesapeake Bay country built homes handy to tidal rivers, and launched Europe-bound tobacco cargoes down the waterways. Fat oysters, fish, crabs, diamondback terrapin, and wild fowl come to tidewater tables from waterways like Trippe Creek (background), a tributary of the Tred Avon River (foreground) on the level Eastern Shore. The porticoed mansion by the water is Sunset Hall, owned by Philip Nuttle.

↓ Drayton, an estate occupying a land grant dating back to 1677, looks out over Still Pond Creek on the Eastern Shore. Indians eating oysters and throwing away the shells built the mound at the far end of the lawn. Frank L. LaMotte, Drayton's owner, has found arrowheads in the soil.

Left: Three beauties peep through the carved pine dining-room shutters of Hammond-Harwood House in Annapolis. This Georgian dwelling, completed in 1774, has been called America's most beautiful town house (pages 462, 463).

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Kodachromes by National Geographic Photographers Bruce Littlehales (left), R. Anthony Stewart (center), and Volkmar Wantzel



own deepwater merchantmen; all had their small boats for visiting around.

Throughout this land, old names offer a curious mixture. Arabia, Bachelor's Hope, Brother's Gift, Good Luck if it Hittes, Diamond Adventure, Carpenter's Square, Come by Chance, Mount Olivet, and Room Enough are found on the original rent rolls of the Lords Baltimore. So are Moore's Gore, Buzzard Hall, Bird Cage, Frailty, Let Fall, and Mate's Date. Jenifers Contagious Marsh is, I think, the least inviting.

Thanks to United States Navy initiative, a forgotten monument of early St. Marys, St. Ignatius Church, was restored in time for the 1953 Pilgrimage. It stands near the gate of Webster Field, a satellite of bee-busy, huge Patuxent Naval Air Test Center.

A Congregationalist admiral, exploring a remote part of the Webster Field area, stumbled upon the rundown, overgrown church. Back at the big base he told a Lutheran captain of his find—the oldest Roman Catholic foundation in the Thirteen Original States.

"Let's see if we can restore it," was the decision. A sailor on the field told me the rest of the story.

"The admiral and the captain called in the Catholic and Methodist chaplains," he said.

"The chaplains asked for volunteers. No matter what their religions were, the boys turned out on liberty time. So did a lot of county people."

In the same spirit, the Catholic and Protestant company brought by the *Ark* and the *Dove* worked together to launch the Province.

#### Church Was Moved Brick by Brick

Unhappily, St. Ignatius' time-hallowed bricks also have a sad tale to tell. There came a time in 1704 when religious tolerance toward certain creeds went into temporary eclipse. To save their church in Saint Marys City, Catholics moved it brick by brick to the spot where the admiral discovered it.

At the Air Test Center itself, where screaming jet fighters scarcely suggest Cavalier associations, the Navy has its own link with the misty past. It is Mattaponi, home of the commanding officer, on the site where Gov. Charles Calvert, later the third Lord Baltimore, built a riverside retreat of the same name for Jane Sewall, whom he wed in 1666.

Mattaponi has lost a famed neighbor to Michigan—Susquehanna, home of Christopher Rousby, a Royal Collector of Customs,

who was stabbed to death by a hot-tempered colonel in 1684. The three-centuries-old house now is in the late Henry Ford's Greenfield Village in Dearborn, Michigan.

From Saint Marys City—the "city" title is only a gallant gesture to vanished glory—I set out to see if I could find the oldest brick manor in southern Maryland.

#### "A House toe Put My Head in"

My first stop was at Cross Manor on St. Inigoes Creek, once the estate of Capt. Thomas Cornwaleys, patron of building in Maryland. This redoubtable soldier-statesman wrote in 1638 of erecting "A house toe put my head in, of sawn Timber framed, A story and a half bygh, with A seller and Chimnies of brick toe Encourage others toe follow my Example, for hithertoe wee Live in Cottages."

He did erect such a dwelling, and a marker gives the completion date as 1642. But the house I beheld did not fit Cornwaleys's description, even allowing for changes made over the years. Furthermore, I soon discovered that evidence recently developed now assigns the existing dwelling to 1683 or later.

This Cornwaleys came of the same London family which took to spelling its name a bit differently in the next century when it sent another distinguished son to the New World, the Cornwallis who surrendered at Yorktown.

If Cross Manor was not the oldest brick manor, what was? A few scraps I had read set me in search of Resurrection Manor.

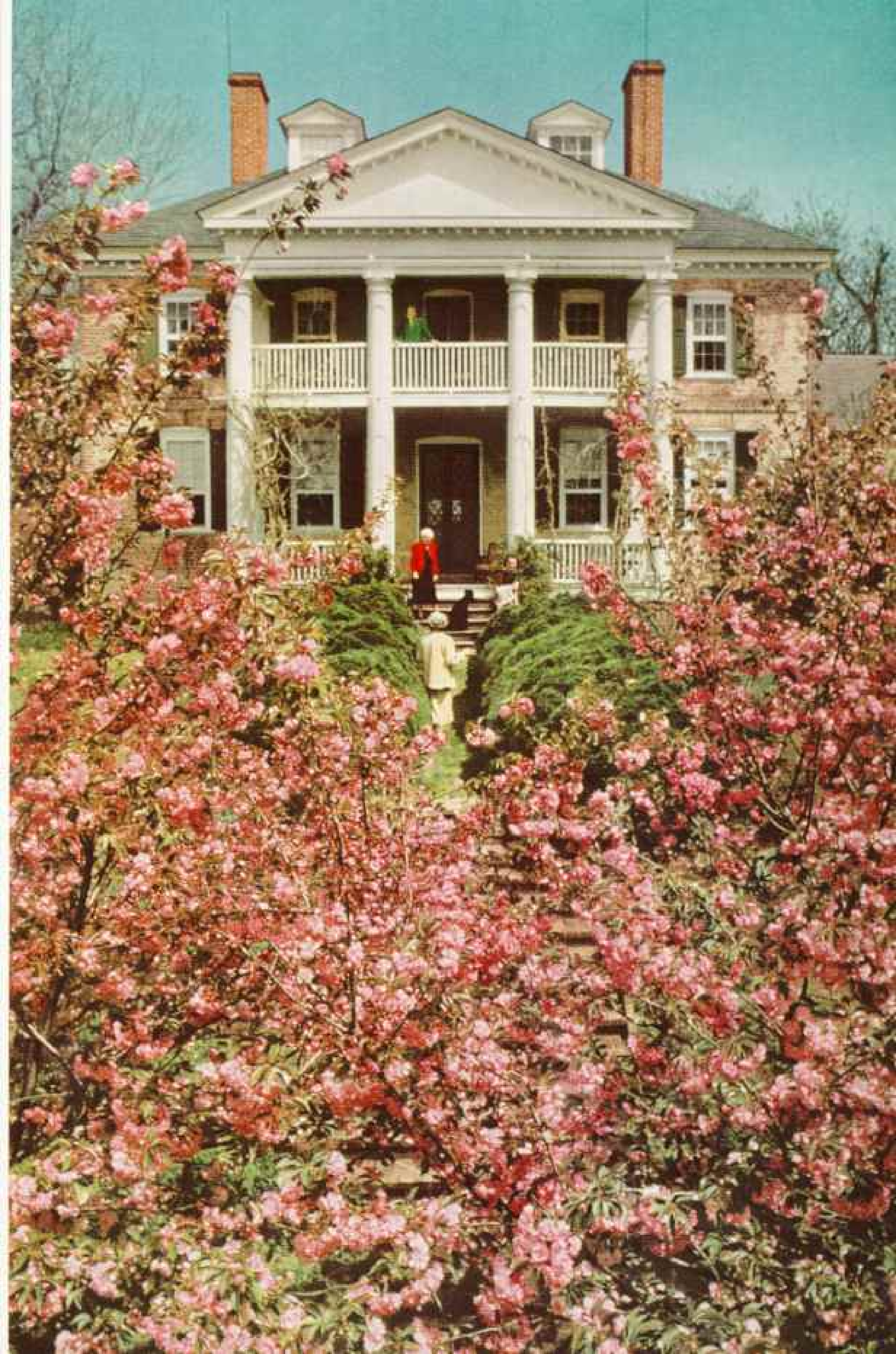
Crossing from Leonardtown, county seat of St. Marys, I picked up Three Notch Road. The county's first land link to upcountry, Three Notch runs roughly parallel to the Patuxent River. It got its name from the thrice-blazed trees which once marked the way.

Green guide arrows of the pilgrimage substituted for notches when I reached this "high-wale" (now State 235). I swung off it to Resurrection Manor on the Patuxent.

#### Mulberry Fields' Garden Walk Leads → Through a Sea of Cherry Blossoms

Col. William Somerville created and carefully landscaped this gracious Potomacside home shortly before the Revolution. Like many another Maryland and Virginia planter, he tried to produce silk. Mulberry trees planted to feed silkworms inspired the estate's name. Some of the trees still grow at Mulberry Fields, but silk failed to yield a lasting profit, as it failed elsewhere in the country. Mrs. W. Garland Fay (in red coat) now occupies the house, which stands 75 miles downriver from Mount Vernon.

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Illustrations by National Geographic Photographer Robert F. Stone



To my surprise, Resurrection's first owner was Cornwaleys himself. The present one is Mangum Weeks. He told me of the research involved in establishing, almost beyond doubt, that here is the oldest documented manor dwelling in St. Marys.

I examined a copy of a brick-burning contract Cornwaleys made in 1652.

"It's with a man named Cornelius Canada," said Mr. Weeks.\* "His name very probably was Kennedy, but you know the freaks of phonetic spelling in those days."

The quaint document bound Canada to make 36,000 bricks, one-third to be delivered "before the feast of the Nativity of St. John Baptist next ensuing" (June 24, 1653), the rest by that date the next year.

"I had one of the foremost authorities on

### Maryland's Longest Overwater Span → Bridges a Misty Chesapeake

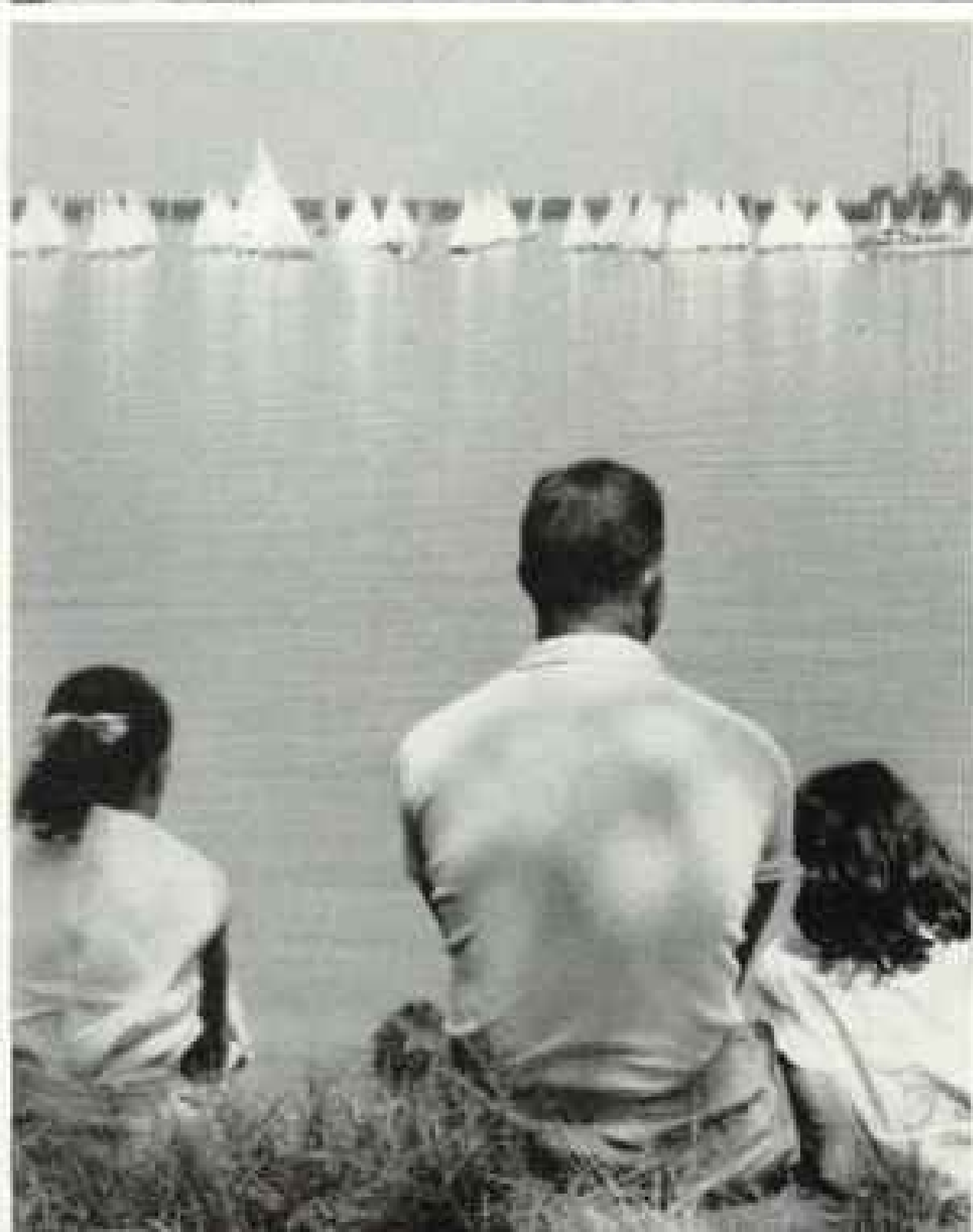
Completed in 1952, the \$44,000,000 bridge crosses Chesapeake Bay near Annapolis to the Eastern Shore's Kent Island. Engineers curved the western end so the bridge would cross the main Baltimore ship channel at a right angle. Bridge and approaches measure 7.11 miles; 4.35 miles stretch from shore to shore. Large ships easily clear the 186-foot-high suspension span. Nearly 2,000,000 vehicles crossed last year, paying tolls of \$3,629,000. Two ferries here idling in their slips have been sold, together with three others put out of work by the bridge (page 446).

♣ Sail yachts race in the Chesapeake country every week end from spring through fall. These spectators await the Corsica River Yacht Club's annual regatta. A slick calm delays the fleet. Boats range from Penguin-class dinghies to auxiliaries capable of ocean crossings.

National Geographic Photographer Volkmar Weitzel

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early American architecture examine Resurrection," the owner went on. "He estimated it contained slightly fewer than 36,000 bricks. Enough may have been left over, he said, for the chimney of its detached kitchen."

"From this," Mr. Weeks concluded, "I believe the first part was built in 1653 or by early 1654, the second section not later than 1655."

Mr. Weeks has an interesting theory as to how the manor came by its name.

"Cornwaleys, religious-minded, called his first property 'Manor of Cornwaleys' Cross.' What follows the Cross in the Gospels? The Resurrection."

#### Telescope Houses Puzzle Visitors:

Before leaving St. Marys County, I visited St. Richard's, the first manorial grant on the Patuxent, given in 1640. The house, built before the century's close, is noted for the fine brickwork in its original unit. Additions have made it what Marylanders call a "telescope"





Frederick  
Frederick

Carroll  
Randallstown  
Sykesville  
Woodstock  
Ellicott City

Baltimore  
Towson  
Fullerton  
Baltimore

Edgewood  
Chase  
Aberdeen Proving Ground  
Drayton Manor

Dickerson  
Poolesville  
Gaithersburg  
Brookeville

Howard  
Elkridge  
Savage  
Laurel

Glen Burnie  
Pasadena  
Park  
Sverna

RINGGOLD HOUSE  
Hinchington  
The Rewards  
Providence Plantation  
Quaker Neck  
Corsica Neck

Montgomery  
Rockville  
Bethesda  
Cherry Chase  
Herndon  
McLean

Kensington  
Greenbelt  
College Park  
Hyattsville

Fort George G. Meade  
Annapolis  
U.S. Naval Academy  
Kent Island

Love Point  
Sandy Point  
Queenstown  
Myrtles Gift  
Shysville

Arlington County  
Falls Church  
Alexandria

Washington D.C.  
Suitland  
Andrews Air Force Base  
Upper Marlboro

Chesapeake Beach  
Friendship  
Holy Hill

Rich Neck Manor  
Wye House  
St. Michaels  
Royal Oak  
Bellevue  
Treat Avon B.

Woodbridge  
Indian Head  
Dumfries  
Marbury  
Rison  
Rose Hill  
Port Tobacco  
Chandler's Hope

Prince Georges  
Brandywine  
Waldorf  
Hughesville  
LaPlata  
Burnt Store  
Benedict  
Charlotte Hall  
Taney House  
Cremona  
De La Brooks

Prince Frederick  
Barstow  
Cedar Hill  
Three Notch Road  
Sorrento  
St. Leonard Creek  
Old Spout Farm  
Freston

Oxford  
Chaptank  
Madison  
Taylor's Island

Stafford  
Cross Roads  
Riverside  
Popes Creek  
Dahlgren  
Waverly  
Hard Bargain  
West Hill

Charles  
Mechanicsville  
Newburg  
Society Hill  
Leonardtown

St. Marys  
Lexington Park  
Park Hall  
Muberry Fields  
Saint Marys City  
St. Ignace Cr.  
Point No Point  
St. Ignaces  
St. Ignace Church

Fishing Creek  
Salmons  
St. Robert's Manor  
Potomac Naval Air Test Center  
Long Lane Farm

Fredericksburg  
Port Conway  
Port Royal  
Guinea  
Camp A.P. Hill  
Bowling Green

Polomac River  
Blakiston Island  
West St. Marys Manor  
Coles Point  
Webster  
Callao

St. Marys  
Lexington Park  
Park Hall  
Muberry Fields  
Saint Marys City  
St. Ignace Cr.  
Point No Point  
St. Ignaces  
St. Ignace Church

STATEHOUSE 1657  
Point Lookout

Warsaw  
Tappanannock  
Heathsville

Warsaw  
Tappanannock  
Heathsville

Warsaw  
Tappanannock  
Heathsville

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Heathsville

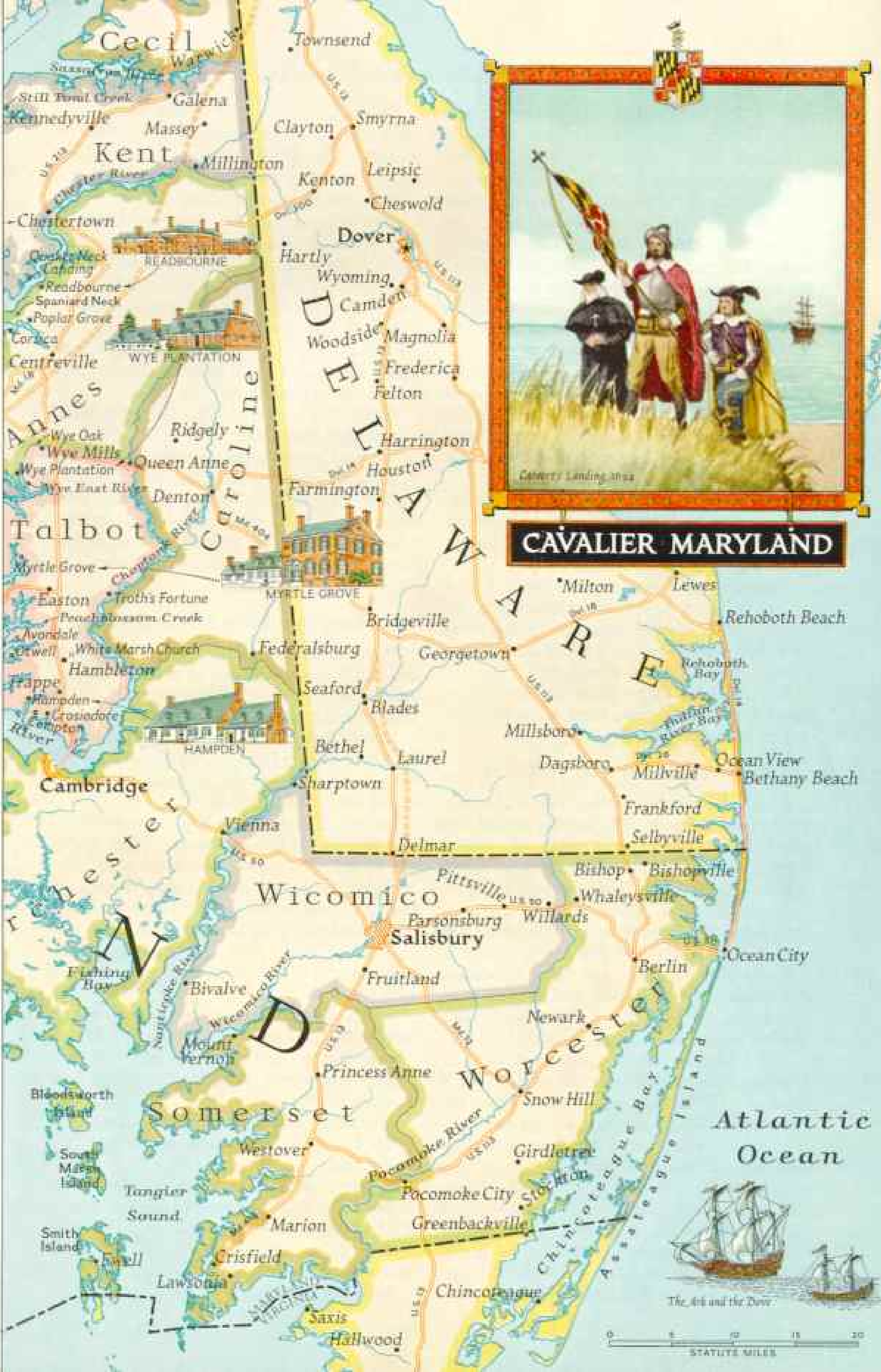
Warsaw  
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Heathsville

Warsaw  
Tappanannock  
Heathsville

VIRGINIA  
© National Geographic Map  
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Design and Art by  
William N. Rasmussen and Walter A. Weber  
Drawn by Russell G. Fritz and Robert W. Northrop



**CAVALIER MARYLAND**

Cavalier Landing area



The Ark and the Dove

house. The term often puzzles novice pilgrims, but the explanation is simple.

For the wealthy settler, the first thing was to get a roof over his head, so he built a house. Next, he moved cookery out of his living room by building a detached kitchen.

The third step was another building in the series. The middle unit was always lower than the main house, but higher than the kitchen. From a distance such a house gives the impression that a giant's shove could telescope all into the largest section.

Traveling north from St. Marys into Charles County, I came first to Rose Hill, home of George Washington's personal "chirurgion," Dr. Gustavus Brown (pages 447, 452). Since the State has at least six other Rose Hills, this one must be called Dr. Brown's Rose Hill.

As I drove up, its aged bricks glowed softly in the interplay of morning light and drifting shadows from small clouds. Its quiet beauty was mesmerizing.

"But the place was a wreck when I first bought it," said Mrs. Carlos Gravenberg, the owner. "The double stairway to the front door had disappeared. All but one of the original window sashes were gone."

An unusually large house for its time—about 1730—it stretches along the hillside for almost 125 feet.

#### Blue Dog Guards Rose Hill Gold

A legend exists that an eerie blue dog prowls Rose Hill's grounds. His peddler master was murdered here for a bag of gold. The killers hid the treasure, and it has never been found, despite searches that continue to this day.

If, however, you follow the blue dog on a night when the moon is in the right phase, the ghostly animal will lead you to the cache.

Olivia Floyd's story has more substance. A Confederate sympathizer, she lived at Rose Hill during the Civil War. Once, so it is said, she hid secret papers in an andiron.

Union officers came in and spent most of the day, occasionally using the andiron for a footrest. Olivia had an anguished time, but the soldiers did not discover the papers.

Charles County has a deep-rooted medical tradition. Gustavus Brown was not its only famed doctor. On the outskirts of La Plata, the county seat, stands La Grange where lived Dr. James Craik, Surgeon General of the Continental Army and a close friend of Washington. Both he and Dr. Brown were in attendance when the first president died.

Fittingly, I toured the county in the company of a La Plata physician, Dr. Arthur O. Woody. Receiving from him a prescription to "do" the Port Tobacco River valley, I was glad he offered to come along.

Port Tobacco, not far from the Potomac, once was a fabulous place. It began developing as a shipping point in the mid-1600's and in its heyday covered 60 acres and had a race track. Its hostelrys catered to quality: it had its own newspaper, and welcomed the theater in 1752. Fragmentary evidence indicates the State's first Masonic Lodge may have been organized here in 1759.

Today it is a ghost town. Only a handful of buildings still stand.

"A local group hopes to recreate it as far as possible," explained Dr. Woody, gesturing toward the only two houses that had been restored. "In the golden days fortunes were made here, but the channel was neglected. Now the river is tufted marshland almost to the Potomac."

#### Lost: One 3-acre Market Place

Dominating what was once the public square is a big frame dwelling with a huge chimney arrangement suggesting a capital H. The brick crossbar of the H is two floors in depth.

In Stag Hall, a smaller telescope house close by, I met Robert Barbour, State's attorney for the county, and his wife, enthusiastic workers in the restoration project.

He had a map on which there were miniature sketches of bygone houses. Many empty spaces indicated research yet to be done. Mr. Barbour said he was hunting clues to the location of the old 3-acre market place—a sizable bit of real estate to be misplaced!

Tobacco trade built the vanished port's prosperity; yet the weed had nothing to do with its name.

"When the white men came, there was an Indian village here," Mr. Barbour told me. "In trying to Anglicize its name, the newcomers produced a number of spellings from Potobac to Pertafacco.

"Actually the Indian word was descriptive of the fact that their village lay between the valley hills."

Pilgrim's progress is beset by temptation. A novice is forever hearing about a distinguished place not on the tour, or he may be undone by a desire to visit some historical spot vaguely located in his memory.

Byway road signs are often so weather-



### Tobacco, the Province's Cash Crop, Still Supports Southern Maryland

"Maryland leaf has good burning qualities," say men in the cigarette trade. "It holds the fire." Nearly every American cigarette contains one to five percent Maryland, or Type 32, tobacco. In a good year Prince Georges, Anne Arundel, Calvert, Charles, and St. Marys Counties will produce 40,000,000 pounds of air-cured tobacco worth \$10,000,000. Here Hal B. Clagett supervises as his crop is hung to cure near Upper Marlboro. Walls of his tobacco barn have hinged planks every few feet to aid ventilation.

bentzen that names are indistinct. At times it was difficult to decide which way the painted black arrow pointed.

Once in Charles County I drove in circles trying to find Burnt Store, marked on my map. A Negro farmer drove by with a mule team when I was at my wit's end.

"Where's Burnt Store?" I asked.

"You're right at it now, suh," he replied, thumbing towards a mass of tall underbrush. "Used to be a store here but it burnt down."

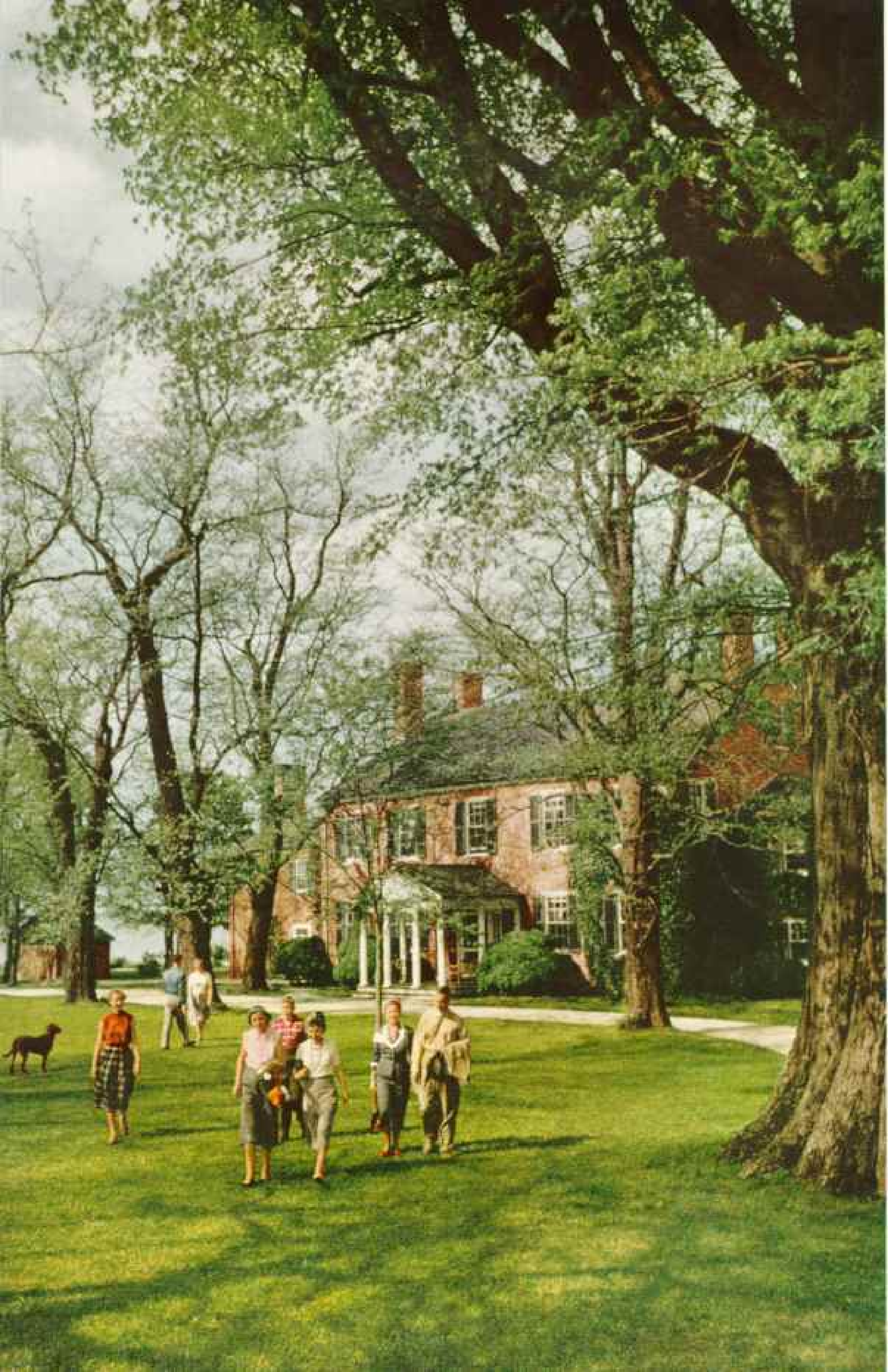
The pilgrimage covers such a large area of

the State that I decided I would enjoy my tour more by limiting my territory.

From Benedict in Charles County I crossed the new Patuxent River bridge to the Calvert shore below Gods Grace Point.

I was looking for the home of Richard Preston. Its role as the State's second capital is little known.

When Cromwell assumed power in Britain, Puritan colonists seized control in Maryland. They flouted the Calverts' royal charter. Saint Marys City was raided; all records



were seized and brought to Preston's home on the east bank of the Patuxent. From 1654 until 1658, here was the seat of government.

Seventeen miles south of Prince Frederick I found it, a gable-roofed story-and-a-half dwelling of brick, pleasantly situated on an eminence above the river. Mrs. Don Smith, wife of the retired Navy captain who bought the property after World War II, welcomed me cordially (page 459).

#### Where Is Maryland's Great Seal?

Mrs. Smith and I sat in Richard Preston's "greate room" where the Assembly met, ideal surroundings for a chat about the house and the stirring events it had known. For a house reared about 1650, the room was truly "greate," 43 feet long and half as wide.

"We can't be sure it was originally one room," said my hostess. "There may have been a partition. Upstairs was the loft for sleeping."

Yawning seven-foot fireplaces at either end of the room caught my eye. How they must have roared, stoked with huge logs!

We talked of the ironic chapter Preston represents in Maryland history. After being persecuted in New England and Virginia, the Puritans found sanctuary in this Province at Lord Baltimore's invitation. Yet in a crisis they turned on their benefactor, passing repressive laws against those loyal to him, whatever their faith. Restored, Lord Baltimore nevertheless indulged in no mass reprisals. He extended amnesty instead.

A tantalizing mystery still clings to Richard Preston's home. What happened to the Great Seal of Maryland brought there from Saint Marys City? By the time Lord Baltimore regained authority, it had disappeared, never to be seen again.

Locally, the house has been known for decades as Charles' Gift. I checked the original county rent rolls. They record this grant

simply as Preston and give its riverside location. There was a later grant, Preston Clifts or Charles Gift, but this was on the Bay.

In area and population, Calvert is the State's smallest county. I disagree with those who say its people, inheritors of a tobacco civilization long predating the Revolution, are insular and aloof.

I liked them even when I was chided for not pronouncing the name "Cawlvvert" as natives do. I remember Calvert as the only county on my rounds where yoked bullocks still work on farms as in manorial days.

Tobacco auction time was at hand as I set out for Holly Hill, near Friendship, Anne Arundel County (page 461). Fragments of the brown leaf lay on the road, shaken from the open-slatted "baskets" in which the weed is trucked to market.

#### Chimney 9 Feet Thick

"Having trouble with moles," volunteered the man in work clothes on the lawn at Holly Hill. I went to the house where Mrs. Hugh P. LeClair was waiting.

Begun as a mere cottage in 1667 and completed about 1730, the L-shaped dwelling has many fascinating details. There are three rare primitive paintings on wood and a staircase considered among the best in early homes. Beneath the original "greate room" is a 16-foot-deep oubliette, or dungeon that can be entered only from the top.

As my hostess pointed out exterior features of the house, the man with mole trouble was knee-deep in the colors of a striking garden.

"My husband, Captain LeClair," she said, introducing us. "Flowers are his hobby."

At Holly Hill I jumped down into a second-floor cubbyhole and found a chimney nine feet thick. I had been getting more and more chimney-conscious as the pilgrimage went on; it was impossible not to be.

Some I saw were enormous exterior creations of brick, all but monopolizing gable ends of houses. A number had doors or windows in them. Even small dwellings boasted disproportionately big stacks.

Chimneys had social significance in the old days. In certain sections, four were the minimum for good social standing.

An authority on early Maryland made this comment:

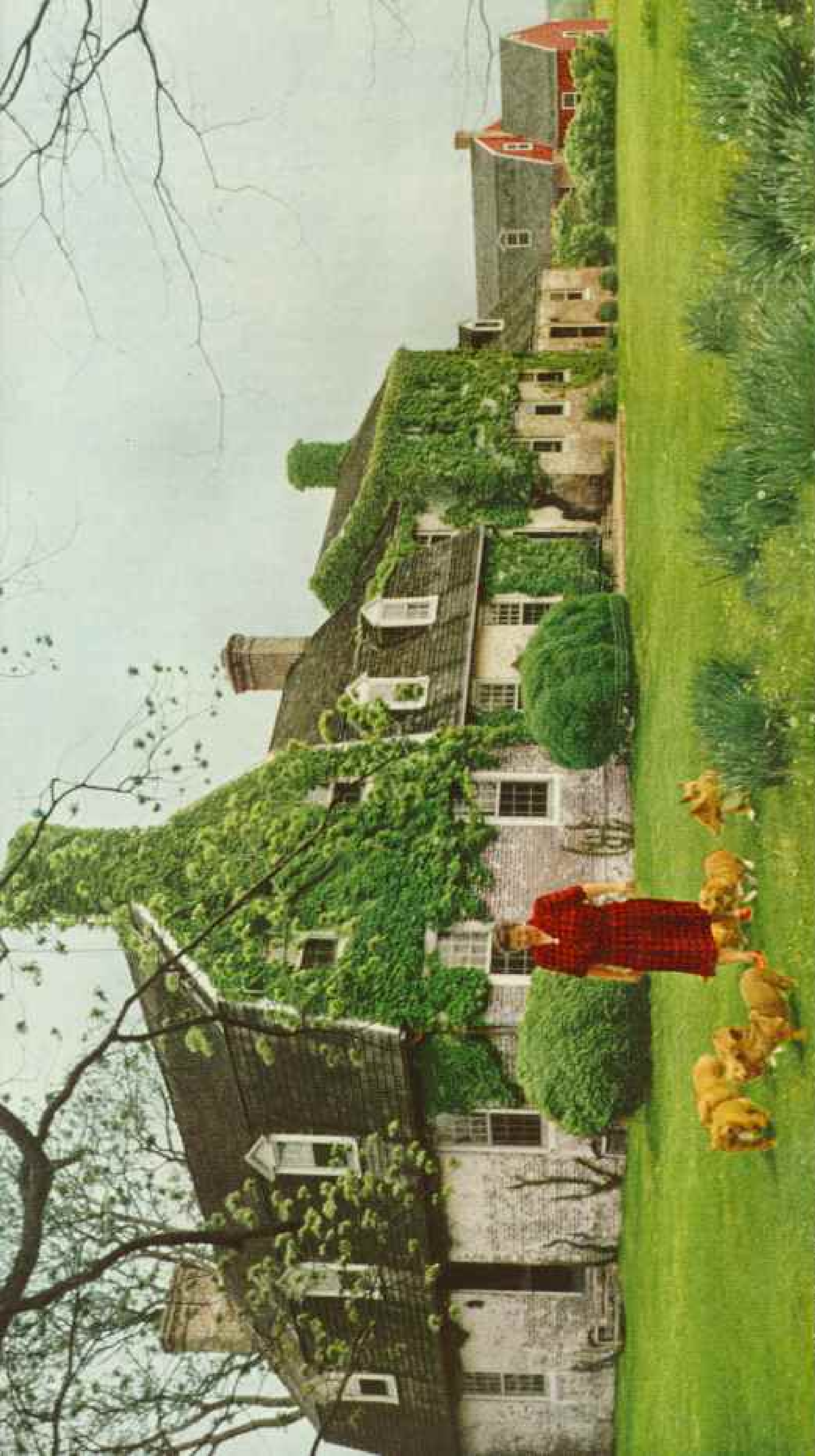
"The Province had the benefit of better initial planning than other early English settlements. 'Gentlemen adventurers' who

#### ◀ Willow Oaks and Locusts Shade Cremona, a St. Marys House Built in 1819

Original owners bestowed romantic place names on many plantations in southern Maryland. Old rent rolls of St. Marys and Charles Counties show that such other unlikely examples as Arabia, Amsterdam, Bergen op Zoom, and Drury Lane once existed. Cremona, which has its private wharf on the Patuxent River, was christened for a medieval Italian town famed for violins. Since the late 1920's Cremona has been in the family of Maj. Gen. Howard C. Davidson, U.S.A.F., Ret. (page 454).

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Endpapers by National Geographic Photographer Robert F. Brown



↑ Otwell's Ivied Walls and Spring Flowers Entice Its Mistress and Her Welsh Gorgis to a Spring Stroll

From fall to spring, Mr. and Mrs. Andrew W. Porter scarcely need alarm clocks in their home near Oxford. Wild geese in wheat fields and black ducks on the near-by marshes clamorously perform the wakening chore. Ancestors of these Pembroke Gorgis came to Wales in 1107 with immigrant Flemish weavers.

↓ Otwell's oldest part dates from about 1670. The huge fireplace is characteristic of early Maryland homes. William Taylor patented the estate in 1659.



DHAR



financed this enterprise wanted quick returns on their investments, hence picked experienced artisans to come over with them.

"A man versed in his trade could work off the cost of his passage in a few years."

Given a competent "joyner" to build his house, a gentleman needed to outline only a few general instructions as to the type dwelling he wanted. The carpenter's and mason's skill and creative genius did the rest.

### Annapolis Shows Its Georgian Gems

Now it was time to see Annapolis, which replaced Saint Marys City as Maryland's capital in 1695. Dr. Samuel Dick, a New Jersey delegate to the Ninth Continental Congress which sat here in 1783 and 1784, described the place as a good-sized town of 300 houses, "some of them Superb and Magnificent with corresponding Gardens and Improvements."

Dr. Dick would find much that is familiar today—the homes on which he lavished his prodigal adjectives, their gardens, the State House where Congress met, even the old street names: Duke of Gloucester, Cornhill, Prince George. If the news of the day interested him, he could peruse a copy of the *Maryland Gazette*, first published in 1727.\*

Annapolis is celebrated for its unusually fine heritage of mansions in Georgian style. This 18th-century burgeoning of Georgian has been attributed in part to Sir Christopher Wren and his disciples in England. Wealthy provincials, eager to import whatever was new and worthwhile in their homeland, undoubtedly speeded the process.

One marvels at these "Superb and Magnificent" homes built in an age when all Maryland did not possess a professionally trained architect, as we know the term. When such men began to seek commissions in the early 1800's they met with suspicion.

### "Joyner" Buckland's Triumph

Hammond-Harwood House, the city's gem of colonial Georgian, dates from 1774 (pages 432, 462). It owes its nicely calculated lines and interior elegance to the genius of William Buckland, a 21-year-old indentured servant who came first to Virginia in 1755. He had been apprenticed to an uncle in London since he was 14.

What knowledge he obtained in England is unknown. His uncle, a "citizen and Joyner," also owned a bookstall in Paternoster Row. The young apprentice may have picked up the

rudiments of architecture while toiling as a joiner, or by poring over architectural volumes in the bookshop. Whatever the story, he later wrought masterpieces in Maryland.

Buckland's name has been linked directly and circumstantially with the design, among others, of Chase House, built for Samuel Chase, a signer of the Declaration of Independence; Paca House (now part of Carvel Hall Hotel), town house of William Paca, another signer and later governor; Ridout House, and Scott House—all in Annapolis—and across the Severn River, Whitehall, called an "elegant English Lodge on our American Frontier."

Once within Hammond-Harwood House, I doubt I would have been greatly surprised at the click of red heels and rustle of wide skirts on the stairway, the teasing laugh of a colonial beauty, or the polished compliments of her beaux. The mansion, exquisitely furnished, is a monument to that era of gracious living which Annapolis knew before the Revolution.

Here were rounds of brilliant parties and balls. Racing meets attracted far-journeying visitors like George Washington, remembered as not so lucky at picking winners but usually able to recoup his losses at cards. The theater enjoyed high popularity, offering the foremost performers of the day.

### New Bridge Replaces Ferries

Time pressed, and the Eastern Shore beckoned. I drove north on the Ritchie Highway (Maryland State 2), turned right and after a few miles rolled up to the new Chesapeake Bay Bridge, a wizardry of steel flung across the gleaming water (page 437).

Many regret the passing of the ferries. Their leisurely 40-minute runs gave opportunity for snacks and conversations with acquaintances one was bound to encounter. Personally, I regretted a lost opportunity to use an old provincial word I had just come by. It is almost pure poetry.

Waftage! Thus the first Marylanders described the price of a ferry ride. Had the ferries remained a while longer, I could have confounded the fare collector by inquiring: "How much is the waftage here, sirrah?"

The trip now takes only a few minutes. From the highest point of the bridge's roadway I saw yacht sails below as white patches

(Continued on page 455)

\* See "Annapolis, Cradle of the Navy," by Lt. Arthur Agerton, NATIONAL GEOGRAPHIC MAGAZINE, June, 1936.

### Peale Portrait Links Myrtle Grove Kinfolk Two Centuries Apart

Robert Goldsborough built the frame section of Myrtle Grove in 1724. His son, Judge Robert Goldsborough, added the brick wing and commissioned the Charles Willson Peale portrait of himself and family. Descendants of the Goldsboroughs hold the Talbot County estate to this day. Gen. Robert E. Lee, a frequent visitor, is said to have scratched the initials "R.E.L." still visible in a windowpane. Mrs. Robert Goldsborough Henry, Jr., daughter-in-law of the present occupants, here arranges lilacs.

### ✦ Wooden Bar Locks a Rose Hill Door

On December 14, 1799, an urgent message came to Dr. Gustavus Richard Brown, master of Rose Hill (page 452). Ride to Mount Vernon "without delay," it said. Flinging open the wide single door that once hung here, the physician set out to the other shore of the Potomac. With two colleagues, he attended George Washington on his deathbed. Mrs. Carlos Gravenberg, owner of Rose Hill, dates these doors only from Civil War times.

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Kodachromes by B. Anthony Stewart (light)  
and Howell Walker, National Geographic Staff

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### Scented Boxwood Greet Garden Club Visitors at a Kent County Home

Architects call Hinchingham an outstanding example of the two-story brick dwelling that appeared on the American scene between the middle of the 18th century and the Revolution. Typically, the builders fixed the date of construction, 1774, on the gable ends. Hinchingham's level fields formed part of a large grant on the Eastern Shore. Patented in 1659 to Thomas Hynson, the tract contained 2,200 acres. The present owner's wife, Mrs. Clifton M. Miller, descends from Hynson.

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Washington by National Geographic  
Photographer James Fitzpatrick

### Antler Stairs Grace a Chestertown House

Chestertown, Kent County, had a reputation for gaiety before the Revolution. Ringgold House, part of it then used by English officers as a club, rang with toasts drunk to the King in fine wines. A double staircase such as this was thought to resemble a deer's antlers.

The present owner is Washington College. Its president, Dr. Daniel Gibson, sits in the hall with his family.









### Sheep Crop Lawns at Troth's Fortune, One of Maryland's Oldest Houses

Mr. and Mrs. Frederic C. Thomas find their Talbot County home peaceful now, but the war whoop chilled the household in 1682.

According to minutes of Lord Baltimore's Council, the Indian Poh Poh Caquis came into the kitchen with a drink-inspired story that 200 Senecas were on the warpath. William Troth, a Quaker who had built the house six years before, scoffed. "Pish!" he said. "Doest thou believe him when he talks of Sinniquois; for he Lyes." Insulted, Poh Poh Caquis attacked. He missed first with gun, then with tomahawk. Captured, he was tried and lashed.

† Troth's Fortune, long known as Orchard Knob, contains exceptionally fine old paneling. Mrs. Thomas relaxes in her living room.

Left: Early Maryland houses often had tiny doors. Restoring his home, Mr. Thomas (stooping) left unchanged this passage between library and stair well, but enlarged the front door in deference to guests who bumped their heads.

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Enlacements by National Geographic Photographer Kathleen Berry

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## Rose Hill's Boxwood Enters Its Third Century of Beauty

Dr. Gustavus Brown appears to have planted box shrubs in a pattern of semi-circles within rectangles when he built his house around 1730. Master and guests, strolling in a formal garden that dropped away in a series of "falles," or terraces, enjoyed a superb view of the Port Tobacco River (background).

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## ↓ New Room Keeps an 18th-century Look

Wye Plantation dates from 1747. Maryland's Gov. William Paca, a signer of the Declaration of Independence, made it his country seat. He is buried near the old brick house.

Today Mr. and Mrs. Arthur A. Houghton, Jr., are restoring the place. Their daughter Hollister plays in a new library building with her white boxer under John Opie's portrait of Dr. Samuel Johnson. This authentic room contains the Houghton book collection. Shelves hold a Gutenberg Bible, folios of Shakespeare, the manuscript of Bowdler's *Life of Johnson*, and original correspondence of Samuel Pepys.









**Cremona's Pride Is Its Hanging Staircase. A Dusty Attic Long Hid the Old Cradle.**  
The Misses Frances (front) and Julia Davidson welcome a friend. Sunburst doors are louvered. The spinning wheel may have served the original owners (page 442).

on the water. Speedboats, trailing thin V-shaped wakes, were no bigger than waterbugs.

The *Ark* and the *Dove* would have seemed mere toys beneath this modern marvel. Thinking of these ships, I recalled a memorable day not long ago with Mr. Fred Shelley, Editor of the *Maryland Historical Magazine*.

"We've made a major discovery," he told me. "For almost three centuries, plaster models of the *Ark* and the *Dove* remained undiscovered in Hook House, near Tisbury, Wiltshire, England. Here, Cecil, second Lord Baltimore, and his lady, Anne Arundel, lived during the Roundhead and Cavalier troubles.

"Finding these models, concealed for centuries behind a false ceiling, means we have the only known contemporary depictions of any of the ships that brought the first British settlers to North America.

"Despite untiring research, historians have no clear idea of the appearance of the *Sarah Constant*, which landed at Jamestown in 1607; the *Mayflower* of 1620, or William Penn's ship of 1682, the *Welcome*, and others."

#### Hunting Licenses Required in 1635

The Bay bridge reaches the Eastern Shore at Kent Island, which is separated from the mainland by a narrow little waterway. Crossing it, I was in a land of level fields, pine woods, salt marshes, and rivers.\*

Water seems almost everywhere on the Shore—sounds, bays, rivers, creeks. It cuts the coastline into a jumble of jigsaw pieces. Fluid fingers grope now this way, now that, until they reach the Bay.

Sassafras, Chester, Corsica, Miles, Tred Avon, Choptank, Nanticoke, Wicomico, Pocomoke—the very names of the streams make an intriguing medley. Linked with them are many tales of pirates, smugglers, and devil-may-care privateers. The first naval fight on inland waters of the future Thirteen Original States occurred at the Pocomoke's mouth in 1635. Two Calvert vessels, under Cornwall's command, captured a ship belonging to William Claiborne, a Virginia trader.

Fish, crabs, and oysters abound, and duck hunting remains a favorite sport of many modern Marylanders. Oddly, in the old days some manor lords made fowling a servant's chore. The first settlers in St. Marys found the country teeming with game, which included the American buffalo. Hunting licenses were required as early as 1635.

On the Shore I became increasingly conscious of the number of non-Maryland cars on the tour. My final tally of license plates showed 37 other States and the District of Columbia represented.

At one estate, Wye Plantation, 800 pilgrims made the rounds in a day, a total comparing well with the average daily number of visitors to Virginia's historic Williamsburg.

"We had more men than usual, too," I was told, "and they stayed longer."

#### Paint Gave Flies the Blues

For my first stop in Queen Annes County, Wye Plantation proved a happy choice (page 453). Once it was known as Paca House, country seat of Governor Paca. In the absence of the owners, Mr. and Mrs. Arthur A. Houghton, Jr., the estate manager, James B. Lingle, showed me around.

"We have 1,300 acres on this 4½-mile neck of land, and three private docks," Mr. Lingle said.

"That marks Governor Paca's grave," he continued, indicating a monument in an iron-fenced plot facing the house. "When I first came here, a local farmer kept his bull in the little cemetery. He said it had the only fence strong enough to hold the brute!"

Restoration work was scarcely under way, so I had an absorbing time exploring sections yet untouched. In the kitchen, walls still bore traces of bluish paint.

"That seems to be the kitchen color favored in colonial times," said Mr. Lingle. "The notion was it depressed the flies and kept them from buzzing around. I don't know if it worked."

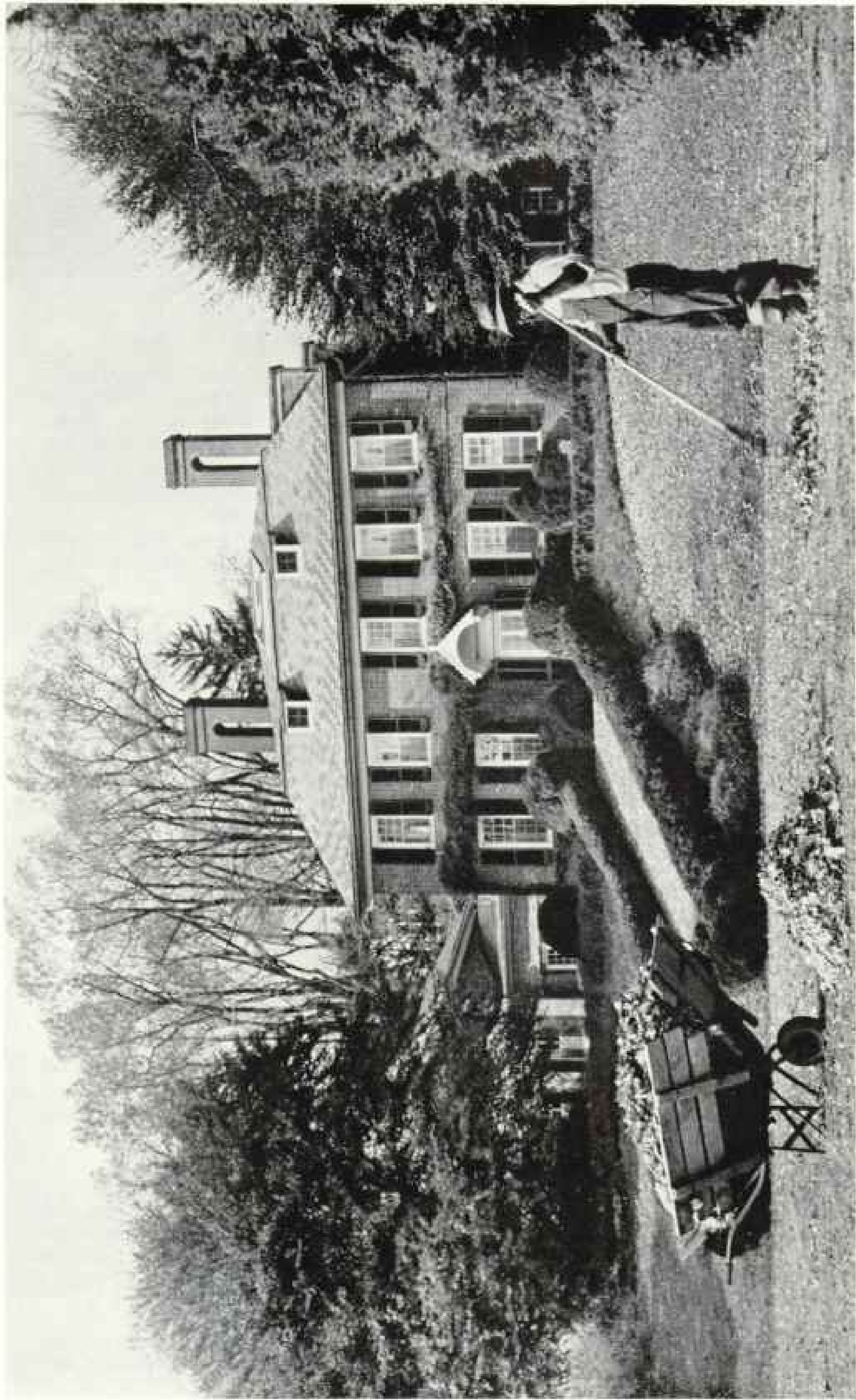
We toured the estate by car. Going back to the house, Mr. Lingle paused in a field. A gap in bordering foliage disclosed a vista of sun-flecked waters and a verdant far shore.

"Here is where I go to church when I can't get to church," he said simply. "Not only Sundays, but when I have things to think out."

#### By Banjo Lane to Corsica Neck

Centreville, Queen Annes county seat, has an easy charm, the oldest courthouse on the Shore, and a street named Banjo Lane. It would have been nice to linger, but I pushed on to Corsica Neck.

\* See "Delmarva, Gift of the Sea," by Catherine Bell Palmer, NATIONAL GEOGRAPHIC MAGAZINE, September, 1950.



**Builders Pierced Tulip Hill's High Chimneys with Graceful Arches. The River-front Door's Unusual Canopy Intrigues Antiquarians.**  
In 1756, Samuel Galloway, Quaker merchant, commissioned the substantial central section of the Georgian mansion (page 465). He built it for his wife Anne, who did not live to enjoy it. Their son John later added the wings. Legend says John, after a ray night in near-by Annapolis, once rode his horse to his bedroom.

National Geographic Photographic Dept. G. Puffer

### Candles Light a Master Carver's Work in Sotterley

Connoisseurs consider low rambling Sotterley, three miles from Hollywood, one of Maryland's most charming houses. Begun soon after 1717, it grew like Topsy as successive owners made additions. Today it extends more than 100 feet along a slope above a Patuxent River bluff. A full-length veranda reminiscent of Mount Vernon graces its river-front façade.

George Plater V., one owner of Sotterley, is said to have lost house and 5,000 acres at the gaming table to his brother-in-law, Colonel Somerville, master of Mulberry Fields (page 435). Later the place came into the possession of the Briscoe family. Mrs. Mabel Satterlee Ingalls owns it now. Here a caretaker lights candles.

A story has it that John Bowen, a bond servant of the Platers, executed the shell-pattern carving of the alcoves and the over-mantel panel with its dog-eared trim and fret motif. At work on a stair rail when his seven-year term of indenture ended, he reportedly dropped his chisels with one panel undone, leaving others to finish the job.

National Geographic Photographer  
H. Arthur (Hearst)



On a Corsica River bend, remains of an old steamboat wharf reminded me that "Crazy Rumsey" was a Shoreman, born in Warwick north of the Sassafras River. Crazy? James Rumsey used jet propulsion in the first boat to operate by steam. Rumsey's craft sucked in water at the bow and expelled it at the stern under steam pressure to provide the jet thrust. George Washington watched a test model run in 1784 and had the vision to hail its propelling principle as "of vast importance."

The first commercial-size jet steamboat began service on the Potomac in 1787, 20 years before Fulton's *Clermont*. Today's yachting magazines have just started to advertise "new" jet-propulsion gasoline power plants for work and pleasure craft.

### Homes Stripped of Precious Paneling

Readbourne, my next stop, is a massive example of early Georgian architecture. It was named for George Read, to whom the land was patented in 1659. The dwelling's nucleus, however, was not built until 1731.

Terraces, or "falles," familiar features of provincial river-front landscaping, climb from Chester River to the house.

When the land belonged to James Hollyday, Treasurer for the Eastern Shore counties, folks called his house the "Readbourne Iron Chest" because he kept the public funds there.

Readbourne remained in the Hollyday family until 1903, then passed through a number of other hands. Mr. and Mrs. William Fahnestock, Jr., came to the rescue in 1940 and had Readbourne's elegance restored (page 466).

The story of Maryland's finest homes has a somber chapter. Few today retain their original paneling and woodwork, splendid creations wrought in rosewood, walnut, and mahogany. Readbourne is among the bereft. Like other restorers, the Fahnestocks have had to imitate.

There is some solace in the fact that paneling of entire rooms found its way into museums. Preserved in Baltimore, Chicago, New York City, Brooklyn, and perhaps other cities, are such exhibits.

The havoc began after the Civil War. Some houses stood empty to despoilers. Others found unfeeling tenants. Some places are still used for farm storage.

Vandalism caused incalculable destruction. Many homes were systematically stripped of

their priceless carvings to feed kitchen fires.

The restoration movement is quite recent. Before it began, paneling frequently was bought up to beautify out-of-State houses.

### Coursey's Thumb Was His Fortune

Back down the necks I went to "Thumb Grant" country. Almost three centuries ago, Lord Baltimore put a map before Henry Coursey, his best Indian negotiator, and offered him all the land his thumb would cover.

Thus Coursey came into possession of a large area beginning south of Queenstown Creek and running north along the Chester River. Coursey erected a house he called My Lord's Gift, which is no longer standing.

He sold a piece of his Thumb Grant to the Blake family, where a mansion named Blakeford was built. Its parkland setting is a masterpiece. Trees aligned like grenadiers stand erect beside a long approach road.

After Blakeford, Talbot County claimed me. I drove to Claiborne, "turned right at the second store," and came to Rich Neck Manor.

Here stands the strangest structure I saw. Its front measures a mere dozen feet; the length is 22. Its face is solid brick except for two tiny windows at either side of a false doorway.

Above this is a recessed four-leafed design, or quatrefoil. The façade's upper brick courses were damaged; my guess placed the original height at about 14 feet.

The interior was even smaller than I expected. The walls are 21 inches thick and a tunnellike ceiling crowds down to less than eight feet from the floor.

Dr. Henry C. Forman, noted authority on Maryland houses, turned up an old picture recently; it shows the building's walls crenelated like Gothic battlements. Mr. and Mrs. Edward S. Burling, Jr., the manor owners, plan to remove a temporary roof and restore this "old look."

Various theories exist as to the purpose of this architectural oddity. Some think it was a refuge against Indians. More widely held is the belief that it was a family chapel.

### Solving an "Air-conditioning" Riddle

In the original wing of the manor house itself, where the date 1647 appears over the fireplace, the air was refreshingly cool despite the warmth of the spring day.

(Continued on page 467)



**Capt. Don Smith and Wife (Left) Entertain in 300-year-old Preston's "Greate Room"**

Here Puritan rebels, who ruled Maryland briefly, tried Judith Catchpole for murder in 1656. An all-female jury acquitted her. Preston's local name, Charles' Gift, actually belongs to another tract.

### Settlers Respected a Man Who Could Afford 4 Chimneys

This late 17th-century house stands on West St. Marys Manor, where a home was built for Capt. Henry Fleet, fur trader and explorer. He guided Leonard Calvert into the St. Marys River in 1634.

District members for the 1638 Assembly were elected at the Fleet abode, since vanished. Medieval design inspired the builders of this unusual dwelling. The lower window between the chimneys lights a small room.

Here the owner, Col. Miodrag Blagojevich, a former Yugoslav army officer, interrupts lawn mowing for a word with his American-born wife.

Illustration by National Geographic  
Photographer Robert F. Heiser

### ↓ Holly Hill's Paneling Looks Like Marble

In the cellar of this old brick home still exists the entrance to a collapsed chamber or tunnel. A legend attributes the "secret passage" to pirates. The bedroom mural was painted on wood in the 18th century. Beryl (left) and LeClair Powers are granddaughters of Capt. and Mrs. Hugh P. LeClair, owners of the Anne Arundel estate.

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Reproduction by National Geographic Photographers John E. Fieldner (Opposite) and H. Anthony Stewart

← **Hammond-Harwood's Doorway:  
Creation of a Master Carver**

Connoisseurs of old houses term this Annapolis portal unparalleled save in England. Famed designer William Buckland may have wielded the mallet and chisels. Today the house is a museum (page 432).

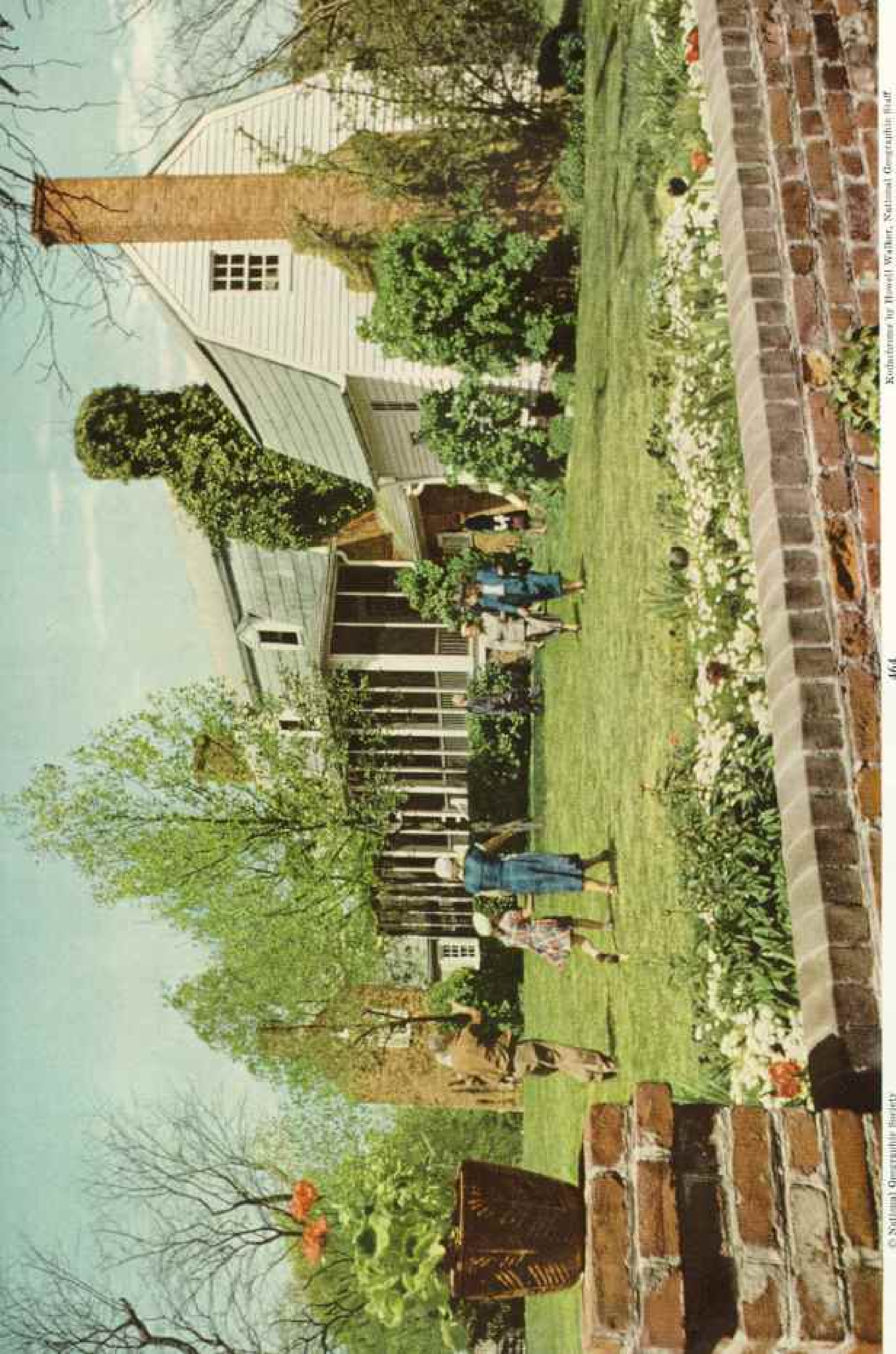
↓ Pewter and brass gleam in the kitchen.



↑ **An Artist's Skill and a Child's Love  
Bestowed Immortality on a Doll**

Lips now dust had not kissed the paint from the toy's cheek when tiny Miss Proctor of Baltimore and her doll sat for artist Charles Wilson Peale in 1789. Loving care preserved portrait and plaything. Some Hammond-Harwood visitors weep at sight of them.





↑ Habre de Venture Grew as Its Masters Prospered

Once the home of Thomas Stone, a signer of the Declaration of Independence, the house was built in five sections along an arc. Stone's law office stands at right. The screened porch was added in Victorian times.

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↓ Perfection of Line and Color Marks Tulip Hill's Hall

One half of the unusual double pendent arch frames a graceful stairway, the other a magnificent tide-water view. George Washington's diary records visits to Tulip Hill. Mr. and Mrs. Lewis R. Andrews (shown) are the owners.

© Koberstein for National Geographic Photographer H. Arthur Stewart





### Lilacs Grace Readbourne's Lawn

Erected in 1731 above the Chester River, the massive central section contains the oldest arched doorway known to U. S. domestic architecture. Builder James Hollyday apparently considered this river side the most important. He specified large pink homemade bricks carefully matched for color. Buff mortar of sand and oyster-shell lime binds the walls, and fine rubbed vermilion bricks trim the windows.

When Mr. and Mrs. William Fahnestock, Jr., acquired the place in 1940, they found the doorway masked with a Victorian veranda, whose outlines on the façade await the healing hands of time and weather. The south wing at right dates from 1791.

Here the gardener hands a lilac blossom to Mrs. Corinne Herndon Robinson, Mrs. Fahnestock's aunt.

← Little Inch, the Fahnestocks' poodle, stands up on a Hepplewhite bed to beg a toy from a member of the household staff. The coverlet is mink.

© National Geographic Society  
 Eschschmann by National Geographic Photographers  
 Volkmar Westzel (left) and Hans Littlehales

During the tour I had often been puzzled to find original units of old homes as comfortable as if air-conditioned. Did the Cavaliers have some building secret to cheat hot weather? One day I picked up a clue while pattering around an abandoned clay pit, once common on many manor lands. My companion was a man versed in local lore.

#### Old-timers Used Sawdust in Brick

"Folks concentrated on making two kinds of brick in the early days," he told me. "There was the flint brick, fired a long time and extra hard, for the outside of a house.

"Then there was brick of salmon color, which went into interior facing. For salmon brick, sawdust was mixed with the clay. The sawdust burned out during firing, so you had a porous brick.

"Being porous, the salmon absorbs moisture, so maybe that is why the older parts of the big places feel comfortable in hot, humid weather. They're salmon lined."

After the pilgrimage, I asked several contractors for their opinion. One cited big chimneys as a possible factor. Another had a more telling comment: they lacked dampers to control drafts.

I submitted all my evidence to a student of the State's early homes. He mentioned an added element, an air space left in some houses between inner and outer walls for insulation.

All these things, in his opinion, contributed to the cool phenomenon created by ingenious artisans of yore.

"You may put it in these words," he said. "By accident, if not by design, the effect was achieved."

Close to a silting cove of the Wye East River, Wye House is rooted. For ten generations this property has been in possession of the Lloyds, a long celebrated family.

Edward Lloyd, first of the line, started acquiring his land along the river in 1658, and there raised the first Wye House. In it lived five generations of the family.

Descendants of the Lloyds now live in the second house, built between 1770 and 1792. Long and spacious without being rambling, it has a dozen rooms on the ground floor.

Masters of old and new Wye House alike had a taste for literature, the arts, choice furnishings, and public service.

They attended the horse races, too. One son, while on his way to the track at Talbot

County Courthouse (now Easton), one day in 1700, glimpsed a pretty Quakeress riding sidesaddle behind her father. Lloyd wooed and won her for his bride.

On Easton's outskirts I stopped at the Third Haven Friends Meeting House, to which the Quakeress was riding when Lloyd saw her. It is believed to be the Nation's oldest frame house of worship.

The plain clapboard structure was put up in 1682 by Quaker refugees in Maryland. William Penn conducted a meeting under a near-by oak tree.

Moderns use the spelling "Tred Avon" for Third Haven Friends Meeting House. The Tred Avon River flows not far away (p. 433).

The countryside wore its fresh morning face as I swung south from Easton to a place identified on faded charts as Hole in the Wall. There, so the tale goes, smugglers trafficked with otherwise respectable gentlemen through a hole in the wall. The barrier was to prevent mutual identification.

I found no wall, of course; only a little cluster of houses. This is the Hambleton of current maps.

"It had a tavern of dubious repute long ago," said a genteel Easton lady of whom I later inquired. "Perhaps it was the hole in the wall, just as today we have places called 'fences' for illegal dealings."

#### Fountain Pens Before 1750!

On a small rise across the road from the village is the ruin of White Marsh Church. Only crumbling segments of front walls and an altarlike table of brick remain.

In White Marsh Church's cemetery I stood beside a tomb dated 1750. A bronze tablet bore the legend: "In Memory of Robert Morris, a Native of Liverpool in Great Britain. Late a Merchant at Oxford in this Province."

Father of the Robert Morris who helped finance the American Revolution, this trader left a personal ledger noting the purchase of "one fountain pen" for his son at school in Philadelphia. That was in 1747.

Fountain pens before the Revolution? Incredible! Had not quills been used to sign the Declaration of Independence?

But I learned imported fountain pens had indeed been advertised in colonial papers even before 1750.

Ultimately I turned up an 18th-century "Cyclopedia," with a detailed description of these pens made "so as to supply the writer

a long time without . . . taking fresh ink."

Apropos of pens, my next stop was Crosiadore, near the hamlet of Trappe. Crosiadore is the birthplace of John Dickinson, dubbed "Penman of the Revolution" for his pamphlets arousing the colonists.

The name probably is an Anglicized version of *croix d'or*, French for cross of gold. The Dickinsons received this land on Grubin Neck in 1669. The estate on the Choptank River has remained in the family ever since.

Other fine old houses dot the necks northward back to Easton. There is Hampden, built in 1663 and believed the first brick home in Talbot. Otwell is an unusual T-shaped dwelling which many consider the most picturesque on the Shore (page 444).

Then comes Avondale, identified with a buccaneering Captain Martin. He would come home, it is said, bringing "sufficient coin to cover the large dining room table with Spanish dollars a foot thick."

Midway on the bridge spanning the Chester River to Kent County, I felt sure Chestertown had completely reformed; so decorous seemed the houses along the opposite shore.

Green terraces, freshly washed by a recent shower, rolled down to the river. Iris, purple and white, and multicolored tulips nodded their heads at water's edge.

#### Bishop Asbury Would Be Surprised

So this was rakehell, spendthrift Chestertown! It has changed a lot since the great Methodist evangelist, Francis Asbury, wrote of preaching in this "very wicked place."

All its historic attractions are closely grouped: Even Washington College, the first institution of learning named—with his permission—for the Father of his Country, is only a short way from the bridge.

The college owns Ringgold House, the community's prize. In it lives the president of the college, Dr. Daniel Gibson (page 449).

A few blocks from the river is Emmanuel Church, birthplace of the Protestant Episcopal Church of the United States. A tablet commemorates the 1780 convocation which adopted the name to signify independence from the Church of England.

I shall long remember Providence Plantation on Quaker Neck for its family graveyard. The dwelling was built in 1781 by William and Mary Trew, a Quaker couple. Bartus Trew, a descendant of its builders, lives there now.

Showing me around the grounds, Mr. Trew pointed out a burial plot with no marker but two rough-hewn stakes of weathered oak.

"One patriarch of my family was a stern man," he said. "He disapproved of his brother's wife, who took to laudanum in her last years.

"At first he denied her burial here, but in the end gave consent provided no stone mark her grave, only these stakes."

"A young woman?" I inquired.

"Well, no," said Mr. Trew. "She lived to be 90."

#### On the Trail of the Oldest Dwelling

Toward the end of my roving I sought Kent Fort Manor lands, where I hoped to find the earliest dwelling surviving in Maryland. It might not even exist any longer: all I knew was that a building stood there, in dilapidated condition, 15 years ago.

Three times I traveled dusty Kent Island roads in vain. The fourth time, near Bloody Point, I found an unpretentious cottage showing signs of recent care.

Scholars for many years have believed that this is the manor house erected between 1637 and 1640 for Giles Brent, then Treasurer of the Province. He conveyed the estate to his sister, Mistress Margaret Brent, one of the most remarkable women in the early annals of America. Maryland's first Portia, she made numerous court appearances. A pioneer suffragette, she shocked the Assembly in 1648 by demanding a vote. Gov. Leonard Calvert made her executrix of his estate.

Mrs. Jeanne Carey Ramsey came out of the old house in work clothes, sensible garb for one supervising the farming of almost 400 acres. Her father, John Roane of Baltimore, had bought land and dwelling a few years before.

"It was a sight when I came here 18 months ago," Mrs. Ramsey said. "Pigs, chickens, and dogs evidently had the run of the place. Ugly plaster hid the old paneling. The roof had a bad sag in the middle."

She told how she had found coins bearing early 18th-century dates in the walls and ceilings, and pointed to a section of paneling where indentations made by words and numbers in old English script were visible. There also was a drawing of an early sailing vessel. Her conclusion is that the panel section, with some thin covering, served as a blackboard.

The entry hall has a staircase eloquent of



### Heaven on the Chesapeake: Fish Are Biting Under a Boat Full of Watermelons

Once the bugeye *Dan*, a Bay-type vessel built at St. Michaels in 1891, dredged oysters under a press of sail. Now, shorn of canvas and graceful bowsprit, she carries produce. These boys sample her cargo.

long ago. The headroom is only 4 feet, 5 inches! Low also is the unique 5-corner doorway between dining room and kitchen. Its height is 5 feet, 5 inches. The top of the frame touches Mrs. Ramsey's hair.

"It's a menace with high heels!" she laughed. "I forget to duck and I bang my head."

Whether this house is the original Kent Fort Manor dwelling, as experts long accepted, is now uncertain. What I know of it persuades me it is very old. As a layman, however, I must leave the verdict to authorities on early Maryland architecture.

No one gainsays that the land belonged to Mistress Brent, so what better could I take away from it than a stirring tale about the lady herself? It involves Capt. William Claiborne, a Virginian, who set up a trading post on Kent Island three years before the landing at Saint Marys. He balked at recognizing Baltimore's charter to the land, hoping to hold the outpost for Virginia. Claiborne's hand was evident in virtually every plot to overthrow Provincial authority.

The Calverts finally ousted him, but he kept trying to come back. In one attempt during 1644, his lieutenant was Peter Knight,





### The Reward Shows No Two Windows on the Same Level in This View

Formerly known as Walnut Point, The Reward is built on land patented in 1663. Here Mrs. Edward A. Hurd, Jr., points out features of her father-in-law's home to Garden Club pilgrims.

who was known to covet Mistress Brent's property.

Hearing Knight was on his way with an armed force, Mistress Brent ordered all her fine fruit trees felled to spite him.

It is historically true that Knight did pillage the "howse of Kent fort." He was thorough, "taking the hinges and lockes from the doores," even the doors themselves.

A woman of Mistress Brent's temperament would not be out of character in the tree-felling role. What if she is known to have been occupied in St. Marys County at the time? Young George Washington likewise was elsewhere when his biographer, Parson Weems,

had him chopping down the cherry tree.

Returning north on the island, I passed a sign advertising a beach resort: "Kent Island, Maryland's *Newest* Waterfront Development."

If Claiborne, Cornwaleys, Leonard Calvert, or Mistress Brent had been with me, I might have had difficulty explaining how the State's oldest water-front development could become its newest after more than three centuries.

Since they were not, I let the thought rest. My modern pilgrimage to Maryland's homes was over; journey-jaded, but journey-proud in a new sense, I swung onto the highway at Stevensville for home.

## Maple Sap Runs with Springtime's Warmth—Syrup and Sugar Bring Welcome Dollars to Vermont Farmers

BY STEPHEN GREENE

*With Illustrations by National Geographic Photographer Robert F. Sisson*

FOR 40 years Fred Clark has been boiling maple sap into syrup and sugar. Like most practitioners of little-known crafts, Fred has to answer many questions. Some of them are intelligent. Others he describes privately as "the darndest things I ever heard."

In the place of honor in the latter category Fred places the question put by a sightseer who one day invaded his steamy domain, Martin Brown's sugarhouse near Wilmington, Vermont. Watching as Fred boiled the colorless sap down to syrup in the evaporator pan, she asked:

"How many bushels of maple leaves do you have to crush to make a gallon of syrup?"

In such cases Fred patiently obliges with the story of sugaring. The latter term covers the whole process, from sap gathering to finished product.

### Come Spring, the Sap Flows

During the summer months, Nature manufactures sugar in the leaves of the maple. The process is a complicated one, involving the chemical action of water supplied by the soil, carbon dioxide from the air, and the magic green pigment chlorophyll, which occurs in structures called plastids inside the leaf cells.

Within the plastids these raw materials undergo a chemical change, with sunlight providing the energy. The result is glucose, a simple sugar, which is later stored in the trunk and roots of the tree as starch. By the time the sap drips from tapholes in the spring, this compound has again been transformed, this time into sucrose. Sap contains from one to six or more percent of this sugar. Water makes up the remainder of the volume, including a fractional percentage of organic acids and other compounds.

During New England's early spring the rise in temperature builds up sap pressure by day; subfreezing temperatures at night keep the buds from coming out. This combination of cold nights and warm days is responsible for sap runs, and farmers depend on a fair proportion of such weather for a good-sized crop.

The Indians explained the process in more lyrical fashion. According to a Menominee legend, Nokomis, the earth, was the first maker of maple syrup. At that time, the fluid flowed in the form of syrup from the holes Nokomis had made in the trees. To her grandson Manabush, hero of many American Indian tales, this procedure did not appear right.

"People must work for their syrup," he protested, "or they will form bad habits and become lazy."

So Manabush climbed to a maple's crown and sprinkled it with water, like rain, so that the syrup was diluted into sap. And ever since then Americans have had to work for their maple products, hanging buckets, cutting firewood, and boiling down the sap.

Not that they haven't enjoyed it. When the white man first arrived in New England, he found the Indians had a holiday season in which they gathered maple sap in great bark receptacles. Then they cooked it in wooden troughs by dropping in hot stones, causing the water to steam away and turn the sap into syrup.

I had always remembered a childhood visit to a Vermont farm during the sugar season. Before I moved to Vermont, I told my friend Reuben Snow that I'd like to help him with sugaring some spring, if he could use an extra hand. He wired his reply in March:

"Sugaring is here. Come when you can. Stay as long as you can."

### Even Shade Trees Are Tapped

I packed snow boots and warm clothing and set out for Wilmington, in the southern foothills of Vermont's Green Mountains. Here almost every farmer hangs a few buckets when he first feels the warm March sun. Trees along Wilmington's streets during this season are often hung with red and white wooden buckets, galvanized iron and tin pails, and even glass jars to catch the precious sap.

From early March to the middle of April sugaring occupies the interest of several thousand Vermont farm families, and Vermonters are justly proud of their celebrated product.



### First Step: Steel Bit Bores into a Vermont Maple for Sap

Standing on March's deep snow near Glover, this farmer taps his trees with holes an inch and a half to two inches deep. Then he inserts spouts, hangs buckets, and waits for the sap to run. When snow melts, the buckets will be waist-high, a convenient level for emptying.

The Green Mountain State leads all others in volume of maple products; New York State and Vermont together provided three-fifths of the entire output in the United States in 1953. Production in the Middle West is gaining each year. In Canada, Quebec Province leads other sections as a producer.

Weather preoccupies every sugar-minded Vermonter. "Snow's held us up this year," Reuben Snow greeted me, "but we've hung sap buckets, and we broke out the roads yesterday with a tractor. Should be sugar weather tomorrow."

It was clear and cold, but with a hint of a warming sun, when we set out with the team early the next morning.

The horses pulled with a will. The gathering rig, a sledge with its tank, or "tomahawk," as southern Vermonters call it, slid along behind. We went up the hill and into Reuben's 1,200-bucket maple grove. The size of a grove, or sugarbush, is measured in terms of buckets hung, almost never in terms of trees.

At the top of a small knoll Reuben reined in the team. We got out the big wide-bottomed gathering pails and started our rounds of the trees, pouring the cold sap from the buckets into our pails. When these were full, we brought them back to the sledge and emptied them into the tomahawk (page 479).

The sap was dripping fast, pattering steadily into the buckets. "Dollars droppin'," the

farmers term it, but it takes around 35 gallons of sap (sometimes more or less, depending on its sugar content) to make a gallon of syrup. The average tree may yield 15 gallons of sap in a good year. One old giant is reported to have given up 80 gallons in a season.

Sugaring starts with "tapping out." Metal spouts are hammered lightly into  $\frac{3}{8}$ -inch or  $\frac{7}{16}$ -inch holes bored an inch and a half to two inches into the tree. Only the stronger maples, more than 40 years old, are generally selected.

"Never tap a tree smaller than the bucket you're putting to it," is a handy rule of thumb.

Up to four buckets may be hung on a maple two feet in diameter or larger. More than this enhances the possibility of early decay. The maples, tapped in different spots each year, rarely suffer from their sap-letting.

Like horses on a milk route, our team moved ahead when Reuben gave the signal. As the tomahawk drew abreast of the point where we rested our heavy pails, Reuben cried "Back!" and they halted.

"Whoa!" was used only to slow the team on a steep downgrade.

"A tractor won't do that for you," Reuben said. "Horses, now, they have brains!"

The tomahawk full, we all climbed aboard, and the horses leaned into their harness.

The weather-beaten sugarhouse is usually located at the lowest edge of a sugarbush, to provide a downhill run for the laden sledges, and on a slope, so gravity will carry the sap from the tomahawk into the big storage vat near the boiling rig. Reuben's sugarhouse was placed this way, and his 25-barrel spruce vat was sheltered both from the sun and from the heat of the evaporator fires. Good sap must be fresh and cold.



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#### Last Step: Pure Syrup Fills Cans for the Market

Syrup, after boiling, passes through strainers before it goes into the settling tank. Here Fred George draws the fluid from the tank in his sugarhouse near Williamstown, Vermont. (page 480).

The sledge creaked to a stop. Ben Butterfield, the hired man, tapped the sap hose, and the liquid cascaded crystal clear down a wooden chute and into the vat.

#### Sugarhouse Is Like a Turkish Bath

Down in the main room of the sugarhouse, where the atmosphere was like a Turkish bath, clouds of steam obscured the lean figure of Ed Woods, the 70-year-old boiler, stoking his evaporator fire.

The boiler must keep the fire at a high pitch, which requires almost constant feeding (page 480). He must also make sure that fresh sap is flowing freely into the pan. As the sap works its way through the tin com-

partments of the evaporator, growing thicker as it flows, he must skim off the impurities that rise to the surface.

And he must be ready to "cream down" the mass when it threatens to boil over—shaking a drop of fresh cream into the seething sap to quiet it.

#### When Sap "Aprons," It's Syrup

Most important of all, the boiler must judge—perhaps with the aid of a thermometer or a hydrometer—the exact moment when the sap has reached a density of 11 pounds to the gallon. If it is thinner than this, it will ferment later; if much thicker, it will crystallize. Woods, an old-timer, uses the "aproning" test (page 481): When the fluid tears off his dipper in a sheet, he knows he is ready to "syrup off."

The final step in syrup making is its passage through felt strainers to remove the harmless but gritty "sugar sand."

One innovation which may someday become extensive in the sugar business is the oil-fired evaporator. Not only is fuel oil sometimes cheaper than cordwood, but it produces a more even temperature. One sugar maker is reported to have fired his evaporator with a surplus army flame thrower.

An important aid to farmers is the local press or radio report for sugar makers.

"Clearing and turning cooler Tuesday with freezing temperatures Tuesday night," a report might read. "Wednesday will likely be sunny, with thawing in most sections."

Good sugar weather!

#### Eggs Cook in Maple Sap

"Gather often—boil at once," is a sugar-making maxim, for sap is highly perishable. So we were back at work in the afternoon, emptying load after load of sap into the storage vat.

Ed Woods boiled through the early evening. When I finally got to see him, he was completing his work for the day. He had eaten two meals on the job, and if he did what sugar boilers often do, he had cooked an egg or two in the hot sap of the evaporator pan.

I asked Ed how long he had been sugaring. He sat down, lit a pipe, and said he had been at it ever since he could remember.

"In the old days," he went on, "we'd cut a notch in a maple and jam a piece of tin up the under side of the cut, for a spout. Then we'd split 2-foot lengths of logs, hollow out

the flat sides, and lay them on the ground to catch the sap. When sugarin' was over, we'd just turn 'em over and leave 'em beside the trees until next year."

This contrasts sharply with today's practice. Sugar makers realize that spotless equipment, well washed before each season, is one of the best assurances of a good grade of maple syrup.

Ed told me how, in the old days, sap was boiled in a black iron caldron, suspended over a fire stoked with wood newly cut from the surrounding trees.

"They'd keep that fire going until evening," Ed said, "and then they'd scoop out the syrup. Ashes, charcoal, twigs—there wasn't anything that didn't fall into those kettles. Real blackstrap it was, blackest stuff you ever saw."

#### Some Old-timers Like It Black

Although some old-timers refuse to have anything but blackstrap on their wheat cakes, the lightest-colored syrups, mild and delicate in flavor, are generally considered today as being superior in quality, and are so recognized in Federal and State grading systems.

No one knows precisely what gives pure maple products their flavor. Studies fundamental to an understanding of this and other mysteries of the industry are being conducted at the Proctor Maple Research Farm of the University of Vermont and State Agricultural College, and at similar laboratories in other maple sugar-producing States and in eastern Canada.

During recent years a gradual abandonment of groves has caused a decline in Vermont's maple industry. Since the NATIONAL GEOGRAPHIC MAGAZINE reported in 1927\* that 5,000,000 maples were being tapped, the total has fallen, more or less steadily, until last year, when farmers tapped some 2,784,000 trees.

Some farmers, yielding to strong demand and high prices, have cut and sold their maples to be made into mine props, veneer, furniture, and flooring. Others have felt that the costs of labor and equipment are a bar to profitable sugaring.

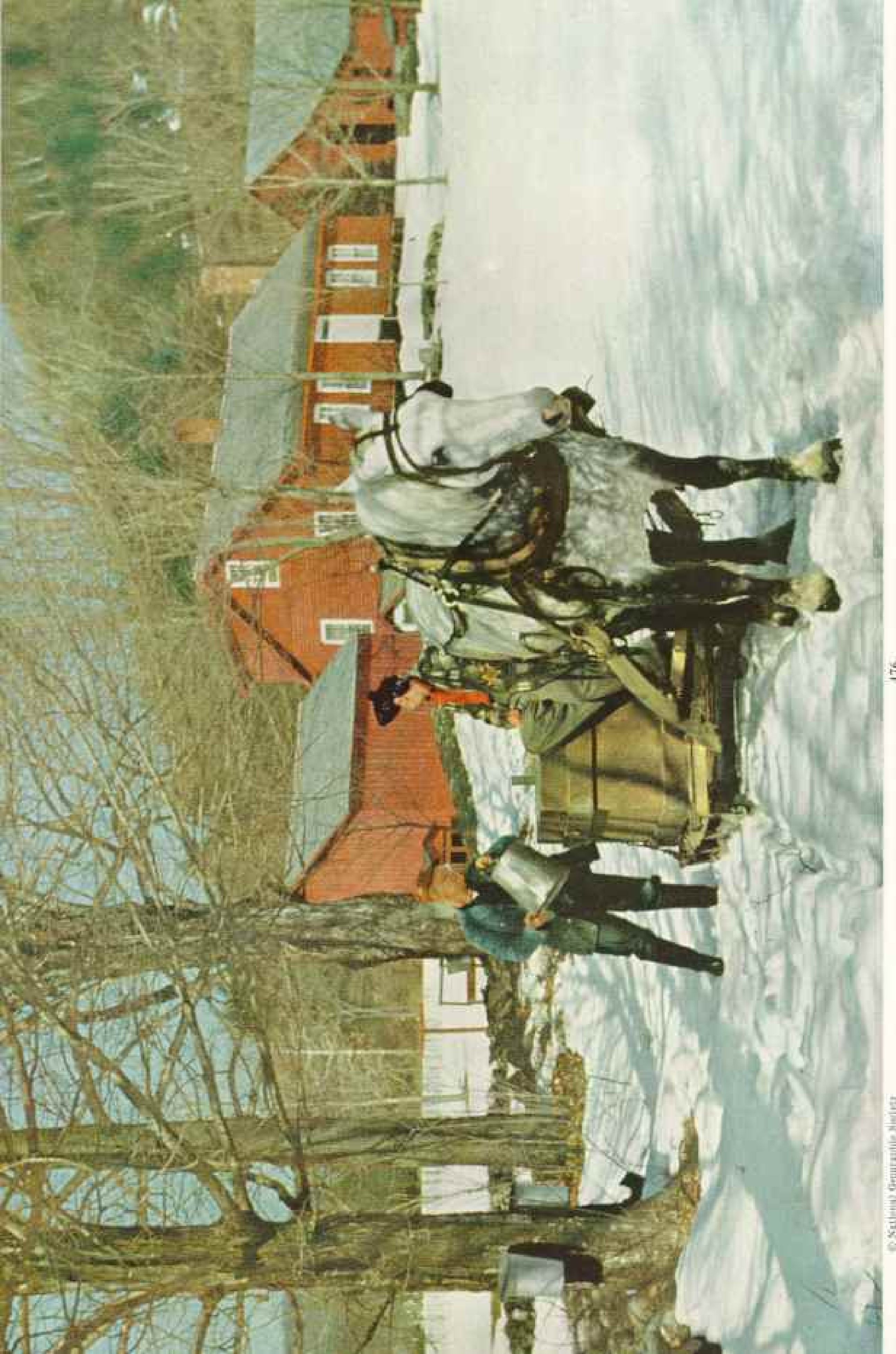
Many believe, however, that if research yields new knowledge for the farmer and if modern marketing methods are adopted, the industry will thrive during the next century as it has in the last.

\* See "Green Mountain State," by Herbert Corey, NATIONAL GEOGRAPHIC MAGAZINE, March, 1927.



### Maple Syrup on Snow Is New England's Traditional Candy at Sugaring Time

Young and old look forward to this annual treat. Cooled by snow, the thick syrup congeals like taffy. Here at Troy, New Hampshire, it is served on wooden paddles. Some fanciers temper the sweetness with pickle.



↑ Sap Starts Running  
While Snow Still  
Blankets Vermont

All maples yield sweet sap, but only two are important to producers of syrup. They are the sugar maple (*Acer saccharum*) and the black maple (*Acer nigrum*).

These stately trees grow in many parts of North America, but New England and adjacent Canada lead in turning the annual flow of sap into cash. Chief factor is a combination of freezing nights and thawing days, which encourages the sap to flow.

Here in West Brattleboro, Mrs. Harold W. Bulbord and a helper, together with their dappled Percheron, brave a March morning's chill to empty sap buckets into a gathering tank.

← Trees Near the House  
Save Time and Steps

When sitting in the house, Mr. and Mrs. Bulbord can bear sap dripping into buckets. "Dollars falling into farmers' pockets." Vermonters call the sound. Tinkerbell, the family cat, climbs a maple.

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Gerritsen, Photographer  
Robert J. Ross







↑ **Old Hand-hewn Yokes  
Are Used No Longer**

Parker Whitcomb, who owns a sugarbush (grove) near Troy, New Hampshire, shows visitors how old-timers carried full buckets of sap from a shoulder yoke. By this back-straining method sap was borne direct to the sugarhouse (background) or to a gathering tank.

Wooden pails like those on Mr. Whitcomb's maples have generally been replaced by metal ones, which in turn may give way to transparent plastic bags (opposite). Covers keep rain, snow, twigs, insects, and dirt out of the buckets.

**Clear Maple Sap Pours  
into the Gathering Tank** →

Gatherers fanning out through Fred George's grove near Williamstown, Vermont, trudge back to the sledge with pails of fluid created in maples by the action of sunlight, carbon dioxide from the air, water, and chlorophyll.

Some New England farmers use tractors to draw the heavy sledges across snow or bare ground. Others prefer horses, many of which learn to stop and start without signals as they plod past the maples.

A few farms use gravity-flow pipelines to transport sap from collecting points or trees to sugarhouses.



## The Plastic Age Comes → to Maple Sugar Land

Farmer Wallace Bickford, tending maples near Wilmington, Vermont, pours sap from a 16-quart Vinylite bag into a gathering pail. Another receptacle bulges like a cow's udder with a burden of colorless liquid soon to be made into syrup for pancakes, sugar for confectionery, or flavoring for tobacco.

Though still in the experimental stage, plastic sap bags are competing with metal and wooden buckets in many sugarbushes.

Advocates cite two advantages: clear plastic, they say, allows sunlight to enter and kill bacteria, and the bags can be handled more easily than buckets.

© Kodachrome by National Geographic  
Photographer Robert P. Sloan

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↑ Sap from the Gathering Tank  
Flows to the Sugarhouse

Youngsters near Jaffrey, New Hampshire, watch as sugar makers start a stream of fluid from the big galvanized tank into the flaring mouth of the pipeline.

← A workman in the sugarhouse of Fred George near Williamstown, Vermont, stokes an evaporator's firebox with pine logs. Large supplies of wood must be kept on hand to maintain even temperature for the boiling process. On the average, it takes two or three cords to reduce 2,000 gallons of sap to syrup.

Most farmers use fuel from their own wood lots. Some large New England establishments heat evaporators with steam from oil-fired boilers (opposite).

Recent years have seen a decline in the maple-sugar industry. Many farmers have cut their trees to realize high prices offered for the lumber. Others find labor and equipment too expensive for profitable sugaring.

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↑ **Clouds of Steam Rise  
as Sap Becomes Syrup**

Charlie Bacon (in green and white plaid shirt) demonstrates the boiling process to visitors in the sugarhouse of the Ark, a country inn near Jaffrey.

Fresh sap, piped from a storage tank outside the sugarhouse, flows around baffles and through the evaporator pan, which is heated by a roaring fire. Deep corrugations in the pan's bottom increase the heating surface.

Water in the sap, passing off as steam, escapes through a ventilator in the roof. As the sap flows toward the outlet, it becomes thicker and thicker until finally it is drawn off as syrup.

→ Many syrup makers test the consistency of the sap by watching it "apron," or drip, off a long-handled scoop. Here Fred Clark, tending an oil-fired evaporator near Wilmington, Vermont, applies the aproning test. Later he will verify his findings with a hydrometer. His modern equipment replaces the old wood-stoked firebox.



© Kodachromes by National Geographic Photographers  
Robert F. Sisson



### New England's Gift: Leaf-shaped Candy

While most of the maple tree's product goes to market as syrup, much is made into pure maple sugar. Syrup intended for sugar is boiled until nearly all water evaporates; then it is stirred and poured into molds to form bricks and fancy shapes.

Here Mary Taylor, at work in St. Johnsbury, Vermont, packs maple leaves into log-cabin boxes.

Until the latter half of the 19th century, maple sugar was the staple sweetener used on most Vermont farms. Settlers learned sugar making from the Indians, who dropped hot rocks into wooden receptacles to cook the sap.

✦ Syrup in tins, bottles, jars, and miniature barrels is displayed by an old-fashioned store in the restored village of Weston, Vermont.

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Photographer Robert F. Dixon

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## Our Navy Keeps Watch in the Strategic Middle East, Which Holds Two-thirds the World's Oil and a Quarter of Its People

BY CAPT. ERNEST M. ELLER, USN

**A**MOSLEM poet has written, "History is a poem in which the words are different but the rhythm is ever the same." Events have a way of sweeping in cycles. In each era history has influenced the West through the sea highway of the Mediterranean.

In our time we have tended to forget this cycle. The surge of events elsewhere sometimes has left the impression that the Middle East will never again be of importance. Yet during these fateful years, powerful forces have gathered there, influences that may well affect our destinies for centuries to come.

One spring day a telephone message called me across the maze of the Pentagon to the office of the Chief of Naval Operations.

"I am assigning you as commander of the Middle East Force," the admiral told me.

To me this meant the most challenging assignment in 25 years of service. Middle East to the United States Navy means the vast and vital area from the Suez Canal to Calcutta (map, page 488).

When news of the orders reached my colleagues in the guarded offices of the Joint Staff, some of them expressed sympathy at my being sent to an abandoned part of the world, a place of sand and flies (millions of them), of terrific heat (worse than Washington in August), of much discomfort and no importance.

No importance!

A quarter of the world's population lives in lands bordering Middle Eastern seas. Sixty-five percent of the world's proved petroleum reserves are here. Seventy-two million barrels flow from the area each month. Since ancient times the Middle East has been a nerve center of the world.

### From Bonny Braes to Burning Sands

Passage from New York, where I said goodbye to my family on a day gloomy with rain, gave time for study on a Navy transport. In historic London I had two days of briefing. Then I flew eastward toward India to meet my flagship.

At midnight, a few swift hours from Lon-

don, we landed to refuel at Rome. On the wind-swept field I struck up acquaintance with a stout Scottish lad of 10, returning to hot Bahrein from a vacation in Inverness. The thought of leaving Scotland's cool braes and glens for the heat of a desolate island off the Saudi Arabian coast awakened my sympathy.

"I like Bahrein better than Scotland," the boy told me seriously. "We have a better house in Awali, and better food. My father has a good job with the Bahrein Petroleum Company, and I have a good school."

That didn't sound like the Middle East of which my colleagues had warned me—an antique, medieval part of the earth, shunted by the roaring 20th century into an arid and sandy somnolence.

### River and Desert Battle Even in Cairo

Flying on to meet the sun, we raised the dawn early out of the storied Mediterranean. Sleepless, I watched blue seas break far below. A great wind swept the water.

These waters gave birth to naval power and the freedom it helps shape in a nation. Ulysses' galley, Persian armadas, Roman and Carthaginian battle fleets, St. Paul's grain ship on its way to Rome, all sailed here.

Still moving eastward, I saw a haze form on the cloudless horizon. It became solid. The sands of Egypt rose out of the Mediterranean. Soon the Nile writhed beneath us like a snake in loose green skin.

Later I flew the length of Egypt and the eastern Sudan. I sailed the coasts and traveled over canals and roads through the desert. Yet nothing endures as strongly as that first impression.

The Nile is the artery of Egypt. Now narrow, now wide (yet never more than a thread in the vast, dry land), the river brings life. The green of growing things ends as abruptly in the arid sand as if a line separated living today and dead yesterday.

Sand! How well I came to understand the "burning sands" of which I had heard and read long years ago. But for the waters of the Nile, Egypt would be almost wholly aban-

### Plodding Donkeys Provide Taxi Service → to a 3,500-year-old Egyptian Monument

Queen Hatshepsut's temple near Luxor, 500 miles up the Nile, is one of Egypt's architectural treasures. Dedicating the principal sanctuary to the god Amun, the queen also provided chambers for the worship of her own soul.

Jealous successors destroyed her inscriptions and statues and sometimes substituted their own faces and names. Early Christians renamed the temple Deir el-Bahri (Northern Monastery), converted chambers into chapels, and defaced "heathenish" inscriptions.

Present restoration began in 1894. Today the temple displays a hint of its ancient glory.

Half a mile to the northwest lies the Valley of the Tombs of the Kings (Biban el-Muluk). There in 1922 the treasure-laden sepulcher of the boy king Tut-ankh-Amun was unearthed.

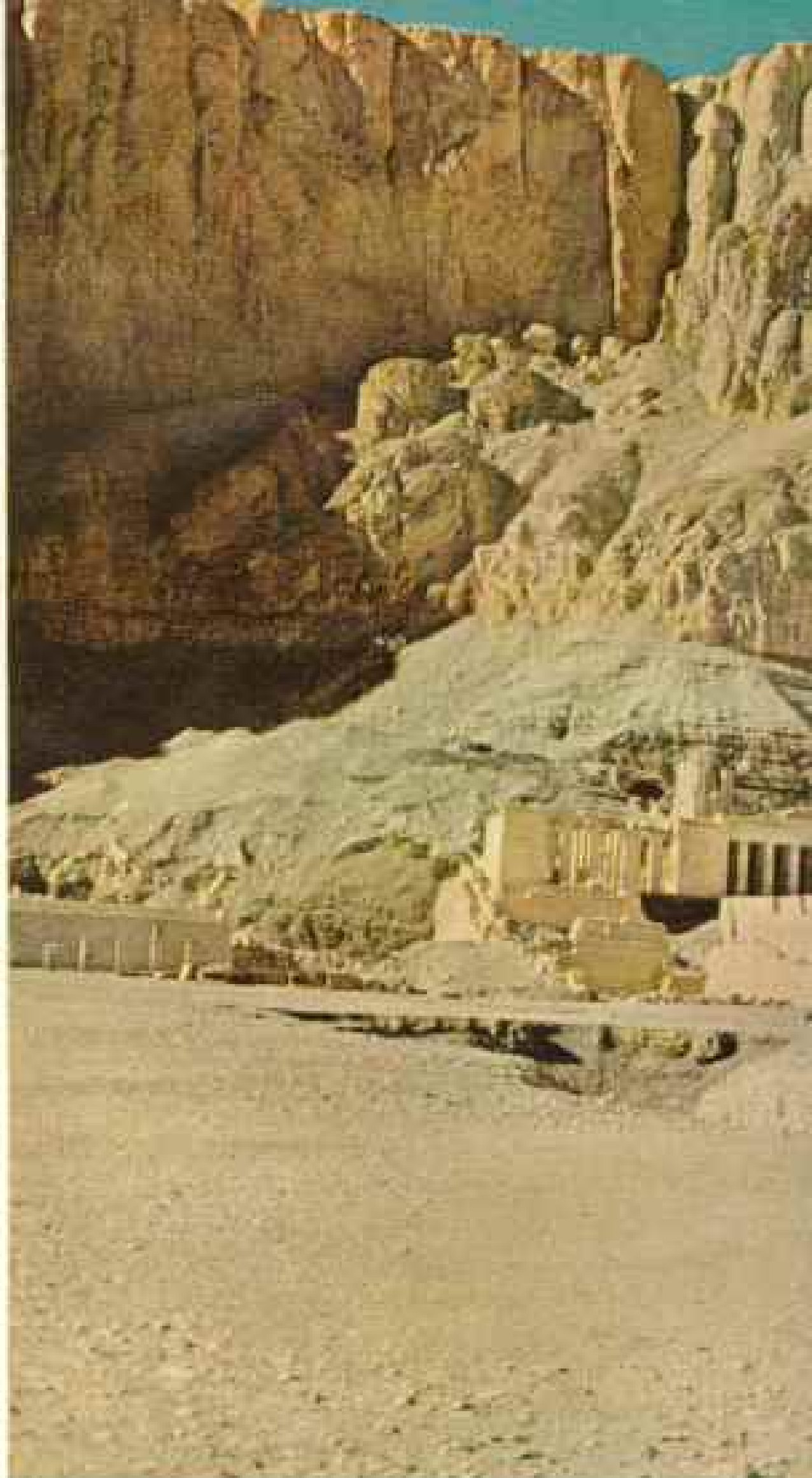
The author visited Cairo before flying on to Bombay. There he took command of the Middle East Force, which represents the U. S. Navy in sea lanes from the Suez Canal to Calcutta. Later he surveyed Egypt and the eastern Sudan from the air.

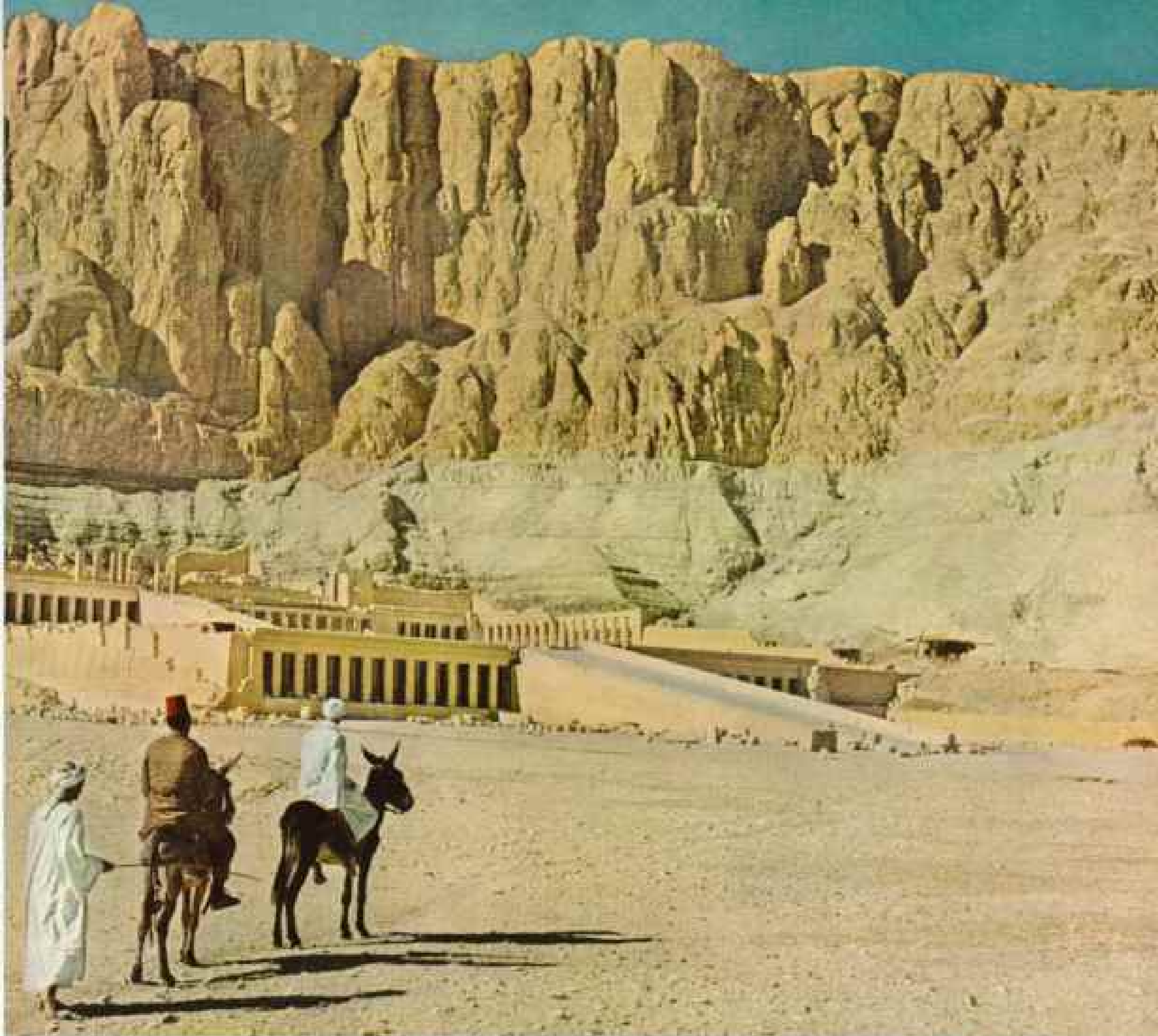
### ↙ The Nile's "White Gold" Attracts Buyers

Freighters crowd Alexandria docks to load bales of long-staple cotton. The world's fifth cotton producer, Egypt in 1952 raised more than 980 million pounds, equal to about one-seventh of the United States' crop. Egyptians classify fibers of  $1\frac{1}{8}$  inch or more as long staple.

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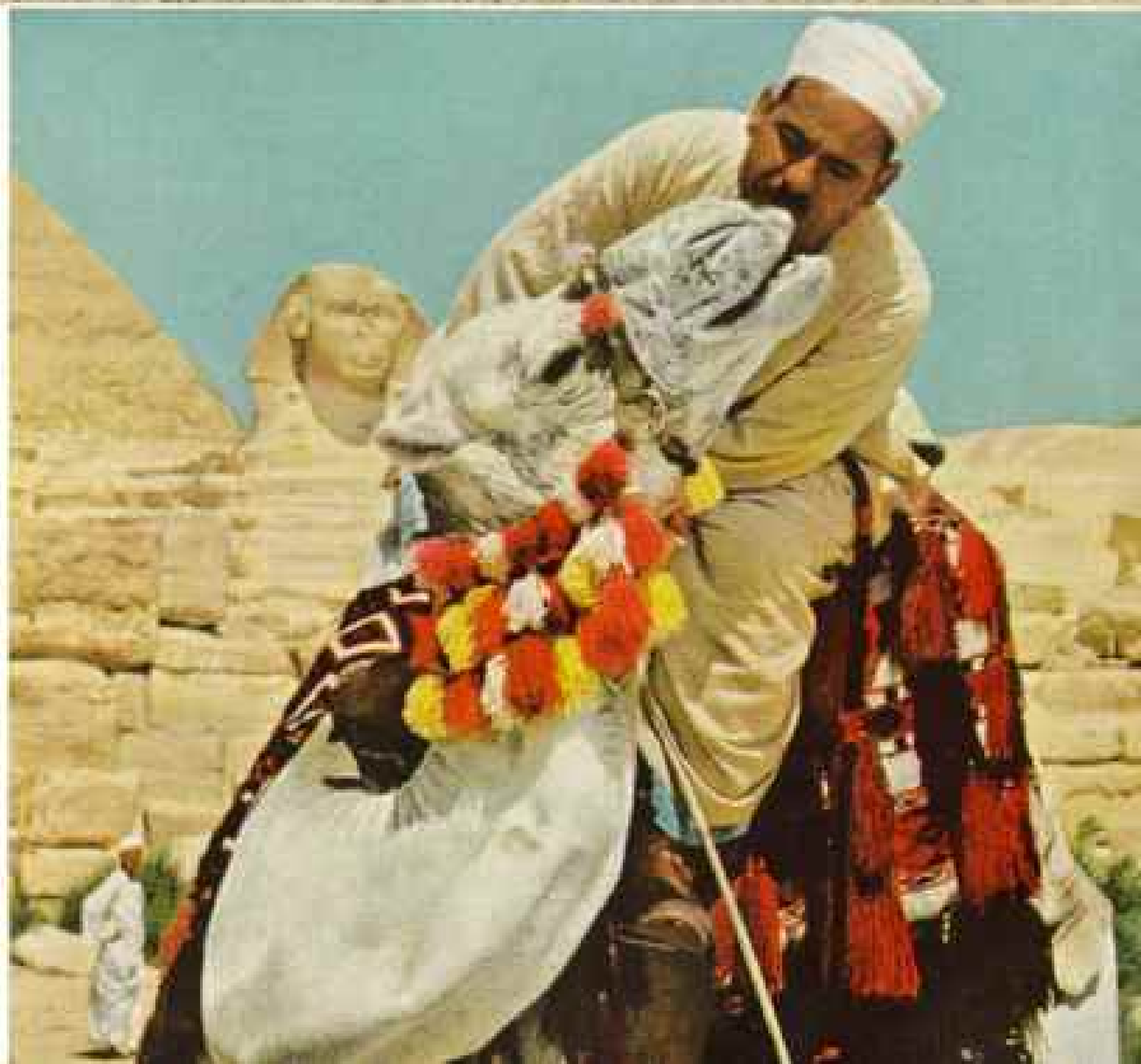
### Camel Accepts Candy → from His Owner's Lips

By the wind- and bullet-scarred Sphinx and the Great Pyramid of Khufu, Lami the camel driver makes his mount, Canada Dry, perform for visitors. Sight-seers who hire camels have difficulty ac-  
customing themselves to the shuffling gait.

Pharaoh Khufu (Cheops) built the Great Pyramid, one of the largest man-made ob-  
jects, about 4,500 years ago.

The battered Sphinx suffered as a target of Mameluke rifle-  
men. Only eight miles from downtown Cairo, it sits in a quarry that yielded rock for the Great Pyramid.

© Ekta/Armo for Black Star (top) and  
Kodachrome by National Geographic  
Photographer J. Rajar Roberts





done. Like the desert around Ozymandias's broken statue,

... boundless and bare  
The lone and level sands stretch far away.

River and sand battle even in Cairo. Sand whirls in the air. It presses into the city. The Sphinx and pyramids stand silent in the sand (page 485).

Everywhere, sand almost wins. Yet life fights back. The smell of the Nile fills the air. Its muddy tide flows through the city, nourishing trees and flowers. Canals lead water from the riverbanks for the intensive Nile agriculture whereby a fraction of Egypt's land sustains most of her population.\*

On the banks man's life still intertwines with Mother Nile as it did when the Pharaohs were young. Treadmills lift water to green fields. Women scrub and beat clothes at the stream's edge. Dark-eyed children splash in the brown water. Donkeys, goats, and men come to drink. Feluccas move by with their sails set to the wind.† In riverside villages I saw houses made of Nile mud and bulrushes.

For hours I rode through Cairo and its environs with an American friend. We lunched in the Semiramis Hotel, beside the Nile. Late in the evening, still discussing the problems and promises of the East, we dined high above the city and watched the moon glittering on Cleopatra's river.

Long after midnight I passed through the desert to the airport and embarked for Bombay via Dhahran.

#### Torches Burn Waste Gases

Dawn came quickly. We sped across the lava waste of the Hejaz in western Saudi Arabia; then came the desert plateau of the Nejd. An hour before we landed I saw the strange red sands of the great Dahna dunes—wind-swept half-moons that lead to Hasa with its oases of dates and seas of oil.

Torches which burn waste gases from the fabulous oil fields near Dhahran heated a morning that needed no heating. The sun scorched my face as I stepped from the plane, expecting to stay an hour. Its rays, concentrated into a breathless inferno, broiled me that evening when I went aboard again. A defective engine had given me the opportunity to spend a day with friends, discussing the destinies of Anglo-American oil interests in the Persian Gulf.

One of the greatest concentrations of American civilians outside United States ter-

ritory exists here on the gulf. The ceaseless search for fuel to propel our power-hungry age early led Americans to combine with British, French, and Dutch in Iraq to develop that country's underground oil resources. Later, in the 1930's, oil was found in Bahrein (page 509).

#### In Arabia, Oil Is King

Oilmen in Bahrein often looked across the narrow strait, speculating on oil in Saudi Arabia. Not long before World War II a famous geologist searching with binoculars from Awali is supposed to have picked the spot on Dhahran dome for the first well.

When German successes in World War II threatened the Middle East, production was cut back. After victory came, oilmen returned with redoubled vigor.

The men who operate these vital oil fields near the Iron Curtain are reason enough for the United States to maintain naval forces in and near the Persian Gulf.‡

Moreover, my new command had diplomatic missions—to assist our civilian agencies in cementing ties with the people of southern Asia.

But oil is king—oil for Free World troops in the Far East, oil for our NATO allies, oil for California ports 15,000 miles away. Oil alone is reason enough for us to maintain forces in troubled waters east of Suez. The

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Land of Egypt," by Alfred Pearce Dennis, March, 1926, and "Along the Nile," by Frederick Simpich, October, 1922.

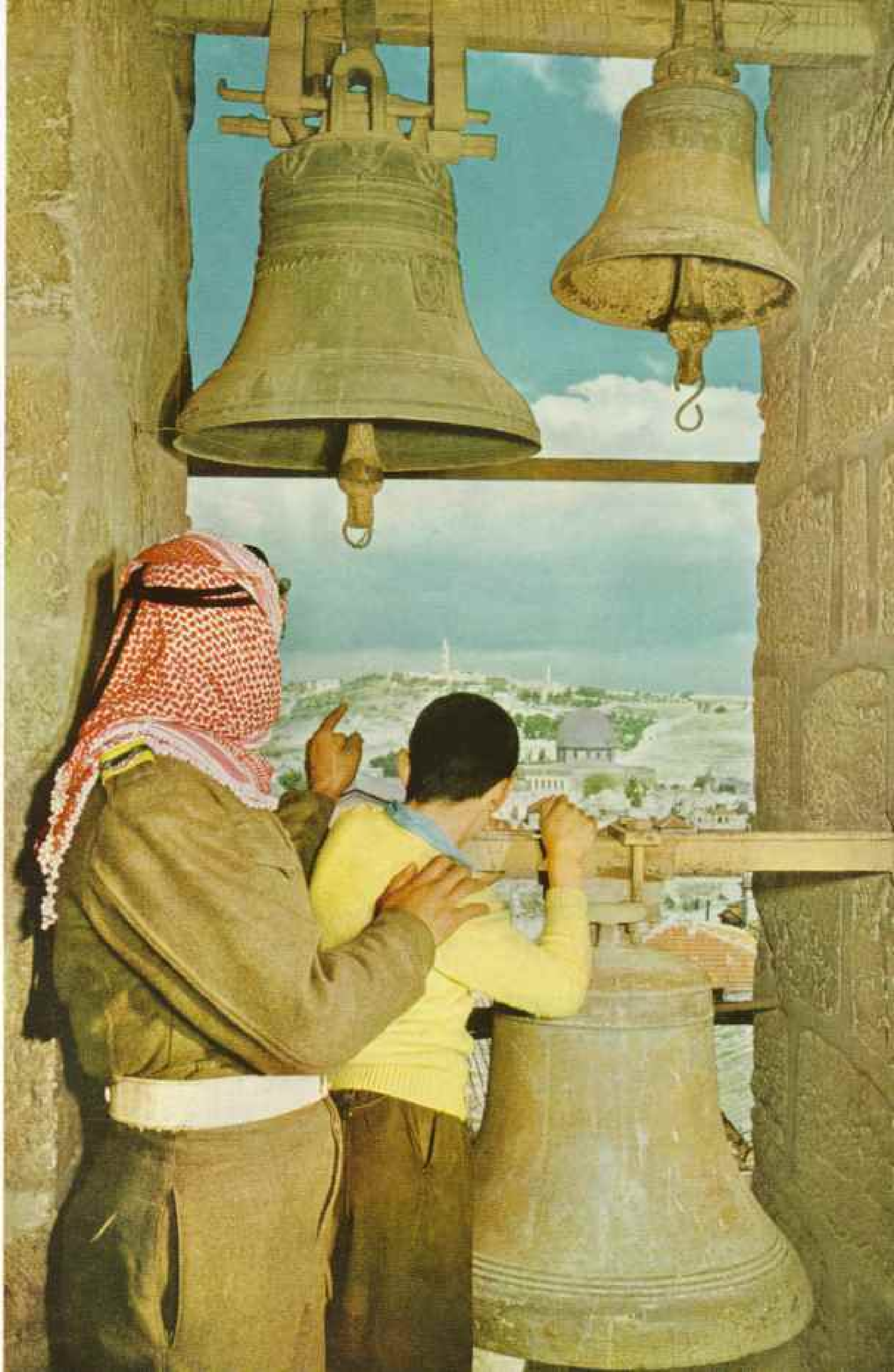
† See "By Felucca Down the Nile," by Willard Price, NATIONAL GEOGRAPHIC MAGAZINE, April, 1940.

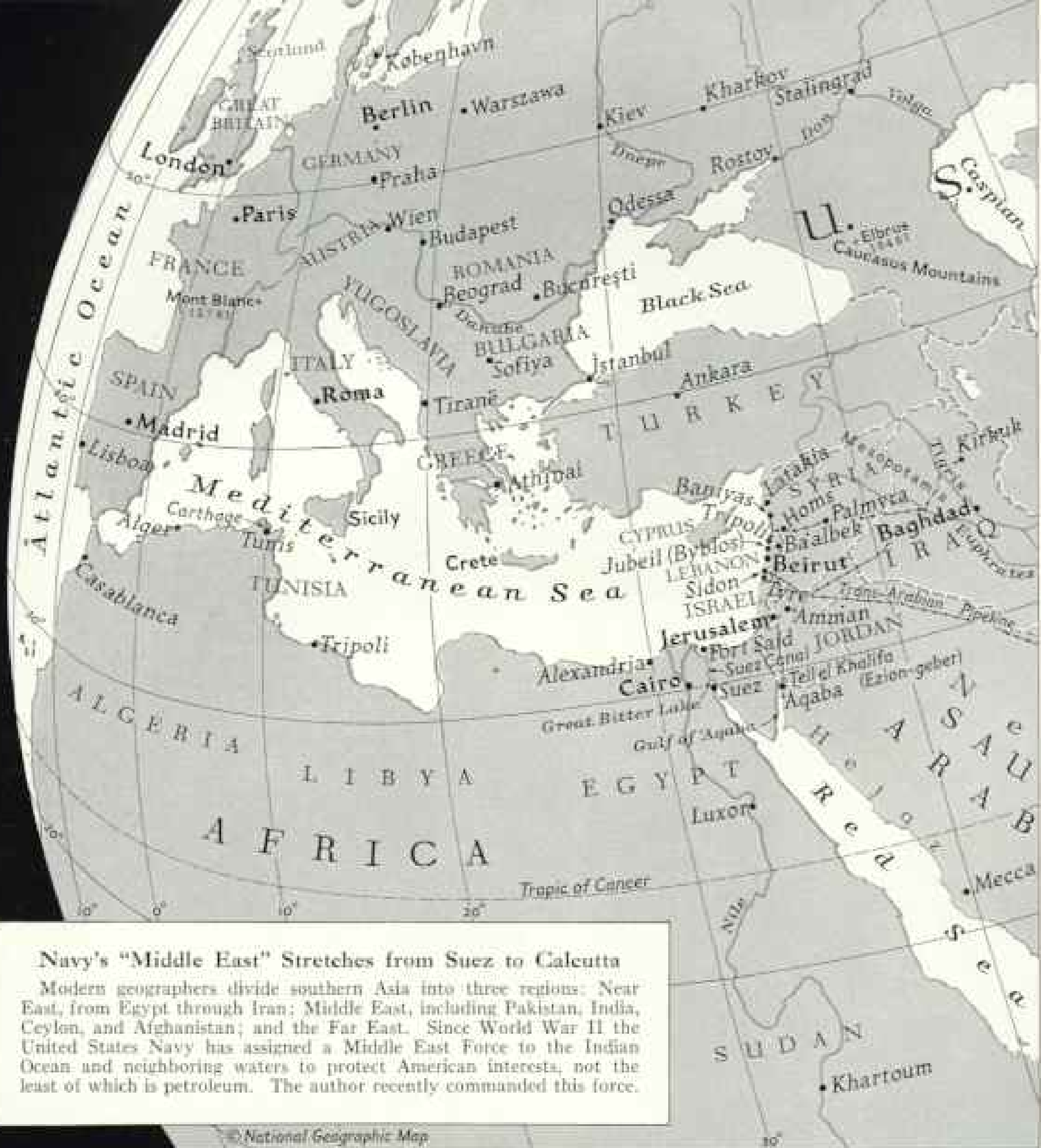
‡ See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Our Navy in the Far East," by Admiral Arthur W. Radford, October, 1953; and "Your Navy as Peace Insurance," by Fleet Admiral Chester W. Nimitz, June, 1946.

#### A Jerusalem Window Looks Out → on Hallowed Easter Shrines

A soldier of Jordan's Arab Legion, standing in the Crusader-built belfry of the Church of the Holy Sepulcher, points to a landscape associated with Christ's last days on earth. The lofty Russian tower, built by pre-Revolutionary Muscovite pilgrims, crowns the Mount of Olives. A mosque to the right marks the traditional place of Jesus' ascension to heaven. The blue-gray Dome of the Rock (middle distance) is thought to occupy the site of Herod's Temple, to which Jesus came triumphantly on the first Palm Sunday. The Garden of Gethsemane lies between the Dome and the Mount.

Deep inside walled Jerusalem, the Church of the Holy Sepulcher enshrines traditional sites of Christ's Crucifixion and His Resurrection on Easter morning.





loss of Persian Gulf oil would shake the West to its foundations.

When the plane took off that evening from hot Dhahran, I was exhausted. The Egyptian steward let me get comfortably asleep. Then he shook me awake with a handful of landing forms: "If you fill these out now, I won't have to wake you early at Bombay."

#### On by Air to India

Halfway between Oman and the barren mountains of Baluchistan I finished them and slept again, until startled awake by his hand. "What would you like to eat?"

As we swept over the plains of Sind, he shook me again. "What time shall I wake you at Bombay?"

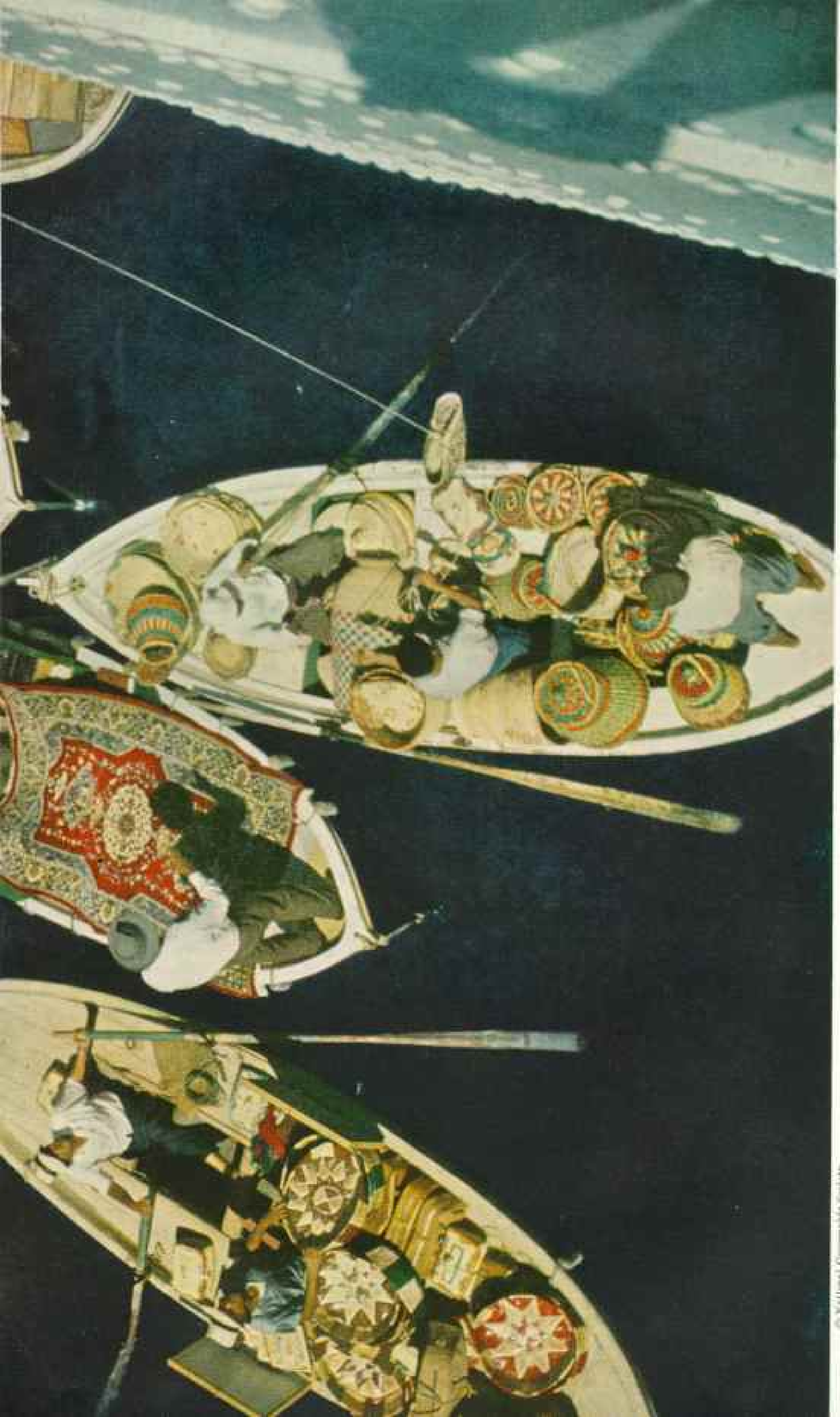
Three times is out anywhere. I gave up and rode awake with the moon into India.

Waiting at the Bombay airport was Capt. William Rassieur, U. S. Navy, cheerful though up all night, and his aide—mine to be—alert Lt. William Keen. The Middle East Force flagship is constantly on the move. The current one, a seaplane tender, steaming northward from Ceylon, had just reached Bombay.

As we drove to the U. S. S. *Greenwich Bay* that first dawn, and as I came back to Bombay one evening at dusk, the magnitude of India's population problem struck me acutely. Sidewalks bulge with humanity. A solid stream of life flows over the streets. When evening comes, white-gowned figures go by like a river of ghosts. Late at night the mov-







**Salesmen's Bumboats Cluster Like Beetles Around a Liner Anchored at Port Said, Egypt**

One merchant (center) spreads an Oriental rug. Suez-bound passengers may buy souvenirs without stepping ashore.



### Headed for Middle East Waters, U. S. S. *Valcour* Airs Her Signal Flags at Guantánamo

Painted white for warm-sea duty, the author's flagship completes training and gets a house cleaning at the Navy's Cuban base before sailing. Crew members touch up her water line. The black ball to the right of the flags warns passing ships that the seaplane tender lies at anchor.

dawn. For miles before we entered the tiny Madras harbor, unique Indo-European dwellings floated up out of the haze like the architecture of another world.

From Madras Clive of India set forth to shape an empire. I followed his course through the parched countryside, where the patient multitude strives against famine.

At Conjeeveram (Kancheepuram), where Clive won one of his many victories, I saw temples in which men worshiped before the Saracens sacked Carthage. Inside a towering temple of Siva a sacred elephant waved his trunk as throngs of worshipers moved in the inner chamber. Gongs and drums crashed in the gloom.

South India is burdened by drought, aggravated by deforestation. Great numbers in Madras State suffer from malnutrition. Thousands move through the countryside like wraiths, their faces hollow, their limbs like pipestems. We received many blessings because of the impending arrival of American grain ships.

In Madras one follows in legend, and perhaps in fact, the footsteps of the Apostle Thomas, who may have taught and died on these shores. St. Thomé Cathedral and St. Thomas's Mount carry memories of his name. Old Christian settlements abound on both this and the west coast in Travancore.

#### Madras Remembers Elihu Yale

Madras also preserves memories of Elihu Yale, English benefactor of Yale University, who served here as president and governor.

Jews and early Christians probably came to India first on the southwestern, or Malabar, Coast. The sight of rich green foliage rising like a wall out of the sea must have been the port of Cochin's first greeting to them, as it was to me. We slipped through the narrow entrance where great weblike structures of fish nets dipped and bowed in welcome—as I had seen them do thousands of miles away on the Yangtze.

I had brought the flagship to Cochin to observe the Indian Navy's major training



### Saud ibn Jihawi, Governor of Hasa, Inspects the Bridge of U. S. S. *Greenwich Bay*

During the tour of duty of Captain Eller (right) three vessels alternated as flagship of the Middle East Command: *Valcour* (opposite), *Dixbury Bay* (page 505), and *Greenwich Bay*. Long famed for pearls and dates, Saudi Arabia's province of Hasa assumed world importance with discovery of oil beneath its sands.

center, established there after the partition of India and Pakistan. But the centuries had left other things of interest.

In this quiet, old-world port, through crowded streets I came to a reminder of Spain. Adjacent to a venerable synagogue I saw Hebraic, red-haired people whose ancestors found refuge in India from the Spanish Inquisition.

The synagogue has its Old Testament written on scrolls in gold-encrusted cases. In the wall above the blue-tiled floor our guide opened a vault and brought out treasured copper plates recording an early deed of land to Joseph Rabban, headman of the Jewish community.

Cochin, heavy with solid Dutch architecture, has in St. Francis Church one of the historic memories of the sea. This old church holds many Portuguese and Dutch tombstones, some of them dating from the 1500's. Among them is that of Vasco da Gama, Columbus's contemporary, who was first buried here. His body was later removed to Portu-

gal.\* Had he been one of the Dutch who later held the port of Cochin, his memorial slab in the quiet church might have borne his exact age and hour of death, with the inscription: *Hier onder ist*.

### Elephants Are Traffic Hazards

While operating in the Indian Ocean we touched twice at Ceylon, the idyllic isle. Its steaming coastland is tropical, with palm and rubber plantations, flowers and fruits—especially around Colombo—and jungles in which wild elephants roam (page 520).†

Much of my time in Ceylon was spent at a South Asian conference in the land of the sky at Nuwara Eliya. Mounting a breath-taking road where elephants compete with automobiles for the right of way, we burst into a different climate. Temperate-zone flowers

\* See "Pathfinder of the East (Vasco da Gama)," by J. R. Hildebrand, NATIONAL GEOGRAPHIC MAGAZINE, November, 1927.

† See "Ceylon, Island of the 'Lion People,'" by Helen Trybulowski Gilles, NATIONAL GEOGRAPHIC MAGAZINE, July, 1943.





↑ This Airy Cafe  
Sits above the Surf  
at Latakia, Syria

← In Islam's golden age Arabian traders ranged the seas from Spain to China. Today their sailing ships, called dhows, rarely venture beyond the Arabian Sea and east coast of Africa.

These sailors beach a dhow at palm-fringed 'Aqaba, Jordan's only port, near the probable site of the Bible's Elath.

Close to it was Ezion-geber, King Solomon's port for the Red Sea trade. There he launched a fleet manned by sailors of his Phoenician friend King Hiram of Tyre. Solomon's imports were frankincense, gold, ivory, and jewels. He paid for them with iron and copper refined in the blast furnaces of Ezion-geber.

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Recreation by Bernard Owen  
Williams (top) and John Bedford,  
National Geographic Staff



and trees grow in sight of plunging waterfalls. Tea plants and crimson rhododendrons flourish in the heavy, hanging mists. Chill clouds surround high mountain peaks, with vistas of blue seas far below.

A traveler proceeding inland (and some sailors get that far) sees imposing evidences of Ceylon's past. Great dynasties once held sway on the island. In jungle-girt Polonnaruwa's ruins I saw massive Buddhist statues, one 40 feet long, cut from the living rock by Ceylon's medieval sculptors.

#### Bees Challenge Sigiriya Sight-seers

I was awed by Sigiriya, high rock palace of an ancient king who fled from the plains to build himself a refuge atop an almost unscalable mountain. To climb the dizzying heights of Sigiriya, one must have stout legs, stout lungs, and a stout heart as he beats around the upper levels of the cliff with its worn handholds and iron ladders.

Worse yet, swarms of wild bees provide an extra hazard. If they attack, and you don't fall, a screened cage along the cliff offers a haven until the bees' inhospitable reception has spent itself.\*

Visiting the British East Indies Fleet on one occasion, we dropped anchor in Ceylon's fine Trincomalee harbor, which dominates the sea lanes between east and west.

Adm. Sir Geoffrey Oliver filled our days with hospitality and one night, at least, with the magic of the East. A snake charmer brought his hooded cobra to "dance" before us and conjured a mango tree seemingly out of the air. I still preserve some of its leaves!

#### Karachi Camels Wear Knee Bells

Nineteen hundred miles northwest of Ceylon we steamed into Karachi, Pakistan's capital.†

Sliding up the city's long, narrow harbor (page 513), our ship fired and received a 21-gun national salute. With Capt. Paul Jackson, U. S. Naval attaché, I called on Adm. J. W. Jefford. This sound British seaman, a replica of John Bull, was then on loan to build up Pakistan's navy. He had done well. I found their ships smart and efficient, their training stations capably operated.

A noteworthy trust in British integrity and capacity exists in Pakistan and India. It springs from the sincerity with which the British serve nations they but yesterday ruled. Though their armies face each other in Kash-

mir, the two countries so respect England that each periodically participates in naval maneuvers with a squadron of the British East Indies Fleet.

Delightful among the sights of the East are the camels, knee bells jingling, which draw the rubber-tired carts of Karachi. Matching the colorful carts are the costumes of their drivers, and of the men of desert and mountain who throng the busy streets (page 512). Many highly educated people live in Karachi. With them mingle other Pakistan citizens whose staunch natures match those of their ancestors who fought against Alexander.

My driver, Nashti Gaffar, might have stepped straight from a Kipling story. He was a Pathan from the rugged frontier between Pakistan and Afghanistan. Simple yet deep, he loved his country with fierce fervor.

"This driving is not man's work," he told me. "I am a soldier. See, I got this in Kashmir." He lifted his garment to show a jagged blue scar. "I drive a car well, but I shoot a rifle better."

#### Sand Storm at Sea

Love of country and frank sincerity are common Pakistani traits. In the words of their prime minister, "We fear no one. We prefer peace in which to build our young country, but we are not afraid to stand up for what is right."

From Karachi we sailed for the Persian Gulf. Seas battered us and high winds held until we passed through the Strait of Hormuz, with the high, barren mountains of Oman to the south and the higher mountains of Iran to the north, glinting like walls of marble in the afternoon sun.

I never tire of the sight of this southern entrance to the Persian Gulf. An ever-changing play of wind and sun reflects on the troubled water. The Strait of Hormuz is a busy crossroads of the sea routes that bind the free world together. In one day a mariner may see tankers of a dozen nations. Among these ships are giants with capacities of over 200,000 barrels. Axis submarine commanders who operated off the strait during World War II would have been overjoyed to have such targets.

\* See "Sigiriya, 'A Fortress in the Sky,'" by Wilson K. Norton, NATIONAL GEOGRAPHIC MAGAZINE, November, 1946.

† See "Pakistan: New Nation in an Old Land," by Jean and Franc Shof, NATIONAL GEOGRAPHIC MAGAZINE, November, 1952.





### Street Lights Glow at Dusk in Beirut, Paris of the East

A Roman settlement in Christ's time, French-flavored Beirut is the capital of Lebanon. Mediterranean storm waves often hurdle the sea wall onto the Avenue des Français (center). Snow-capped Jebel Sannine towers 8,359 feet above the city.

→ Fat-tailed sheep amble down the highway of conquerors south of Beirut. Orange-red paint on their hindquarters is decorative; the custom originated centuries ago when dabs of color were applied for identification.

← Lebanese nomads move with the weather.

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Endnotes by National Geographic  
Photographer David S. Dwyer and  
Artist Maynard Owen Williams



There are also the dhows, a term used loosely for almost any Arab sailing craft (page 494). These are still constructed on ancient patterns in the one-time haunts of pirates and sea kings—Masqat and Kuwait.

A September sunset transformed one of these rakish dhows on the horizon near the Pirate Coast. It became a fairy craft, belying its smell of long-departed goats and fish. A red mist lay in the air and a rich burgundy tint on the water. Flying fish splashed; an ugly sea snake looked uglier still in its gory coat. Dolphins arched gracefully.

A shamal was blowing, one of those sudden wild northerlies dreaded on desert and sea. Lifting the Dabna sands, it filled the sky with shades of red, accompanied by the sting of flying particles. In the evening watch, gasping with heat and coughing to spit out the fine sand, we watched a blood-red moon rise ominously.

After touching at Bahrein, we sailed on to Ras al Mish'ab, port for the building of the Trans-Arabian Pipeline. This tremendous engineering work, nicknamed "Tapline," rivals any wonder of the ancient world. Throbbing black pipes run across desert and rock for a distance not much less than the 1,150 miles from Vancouver to San Diego. Tapline has a capacity of 330,000 barrels of petroleum a day, releasing many ships from the long run around Arabia.

Near ancient Sidon the crude oil flows into tankers—a richer cargo than the Phoenicians ever lifted from this coast. The oil furnishes fuel for much of western Europe.

#### Straight Roads Span Empty Desert

From Ras al Mish'ab I drove across the desert to Quaisumah, a principal pumping station for Tapline, on one of the straightest roads in the world. Truck caravans roared along it as if they were on the New Jersey Turnpike. A difference, of course, is that drivers are Arabs. They pick up driving swiftly, but learn less quickly to give the moving parts of their machines more care than they provide for the joints of camels and goats! Once they learn, however, as an American friend said one day, "They become as capable as if they had not jumped 20 centuries in 20 months."

In Quaisumah I marveled at the efficient American community established amidst emptiness. For lunch in hot Arabia we had steaks from the United States, fresh fish from the

Persian Gulf, salad, vegetables, and fruits flown from Lebanon, Cyprus, and Africa, and delicious apple pie. American companies have taken as their own the old maxim that an army travels on its stomach.

One errs when he calls Arabia a desert, as I discovered in the lofty retreat of Amir Ibn Khuwaiter, an official of northern Hasa. He received my call on the roof of his home-administration building. It stood alone in the sand except for a cluster of tents for the amir's retainers.

The amir sat under an awning on a platform raised above the flat roof's bulwarks. Below, the sun turned Arabia into a broiler. Closer to heaven, the wind gave blessed relief. We talked between thimblefuls of scented coffee, hot, syrup-sweet tea, and soda pop, served by an irascible African who kept prodding the interpreter to finish each course.

#### Desert Is "Grazing Land" to Bedouins

When I commented on Ibn Khuwaiter's peaceful lookout, with the desert rolling away like a placid sea, he informed me with a twinkle in his brown eyes, "This is not desert; it is grazing land."

This hard, cruel, yet lovely land breathes the Old Testament. Most Bedouins, who live as in the days of Ishmael, are wanderers over the sands. Their flocks provide food, drink, clothing, and tents. Customs have changed little. A man may harbor in his tent a blood enemy who asks protection. He may cut off the hand of his son who transgresses.\*

Vivid in my memory is a trip with George Colley, a driving force in the construction of Tapline. From Beirut on the Mediterranean we drove over ancient conquerors' routes to Tripoli and Homs and to another new pipeline, which runs from Kirkuk, near the traditional site of the Bible's fiery furnace, across Iraq and Syria to the Mediterranean.

From Beirut's orange groves and vineyards, with snow-topped Lebanon mountains glinting in the sun (page 496), we crossed Dog River (Nahr el Kelb), on whose sheer rocks conquerors since Rameses II have recorded their passing.

At Byblos (Jubeil) we saw a castle, probably built by the Crusaders, at the foot of which Roman and Phoenician ruins are intermingled. The museum at Beirut has many

\* See "Bedouin Life in Bible Lands," by John D. Whiting, NATIONAL GEOGRAPHIC MAGAZINE, January, 1937.



### Ba'albek's Scarred Columns Have Resisted Conquerors, Vandals, and Earthquakes

Named for the Semitic god Ba'al, the city was known to the Greeks as Heliopolis (City of the Sun). Romans in the first, second, and third centuries erected the existing temples from some of the largest building blocks ever quarried. History has left its mark on Ba'albek. The Christian emperor Theodosius partially destroyed a temple to make room for a church. Arabs converted the acropolis into a citadel. Saladin, adversary of the Crusaders, took over in 1175. Less than a century later Mongols under Hulagu sacked the city. Earthquakes in 1759 and 1795 toppled many stones. Here 60-foot columns of the Temple of Jupiter tower above modern Ba'albek in Lebanon. The Temple of Bacchus on the next level retains walls as well as columns. Late spring snows still cling to the distant Anti-Lebanon Mountains.

Phoenician relics, including the huge stone sarcophagus of a king of Byblos. Its inscription reads: "The coffin which [It]tobaal, son of Ahiiram, king of Byblus made for his father as his abode in eternity. And if a king . . . attacks Byblus and exposes this coffin, let his judicial scepter be broken, let his royal throne be overthrown and let peace flee from Byblus. . . ."

#### Byblos Gave Name to Bible

Egyptian vessels traded at Byblos thousands of years before Christ. The name, Greek for book, is perpetuated in "Bible."

We passed through Homs gap, and near the ancient city of Palmyra watched American engineers and equipment pushing the pipeline across Syria. I marveled at the pipe-wrapping machines—complex giants which scrape and brush rust from the pipe, prime it, wrap it with glass wool, pour on tar enamel, and finally, with great rotating arms, wrap the pipe with heavy paper.

"We must hurry to Ba'albek before dark," George Colley said. "It is the most impressive of all the ruins I have seen."

And so I found it, in this land of broken cities and half-forgotten temples. I saw



↑ Arab Divers Explore the Sea Bed for Pearls

During the season some 5,000 pearling vessels swarm above the oyster beds in the Persian Gulf. Before leaving port, the sailors treat upper hulls with evil-smelling shark oil and paint the underwater part of the hulls with lime and sheep fat to discourage barnacles. Divers clinging to the sides (above) go as deep as 90 feet and sometimes stay two or three minutes. Diving suits are forbidden; a nose clip and stone weight may be used.

Pearling is rarely a way to easy riches. When owners and crew have divided profits, the divers are lucky if they have enough to pay off debts. Making as many as 50 dives a day, they must watch out for sharks and stinging jellyfish. Heat, scurvy, and skin troubles take a toll.

In 1929 one Gulf pearl sold for about \$75,000.

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Kodachrome by J. E. Calloway





✦ **Falconry Lives On  
Among Buraimi's  
Desert Nobles**

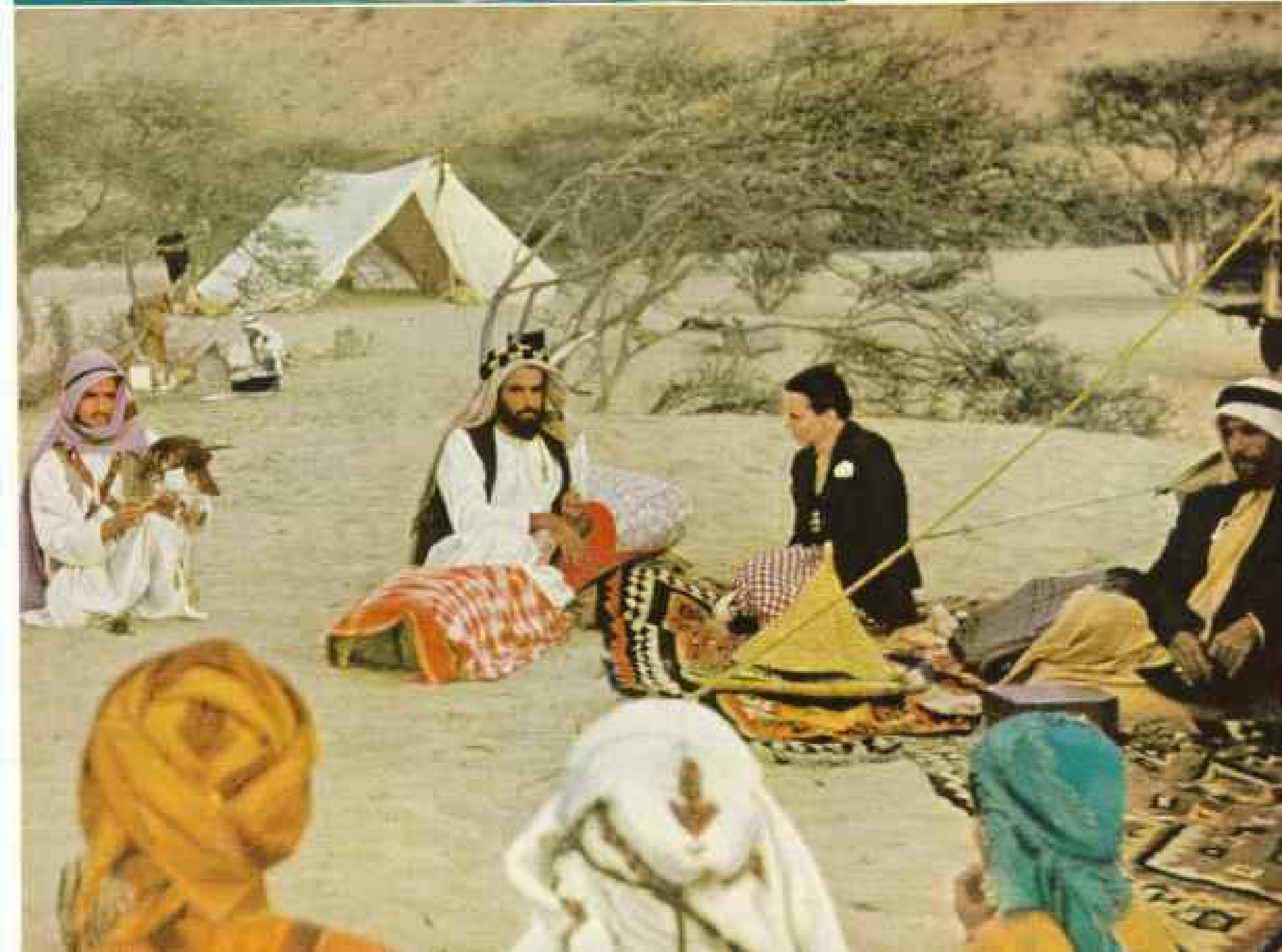
Falcons are still used throughout Arabia to hunt lesser bustards. An exceptional bird may kill as many as eight in a day. Petrol, favorite falcon of the Sheik of Kuwait, once brought down 11 on one hunt.

This sheik of Buraimi, camping near the coast of Oman, literally rolls out the carpet for visitors. Facing him, the wife of an American medical missionary occupies the place of honor on a rug. His falconers hold trained hunting hawks. With an eye to progress, the sheik has abandoned the nomads' traditional black goat-hair tent for Western-style canvas.

Buraimi oasis, farther inland, lies in disputed territory between Oman and Trucial Oman. In 1952 this isolated village became the subject of a discussion between Saudi Arabia and Great Britain.

© Kolutchman by Harold T. Green

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Ba'albek first as a huge temple in the distance, then as a giant city of worship with pillars more than 60 feet high (page 499). That night it seemed alive with shadows of the past. The planet Jupiter shone from the west into the sanctuary where once stood the golden image of Jupiter Heliopolitanus.

Our guide, Hidar, might have been a Phoenician seaman. The ancient heritage showed in his face, like profiles on Phoenician coins.

One morning I left my ship and flew again over the strange sand plain of eastern Arabia. The next day I made the spectacular flight from Dhahran to Tehran, capital of Iran.\* Departing by starlight, with the torches of the oil fields flaming beneath, we had the countless palms of Mesopotamia and the world's largest oil refinery at Abadan beneath us at dawn.

Now the Zagros Mountains rose ahead like a wall, with peaks nearly three miles high. These are not ordinary mountains gradually rising from valleys, but gaunt razorbacks squeezing together to crush light and life from the clefts.

#### Kanats Water Iran's Fields

After a night in which all the dogs in Iran seemed to be howling under my window, I started north by automobile from Tehran. On the way toward the Caspian I talked with men cleaning out an underground irrigation system, a *kanat*. Two men turned a creaking windlass, hoisting and dumping goat-skins filled with muck. Others worked 160 feet down in the earth, waist deep in icy water.

Flying to Tehran I had noticed the entrances to these *kanats*—rows of pits surrounded by earth mounds as if dug by giant prairie dogs (page 510). Usually privately owned, these ancient tunnels supply water for farms along the route. Sediment piles up in the deep channels, and they must be cleaned after a decade—or a generation, or a century, depending upon the rate of flow of the water.

The men talked proudly of their work. Theirs is a vital function: to see that the land gets water. They are paid from 60 cents to \$1.50 a day, depending on their skill.

"It is good work," said Hussein to the creak of the windlass. "Allah's sun and air are the wine of life. Our digging helps the land bear food."

Dropping from the mountains to the Caspian Sea, we passed many charcoal ovens.

These and the goat have helped denude the Middle East of its forests.

One charcoal worker stands out in my memory. Tough, free of stance and free of speech, he talked with conviction.

"We don't like the Russians," he told me. "We don't like the landlord, either. We want to be free to work and get ahead. Look at these rags. I work from 6 to 6 and don't earn enough to feed my wife and boy."

#### Caspian Shore Is Verdant

Most of Iran is arid, but not along the Caspian. Here the green land supports abundant agriculture. Even the dunes are carpeted back of a wide, shelving beach that gives free access to Iran for those who come by ship. Iran has only a token naval force here. Many Russian vessels are on the Caspian.

My memories of Iran surge with mountains: steep mountains, rugged mountains, some forested, others rock-bare. Ceaselessly we climbed and dropped between sky and earth, with Iran spread far below like an up-torn sea. From the cotton and rice farmers of the semitropical Caspian, where red and blond hair are common, we passed to the wild, dark mountaineers of Iran.†

Here nomad tribesmen of the Elburz Mountains were moving to the warmer north for the winter. Down from their fastnesses they flowed toward the Caspian and grass and life. They moved slowly, 10 or 20 miles a day, making long stops where they found good grass for their animals. Horses, camels, donkeys, sheep, and countless goats clogged the narrow road and overflowed onto the mountainside.

#### Animals Like a Living Tide

Chieftains rode small, wiry mounts. Their wives—at least the newer ones—also rode, bedecked with gay adornments. Chickens perched precariously on top of enormous bundles of tents, blankets, homespun grain sacks, and goatskins filled with curd. Others, especially women and children, walked with the animals. One sturdy lad of 6 carried a newborn kid draped about his neck.

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "We Lived in Turbulent Tehran," by Rebecca Shannon Cresson, November, 1953, and "Journey into Troubled Iran," by George W. Long, October, 1951.

† See "Mountain Tribes of Iran and Iraq," by Harold Lamb, NATIONAL GEOGRAPHIC MAGAZINE, March, 1946.

### Bahrain Urchins Besiege the Navy

Oil's sudden riches have brought rapid changes to this island in the Persian Gulf. Bahrain's ruler, Sir Salman bin Hamad al Khalifa, devotes most of his oil royalties to the welfare of his people. Schools, hospital facilities, and roads make his little domain one of the most progressive in Arabia.

These volunteer guides cluster around an American sailor ashore in Bahrain for the day. Their costumes show the impact of Western ways. Only one wears traditional desert dress; the others have changed to shorts and shirts.

✦ The Sultan of Masqat and Oman, accompanied by his brother Tarik (right), boards the flagship's barge for an official call. Lettering on the life buoy (lower right) is the United States Navy's abbreviation for Commander, Middle East Force.

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Illustrations by J. R. Galloway

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↑ **A Native Rowboat Carries the Author  
Ashore on the Trucial Oman Coast**

Wooden dowels secure the planks of this handmade craft. Captain Eller (left, in white shirt) sits amidship. With him are Capt. Robert Stroh, skipper of the *Valeour*, and (right) H. D. Michell, Great Britain's political officer for Trucial Oman.

↓ **Visitors with Paint Pot and Brush  
Sign Masqat's Craggy Guestbook**

Sailors for decades have left their ships' names on high cliffs ringing Masqat harbor. Here crew members from Captain Eller's flagship repaint in letters as high as themselves the name of *Ida de Luzon*, a warship captured by Admiral Dewey at Manila Bay (page 511).

John A. Winn, U. S. Navy, Official





### A Helicopter Whisks the Author from the Persian Gulf to a Conference in Bahrein

This air taxi, based on the survey ship *Maury*, was often called upon to winch Captain Eller up to the cabin with a harness which sailors call a "horse collar." Here the aircraft hovers above *Duxbury Bay*.

On the sharp curve of a pass two miles high, with the mountain dropping below us in misty depths, we came upon what seemed to me the largest flock in the world. Thousands of animals covered the mountain, dividing into a living tide to flow by us. Tribesmen in goat-skin hats scurried along the flanks.

A sense of urgency drove them on. One of the nomads pointed to 18,934-foot Demavend, snow crowned in the distance. "The Old One's hair grows long," he said.

Only one group, cradled in the heart of the mountains near Firuzkuh, appeared unhurried. A dozen black wool tents clustered together on a barren hillside. Each stood over a semi-permanent foundation of mortar. Shipshape interiors were divided into a large room, about 20 feet square, with smaller rooms partitioned off with cloth.

In the large room of one tent was a raised

platform, white and clean. Bright tribal rugs lay on it. A young mother, dark and falcon-like, alternately wove and tended a fair baby with hazel eyes and red hair dozing in a homespun hammock.

These wild, free spirits prize their Spartan life. "You in the cities are in the hands of men," one of the nomads told me, "but we are in the hands of God, and that is a better destiny."

### Trucial Coast Untouched by Progress

We descended from the sea of mountains. As the peaks dwindled in the distance, a lilac mist engulfed them. Centuries fell away. The amenities of Tehran seemed a thousand miles from the tents of Firuzkuh's nomads.

After conferences with the prime minister and our ambassador, I left Tehran over the west road that has guided conquerors through



↑ Liners and Dhows  
Drop Anchor in Aden,  
"Coal Hole of the East"

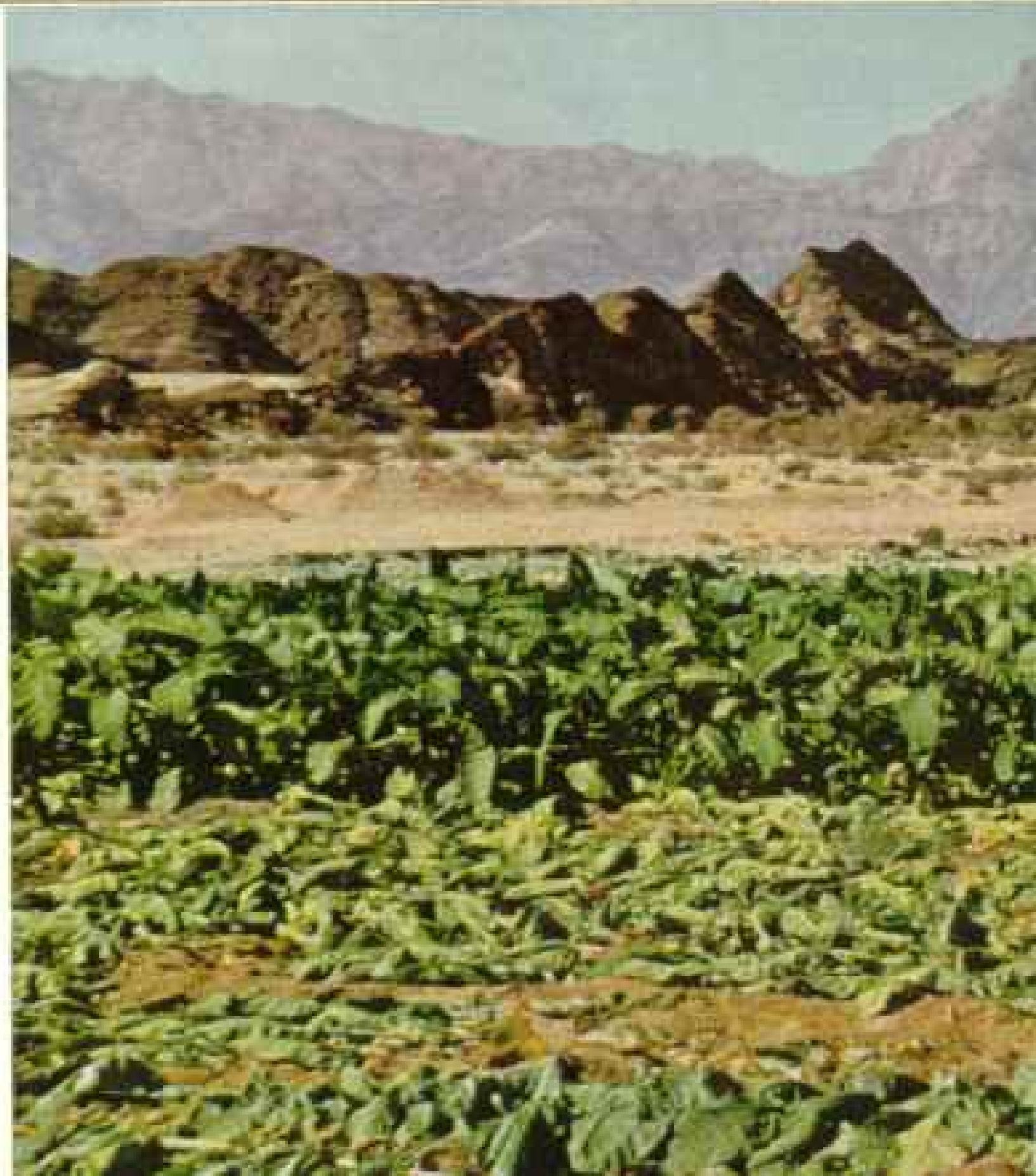
Guarding southern approaches leading to the Suez Canal, Aden has been a British colony since 1839. Its population includes Arabs, Pakistanis, Somalis, Hindus, and 500 Europeans. They live in one of the world's hottest cities.

Now an important oil fueling station, Aden served more than 4,000 ships in a recent year.

Here a walled Moslem cemetery (right) overlooks blocks of warehouses.

→ Tobacco is cultivated by hand in the Hajar district of Oman. Bedouins smoke the dried leaves in clay pipes with thimble-size bowls. An irrigation ditch (right) distributes water raised from wells by cattle power.

© National Geographic Society  
Kadachimoot by Karl S. Tuttle (top)  
and Harold T. Green







### A Yankee Sailor Ashore in Boom-town Bahrein Tries on Arab Costume

Merchants in Persian Gulf ports do a thriving business with souvenir outfits. This visitor models garments fit for a desert prince. His companion wears the insignia of a radioman second class.

the passes of Iran into Asia Minor, the heart of many empires.

From time to time we dipped into an equally remote past among the sheikdoms of Trucial Oman. These tribal states on the Arabian shore of the Persian Gulf consist of scattered oases punctuating enormous areas of sand and salt marsh. Two "capitals" persist in my memory—Sharja and Dibai.

I came first to Sharja by sea. That is the best way. Slowly the flagship eased to within three thousand yards of the shore, through reefs and shoals where the pearl divers burn out their lives (page 500).

At dusk, in freshly laundered whites, we approached the reef off the landing beach in a motorboat, then stepped into small, smelly rowboats. Two of us brought the gunwale down to the surface of the sea.

"Too big people!" Laughing, the cheerful

Arab boatman dug his oars into a wave, splashing our whites and nearly capsizing.

Two inches of water sloshed in the bottom. The smell of dead fish pervaded the hot, still air. Our good-natured gondolier laughed merrily when he "caught a crab" and drenched me in the process. Water splashed into the boat.

We grounded close to the sand dune that formed the shore. Husky fishermen carried us pickaback the rest of the way, with an admiring Arab audience kibitzing in the sand. We trudged through deep sand for half a mile, as night soothed the parched land.

A long, lagoonlike inlet forms Sharja's once busy harbor. Full darkness had come when we embarked to cross it in a larger and cleaner boat. A gentle breeze brushed our faces. The moon shone full, silhouetting the palms on the approaching shore. Lights



### Modern Science Rubs Shoulders with Age-old Techniques on the Persian Gulf

Chimneys of the Bahrain Petroleum Company's refinery dominate the coastline of Arabia's "island of oil." A catalytic cracking plant rises on the left. This Bahreini casts his net for small fish.

glowed in the two-story residency and a handful of other buildings, reflected like jewels in the water. The crew poled the boat forward in rhythmic movements, cleaving the waters without a sound.

Sharja by day lacks the charm of Sharja by moonlight. Squeezed between sand and sea, the oasis shrinks in the glare of Arabia's sun.

#### Arabian Venice Uses Water Taxis

To the southwest, in a bordering sheikdom, lies the fascinating Venice-like port of Dibai. Built on narrow arms of the sea, its multi-storied buildings look like marble palaces rising directly out of the waves.

Persian and Indian influences mix with Arab in these Persian Gulf ports. Asiatics and Africans of a dozen nationalities mingle in Dibai. Persian bakers tend their beehive ovens, slapping thin disks of dough against

the heated wall inside and stacking the crisp, plate-sized result amid dust and flies to await purchasers. Crews of Dibai's water taxis, the mingling of many races, reflect their pirate ancestry.

Around the cape from Sharja, on the Gulf of Oman, lies Masqat, with a long and stirring maritime career. Sultans of Masqat and Oman once ruled a sea empire from Zanzibar to Kuwait. The sultan still controls an edge of Pakistan on the peninsula of Gwadar.

In 1835 the United States ratified a treaty of amity and commerce with Masqat. It is still in effect. American trading ships, captained by adventurous young skippers, often stopped there in their quest for the spices and treasures of the Orient.

We steamed into Masqat harbor one bright morning. The town huddles against mountains which rise directly from the water.





### Rings of Earth Beside Green Fields Trace Iran's Deep Irrigation Tunnels

Man-made channels, called *kanatz*, carry water from the mountains to parched farmlands near Tehran. Vertical shafts serve as manholes when diggers clean or repair the tunnels.

Into the islands and cliffs jutting out from the coast on each side of the town to form the hourglass harbor, forts have been built so that natural rock and man-built walls blend completely.

In the last century sailors originated the custom of painting the name of their ship on these sheer cliffs that surround Masqat harbor. I picked out those of my current flagship and of the *Isla de Luzon*. We spent one rugged day climbing the cliff and repainting these two (page 504). The *Isla de Luzon* was captured at Manila Bay during the Spanish-American War and stopped at Masqat on her way to the United States.

Of all the places we visited, Masqat is least touched by modern influence. The sultan still maintains his barge of state with gaily decked boatmen wielding leaf-shaped oars. Tribesmen of the interior are inseparable from their rifles, and wear daggers in silver, J-shaped scabbards.

Returning to Bahrein, Arabia's oil island, I called on Sheik Sir Salman bin Hamed al Khalifa. Gracious, courteous, and dignified, he wore the mien of a good ruler on his face and the precepts in his heart.

#### Precepts of a Philosopher-prince

"A ruler," he said, "is the father of his people. He has duties to them; they have duties to him. He must give them good schools and hospitals, and a stable, peaceful government under which they can work honestly. They must give him loyalty and good conduct, as to a father."

Here is a philosopher-prince who puts his beliefs into practice. The results prove themselves.

Under this ruler of an ancient island filled with myriad grave mounds of forgotten peoples, tremendous progress has been made in bringing the benefits of modern civilization to the people. Good roads run through the mounds past the ruins of a 400-year-old fort from which the Portuguese once commanded these seas. Date gardens are lush and green.\*

Oil royalties have gone into schools and government hospitals, which ably supplement those of the Bahrein Petroleum Company and the Arabia Mission of the Dutch Reformed Church in America. From this mission Dr. and Mrs. Harold Storm and their colleagues have spread good in much of Arabia.

Some of Bahrein's springs well up in the

sea itself. Divers may fill their goatskin bags with sweet water in the midst of salt.

Tiny Kuwait, treeless and desert ringed, is nevertheless a land to which one wants often to return. Opportunity and duty brought me to this walled city at the head of the Persian Gulf by air from Iraq, again by desert trail through the disputed Neutral Territory between Saudi Arabia and Kuwait, and several times by sea.

#### Kuwait's Oil Pier Is World's Largest

Here in the desert by the edge of the sea is Burghan Field, noted throughout oildom for the fabulous thickness and richness of its oil-bearing sands. Kuwait's 150 wells tap reserves equal to about two-thirds those of the entire United States. A third of a billion barrels of oil annually go out of the little principality from the largest oil-loading pier in the world.†

Whenever I visited Kuwait I called on Sheik Abdullah as Salim as Subah. He, like his counterpart in Bahrein, is investing his royalties in the welfare of his people. On each visit I sat with British Col. H. R. P. Dickson on his veranda overlooking the forest of masts in the Kuwait dhow harbor.

I learned that Dickson understands and loves Arabs better than any other among the many wise and sincerely interested Europeans I came to know. Born in the East, suckled by an Arab woman, and considered a blood member of her tribe, each spring with his wife he abandons Kuwait to join Arab friends and become a nomad of the desert. Men as far apart in station as a camel driver in the Dahna sands and the late King Ibn Saud spoke of Colonel Dickson with respect.

#### Desert Recalls Biblical Scenes

In the Biblical land of Arabia, words from the Old Testament often came to mind. I understood "a shadow from the heat," after we stopped under a lone tree beside the sun-scorched Tuwaiq mountains.

Returning from the desert, we stopped in the old walled city of Hofuf to see Saud ibn Jiluwi's fine Arab steeds. We dined on the roof of his palace, and I took away as presents two soft-eyed gazelles with hoofs no

\* See "Bahrein: Port of Pearls and Petroleum," by Maynard Owen Williams, NATIONAL GEOGRAPHIC MAGAZINE, February, 1946.

† See "Boom Time in Kuwait," by Paul Edward Case, NATIONAL GEOGRAPHIC MAGAZINE, December, 1957.

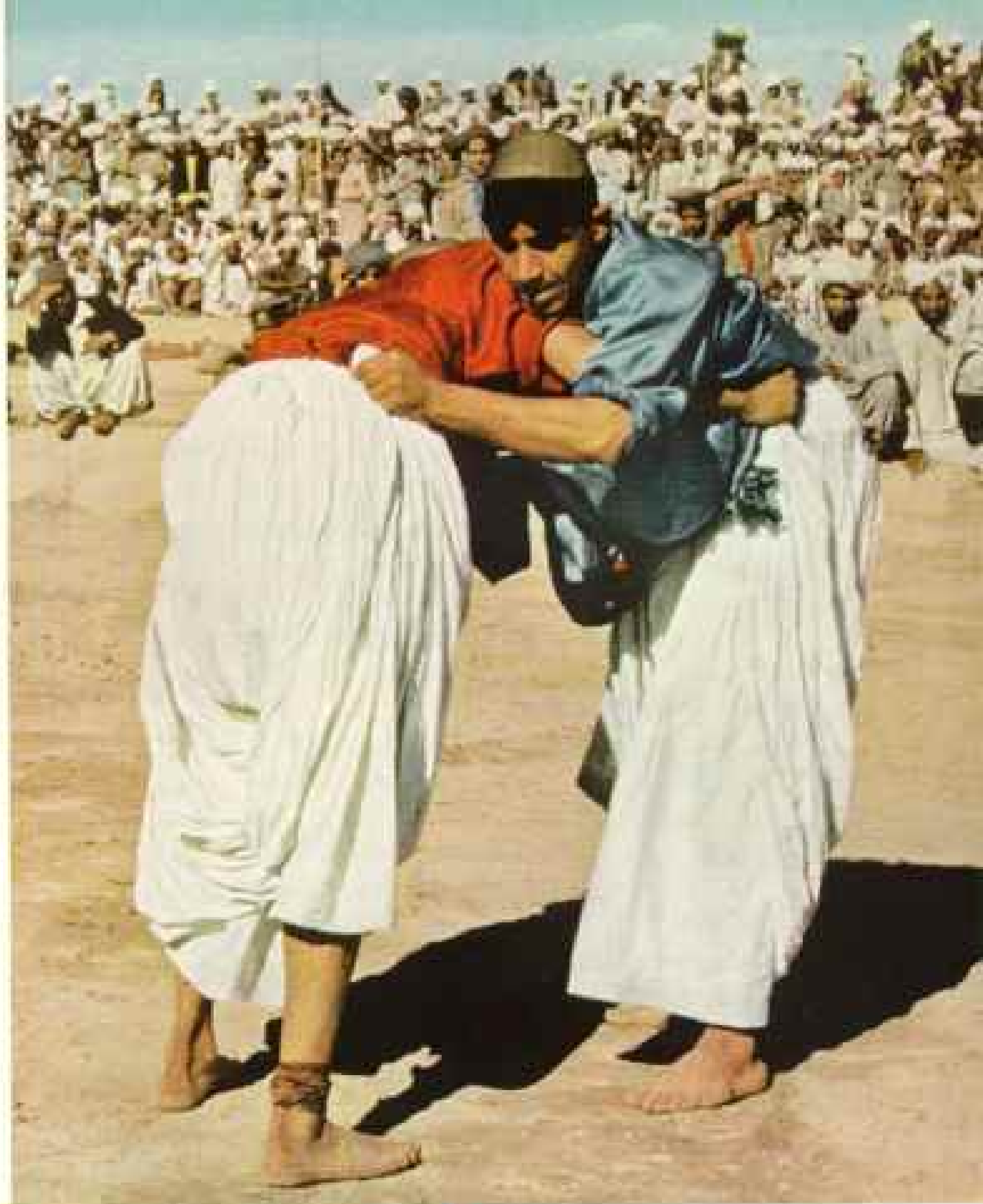
### Wrestlers Grip Cloth at a Pakistan Fair

Each February thousands of desert tribesmen journey to Sibi, winter capital of Baluchistan Agency, to attend its fair. Durbar Week is the occasion for races, exhibits, horse and stock judging, and general merrymaking.

The fair reaches its climax on Durbar Day, when nabobs, khans, chiefs, and subchiefs receive their grant from the government for keeping order among the tribesmen.

These wrestlers square off before a packed house; each takes a firm grip on his opponent's ample trousers. During the bout they circle and jump like gamecocks. Both knees and one hand must touch the ground to be counted as a fall.

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### Brahui Tribesmen Seldom Go Unarmed

This solemn youngster, perhaps 10 years old, shoulders a silver-decorated *jezail*, the distinctive muzzle-loading gun of Baluchistan.

Many Brahui migrants winter near Sibi. At the first sign of warm weather they trek as far as 200 miles north and west with their livestock to summer pastures high above Quetta. They load every possession, including chickens, furniture, and children, onto camels and donkeys. At night the women grind flour for flat unleavened chapatties baked over camel-dung fires.

Baluchistan is a melting pot. Its tribes represent Iranian, Turkish, Indian, Arab, Mongol, and Dravidian stocks.

→ Bunder boats serve as water taxis in Karachi harbor. This one flies Pakistan's green-and-white flag.

Illustrations by Joan and Frank Hill,  
National Geographic Staff



larger than walnuts. A friend still keeps them in Arabia for me.

One of the highlights of my tour east of Suez was a visit with Adm. Robert B. Carney, soon to be NATO southern commander, to the court of Ibn Saud, Arabia's warrior king. In Riyadh, the old monarch's desert retreat, we were given rooms in the guest palace which looked out on a sandy interior court.\*

Time zones exist for civilizations anxious about time and no longer intimate with sand and sun. Arab time follows the sun. Prayers follow sunset, 12 o'clock in Arabia wherever you are.

At 5 p.m. our time, 10:35 to the Arabs, we called on the king in his long, richly furnished audience hall. The conversation naturally turned to the Navy.

"I like the Navy," said Ibn Saud, his long face lighting up. "I rode in one of your ships to Great Bitter Lake to see President Roosevelt. He was a great man and good friend of Saudi Arabia."

"And of the Navy, for he understood its value to our country," added Admiral Carney.

#### Navy the Bedouin of the Sea

"Yes," said the king. "A navy keeps the enemy far away. It destroys him before he can come to capture your cities." His damaged eye seemed to glint with the spark of war. "The navy loves freedom. It is the Bedouin of the sea."

In the evening we dined with the king and his retinue. A dozen sheep, roasted whole, were spaced down the long table on mountains of rice. Filling the spaces between were platters of meat balls, salads, saffron rice, tomatoes, whole chickens, okra, and towering piles of sweet cakes. The chicken and sheep were especially well cooked. I noticed that the king ate principally bread dipped in broth.

Half through the meal, at the king's direction, servants brought sour goat's milk. He watched our reaction to its taste.

"Doctors claim this is good for the health, especially the belly," he said. "This is not true. God alone gives health."

"Maybe he gives goat's milk to man to give him health," one of us ventured.

Several Arabs at the feast laughed. The king smiled.

"No," he persisted in his thought. "It is ordained. Six months before a child is born, an angel comes from the Lord and

touches the back of his neck. This determines his life—the length of his days, the quality of his achievements, or his crimes. Nothing thereafter will change anything.

"All comes as God wills. This is the truth and all men must know it."

#### "Without a Family a Man Is Bankrupt"

After dinner we adjourned to the audience hall. The king was in high humor. One of his younger sons, perhaps number 30 in seniority, brought in a grandson, Feisal, aged one-and-a-half. Ibn Saud kissed and fondled him and delighted in making the baby do tricks with his hands. The king was pleased beyond measure when the handsome child, every inch a prince, held out his arms to Admiral Carney and stayed with him for a moment.

"Do you let your staff go home to their families periodically?" the king asked Admiral Carney.

"Yes. Many of them have their families with them even in foreign lands."

"That is good. If it were possible I would not be away from my family one day. God made the family to be together. Without a family a man is bankrupt. Nothing else that a man has matters; if he has a family, he needs nothing else."

The United States lost a firm friend last November when the old king died at the age of 73. He was succeeded by his 48-year-old son Saud ibn Abdul Aziz.

#### Saudi Kingdom "Floats" on Oil

The day after our visit we flew to Dhahran, to talk with Fred Davies and Floyd Ohliger, directing figures of the Arabian American Oil Company here where oil men have made the desert bloom. Overcoming the power of sand and sun, they have opened up for the hungry machines of the West the largest known reservoirs of oil in the world. The desert almost literally floats on a vast pool of oil.

In the middle of the night Admiral Carney flew toward the Mediterranean. The lights of his plane disappeared over Arabia. I sailed southward into the empty waters between Africa and India, filled with increasing understanding that here in the Middle East may be shaped again in our time the destiny of the world.

\* See "Guest in Saudi Arabia," by Maynard Owen Williams, NATIONAL GEOGRAPHIC MAGAZINE, October, 1945.



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Illustrations by J. E. Calloway

↑ **An Indian Officer Samples American Cooking: Bombay**

The turbaned, bearded representative of the Indian armed forces enjoys a buffet supper in the wardroom of the Middle East Command flagship. Behind him an Indian aide chats with a U. S. naval officer.

↓ **Turtle Soup Comes Aboard "on the Hoof"**

In warm Middle East waters fishing is a primary diversion for officers and men of the Navy. Here in the Persian Gulf, crew members haul a sea turtle to the deck. Barnacles encrust the reptile's shell.



← **Hindu Celebrants  
Dance on Elephants  
in Madras State**

India's Malabar district celebrates the gathering of crops with ceremonial dancing, music, and food offerings to gods and goddesses. Richly caparisoned elephants, borrowed from temples or rented from landowners, enliven the spectacle. These dancers wave yak-tail whisks and feather fans.

Illustration by Fraser Wickham

↓ **Indian Mourners Ride  
an American "Duck"**

Hindu custom requires that remains of the dead be cast into a flowing stream. Here at Allahabad an amphibious truck of World War II carries the ashes of Srimati Sarojini Naidu, Nationalist leader, poet, and feminist pioneer, to the junction of the Jumna and Ganges Rivers.

A bearded Sikh drives the vehicle, and household servants of the deceased cling to its side. A white-gowned Brahman priest chants sacred texts beside the bier.

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↑ **This Hindu Priest  
Begs in Style**

Some Hindus renounce worldly values, distribute their possessions to the poor, and become mendicants.

Horizontal marks on foreheads identify this group as followers of Siva. The orange-robed priest collects alms along a road near the port of Cochin, in Travancore-Cochin State, southern India. Partly shaded by a sequined parasol, he holds a dish for gifts of food and a wand strung with blossoms. A sacred cord suspended from the left shoulder distinguishes him as a Brahman, highest of India's castes.

Each person in the barefoot procession plays a part. The tall follower carries a plate of rice flour for benedictions. Others bear a conch trumpet, an alms bowl, and a vessel containing milk or liquid butter. One young acolyte (right) dangles a metal lamp.

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©Kodachromes by Peter Wilkins

### Stevedores Land Cargo in the Surf at Pondichéry, Capital of French India

As reminders of the long struggle between European nations for control of India, four settlements along the coast still fly the French Tricolor. Pondichéry, most populous of the four, was purchased in 1672 from the ruler of Bijapur, and later captured by the Dutch and four times by the British. In 1940 Pondichéry declared for the Free French and so escaped occupation by the Allies. Another French colony, 4-square-mile Chandernagore, was transferred to India in 1950. Old French and British prints show similar beach scenes of the late 18th and early 19th centuries.





**Three-ton Elephants Bathe in Ceylon's Mahaweli Ganga as Mahouts Rest Aboard**

The animals trumpeted happily at the smell of the river, and wallowed and splashed like babies in a bath. After a hard day's work they delighted in a rubdown with a coarse brush.



**These Docile Beasts Were Captured, Tamed, and Trained to Work**

Elephants seldom breed in captivity, so replacements must come from Ceylon's forests. Hunters trap entire herds by driving them into stout stockades. Only rogues may be shot without special permission.



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Kolchoussa by K. D. Mathie

↑ **Rugby Has Followed Britons  
Around the World: Colombo, Ceylon**

The game is similar to American football; chief differences are that rugby bars substitution, forward passes, and blocking, and allows continuous play. The squads line up for the start of the Ceylon final.

↓ **Kandy's Perahera Procession  
Preserves Ancient Pageantry**

Each August Ceylon's most precious relic, the tooth of Buddha, is taken from its temple and paraded through the streets at night. These dancers whirl in the glare of coconut-oil braziers.



## Songsters Reveal Fascinating Traits to a Canadian Bird Lover

BY HANCE ROY IVOR

VISITORS to my home near Erindale, Ontario, invariably are astonished, almost incredulous, when bluebirds, rose-breasted grosbeaks, wood thrushes, and other native birds come swiftly from the treetops, the grapevine posts, seemingly from nowhere at times, to alight on my shoulders and hands.

For 22 years it has been my privilege to carry on an intimate study of birds with such trustful ones as subjects.\*

This infinitely rewarding enterprise was born one day in 1932 when I found a baby blue jay on the ground. Out of his nest a day too soon, he was unable to fly and in danger from straying cats. I picked him up and put him in a cage which I placed inside my bedroom window. His parents found him there and fed him through the bars. I fed him, too, and they watched. Then suddenly they left, and I had a foundling on my hands.

**Birds Called In at Night**

Thus began my songbird observatories, which through the years have enabled me to learn the entrancing and perplexing ways of hundreds of birds of many species. Many of the birds I have raised by hand have been orphans like that first blue jay.

If full confidence is to be established, most species of birds must be adopted as nestlings, usually at an age of six to eight days, before fear has developed. This means taking the place of their parents and requires great patience and care if the little ones are to be properly fed and kept warm.

Most visitors are surprised at the amount of freedom given observatory birds after they have come to accept me as their foster parent.

Birds which have mated in the breeding observatory have daytime liberty while incubating and full-time liberty while rearing young. Since many nest twice, this means they lead a fully natural life for at least six weeks to three months a year.

Some birds, such as blue jays, have considerably more freedom, as much as eight months of daytime liberty each year. Non-nesters, except blue jays, usually are not given liberty. All birds are shut in early in the evening.

How do I get them back at night? I often merely call their names, though I confess this

is not always as easy as it sounds. A good example is the case of Pet, a willful blue jay.

Dick, Uno, and Lady, three of my blue jays, responded readily to their names. But not Pet, Dick's mate; she had an entirely different disposition. I could call "Pet, Pet, come here," until I was exasperated. She just stood there and looked at me. She was quite willing to go to roost—when it suited her.

One evening I waited outside the observatory. Dick and Uno and Lady had come in. Pet was in one of her stubborn moods; I called and coaxed, but she would not come. I threw her favorite food, raw peanuts, through the door, thinking she would go in after it. She merely fluffed her feathers.

I was in a hurry that evening and extremely out of patience. "Pet, you stubborn devil," I called, "come in." Dick was on my wrist again; unconsciously I turned to him and said, "Dick, call Pet." To my astonishment Dick uttered a call. Pet answered and flew in.

From that time, when she refused to go in, I told Dick to call her, and he did. It seems incredible and it may have been coincidence.

**Baby Bluebird Becomes Foster Feeder**

My first bluebird was an 8-day-old nestling. What a shy baby she was at first! She crouched and refused to open that beautiful yellow mouth for the food she was offered.

Gently I held her in the cup of my hand and waved a feeding stick, loaded with food, back and forth before her eyes. Slowly the little bill opened, wider and wider. A morsel of food was placed deep in her throat. Quickly her shyness disappeared; it must have been swallowed with that food.

For a bird to come to a human hand, rest on it, and take food from it shows the height of

\* As a student of wildlife, Mr. Ivor was granted a special permit by Canadian authorities for the confinement of birds in his observatories. Normally the caging of migratory birds is prohibited in both Canada and the United States under the Migratory Bird Treaty of 1916.

All bird lovers will be interested in the 328-page book *Stalking Birds with Color Camera*, by Dr. Arthur A. Allen, noted Cornell ornithologist and National Geographic author, edited by Gilbert Grosvenor and published by the National Geographic Society (\$7.50 in United States and Possessions; elsewhere, \$7.75 in U. S. funds. Postpaid). Illustrations include 131 from natural-color photographs.

confidence. Even with very tame birds, the slightest movement of the hand causes instant alertness. The reader can guess how pleased I was when finally this little nestling hopped into my hand, crouched down in the palm, and went to sleep, her head for the first time tucked into her feathers. Aye, she was indeed a bonnie baby. What else could we name her but Bonnie?

About mid-June the nursery was taxed by the addition of three blue jays, three bobolinks, three cardinals, two Baltimore orioles, one cowbird, three wood thrushes, and three veeries. None was more than 10 days old.

All clamored for food from dawn to dark. And Bonnie, even though she was now nearly six weeks old and able to help herself, still coaxed me to feed her. When she saw me take up the food stick, she opened wide for a tidbit.

Then, as I began to feed the other nestlings, a strange thing happened.

Bonnie seemed to watch me curiously and immediately became interested. When she saw the food stick dipped into the jar, she flew to my hand expectantly. Yet, when its contents were given to another, she did not appear to be disappointed.

Something seemed to be working in that little head. Perhaps it was the inception of parental feeling, which appears to take place so early in the life of some bluebirds.

At any rate, this bird only six weeks old accepted the food offered her and, instead of swallowing it herself, hopped down, first to one nestling and then to another, and popped it into the waiting mouth.

Now I had an assistant. With so many mouths to feed, I surely needed one.

#### Little Blue Takes a Mate

The shyest baby bluebird ever to take up residence in the observatory was Little Blue (page 529). Usually an hour or so of gentle coaxing will overcome the natural reluctance of a bluebird nestling to accept food. It took three days to get Little Blue to open his bill. Even when he accepted me as his foster parent and gave me his full confidence, he would crouch deep in the nest I had provided or in my hand if another person entered the room. By spring, however, he accepted other people as readily as he did me.

At mating time he and Josie were given a large nesting compartment in the summer observatory. When the nest box was put in

their compartment, the pair became more animated than one unfamiliar with these birds could believe. With excited twitters interspersed with song from Little Blue, they seemed to talk over the suitability of the box.

May we not infer something akin to a language? Birds have more vocal expressions than those we usually hear in the wild. Their kindred react to these notes, and some of them are recognized, too, by other songbirds. For instance, alarm notes uttered by a bluebird are instantly understood and acted upon by all the other species in the observatory.

#### Even Bluebirds Have Their Feuds

Outside the nesting compartment, in the center flight enclosure with the other unmated birds, were Josie's two one-year-old sons. I often wondered how the sons knew there were babies in their mother's nest box. (There were five.) They seemed to know this, for both began flying against the wire partition, clinging there and showing every evidence of excitement.

This action intensified an enmity of which I had had some hint earlier. Little Blue, I had noticed, often chased the younger of these brothers off a food dish, a perch, or a bath. He seemed to show a decided dislike for him and never allowed him to perch near by.

Wholly different was his reaction to the older brother. To him the greatest friendliness was shown. Little Blue even roosted close beside him.

Now I noticed that when the younger brother flew to the wire, Little Blue darted at him viciously. The day after the last of the five chicks had hatched, when I entered the compartment to refill the bath, Little Blue flew over my shoulder and straight at the hated one. I had to separate the two and carry Little Blue back to his home. There is no question of what would have happened had I not interfered.

Little Blue had yet to meet his nemesis. This was another Bonnie, a male, unlike the motherly little bird of the same name.

Bonnie, Jr., came to me when he was three weeks old. Mrs. Harold Alsdorf rescued him in Wallkill, New York, and she and her husband drove him 425 miles to safety in my observatory. There is no doubt in my mind that Bonnie missed his first human parent, for a time at least. But he soon attached himself to me quite firmly.

Bonnie had to help with everything I did.

When I tacked up weather strip, for example, I would have to hold him while I drove a tack; otherwise he would pull it before I had a chance to drive it in. Once the tack was driven, he pecked away at the weather strip. He always delayed my work; yet I could not bring myself to stop his amusing pranks.

Sometimes I wondered if what we call jealousy was not a trait that was evinced in him. If a bird, even a much larger one such as a grosbeak, alighted on my shoulder, Bonnie would almost invariably drive him off.

The first spring Bonnie showed no desire to mate. He wanted a nest built, all right, but only if I would build it. To me, and not to any of his kind, he brought his favorite worm or raisin. One would have thought this attachment to me, inexplicable as it was, should have ended when nesting season was over, but not at all. All summer long and through the winter I was the one to whom he brought his favors.

If it was a meal worm, he hammered it until, in his estimation, it was fit for me. If it was a raisin, it must be broken and made soft. Holding this tidbit in his bill, he flew around the observatory, hunting me and calling with that peculiar call a bluebird uses when he informs his mate or young that he has a treat.

Nothing, however, smoothed his relationship with 8-year-old Little



### The Author Entertains His Feathered Guests

To study the behavior of birds, Hance Roy Ivor keeps this screened enclosure lighted and oil-heated in winter. Here a bluebird shows its trust by coming to his hand. White dove and mourning dove perch above his head. Waxwings, orioles, thrushes, bluebirds, cowbirds, European blackbirds, and robins, including two albinos, feed at his feet. Mr. Ivor, a retired businessman, gives his nesting birds part-time liberty to hunt food.



Blue. During the winter their spats were mild, and neither was able to dominate the other. But as spring and nesting time drew near, the enmity grew serious.

Finally one day a furious battle raged, and Bonnie came off the victor. Little Blue flew to my shoulder, and Bonnie promptly knocked him off. Then he fled to the far end of the observatory, with Bonnie a scant foot behind, and straight back to me. He alighted under my chin, and as I put my hand up he crept into it.

I had heard of birds flying to human beings for safety, but until then I had hesitated to accept such statements as facts.

To quiet Little Blue's fast-beating heart, I took him into the house and carried him from room to room for a while, at the same time stroking his head and back. He was content.

#### Lady Won by a Wild Jay

Usually when a bird is mastered, fear is so great he can only follow blind instinct and try to hide in some inconspicuous place. Why did Little Blue come to me for protection instead of hiding? Was there some semblance of thought as to where real safety lay?

It is my suggestion that, although most of the actions of birds are ruled by instinct, many of our songbirds have the capacity for more than a glimmer of intelligence.

How else could we understand the behavior of Uno and Lady? Uno was the acme of all that a jay should be, but Lady showed no signs of accepting him. Uno posed before Lady, showed off his beautiful plumage, attempted to give her food and nesting material. Still she resisted.

At last, however, she gave in. She chose a site, listlessly took the twigs Uno brought, and started a nest. It grew very slowly, even though Uno tried to help.

Then one day, before the nest was half completed, a visitor arrived, a friend with a motion-picture camera. Here was an opportunity to record the fact that these birds were not prisoners—that they actually had complete liberty at times. I felt that, since the nest was well under way, Lady would not abandon it. So she was let out to pose among the trees.

Odd that we had chosen that very moment! A wild blue jay appeared. Often that day I called, "Lady, Lady," but she did not answer as she always had in the past. She was far away.

And Uno? May I use the word "distracted"? No other seems to fit. He called almost incessantly after Lady went away, for nearly five long days. Often Uno went to the nest and crouched in it. Sometimes he carried a twig. Usually, however, he was near the wire, gazing toward the trees.

On the fifth day after Lady had left, a neighbor, walking down the winding lane, called loudly, "Here is your Ladybird." Lady was coming home. But she was bringing her mate back with her.

Uno's distress was so great, my desire to have Lady with us so strong, that I allowed my human judgment to decide the course of events.

"Lady," I called. She swooped to my shoulder and rode there, on into the observatory.

Uno seemed beside himself. He danced and pirouetted, flew to the nest, and picked up twigs, apparently in great excitement.

And Lady? After these many years I can still remember her frantic calls to her wild mate. I can still see the violent fight against the enclosing wire, the open, panting bill as she exhausted herself in her efforts to join the one she had chosen. Not again would I take upon myself such a decision.

The showing of attachment is not often seen among most songbirds, except when they are young and during breeding season. Among monogamous birds it is more evident, however. Even in winter when mating instinct is dimmest, the blue jay Uno showed gentle attachment to Lady, and this too we saw at times between Redbird, the cardinal, and his mate.

#### Deedee Called for His Peanut

In birds, as in ourselves, I suppose memory may be good, bad, or indifferent. Yet to say that a bird's memory is very limited is not in accordance with my observations.

One day as I sat watching a chickadee from my living-room window, I held half a peanut up to the glass. The bird came up close and pecked hard on the glass in a vain effort to secure the treat. Then I opened the door, called, and held out my hand half full of kernels.

Several times during the following day I repeated this teasing performance, to learn how long it would take him to realize that a peanut behind glass was not his for the taking.

Another day as I stood near a window I heard sharp taps on the glass. There was



### Coming In, a Bluebird Extends Landing Gear and Spreads Feather Brakes

This Kodachrome introduces a series revealing the eye-baffling details of a bird's flight. High-speed flash photography, freezing motion, shows feather adjustment as if on a mounted specimen. The author reared this bird with some 90 others in his two songbird observatories near Erindale, Ontario.

Deedee clinging close. I held up a peanut, and he rapped hard again.

Could it be that he was signaling, I asked myself, or was he merely pecking at the glass in excitement? Most birds do not use mechanical signals, or so we are told.

I opened a window and gave Deedee his treat. Off he flew, but in a short time he was back and tapping again. As he tired of hiding the peanuts, he wandered off into the woods. But each time he came back to the window he tapped.

Like all other chickadees, he was so persistent that I tired of the game. But the more I disregarded his signals, the more often and the harder he tapped. If I still overlooked his demands and went to the kitchen at the back of the house, the same tappety-tap-tap greeted me there. No matter which room I entered, in time he would find me and tap.

He was too busy all summer to care about peanuts, and, although his mate's nest was close by, he never tapped out his signal again until fall. Then I found that his memory was long. Spring and summer vacation had not affected in the least the knowledge that

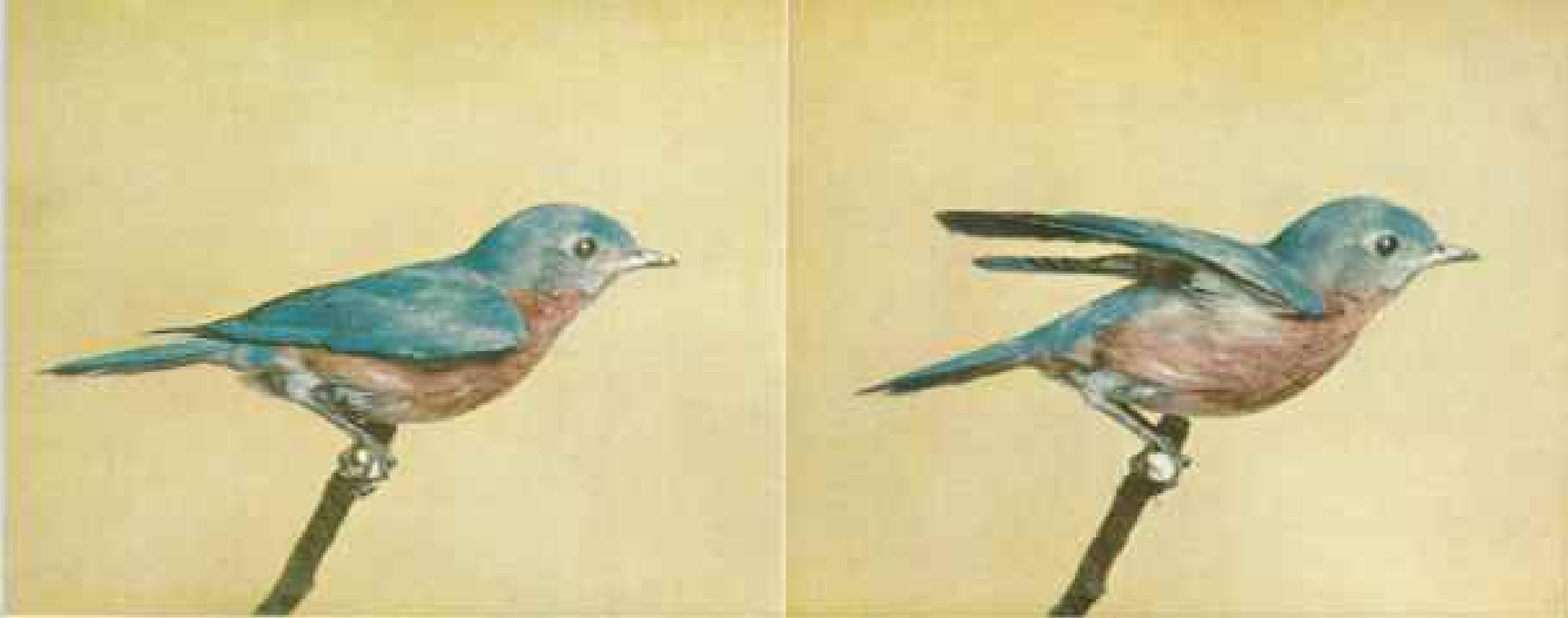
tapping on glass was a sure way of attracting attention.

Nara, the rose-breasted grosbeak, was another bird of good memory. She had finished her nest and laid her first egg when I gave her liberty. She came back to her home, but was unable to find the gate into her compartment. Flying around and around, she was seized by such panic that she would not accept help from either me or her mate. For nearly three days she tried to get in. Then she disappeared.

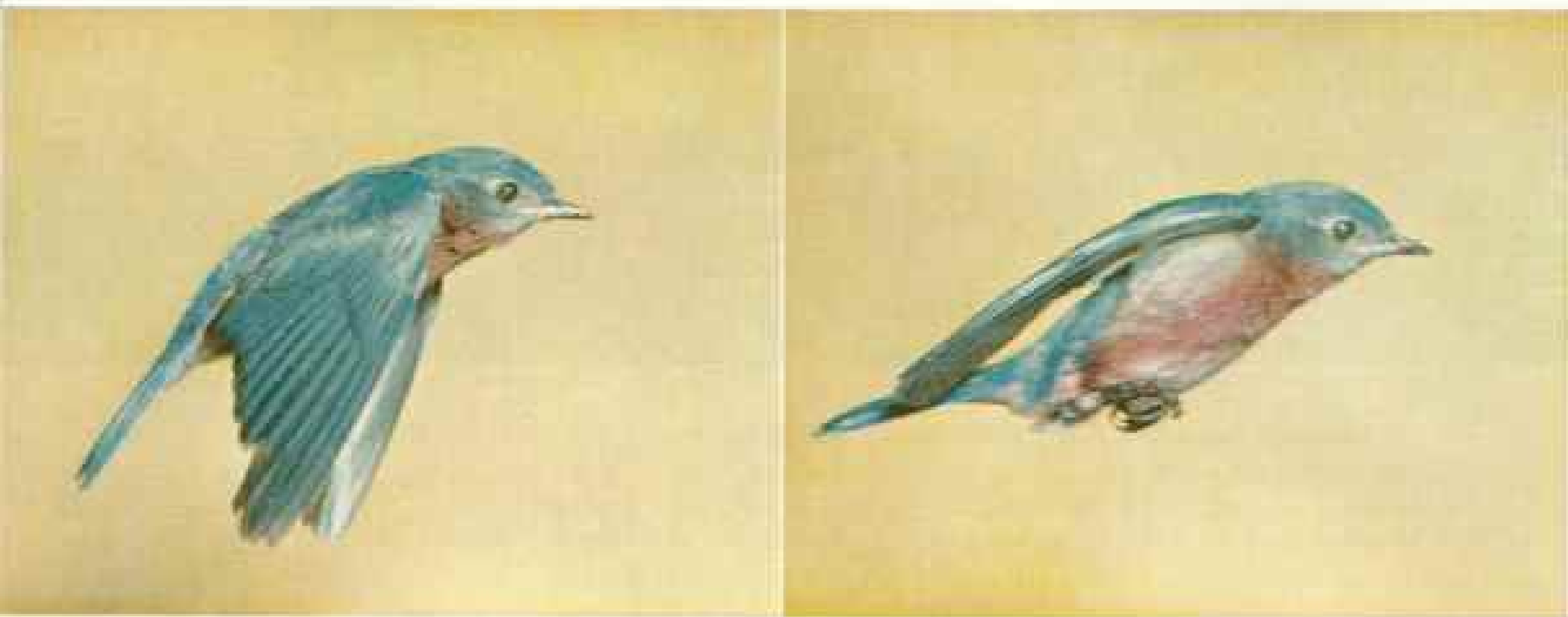
Some three months later, when migrating grosbeaks began to pass through, she returned. At first when I saw a female grosbeak trying to get into the observatory, I did not know her. But her actions were so puzzling that suddenly the thought came to me that she must be Nara.

She let me approach her and, when I opened the door, she entered. First she went to the well-remembered bathing pan and then to the seed cups.

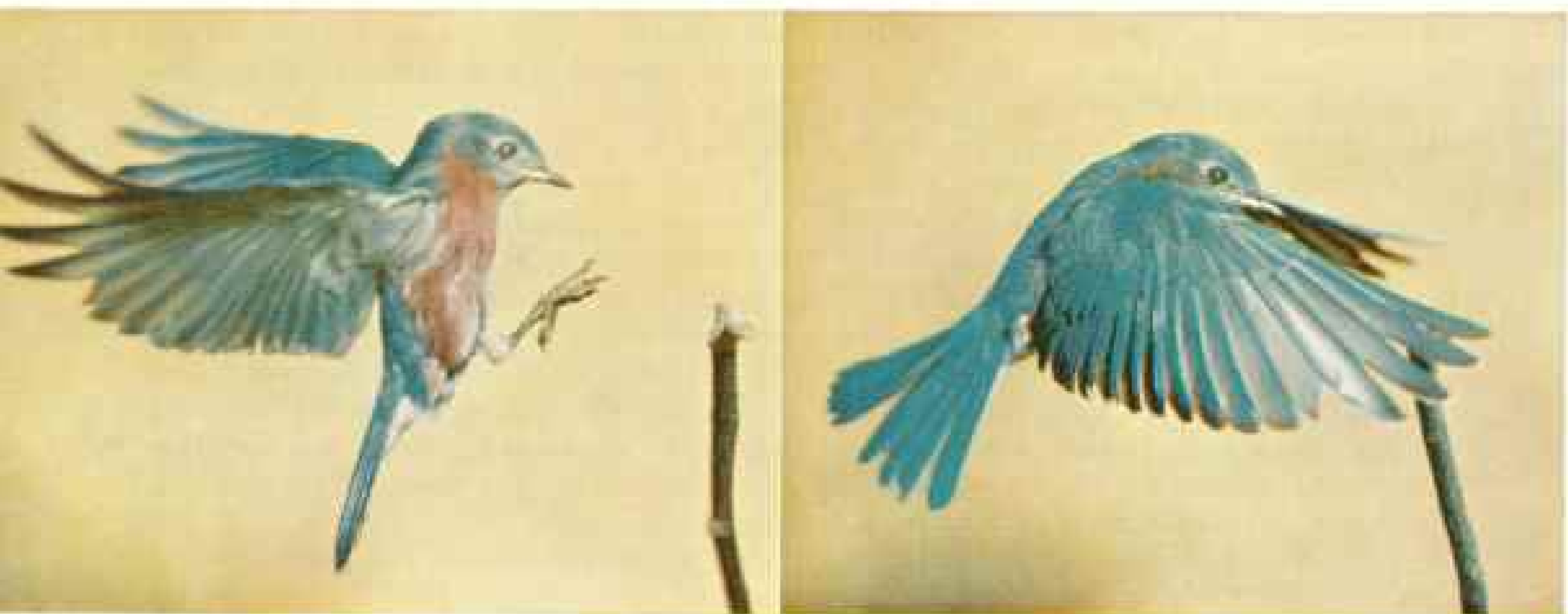
Like most of my birds, Nara stayed with me for many years. And, like the others, she remained a close and trusting friend, one to be intimately known and lastingly enjoyed.



1. Bluebird on His Perch Sights a Lure Four Feet Distant. Wings Start to Rise



3. Head Up, Tail Down, Legs Tucked In, the Little Flyer Strives to Level Off



5. Eyes Focus on the Stick; Feet Take Aim. The Body Rears Upright for Balance

Appearances to the contrary, these are not single frames cut from a movie, but still pictures taken for sharper images. Each picture required a separate bird flight and prolonged trial-and-error practice by Mr. Ivor and photographer Bernard Corby. They could not have solved the problem without the electronic photoflash, whose 1/5000-second exposures stopped motion as if an invisible hand had paralyzed the bird in mid-air. Mr. Corby, who operated the camera, had only a fraction of a second to judge the bird's approach into the field of the →



2. Lifting Pinions to the Fullest, He Takes Off on the Downbeat, Legs Extended



4. Approaching the Second Perch, He Lets Down Legs. Tail Fans Out as a Brake



6. Feathers Pivot to Let Air Through the Wings. Springy Legs Absorb Landing Shock

lens 22 inches distant, and he had to allow for the interval between the brain's command and the finger's response on the button. The slightest miscalculation ruined a film.

To the casual eye, the pictures seem to show a single bird. Actually the author used two of his bluebirds, Little Blue and Bonnie, Jr., to save both from fatigue and from gorging on too many tidbit rewards (next page). He chose the bluebirds because their plumage was almost identical. A leg band readily identifies Bonnie.



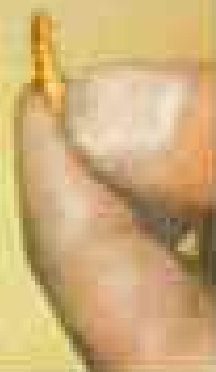
### Bonnie Accepts His Reward, a Worm

In conducting their experiments, author and photographer set up two perches four feet apart. Mr. Ivor, proffering a meal worm, lured the subject to the first perch, then concealed the reward. A moment later Mr. Corby, standing behind the second perch, extended another worm, leaving his left hand free to press the switch button.

First conducted in an observatory, the tests had to be moved to a store-room because other birds proved too meddlesome, spoiling many a picture.

Handsome blue jays, orioles, grosbeaks, or cardinals would have been as acceptable color-wise as the bluebirds, but they were too big to fit into the lens's limit of coverage at 22 inches.

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### He Flies Away to Eat in Privacy

Bonnie, Jr., now six years old, is a native Yankee. Fallen from his nest as a fledgling, he was rescued by Mrs. Harold Alsdorf of Wallkill, New York, and driven to the author's home in Canada.

Little Blue lived with the author for 10 years. Recently he died peacefully on his perch.

For reasons unfathomed by Mr. Ivor, the two lovely birds did not get along. If left together, they usually lost no time starting a scrap.

Kodachromes by Bernard Curry  
and Hanses Roy Ivor



Capri's Next-door Neighbor Offers Warm Italian Hospitality,  
Natural Charm—and Baby Octopus Sandwiches

BY DOROTHEA AND STUART E. JONES

*With Illustrations from Photographs by the Authors*

SUDDENLY, out of the Mediterranean haze, a green island burst upon us, as if by a conjurer's trick. From the deck of the *Independence* we were watching the growing bulk of Vesuvius (Vesuvio), beyond the smog of Naples, and searching for a more famous island—Capri.

This unexpected island looked most appealing. Graceful umbrella pines sheltered white beaches spread between bold headlands. Gaunt ruins of a castle perched high off the craggy eastern shore. Villages lay scattered along the north coast, and people moved among pink and ochre houses.

"That," I said in reply to my wife's question, "is Ischia."

"It looks enchanting!" said Dorothea. "Why don't we visit it?"

"Why not?" I said. I had never set foot there, but I remembered many glimpses of Ischia from the air during World War II. Then the island was a British armed services rest camp, while near-by Capri served the same purpose for Americans.

This seemed a good opportunity to check on an English friend's statement that Ischia, nearly five times bigger than Capri, was "five times more beautiful."

#### Windjammers Confuse Visitors

A few days later Dorothea and I sailed from Naples (Napoli) on the yachtlike Ischia ferry (map, page 536). Our tiny FIAT station wagon followed on a small freighter.

The ferry stopped first at Procida, a small, low-lying island with a prison frowning upon fishermen's pastel-tinted houses (page 545). Then we passed tiny Vivara, arching out of the sea like a dolphin's back. Dead ahead lay Ischia.

From several miles at sea tall masts and spidery rigging were visible. Then, as we sailed through a bottleneck entrance into Porto d'Ischia's circular harbor, two old windjammers came into view. They were propped up on stocks in a shipyard (page 537).

These were no ordinary ships. They had

high poop decks, bristling gun ports, and richly carved sterncastles. Nor were they decaying relics; they appeared beautifully preserved. Were we gliding back into the 18th century, an age of sail?

Several days later we learned, with some disillusionment, that Hollywood ingenuity had put the ships there. Our informant was Ugo Morelli, a young Italian who became our friend, guide, and interpreter.

"You think Ischia is a nice place now?" Ugo demanded. "Perhaps so. For me, it is too quiet. I liked it better when Warner Brothers, the cinema people, were here."

#### Ischia Entertains a Pirate

Ugo explained that Warner Brothers in 1951 staged a friendly invasion which Ischia will long remember. The mission: to make a movie starring Burt Lancaster as an 18th-century pirate. Hundreds of islanders served as extras and performed countless other small chores. The visitors paid liberal wages. Business boomed.

Many scenes were shot aboard the two ships which had so amazed us when we arrived. One represented a 28-gun Spanish galleon and the other a pirate's vessel.

Ischia's experience as an outpost of Hollywood lasted four frenzied months. After that, the island lapsed into its somnolent old ways; sea and soil, and the things that come from them, again became primary concerns of life.

Our friend Ugo's intelligence and command of English won him a job as a sort of purchasing agent for Warner Brothers. Much of his working time he spent in Naples, entrusted with the spending of large sums of money for the movie makers.

All this glory was behind Ugo when we met him. Ischia, he said, was no place for a man of his talents.

What he wanted, said Ugo, was enough money to buy a small freighter. He would trade among the Mediterranean islands and earn enough to support himself and the Neapolitan girl he hoped to marry.



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### Small Craft Find Shelter in Porto d'Ischia's Harbor, an Old Volcanic Crater

Fishing vessels, yachts, and the Naples ferry (right) enter through the bottleneck passage on the left. Blasting in 1853 removed rock separating the lake from the sea. Procida and Vivara islands dot the background.





**"Let's Climb Epomeo!" →  
Ischian Boys Suit  
Deed to Word**

Scaling the inactive 2,585-foot volcano is a favorite sport. Many parties ascend by moonlight to await dawn over the Gulf of Naples.

Slits in the soft rock serve as a chimney for the quarters of a hermit who tends a chapel built near the summit. These youngsters dangle bare feet from Monte Epomeo's topmost spur.

In ancient times Greek settlers witnessed Ischia's earthquakes and fiery showers of lava. A quake in 1883 claimed 2,500 lives. As evidence of latent volcanism, hundreds of thermal springs bubble from the ground (page 543).

**← Volcanic Rock Strews  
a Sandy Beach**

On summer week ends and holidays, when excursion steamers bring crowds from the Italian mainland, this retreat takes on a Coney Island aspect. The 15th-century Castle of Ischia crowns the distant rock, which once supported a fortified town.

© Kodachromes by Dorothea Jones





While watching for an opportunity, Ugo had become a dedicated student of soccer, national sport of Italy. His goal was to hit the jackpot in the *Totocalcio*, the pool based on results of games played every Sunday in the major Italian cities.

Totocalcio contestants try to forecast scores of a dozen or so league matches. Thousands of Italians, pursuing the dream of easy money, invest small sums in the scheme. Weekly prizes run as high as 62,500,000 lire.

"In your money," Ugo told us, "a top prize would be about \$100,000. It would be much more than enough."

#### How to Win a Studepackard

Ugo was always ready to discourse on politics, religion, and island gossip. Usually he seemed more worldly than his fellow Ischians, but occasionally he revealed a childlike naïveté.

Once, watching me open a package of American cigarettes, he exclaimed, "Ah, let me show you something!"

He took the package and peeled off the blue tax stamp. One side of the wrapper, thus exposed, bore a small printed number. On the other side there was nothing.

"Too bad," he said. "If you ever find a package with numbers on both sides, and those numbers match, the tobacco people will give you a Studepackard."

I told him I had heard many reports of such schemes in the United States and that the tobacco companies had taken great pains to discredit them. I also explained that there was no such automobile as a Studepackard.

Ugo was unmoved by this appeal to reason.

"In Genoa," he said, "I know for a fact that there is a woman who had such good fortune, and now she is very happy with her Studepackard."

#### Jones, Pronounced "Johnson"

One day we noticed unusual activity around the two movie ships. Workmen were hammering, sawing, painting, and hoisting huge coils of new rope to the decks. We were told that Warner Brothers had ordered the ships refurbished for another movie.

This would be great news for Ugo, so we tracked him to his favorite cafe. He was engrossed in soccer schedules and past-performance sheets. I gave him the word.

"Oh, that," he said carelessly. "Yes, I have known that for some time."

For all his apparent nonchalance, it was easy to detect an anticipatory gleam in his eyes.

Ugo, incidentally, was one of the few Ischians we met who seemed able to pronounce the name "Jones." Everywhere on the island, we were "Mr. and Mrs. Johnson."

On our last day in Ischia the hotel proprietor presented a bill with our names spelled correctly, but his parting words were, "Good-bye, Mr. and Mrs. Johnson!"

Dorothea and I visited one day the shop of a Porto d'Ischia tailor to order some corduroy slacks. Language difficulty made the transaction fairly trying. Finally, all questions of price, fit, and delivery date were settled.

At a near-by sidewalk cafe we sat down to have a cold drink. A few minutes later we saw the tailor coming our way, his tape measure draped around his neck. He halted beside Dorothea.

"Mrs. Johnson," he said, "you like pockets?"

#### Islanders Fish and Grow Grapes

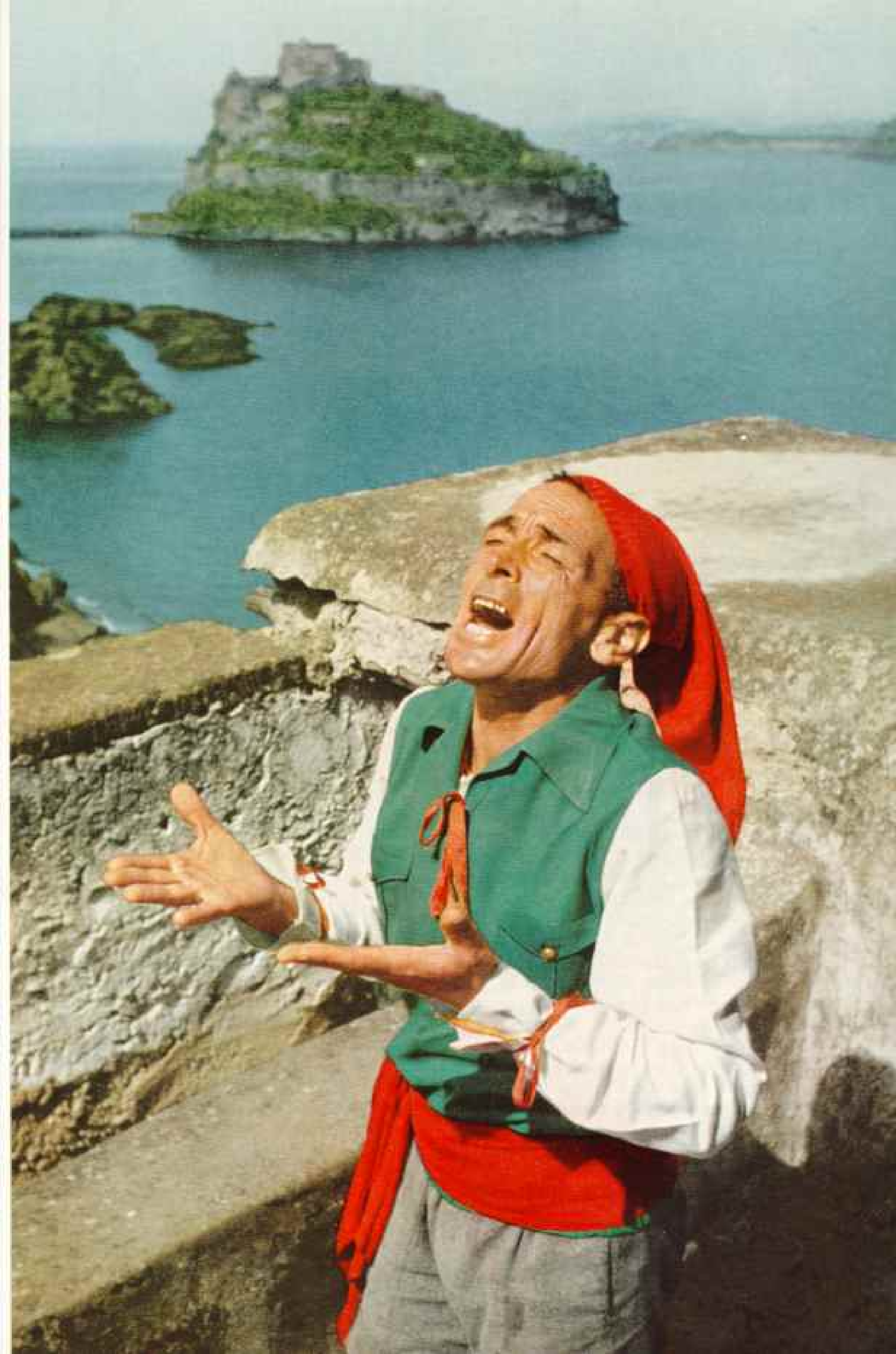
In contrast to Ugo's generally glum outlook, we found most other Ischians happily engaged in their three chief occupations: fishing, producing wine, and raising large families.

Their island, covering 18 square miles and inhabited by about 30,000 people, clearly lacks political, economic, or military significance. Nobody has ever called Ischia a "little Gibraltar" or an "unsinkable aircraft carrier." It belongs to Italy, as part of the Province of Naples, and no other nation seems to covet it. Nothing there is the biggest, or the highest, or in any way superlative, except perhaps its abundance of artless charm and warm hospitality.

On a clear, sunny morning Dorothea and I walked over a causeway into Ischia's yesterday, into a past that held vastly more splendor than the present. The causeway, lined with sepia-colored nets stretched to dry while

#### Grimaldi Liberato Sings in Praise of Sea, Sky, and Sun →

Like all Ischians, this retired sailor sings frequently and uses elaborate gestures. Here, on his terrace overlooking the ruined castle, he unleashes his baritone in a Neapolitan ballad. Tunic and cap are part of a costume now seen during performances of a war dance in which the islanders show how their ancestors repelled Saracen raiders.





### Twin Outriders of the Gulf of Naples Are Ischia and Capri

The islands offer brands of charm differing as widely as their scenery. Ischia (pronounced Ees'-kya), where work comes before the pursuit of pleasure, was formed by volcanic action in prehistoric times. Smaller Capri, mainly dedicated to fun, is of limestone composition similar to that of the near-by Sorrento peninsula.

fishermen sat cross-legged mending them, led us into the island's dark, decaying Aragonese Castle of Ischia (page 532).

This was no castle to storm; it was crumbling. Standing very still inside, we could hear bits of stone dropping as the wind swayed the toppling supports in the upper chambers. But magnificence remained—and romance.

Rebuilt about 1450, after Ischia was raided by Saracens and Pisans, the castle is the background for one of Italy's greatest love stories. It is associated chiefly with Ferrante d'Avalos, Marchese di Pescara, the great Spanish-Neapolitan soldier, and his poet wife, Vittoria Colonna.

When D'Avalos died of battle wounds in 1525, Vittoria lived on in the castle. Her great beauty and talents attracted about her leading art and literary figures of her time, Michelangelo among them. But her dedication to D'Avalos held her for many years on this remote rock and began the idealization of her love into an almost legendary romance.

Walking through a damp tunnel, we found it easy to imagine Vittoria on horseback sweeping regally along. Now dim electric lights glowed under the dark vaulted ceiling

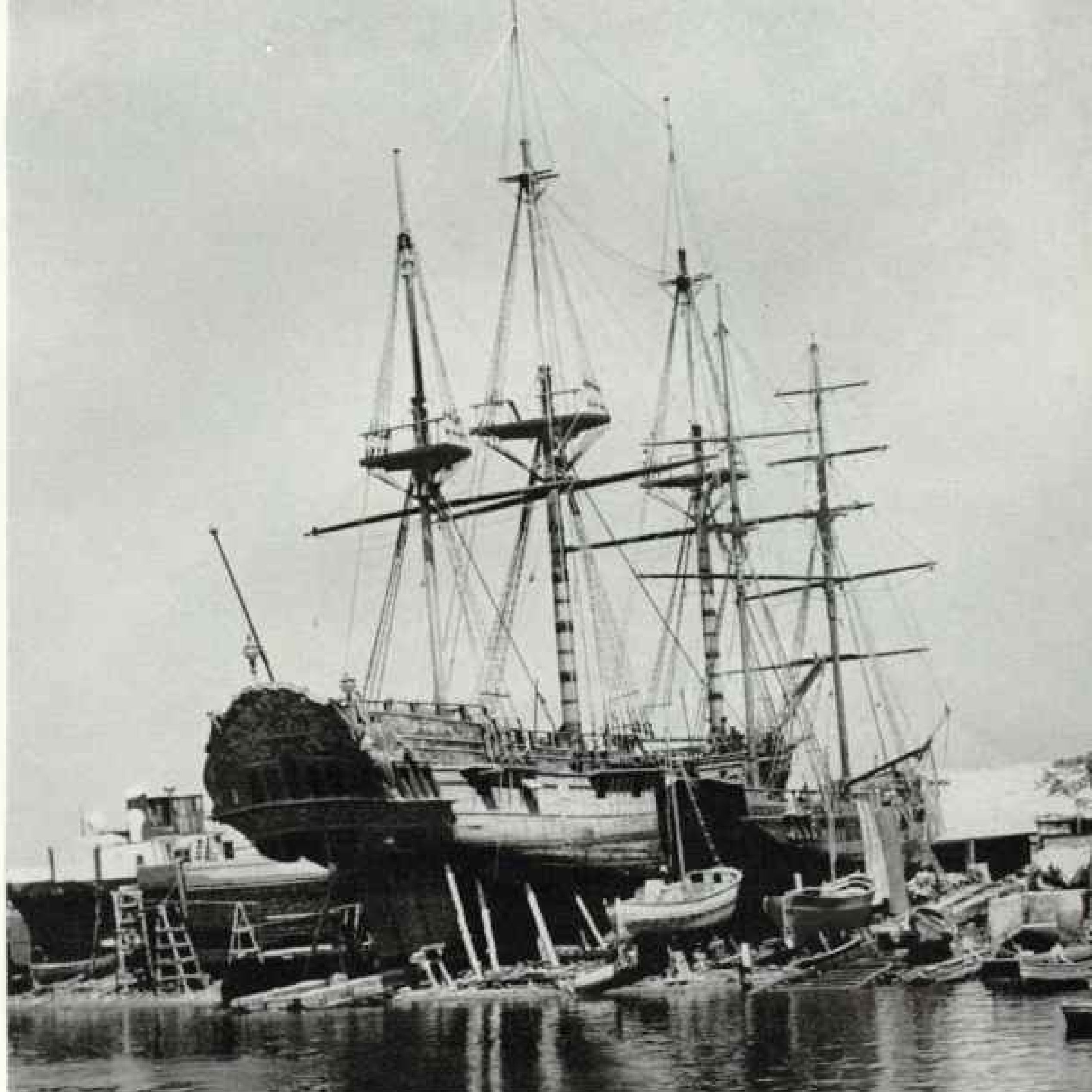
until we stepped into sunshine in grass-grown ruins. Bees hummed through roofless arches, and butterflies floated over dungeons and crypts.

Terraces and courtyards sweet with clover opened beyond. Procida and Vivara were clearly visible, with the mainland beyond them wrapped in blue haze.

#### Volcano Dominates Island Scenes

The castle is one of Ischia's two dominant features. The other is the inactive volcano, Monte Epomeo, whose shape suggests a badly pitched pyramidal tent. Only 2,585 feet high, Epomeo holds humble stature among the world's mountains. But to Ischians, many of whom have never been elsewhere, it seems a truly awesome peak (page 533).

Everywhere Epomeo's brooding presence is felt. Majestically aloof, yet strangely personal, the old volcano seemed to lean over our shoulders and to intrude into every view. This was symbolic, perhaps, for from the time the Greeks in the 8th century B.C. became acquainted with Ischia's earthquakes and eruptions of "fire, sea, and scalding springs," Epomeo has dominated the island's fortunes.



### Hollywood's Spanish Galleons in a Shipyard Carry Ischia Back to the Days of Sail

Built in France, the two ships appeared in the movies' production of *Captain Horatio Hornblower*. Then they went under sail and diesel power to Ischia for the filming of *The Crimson Pirate*. Here, undergoing alterations for *The Master of Ballantrae*, they give the island an 18th-century look (page 531).

Old residents who remember the earthquake of 1883, when 2,300 lives were lost, associate Epomeo with the catastrophe and sum up their deep respect for the mountain with a lift of the eyes and a hushed "*Mamma mia!*"

But in another tone they told us: "You must climb the Epomeo by moonlight."

We decided to make the trip by daylight, hoping for clear weather to photograph distant Capri, and at midday left our car at Fontana after the grind up the spiral mountain road. From there, tiny donkeys carried us upward, dusty animals that wore their tat-

ters as cheerfully as did their willing drivers.

The double cockscomb that tops Epomeo we reached on foot, passing around the chapel built into the mountain. The view was limitless. The illusion of great height on our narrow spur kept us back from the sheer, gaping drops all around.

Spread below was the sweep of the island from Lacco Ameno to the castle against the blue sea. Capri was in the clouds, low fluffy layers that gradually built up until we began to feel isolated in this topside world.

Focused on Capri, we waited for a magic



← **Mediterranean Depths  
Yield a Dinner**

The smiling fishwife offers a slice of ocean sunfish at her outdoor market in Porto d'Ischia. The species is also called *pesce di luna*, or moonfish, because of its almost circular shape. Liver and intestines are cooked separately or used to make soup stock. A popular island dish is a highly seasoned chowder, similar to Marseille's *bouillabaisse*, made of fish, mussels, and bits of octopus and squid.

**Wine Casks Are Cleaned →  
with Harbor Water**

Such a flushing, say experts, helps give Ischian wine the delicate flavor praised by connoisseurs. Most of the island's 15 square miles are planted in vineyards. Grapes are harvested in September, then crushed with bare feet. After storage in caves the wine is carted to seaport depots for shipment.

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### ← Ischia's Men Fish by Night, Mend Nets by Day

These fishermen work on gear spread to dry on the causeway leading from the castle to Ischia (background). A tannic-acid preservative gives a russet hue to the nets (page 543).

Next to wine making, fishing is the island's chief industry. Rewards are meager, for adjacent waters are overfished. The catch usually consists of sardines and other small fish, but an occasional run of tuna or ocean sunfish (opposite) provides a modest bonanza.

Buy boats, making the rounds of the fleet, purchase most of each night's catch for sale in near-by Naples. The rest goes to the fishermen's families or Ischian markets.

© Kodachrome by Dorothy Jones

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### Lacco Ameno Celebrates the Feast of Santa Restituta Beneath Gay Lighted Arches

Every May 17, with carnival, fireworks, and church procession, Ischian villagers honor Restituta, their patron saint (page 548). So deeply revered is she that most of Lacco Ameno's women and fishing craft are named for her. Here a three-wheeled delivery van passes a carriage on the main street.

shaft of sunlight to reveal the pleasure island, but it remained hidden.

At the foot of their mountain and in the shadow of the castle, Ischians lead a joyously informal life. Everyone walks in the middle of the street, detouring genially to oleander-shaded sidewalks for motorcycles, small cars, or motor scooters. Carriage horses wear nodding plumes; even the village street sweeper sports a gay flower on his hat.

#### Battle of the Posters

In a corner store, Kodak and Coca-Cola signs made us feel at home. Above cans of Dole pineapple and packets of seeds hung sausages and Provolone cheeses. There were glass jars of licorice, Jordan almonds, and peppermints near a rack of postcards. A man bought one cigarette and went out; to buy a whole package would be wild extravagance.

We passed little groups studying the news bulletins pasted on walls by a Naples newspaper, *Il Giornale*. An election was near, and these were favorite meeting places.

We learned to recognize some of the political party symbols on the posters—a cross on a shield for one, a saint for another, a crown for a third. A friend explained them:

"The cross represents the Christian Democrats . . . very powerful. They say, 'You must support the cross!' This is a Catholic country, so the opposition tried to think of something equally strong. They chose the saint that means most to the people. And the cry is, 'You must vote for the saint. He will protect you.'"

By watching the "battle of the posters," voters kept abreast of campaign charges and countercharges. As soon as one faction displayed its message, the opposition studied it and rushed off to compose an insulting reply. Then the new poster was pasted over the old. By election day, printed invective was an inch thick on walls.

Women and children gathered with jugs and bottles at the town fountains. Water comes from springs or in tank ships from the mainland. Old women in long black dresses, their



### Wherever Small Boys Find Spare Time, a Ball Game Is Sure to Develop

These youngsters, sons of fishermen at Sant' Angelo on Ischia's southern coast, play a form of soccer, a national sport. They keep the ball moving with feet, knees, and head, but seldom use hands. Tiny Sant' Angelo's houses are built in a style reminiscent of North Africa.

hair neatly arranged, contrasted with young girls in bright sweaters and skirts. A 10-year-old sat looking at a Walt Disney comic book.

Inside the nearest *farmacia*, row on row of patent medicines, pills, and pharmaceuticals lined the walls. There were Sloan's Liniment and DDT, tissues and soap. A young woman with a swollen cheek was buying a poultice.

Down a side street in sight of the sparkling Mediterranean a fish market had been set up. Striped umbrellas shaded brilliantly colored fish, squirming octopuses, and squid. A jovial fishwife, talking constantly, weighed great slices of ocean sunfish, a foot across, and the purchasers marched off, dangling them on a string (page 538). When the catch was good, it was not uncommon to see these huge portions going homeward in all directions.

Itinerant merchants were everywhere. Our special friend was a shy 10-year-old peanut vendor who wore his scales jauntily across his shoulder. When we asked for a few pennies' worth, he brought the necessary weights from

his jacket and poured the measured amount into our pockets.

Sardines, cherries, and *nespole* (an apricot-like fruit) were sold in this way. A tub of shining black mussels, riding on a shouting vendor's head, brought housewives from their kitchens. In the early morning the clear, sharp sound of wooden clogs along the cobble street announced a stream of women and children carrying trays of fruit and vegetables.

### Goats' Milk on the Hoof

Another pleasant morning sound was that of bells and small hoofs—goats being driven through the streets, halting to be milked at the doors of customers.

Singing was almost constant. Plasterers pulling up pails of cement filled the air with "Santa Lucia" or "O Sole Mio" as they made new and old hotels ready for summer business.

In the harbors fishermen worked at their never-ending chores. Mostly they put to sea after dark, fishing from long, narrow boats, each mounting on its stern a pair of powerful





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Illustration by Dorothy Jones

#### ↑ An Artist Transfers Ischia's Colors to His Canvas

For an endless choice of subjects, Edoardo Maria Colucci needs only to look outside the garden walls of his seaside villa. The majolica griffin peering over his shoulder came from a Florentine palace; it supports a bird bath.

#### ↓ Future Fishermen Try Out Papa's Long Oars

Grown up, the youngsters may man the same boat to spear octopuses and catch spiny lobsters in basket-like traps (foreground). Learning to row in Sant' Angelo's inlet, they take the standing position favored by Ischian boatmen.



acetylene lamps whose beams attracted fish.

Buy boats, making the rounds of the fleet, hauled most of the catch to Naples.

Coming ashore at daybreak, the fishermen spend long hours repairing nets and other gear (page 538). Then a short sleep and another night's work.

The catches we saw were so pitifully small that we wondered why men cling to such a hard, unrewarding trade. Asked such a question, an Ischian might reply: "Our grandfathers and fathers were fishermen. We, too, are fishermen. Our sons will be fishermen. What else?"

Often we would see a small boat with one man rowing slowly and a companion, leaning over the bow, peering into the clear depths through a glass-bottomed bucket. Spotting his quarry, the bow man would spear it with a long-handled trident. These were the octopus hunters.

The unlovely creatures are also caught in baited clay jars.

#### Baby Octopus Is Appetizing

Here, as elsewhere on the Mediterranean, baby octopus is a delicacy. We ate it fried and sliced in soup and found it good, not at all like the rubber it so closely resembles.

Wine is Ischia's chief product; terraced vineyards cover most of the island's acreage. In September the grapes are harvested and dumped into huge stone vats, where bare feet tramp out the juice to the rhythm of traditional wine-making songs.

After a period of storage in mountainside caves, the wine is hauled in casks to depots at the seaports, to be sold for export to the mainland. Much Ischian wine finds its way to Capri where, according to Ischians, it is labeled as that island's own product.

Dr. Giorgio Buchner, an archeologist who has spent many years on Ischia, told us of the island's past. Near Casamicciola and Lacco Ameno he showed us two excavation sites where his findings indicate that Ischia was inhabited almost 5,000 years ago.

Strabo declares that Cumae, on the mainland opposite Ischia, was the first of the Greek colonies in Sicily and Italy. The date of its founding is fixed at about 750 B. C.

According to Livy, however, Greeks from Euboea (Évβοία) first settled on the island of Pithecusae, which is Ischia today. Later they ventured to the mainland to establish Cumae, which soon grew to higher importance

than the mother colony on the little island and became the main door through which Greek commerce and culture spread into central Italy.

#### Perfume Bottle Shaped Like an Owl

Tombs and pottery uncovered by Dr. Buchner support Livy's contention. He showed us some of his finds; they include graceful bowls, jars, vases, and a perfume bottle shaped like a tiny owl.

Volcanic eruptions plagued the Greeks during their occupation of Ischia. Since then the island has lived, not always peacefully, under Romans, Normans, Aragonese, and others. Progress began under the 19th-century Bourbon rule of Ferdinand II. During that regime Porto d'Ischia's fine harbor was created by cutting away a strip of rock, thus linking a deep volcanic crater lake with the sea (page 532).

Dr. Buchner also introduced us to the pleasures of bathing in thermal springs. On a wide horseshoe-shaped beach near his Lacco Ameno dig, he led us to a little pool which bathers had created by piling up rocks. A constant flow of hot water seeped upward from subterranean springs.

We sat down in the pool and, at Dr. Buchner's suggestion, thrust our hands into the sand. Six inches down the water was piping-hot. Deeper, it became too hot to endure.

By judiciously mixing hot mineral water with cool sea water, we achieved a tolerable temperature in our outdoor tub and lay there simmering cozily.

#### Romans Knew Ischia's Baths

Since Roman times Ischia's thermal springs, high in radioactive content, have been frequented by thousands seeking treatment for real or fancied ills. A paper published by a Neapolitan physician in 1588 recommends the baths for ailments covering virtually the entire range of human debility. Today, elaborate establishments administer to an international clientele, mainly sufferers from arthritis and rheumatism.

Grimaldi Liberato (page 535), a retired sailor, took us to the Cava Scura or Dark Canyon, long a favorite bathing spot.

Liberato beached his boat near Sant' Angelo, on the island's southern shore, and led us on foot through a ravine walled off by buff-colored tufa. A cool stream, barely a trickle in the sand, marked our way.





### ← Ischia's Sister Island, Procida, Turns a Pastel Face to the Sea

Travelers get this view of gay stuccoed houses and bright fishing craft when the Naples-Ischia ferry backs up to Procida's main street.

For all its surface charm, Procida bears a name as charged with dire meaning as Alcatraz or Sing Sing. On certain days of the month a somber ship arrives with inmates for the Italian Government prison, a former castle (page 531).

Before World War II the prison confined political opponents of Benito Mussolini's Fascist regime. Following Italy's liberation in 1945, political offenders went free and diehard followers of Il Duce took their place behind bars.

Today ordinary criminals go to Procida and other prisons in the Mediterranean.

Most of the island's 10,000 people live by farming and fishing.

Illustration by Dorothea Junge

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### Carmela's Basket Holds → Food for Rabbits

As a daily chore, Carmela Tarsio gathers red valerian, or Jupiter's-beard, to fatten rabbits for the family table. Her dark beauty won a small part in a movie recently filmed on Ischia by a Hollywood crew (page 548).

### ← Raffia-work Students Earn as They Learn

Most Ischian women, married or single, are expected to perform some sort of handiwork to augment the family income. These girls earn about 50 cents a day learning to weave raffia into doll furniture, butterfly boxes, and decorative baskets.

Classes, given under an unemployment-relief program, are open to all men and women past 18 years. Other subjects include sewing, masonry, and waiting on table (page 547).





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**Umbrella Pines, Springing from Volcanic Soil, Seem to Explode in Bursts of Green**

These graceful trees shade a picnic ground and surround a villa at Porto d'Ischia. They grow amid jagged chunks of lava deposited by a 14th-century eruption on Monte Epomeo (pages 536 and 549).

We pressed deeper and deeper into the canyon, carrying our shoes and walking in the stream, which was getting wider and hotter, so hot that finally we left it for a rocky ledge.

The passage ended at a wall emitting jets of steam. White curtains hung at the doors of a row of cubicles hewn out of soft rock. A stout woman bent over a dark-green pool, dipping up hot water in a pail and pouring it into a worn groove that ran past the cubicles.

#### Mineral Bath in a Stone Tub

We paid our fee and selected rooms, each containing a tub that was merely a deep depression in the rock. The attendant added pails of cold water to make the temperature bearable.

I could hear Dorothea splashing next door. "It's like bathing in a horse trough on Main Street!" she called. No chromium fixtures here: a stone dammed the hot stream, directing spring water into the tub, and a wad of cloth plugged the outlet hole.

Ills or no ill, the thermal bath was certainly refreshing.

One of our favorite Ischians was Maria Conte, a trim, pretty blonde of 26 whom we met through Ugo Morelli. Like Ugo, Maria had seen something of the world. Unlike Ugo, she believed that in the Gulf of Naples (Golfo di Napoli) and its islands, especially Ischia, was concentrated the finest that the world had to offer.

#### Raffia Builds a Ship Model

Maria took us to a venerable building in the old town of Ischia to see Italian unemployment relief in action. Here, with 40-odd other young women, Maria spent several days a week learning the Ischian craft of basketry design and weaving.

Following Maria up three flights of stairs, we entered a vaulted whitewashed room. Here, at long trestle tables, sat the earn-as-you-learn students, chattering in Italian as their nimble fingers worked long strands of raffia (page 544).

"Bring us forty men!" cried a laughing girl.

She summed up the problem that, for Ischia's female population, outweighs all others. She was putting the finishing touches on doll chairs of raffia, hardly three inches high, soon to find their way to a shop where tourists would buy them.

"I'm not very good at this work," said Maria. "But look here." She pointed to a

plump girl carefully winding raffia over the wire frame of a model sailing ship. "She is very quick and will have that finished in a week."

The girls earn about 50 cents a day.

The raffia class, Maria told us, was but one part of the unemployment-relief project. There were other classes, such as masonry, sewing, and table-waiting; men and women over 18 were eligible to join.

Maria also took us to what she called "my Nannie's country"—her grandmother's farm on a mountain slope near Fiaiano, a short distance from Porto d'Ischia.

Shortly after we turned off the main road onto a narrow lane, the stony, rutted surface became too difficult even for our sure-footed FIAT. Near an old aqueduct we left the car and continued afoot. Lizards scuttled across our path, and birds raised a cheery chorus. The noonday sun distilled a heady fragrance from rosemary and mint.

#### Young Grapes Like Green Buckshot

Whole families, busy tending artichokes and beans which grew among the trellised grapevines, turned from their labors to bid us a grave, polite *buon giorno*. Just taking shape on the vines were miniature bunches of grapes, like clusters of green buckshot. Leaves bore a blue tinge from repeated sprayings with copper sulphate.

In this serene setting it was hard to realize that only a few miles away lay crowded Capri and the Italian mainland with its many millions. And here it was easy to understand Maria's indignant reaction to the news that a film unit from Rome (Roma) was making a picture about a "poor boy of Ischia."

"Why a 'poor' boy?" Maria demanded. "Look!" She waved her arm in a sweeping gesture that took in the sea, citrus orchards, and vine-clad slopes.

"We are not poor here. True, not many of us are rich, either. But if people will only work hard, they will have enough, and perhaps a little more than enough."

Grandmother's house, a cube of whitewashed cement with open windows like sightless eyes, clung to the eastern flank of Monte Epomeo. The farm, Maria told us, belonged to a Roman who visited it several times a year. Sales of vegetables, fruit, and wine paid the rent. Most farms in the Fiaiano region are worked by the owners, but absentee ownership is the rule in other sections of Ischia.



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### Island Youngsters, Celebrating Their Saint's Day, Fly High in a Carnival Swing

Lacco Ameno's feast of Santa Restituta brings mechanical rides, games, and shooting galleries to the beach. At night, after the parade of the saint's statue, fireworks flare from Monte Epomeo (background).

Pretty Carmela Tarso (page 545), Maria's cousin, washed clothes in a built-in stone tub on a tree-shaded landing near the kitchen. Masses of roses, lilies, and giant geraniums bloomed in a tiny garden. Other plants flourished in old washbasins, tins, and odd bits of crockery.

Grandmother, small and light of step, greeted us cordially. She could speak no English, but there was no mistaking her welcome. She was dressed in black, worn by all the island's older women. Thick, graying hair was drawn back in a low knot.

At 73, Grandmother cooked, cleaned, knit, tended the garden, and worked in a vineyard. Most of her 13 children had married and now

lived elsewhere; even so, with a steady procession of visiting grandchildren there were always at least nine mouths to feed in the mountainside home.

### Pines Flourish in Lava

Maria and her grandmother led us past the garden to point out a broad band of rocky chaos marking the course of the great Arso lava flow in the island's last eruption. Here in the 14th century a subterranean convulsion vomited molten rock from a vent east of the summit of Epomeo.

The flaming river of lava tumbled a mile and a half down the mountain to the seashore, where it piled up and cooled to form the

headland of Punta Molina, now the site of pleasant villas and the island's most popular bathing beach.

About 1850 umbrella pines were planted among the rocks. Having grown to majestic height, the trees today provide welcome shade and fragrance (page 546).

Maria paused by a dark crevice between two lichen-clad rocks. "Put your hand in here," she said. We obeyed—and pulled back quickly. It was like sticking a hand in an oven.

This was a fumarole, or volcanic vent. Through thousands of such orifices escape the hot gases and vapors rising from the seething nether regions of Ischia. The heat of some of these fumaroles, particularly those along the southern beaches, is intense enough to cook food.

#### Fava Pods Litter Beaches

Strolling back to the house for lunch, Maria introduced us to another Ischian specialty—the broad beans known as *fava*.

These, resembling our limas though somewhat larger, are eaten raw, with or without salt. Each bean is encased in a slippery, close-fitting skin which must be peeled off.

Fava beans have been under cultivation since ancient times. Greeks and Romans used the beans for balloting, and the English continued the custom in electing a king for their Twelfth-night celebration.

Today every farmer on Ischia allows space for fava bushes. They are a popular between-meals snack, as attested by discarded pods scattered on beaches and streets and floating in the sea.

While waiting for lunch, we explored Grandmother's house. In one room was a large black iron bed covered with a white spread which displayed intricately embroidered initials in its center. Rows of framed photographs lined the white walls.

From the flat roof there was an unobstructed view of the Gulf of Naples and its islands. Maria watched us closely. She seemed to feel a personal responsibility, as if she had arranged the scene and now anxiously awaited our verdict.

Words like "beautiful," "magnificent," and "superb" seemed feeble understatement, so Dorothea and I merely made vague, appreciative noises. Maria looked pleased.

"You should come here in September when we pick the grapes and make the wine," she

said. "Then there is lots of fun. And the singing! My brothers and sisters and I come here then and stay one or two weeks.

"But we do not like to stay at night," she added. "It is too quiet. No radio, no lights, just the oil lamp. You go to bed at 7 o'clock!"

Grandmother summoned us to lunch. We sat down at a round table in a room which contained a massive chest of drawers, a marble-topped washstand, and a huge chest.

#### Family Keeps the Best Wine

The main dish at lunch was a steaming platter of rabbit, whose relatives we had seen hopping about in a hutch on the roof. It was prepared *cacciatore*, or hunter style. Tender as chicken, it was seasoned with mysterious herbs and spices.

With the rabbit went boiled artichokes, fava beans, home-baked bread, oranges from a tree just outside the kitchen, and a pitcher of cool white wine drawn direct from a special cask.

Such a cask, Maria told us, is a fixture in every Ischian household. Its contents are reserved for the family's use.

"It is too good to sell," she said. "We made it; why shouldn't we enjoy it?"

Rising from this feast, we appreciated the full meaning of Maria's earlier words: "We are not poor here."

#### "It Couddn't Be Burl Ives!"

Back in our hotel that evening, Dorothea and I encountered the last person we expected to find on this surprising island. Changing for dinner, we heard a voice raised in song, with guitar accompaniment. This was not unusual in a land of guitar-playing troubadours; but the voice was unmistakably American.

"Sounds like Burl Ives," said Dorothea.

"It certainly does," I agreed. "But of course it couldn't be."

We walked out on our terrace and looked over the railing. There, on a lower terrace, sat a rapt group surrounding the red-bearded singer of folk songs—Burl Ives (page 550).

Ives, in Naples on a world concert tour, had come to Ischia to exchange folk songs with Roberto Murolo, a famous Neapolitan singer also visiting the island.

The next night both singers attended a party at a seaside villa. Ives and Murolo, passing the guitar back and forth, sang solos and duets.

Language and other barriers seemed to vanish under the spell of simple songs well sung.





### Kilted Burl Ives, the "Wayfaring Stranger," Takes His Ballads to Ischia

In Scotland on a concert tour, the American folk singer tried Highland dress and found it ideal for a man of his girth. Later, still in kilt and sporran, Mr. Ives visited Ischia to collect songs (page 549). Here he sings "The Blue Tail Fly" for co-author Dorothea Jones (right) and other visitors to the island.

Listeners were impressed by the basic similarities between Ives's American and English folk tunes and Murolo's Neapolitan madrigals.

Leaving Ischia, we faced the problem of getting our *VIAT* back to the mainland. The regular passenger ferry carries no cars. This meant we must take a small freighter which also carries passengers on its daily round trip. It also meant leaving at 6:30 a.m.

#### Octopus Sandwich for Breakfast

With the car safely lashed on deck, we sailed out of Porto d'Ischia harbor on a bright May morning. The freighter, slower and less luxurious than the trim white passenger craft, charges a lower fare. Its earlier departure is convenient for the many Ischians who commute to work in Naples.

Most of our fellow passengers were roughly dressed. Among them were men who came aboard shouldering casks of wine. Around

their waists they wore lengths of rubber tubing. In Naples they would spend the day peddling wine, using the tubing to transfer it from casks to customers' containers.

Sharp garlicky odors soon announced that some of our fellow travelers were eating the snacks they had brought along. From a paper bag one of the rubber-belted men produced a couple of hard-boiled eggs and a remarkable sandwich. It was fried baby octopus between two huge chunks of bread.

He opened the sandwich and examined its contents with pleasure. He put it back together; we could still see the tiny, curling tentacles. He took a large bite, looked at us, and winked broadly.

Neither of us exactly envied this man his octopus sandwich, nor his job selling wine, but we felt that he held at least one advantage.

He would be going back to Ischia that evening—and we would not.

This Feathered African Entices Man and Animal to Raid Bees' Nests,  
Waits While They Steal Honey, Then Dines on the Comb

BY HERBERT FRIEDMANN

*With Paintings by National Geographic Artist Walter A. Weber*

ONCE upon a time, says a Rhodesian fable, a little brownish bird came upon a dead elephant. "Ha," said he, "this is going to be my new home." So he made a mark on the carcass and flew away to call relatives and friends.

Meanwhile, a mouse found the elephant, decided to make his home there, and began nibbling at the huge body.

The bird, returning with his friends, angrily tried to evict the intruder. "This is my place," he cried.

"No, it is mine," replied the mouse.

### A Bird Seeks Revenge

So the two wrangled and fought until they decided to take the matter before the judge, who happened to be a bee.

The bee deliberated gravely and handed down his decision: the elephant belonged to the mouse. Then the bird argued that he had found the body first, and called attention to the mark he had made to stake his claim.

But the judge was unmoved. "You are lying," he said. "It is the mouse's property."

From that day to this, say the Rhodesian natives, the bird and the bee have hated each other. At every opportunity, the bird gets revenge by leading men to the bee's nest and gloating silently while his human companions rob and destroy the enemy's home.

Like many another piece of folklore, this fable is primitive man's attempt to explain a curious and wonderful fact. There is indeed such a bird, known as the honey-guide, possessing the extraordinary habit of leading men as well as animals to wild bees' nests (page 555).

Neither vivid coat nor brilliant song distinguishes this bird. Yet it excites the interest of scientists by its remarkable behavior, unmatched in the animal kingdom; by a fondness for beeswax and ability to digest it; and by a cuckoolike practice of leaving eggs in other birds' nests. Puzzling problems associated with this bird have taken me twice to Africa.

Honey-guides, cousins of the woodpeckers, make up a small family of 11 species. In the Himalayan forests lives the Orange-rumped variety, only member of the family with handsome plumage (page 556). The Malayan Honey-guide inhabits Malaya, Borneo, and Sumatra. Nine remaining species make their homes exclusively in Africa.

We know almost nothing about some of these birds. Civilized man has never even seen Zenker's Honey-guide except for museum specimens brought out by native hunters from the dense forests of West Africa.

Another, the Lyre-tailed Honey-guide, produces a peculiar tin-horn note in flight, caused in some way by the vibration of its curved tail feathers. Although this bird may be fairly common, it is so difficult to sight above the thick jungle that natives call it "the bird nobody ever sees."

Most of the honey-guides love beeswax and eat a good deal of it. So far as we know, however, only two—the Greater and the Scaly-throated species—actually enlist cooperation in robbing bees. They alone deserve the title of guide.

### Even Ate Wax Candles

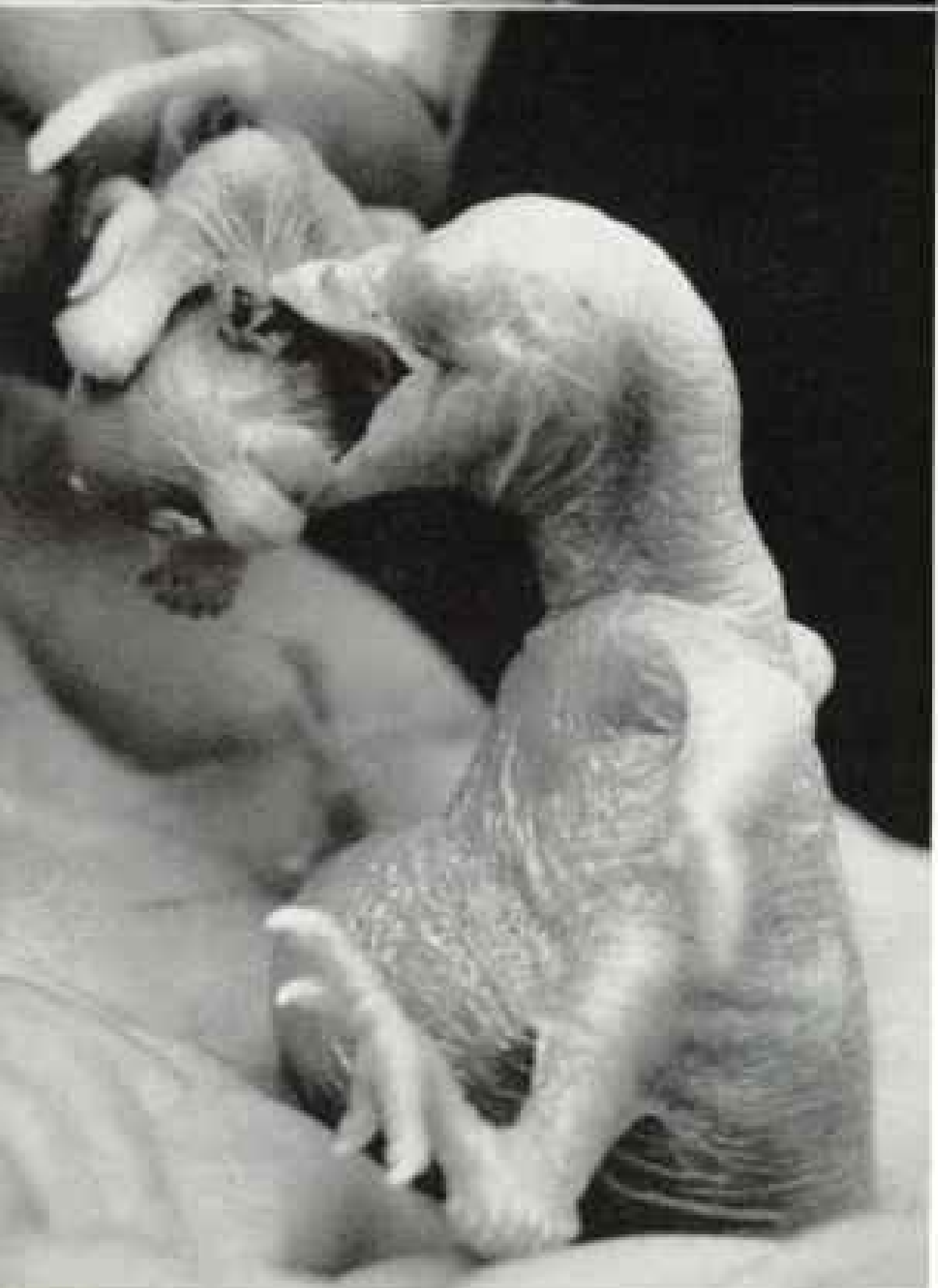
Our story concerns the commonest of these, the Greater Honey-guide. About it we have learned much from intensive studies begun on

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### The Author and the Artist

Dr. Herbert Friedmann, distinguished ornithologist and biologist, is a leading authority on parasitic birds, of which the honey-guides form one group. This article is based on his survey of the birds in Africa during five months of 1950-51. Dr. Friedmann has led other ornithological expeditions to Africa and South America. He has written numerous books and articles on birds and their behavior, and on animal symbolism in art. The Smithsonian Institution, where Dr. Friedmann is Curator of Birds, will publish his *The Honey-Guides* this summer.

Walter A. Weber, staff artist and naturalist of the National Geographic Society, ranks at the top of America's wildlife artists. A trained zoologist and botanist, he is as much at home painting a honey-guide in the African bush as portraying a snake or woodpecker on his wooded 80 acres in Virginia. He toured the honey-guide's realm in 1952.



my last expedition to Africa and continued by friends and colleagues.

In the 16th century João dos Santos, a Portuguese Dominican missionary, journeyed to Nova Sofala, a town in what is now Mozambique. One day, as the good father looked up from his devotions in the church, he was startled to see a little bird dart through an open window, perch on the altar, and nibble at one of the beeswax candles.

*Passaro que come cera* (the bird that eats wax), the priest called his visitor. In his book, *Ethiopia Oriental*, he told of seeing the bird come often to filch wax from the altar candlesticks or to lure natives into a joint raid on a wild bees' nest.

I stumbled across Dos Santos' account one rainy day while browsing through the Central African Archives in Salisbury, Southern Rhodesia. So far as I know, it is the first record of the honey-guide's strange conduct. The priest's account antedates by more than 100 years the travelers' tales that evoked surprise and skepticism in 17th-century Europe.

Since those times, the story of the bird that guides has often been repeated and frequently embroidered. The trimmings usually do not stand up under critical scrutiny, but the basic story has long since been confirmed. For unknown centuries this bird has led black men to the honey they crave to satisfy their sweet tooth and to fortify their beer.

What more fitting name could scientists have devised to classify this bird than *Indicator indicator*?

#### Wins No Beauty Prizes

You are likely to encounter *Indicator indicator* anywhere in Africa south of the Sahara except in the equatorial forests or in the arid, treeless portion of southwest Africa. It is not a large bird—somewhere between the house sparrow and the European starling.

It wins no beauty prizes with its drab brown back and gray-white breast. Males wear black on the chin and upper throat and a touch of yellow sometimes gleams on the

#### ← Blind, Naked, and Feeble, a 2-day-old Honey-guide Attacks Its Foster Brother

Instinctively eliminating competition for food, the young parasite ordinarily kills its nest mates, then pushes them from the nest if able. For this grim purpose Nature provides the assassin's bill with needle-sharp hooks (above) that drop off after 10 days. This Lesser Honey-guide chick, weighing only a fraction of an ounce, attacks a barbet nestling held by the photographer's assistant (pages 557, 558, and 560).

shoulders; outer tail feathers of both sexes flash white.

The young of the species cuts a somewhat fancier figure with a yellow chest and a slight wash of olive over the brown of the back (page 555). *Indicator indicator* is the only member of the honey-guide family showing any striking differences between the plumage of young and adult, or male and female.

Let us accompany a Zulu tribesman to see how the honey-guide operates. We are in Zululand, near Africa's southeast coast, in the bush country favored by the bird. Scattered trees and scrub dot the open grassland in every direction, especially acacia, a common African tree which the Afrikaners so aptly call the "wait-a-bit tree" because of its thorns.

We leave the village, for the honey-guide does not offer its services as pilot near habitations. Why this should be I do not know, for the bird readily approaches a safari, to the exasperation of hunters, who fear that game will be warned off by the visitor's noisy chatter. It will even approach columns of marching men, as records of the Boer War testify.

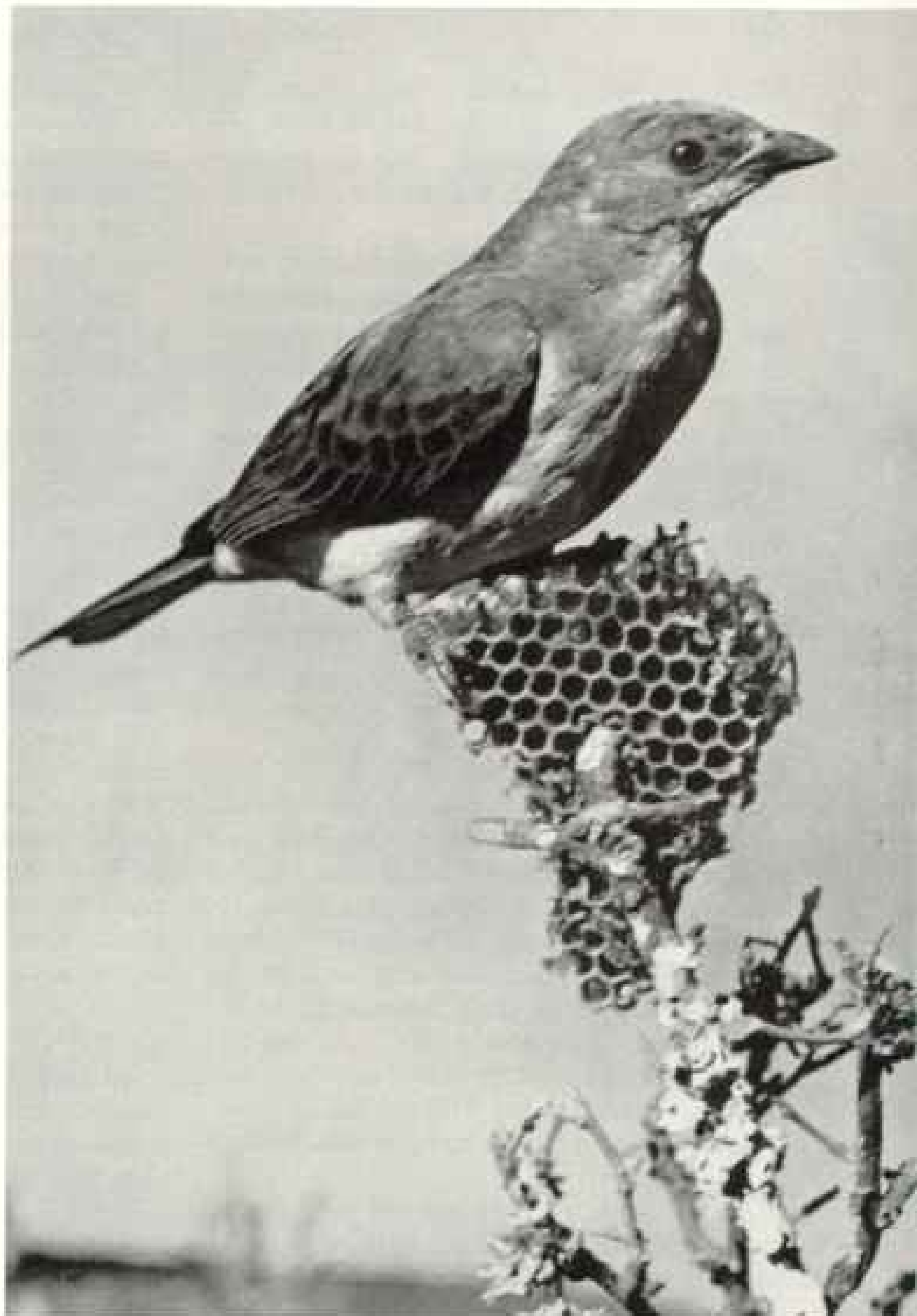
As we wander through the bush, the Zulu "calls" the bird by knocking a pair of sticks together, whacking on trees, whistling, and uttering a guttural "aaagh-ah."

We do not have long to wait. Presently the Zulu says, "*Ingede* answers now," and in the distance we hear a chattering.

#### Sounds Like a Rattled Matchbox

The sound is a series of rolling, slightly rasping churr notes, giving the impression of "churra-churra" or perhaps of "cutta-cutta-cutta." It reminds me of nothing so much as the rattle of a small box of matches shaken lengthwise.

Suddenly the Zulu points. There, on a low



#### Honey-guides Go to Bees' Comb Like Mice to Cheese

This bird, unlike its woodpecker relatives, lacks a sturdy beak and cannot rife hives unaided, but loots nests broken open by animals or natives. The honey-guide, which seeks the comb rather than the honey, possesses the remarkable ability to digest wax. One captive specimen lived a month on wax and water. A tough, thick skin wards off stings.

branch perhaps 150 feet away, sits our little scout. As we watch, it comes closer, taking a conspicuous downward dip, and lands on another perch within 15 or 20 feet of us.

Now we can see the white throat: it is an adult female. She grows more and more excited, seemingly impatient that we do not come immediately. She churrs rapidly, fanning tail feathers and arching and ruffling her wings. She darts off to the left, comes back to scold us, then flutters off again.

This is no straight trail we are taking.

Sometimes the chatterbox veers toward the right, again to the left. Occasionally she seems to be backtracking. But the countryside is relatively open, and we have little difficulty following.

Always the honey-guide keeps ahead, most of the time out of sight. Incessant chattering tells us where she waits, and as we approach each resting place we catch a quick glimpse of white tail feathers as she takes off in undulating flight for another tree. If we stop, the eager little bird comes back to urge us on.

Ten minutes pass; five more. Then, suddenly, our feathered spy changes tactics. No longer does she forge ahead. Now she takes only short, circling flights, coming back to rest in a fig tree. Her insistent call, too, has ceased, as she seems to tell us that this is trail's end.

#### Buzzing Bees Guard Their Treasure

And so it is. A small black hole partway up an acacia catches the eye. Our Zulu puts his ear to the trunk and I follow suit. Ingede has not failed us. A roaring buzz inside the hollow tree proclaims it the home of wild bees.

Holding a smoking firebrand to tame the fury of the insects, the tribesman hacks the tough wood. The hole widens. At the cost of a few stings we tear out huge chunks of black honeycomb dripping with the golden prize.

But what of the little creature who brought us to this spot?

All the while she has perched near by, no longer chattering, seemingly indifferent to the treasure now that we have found it. If we did not choose to rob the hive, she would stay thus an hour or more, waiting patiently for something to happen.

She shall not go unrewarded, however. We take care to leave a chunk of honeycomb on a branch, as well as scraps on the ground.

Natives never dream of taking all the honey, for they believe the bird would punish such greediness by refusing to help them in the future or by leading them to a snake or leopard.

#### Honey-guide Spurns Honey

After leaving, we conceal ourselves at a short distance and watch. Presently the bird flies to the comb and begins to eat. She pecks chiefly at the wax, occasionally picking out a bee grub. Contrary to common belief, she eats the honey only incidentally.

Why does *Indicator indicator* enter into this unique partnership with man?

In all accounts written prior to my studies, the general assumption was that the bird unaided could not open bees' nests and so had to depend on allies. Therefore the bird purposely led the natives to hives, as if it knew that it could feed on their leftovers.

This theory seemed plausible enough on the surface, but not on further thought. Animal habits have a long and involved evolutionary history. They develop by infinitely slow stages, and each successive stage must be of some value to the creature or the development of the habit pattern might be blocked.

Yet in the honey-guide we have a highly complex guiding behavior from which the bird received no benefit until after its own habit had been fully developed and a totally unrelated creature had acquired a habit of response. Here indeed was a riddle. To solve it, I set out to learn more about the honey-guide.

First of all, it seemed certain to me that so deeply ingrained an evolutionary habit must go back untold thousands of years, back beyond the time when man could have cooperated. Thus the bird must have had a pre-human associate.

#### Enter Ratel, the Honey Badger

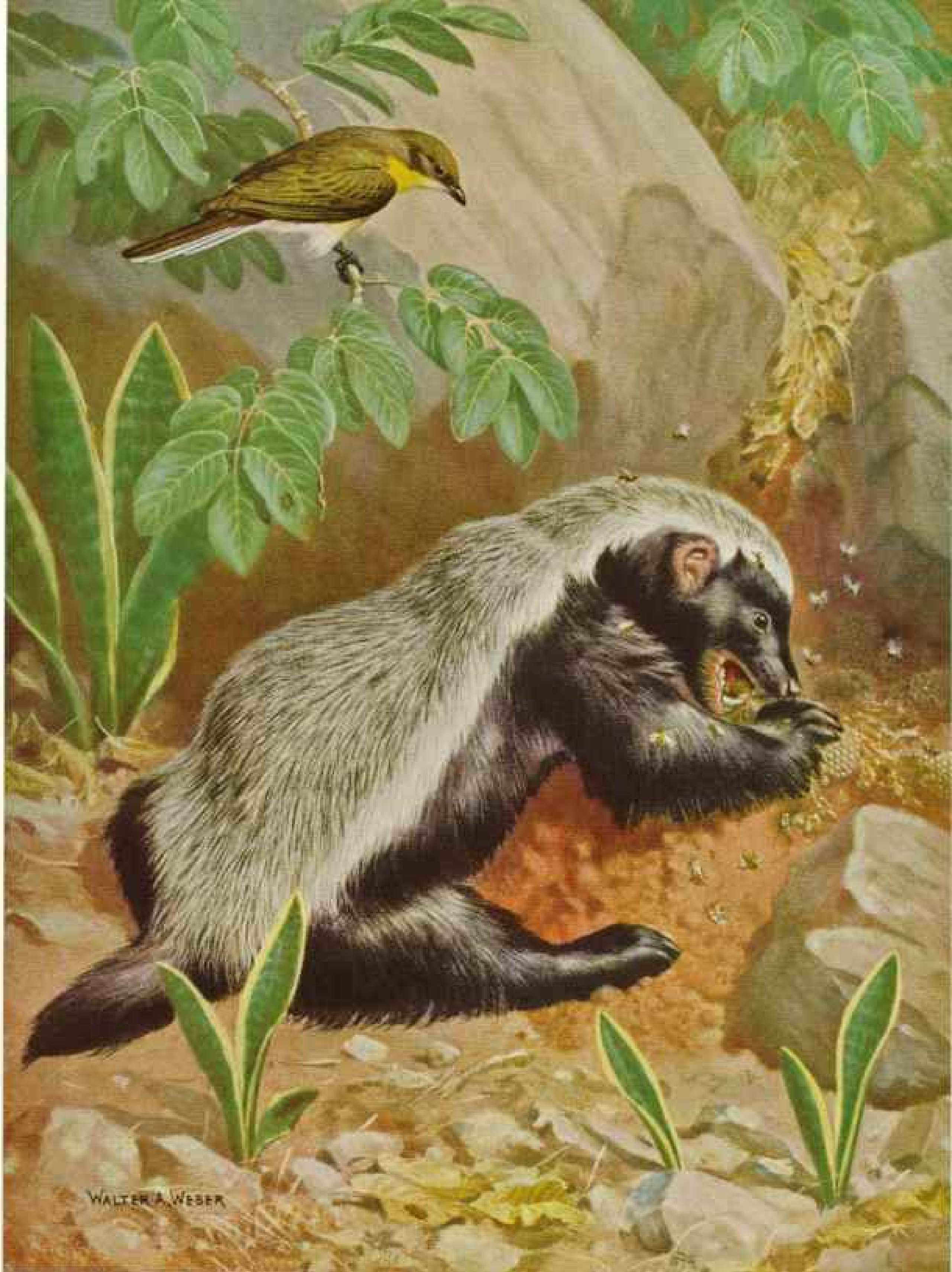
As long ago as 1785 Andrew Sparrman, a Swedish traveler in South Africa, recorded native reports that the honey-guide led not only men but also the ratel, or honey badger, to bee trees. Many writers repeated this tale, some with vivid embellishments. Yet until 1950 I knew of no reliable eye-witness account.

I had two reasons for doubt: the ratel was supposed to be nocturnal, while the honey-guide worked by day. Moreover, the mammal was believed to be unable to climb; yet many of the bees' nests to which the birds led were in hollow trees above its reach.

Careful search produced a number of reliable eye-witness accounts by educated Europeans, leaving no doubt that bird and badger do cooperate (opposite page). I found that the ratel is strictly nocturnal only in areas where it has been disturbed by civilization, and is partly diurnal elsewhere. It can and does climb trees.

Not only is the ratel the honey-guide's original and continuing associate, but evidence now shows that Africans learned to follow the bird by watching the ratel get honey.

(Continued on page 559)



WALTER A. WEBER

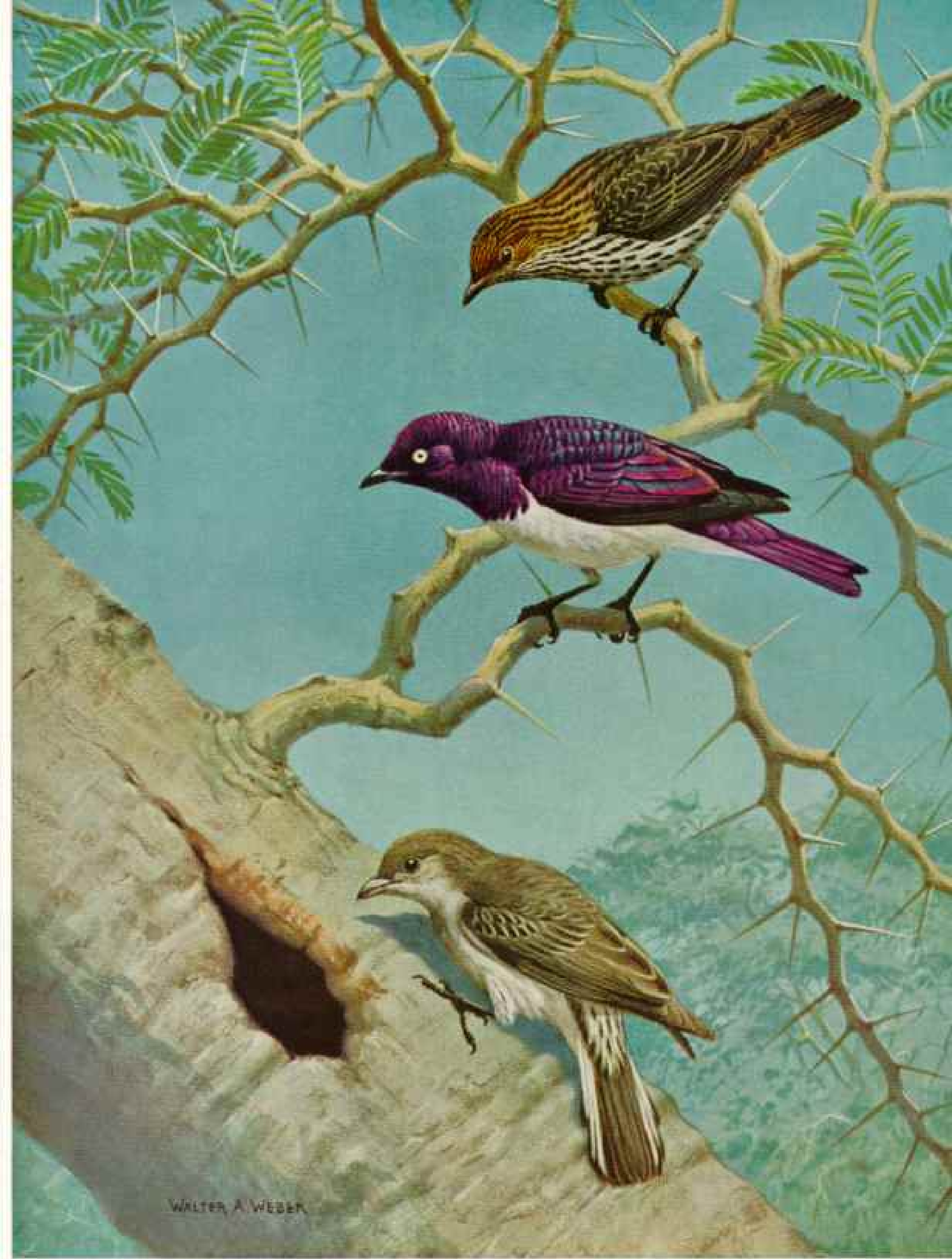
### End of the Quest: Bird and Mammal Team Up to Find and Rob a Wild Bees' Nest

Africa's Greater Honey-guide, drab little cousin of the woodpeckers, puzzles ornithologists by its remarkable habit of leading men and animals to bees' nests. Here the feathered thief waits while its partner, a ratel, or honey badger, gorges. Later the bird, whose scientific name appropriately is *Indicator indicator*, will dine on honeycomb, its favorite food, and bee grubs. This specimen wears the juvenile's yellow chest.



### Family Album of Honey-Guides: Only One of These Actually Leads Men to Honey

Of 11 known species of honey-guides, only two live outside Africa: the Orange-rumped (upper left) of the Himalayan forests, and the Malayan Honey-guide (not shown). Little is known about the Sharp-billed and Spotted Honey-guides (lower left and right), and even less about the Lyre-tailed variety (upper right), which Belgian Congo forest natives call "the bird nobody ever sees." Greater Honey-guide (left center) earns his pilot's title.



WALTER A. WEBER

### Violet-backed Starlings Watch a Honey-Guide Trying to Sneak into Their Nest

Honey-guides are parasites. Like America's cowbirds and the Old World's cuckoos, they lay eggs in other birds' nests, leaving the responsibilities of parenthood to their victims. Young honey-guides show ingratitude for foster care by killing their legitimate nest mates. Here a female Greater Honey-guide scouts a starlings' hole in an acacia. She lacks the male's black throat (opposite), just as the female starling lacks her mate's violet plumage.





WALTER A. WEISER

© National Geographic Society

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Painting by National Geographic Artist Walter A. Weiser

### Black-collared Barbets Drive a Lesser Honey-Guide from Their Nesting Hole

Although barbets defend their nests zealously, honey-guides return persistently, seeking an unguarded moment in which to leave an egg. The Lesser Honey-guide eats wax, but, unlike the Greater, has not developed the habit of luring men and animals to raid bees' treasure. A cactuslike euphorbia tree shelters this nest.

One day I asked a Zulu why he was grunting and knocking sticks together. "I'm talking to the honey-guide," he said. Later I asked him, "What does a ratel sound like?" "Just like a native calling to a honey-guide," he answered, indicating that the natives actually imitate the ratel.

The Zulu explained the knocking of sticks together as sounding "like a man chopping open a bees' nest." Although the honey-guide frequently comes to humans without any solicitation, the natives believe that the noise-making heightens their chance of success.

#### Modern Africans Buy Their Honey

My next task was to learn more about the bird's food habits. As I have mentioned, only two kinds of honey-guides are known to lead to bees' nests; yet virtually all collected specimens of other species also have contained beeswax. From this evidence I suspected that guiding was not necessary to foraging.

I found, as had others before, that the birds do not depend on bees' nests for a living but catch insects after the manner of flycatchers. The guiding, moreover, is not even motivated by hunger. Two birds which I shot as they guided me to hives had ample quantities of wax and insects in their gizzards. Neither was in need of food.

Europeanized natives in many parts of Africa do not search out the wild bees' nests. "Why should we get stung when we can get all the sugar we want from a shop?" they ask.

In such areas the honey-guides, as numerous as before, no longer try to lure men. Recent settlers in Kenya have even come to assume that the honey-guide story is a tall tale.

In the parts of Africa I have explored, I would guess there are at least a dozen bees' nests to the square mile, in trees, rocks, or ground. The honey-guide often finds these wild hives broken open by baboons, monkeys, or squirrels as well as by ratels and men, and thus gets all the bee comb it wants. For this reason, it is clear that the guiding of men is not essential.

The word "guiding" is an unfortunate one, for it implies an intelligent plan far beyond the mental capacity of any bird. In an evolutionary sense, the entire species has developed a guiding habit, and in that sense we may speak of a purpose or goal. But the individual bird has no purpose in mind. It blindly follows instinctive behavior patterns.

Several aspects of "guiding" indicate its

stereotyped nature. For one thing, guiding ordinarily is not direct. The bird follows an erratic course, sometimes going considerably beyond its goal and then coming back.

In my own experience, guiding has covered more than double the necessary distance. On one occasion I followed a bird 21 minutes by stop watch over a meandering 750 yards. I returned a direct 350 yards to the starting point in only 9 minutes.

If guiding were purposive in the individual, this errant behavior would be hard to explain.

In the same way, if a bird had any plan, it might be expected to guide to a previously selected nest.

An experience of Captain Davison of the Wankie Game Reserve in Southern Rhodesia proves the contrary. A honey-guide approached him and his natives in a rest camp with a chattered invitation to go on a raid. Captain Davison refused to let his men go. Boarding a truck, the men drove five miles to the next camp and then began following the bird, which had accompanied them all the way. It soon led to a bees' nest less than half a mile off. This spot was  $4\frac{1}{2}$  miles from the first camp, a distance many times greater than any honey-guide has ever been known to lead a follower.

It seems improbable that the bird could have had any knowledge of the nest finally raided.

On another occasion a bees' nest was broken open by natives but not entirely depleted. Though this nest was so widely exposed that a bird needed no assistance, a honey-guide led a friend of mine to the tree. I offer this as one more proof that the bird's behavior is not an example of extraordinary intelligence.

#### Key to the Mystery

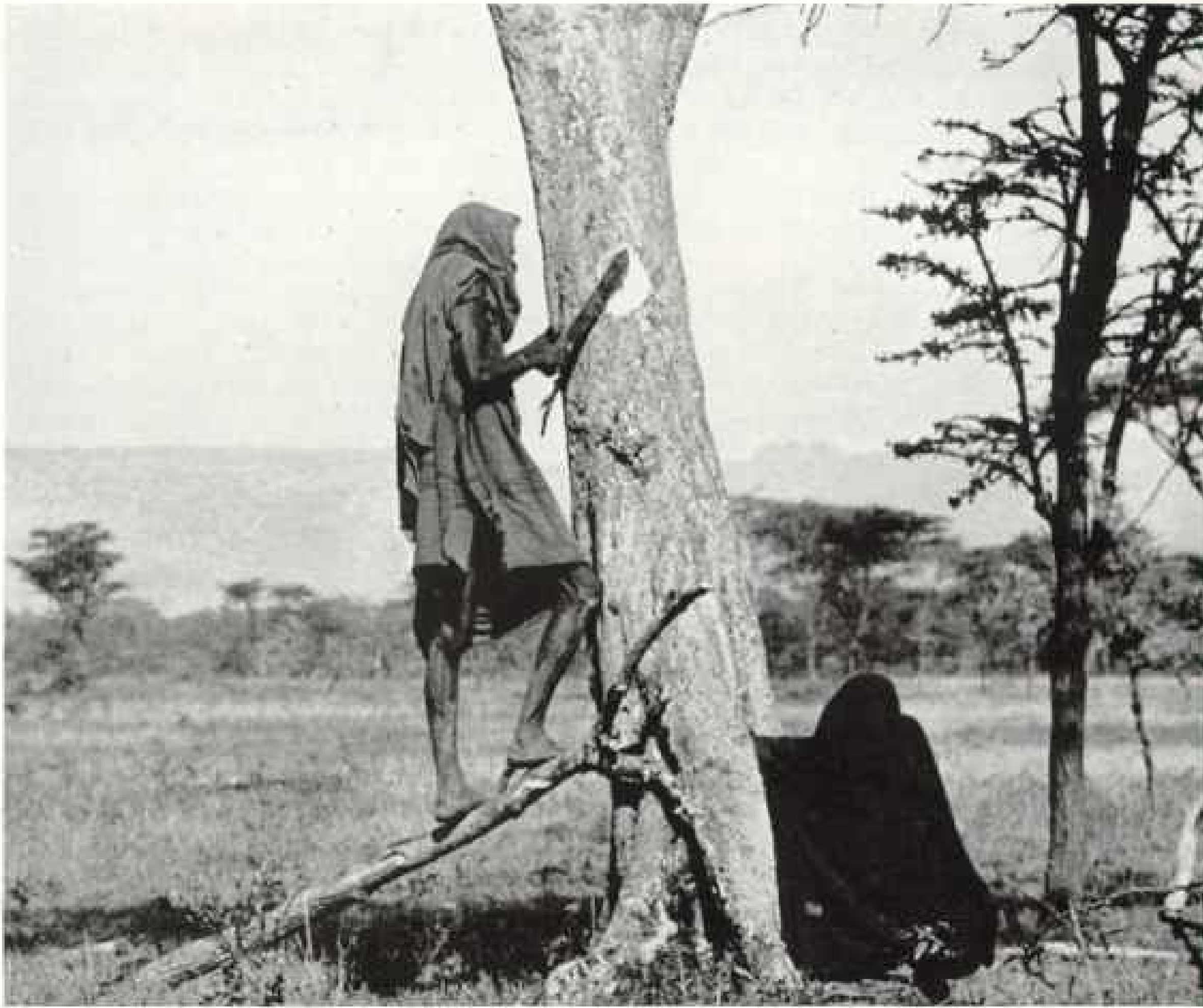
Honey-guides have never been known to lead to deserted nests, even if those nests were full of food. On the contrary, they have been known to guide to new, empty nests.

In at least one instance the bird led to bees feeding on flowers far from their hive. Evidently the buzzing caused the bird to stop.

This behavior, I think, gives a clue to the honey-guide's occasional leading to a dead body or live animal over which flies buzz.

In summary, then, what makes a honey-guide behave the way it does?

It is not a craving for honey, and it is not any well-laid scheme to get someone else to do its work. The bird is acting according



### Shrouded Against a Thousand Stinging Furies, Wandorobos Hack Open a Bee Tree

Some Africans carry the honey-guide's heart as a hunting talisman. Other tribes once cut off the ears of anyone so foolish as to kill the revered bird. Kenya's Wandorobos always follow when the guide calls, lest they offend the gods who sent it. Here tribesmen try to shield faces while clouds of resentful bees, pouring from the knothole, sting arms and legs. The golden harvest, coveted as food and as an article of trade, seems worth the discomfort to them. A single tree may produce 15 pounds of the sticky sweet.

to its instincts. Its behavior pattern, which we call guiding, is released by the sight or sound of creatures it has come to associate with bees' nests—ratsels, and humans except in areas where men no longer open the nests. When the bird finally brings its companion within the sight or sound of bees, its excitement subsides.

#### Bird May Aid Tuberculosis Fight

Inasmuch as honey-guides eat quantities of insects, the question naturally arises, Why their interest in bees' nests? We know now as a result of many observations and experiments that the birds not only eat the wax but extract nourishment from it. This digestive feat is almost unique in the animal kingdom. Aside from the honey-guide, only the larva of the wax moth is known to accomplish it.

Researchers are now trying to learn how the wax is broken down—whether by bacteria, enzymes, or some other agent. Results of this study may point the way to a drug that will break down the waxy armor protecting the bacilli of tuberculosis, leprosy, and certain other diseases.

Like the cowbirds of America and the cuckoos of Europe, honey-guides are parasites in their breeding habits. They construct no homes of their own but lay eggs in the nests of other birds. Flying away, the unsocial parent leaves her young for others to rear (pages 552, 557, 558).

Thus does *Indicator indicator* perpetuate itself. And the new generation, in its turn, may assume the unwitting role of guide, carrying out its mythical destiny of seeking revenge on the hapless bee.

## Belching Chimneys Write a Record of Prosperity in the Sky Above This Rich Valley Between France and Germany

BY FRANC SHOR

National Geographic Magazine Staff

*With Illustrations from Photographs by the Author*

THEY looked out of place and slightly comic as they filed out of the shiny aluminum bus and hurried down the cobblestoned street of the little village in the Saar—husky men with faces smeared grotesquely black, like badly made-up candidates for an amateur minstrel show.

"Coal miners," said the Saarlander who was showing me around his little country. "Here a dirty face can be a badge of honor."

In the Saar I found coal-streaked faces as common as lipstick on Broadway. Beneath the tiny state lie 6 billion tons of what Emerson called "portable climate." The 20 mines which tap that enormous fuel reserve are working around the clock.

### Coal Smoke over Forest and Field

Coal made the rolling, heavily wooded valley, bordering on France, Luxembourg, and Germany, a prize of war and a source of international controversy. Today coal has made the Saar one of the most prosperous areas in Europe. The mines are working at top speed, and the open-hearth furnaces and Bessemer converters of the six Saar steel mills are never cold. Rolling mills, glass factories, and light industrial plants are producing at capacity.

There is work for every Saarlander who wants it. Almost a third of the 976,500 population earned wages in 1953. Stores packed with food, clothing, and a thousand consumer articles are crowded with customers willing and able to buy. New homes are going up at a rate of nearly a thousand a month. War damage is being cleared, and new factories established. About the only people in Europe who are not worrying about the future of the Saar are the Saarlanders.

It was coal, too, which gave the Saar its present status as a self-governing state, linked with France in a Customs Union. France also handles its defense and foreign affairs.

The present government was established in 1947 in an effort to settle the century-old dispute between France and Germany as to who

should have the Saar and its fuel deposits. With the Saar coal, and the steel mills which sit atop it and draw from it their fuel, France is nearly the industrial equal of West Germany. Without it, she lags far behind in coal and steel production.

But the German Government has always insisted that the Saar is part of the Reich. When the present Saar Government was established, a beaten Germany had no voice in the discussions. Now, however, a renascent Germany is demanding drastic modification of the Saar terms.

As a result, the Saar again makes headlines—and diplomatic headaches—as it did after World War I.\*

The Saar is deceptive country. Late last summer I drove into Saarbrücken, the capital, for the first time. The road curved through great beech forests, past carefully tended fields where whole families were busily harvesting a good potato crop. The scenery was pastoral, but the reek of coal smoke in the air dispelled the illusion.

The asphalt highway mounted a steep hill, became a cobblestoned, tree-lined street, and dropped swiftly to the capital, a city of 115,000.

### War Smashed the Saar Capital

Saarbrücken was 80 percent destroyed or damaged by Allied bombing in World War II. Much restoration has been completed, but great areas still lie uncleared. The new buildings, starkly modern, contrast sharply with the stolid 19th-century City Hall and the crumbling brick walls of wartime casualties.

The Saar River meanders through the center of the city, its slow-moving oil-coated surface nearly hidden by long rows of barges. I saw laundry fluttering from clotheslines on the decks of some of the coal- and steel-carrying craft. Barge women wore wooden shoes to keep their feet dry as they sluiced the decks.

\* See "What Is the Saar?" by Frederick Simpich, NATIONAL GEOGRAPHIC MAGAZINE, February, 1935.



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The bulk of the Saar's huge output of coal goes to France. In the new chrome and concrete office building which houses the public corporation responsible for operation of the mines, I talked with M. Louis Calibre, an energetic young Frenchman who was the bureau's spokesman.

"The miner is the aristocrat of the Saar labor force," M. Calibre told me. "Coal is the keystone of our economy, and we honor the man who produces it.

"The miner is the best-paid worker in the Saar. He has the best working conditions. He works shorter hours, gets more holidays, and retires earlier on a higher pension than others."

#### More Miners Pensioned than at Work

The Saar miner, Calibre said, gets a base pay of nearly \$5 a day—unusually high by European standards. If he is married, with two children, generous family benefits bring the annual income to more than \$2,000.

If the miner lives more than two miles from his mine, and most men do, he is given free transportation. If he wants to build a house, a long-term loan is available. In the winter he gets free coal.

"All miners are covered by accident and illness insurance," Calibre went on. "The maximum retirement age is 65, but since the war the average miner, including those sick and disabled, has retired at 57."

The retired miner draws an average pension





### The Saar Makes Its Steel in a Modern Inferno

Allied bombers devastated Saar industrial centers during World War II, but the Völklingen Steel Plant emerged unscathed. It turns out more than 850,000 tons of raw steel a year, and employs 10,000 Saarlanders. One of the largest mills in the state, it manufactures die and tool steels, lathe tools, and high-speed steels (page 573).

Liesel Springmann

### ✦ Cows Pull a Wagon to a Miner's Farm

Like nearly half of the Saar workers, this miner owns a small farm, which he tills after hours. With his family he is going to his 3-acre plot to harvest potatoes. Apple trees line the highway above Uchtelungen, his village.

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### Smaller Than Rhode Island, the Saar Looms Large on Europe's Industrial Map

Nearly a million people crowd the 991 square miles of the 6-year-old state. Coal reserves of six billion tons and yearly steel production of almost three million tons give the area an industrial significance that belies its pastoral appearance. Forests cover more than 30 percent of the land; crops occupy almost as much. But it is coal, together with the steel mills feeding on coal, that shapes the Saar's destiny.

of nearly \$70 a month. The widow of an accident victim gets even more. Special benefits are paid for funeral expenses, including a sum sufficient to hire a brass band.

"We have more people drawing pensions than mining coal," Calibre continued. "The mines employ 67,500 people. But there are 71,000 people on the pension rolls."

A portion of the cost of these extensive benefits is borne by miners' contributions, but the Saar Knappschaft, the agency which handles the payments, gets more than half of its income from the state.

"The Saar spends a larger percentage of its budget for social security than any other state in the world," says Dr. Hans Daub, Knappschaft director.

I wondered how this was possible. An official of the Ministry of Economics explained the Saar's peculiarly fortunate financial position.

"Our taxes are set at the same rate as the French," he said, "in order that our industry

may not have an unfair competitive advantage. But other European states spend up to 40 percent of their annual budgets on defense. We have no army. We are not required to pay any reparations. We pay France 5 percent of our annual budget to cover defense costs. The balance gives us an enormous surplus. We spend it on reconstruction and social security."

The miners have responded with increased production. The Saar, a French official told me, is the only place in Europe where per-capita production exceeds the prewar average. In 1953 the Saar mines produced a record 17,000,000 tons of coal. The wartime high had been in 1943, when the Nazis drove 60,000 miners, most of them slave laborers, to a production of a little more than 16,000,000 tons.

The Saar coal deposits, high in quantity, are low in quality. Geologists describe the field as "an overthrust fault in the Upper Carboniferous system." The veins are thin, carry a heavy overburden of earth and stone, and

weave an erratic, undulating course. Ventilation and gas removal are not serious problems since the mines are of average depth for Europe—1,500 to 2,000 feet. The deepest shaft in the Saar is 3,000 feet. In near-by Belgium, some miners must descend 4,000 feet into the earth.

#### Dropping into a Saar Coal Mine

With two French officials I visited the new Franziska mine near Camphausen, a few minutes' drive from Saarbrücken.

There I was outfitted in mining clothes, from woolen underwear to coveralls, hobnailed safety shoes, and a plastic helmet topped with an electric lamp. In a steel cage we dropped 1,000 feet to the level where black-faced miners, stripped to their undershirts, tore the fuel from crumbling walls.

We walked several hundred yards through a winding tunnel, bending low to keep from bumping the steel beams which supported the ceiling. Many of the heavy arches were bent and twisted by the enormous pressure. The mine was hot, but a constant wind from the modern air-conditioning system whined through the tunnels, whipping eddies of coal dust into our eyes. A string of coal cars rumbled along the narrow track on which we walked, and we squeezed against the walls to let them pass.

We turned into a side tunnel, even lower than the first, and crept a hundred yards on hands and



#### Saar Dwellings and Dogs Have German Lines

World War II bombers destroyed or damaged half of the Saar's homes; 10,000 modern replacements are built each year (page 569). This 19th-century house in the mining village of Fischbach escaped undamaged.





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### Whining Saws and Pounding Hammers Tear Wealth from Seams of Coal

The Saar economy is merged with that of France to compensate the French for war damages. In return, France has invested heavily in the Saar. More than \$20,000,000 has gone into modernization of coal mines. This one, the Franziska, employs 1,100 workers and produces 3,000 tons a day (page 565).

knees to a gallery where miners were at work. The tiny chamber was dimly lighted. Headlamps cast grotesque shadows on the walls.

The men in their dirty uniforms were equipped with the most modern machines. Chain saws ate into the 4-foot-thick seam, casting a steady black stream onto a moving belt which carried the coal to waiting cars.

"This coal is typical of the Saar deposits," the foreman shouted above the shrieking of machines and the pounding of air drills. "It's about half coal and half dirt and rocks. It's washed and separated at a colliery down the road."

As he spoke, a dull roar, muffled but penetrating, echoed through the tunnels. The earth shook beneath our feet. Work stopped, and every man stood tense and waiting. A minute



passed, the echoes of the crash died away, and work resumed in silence. Later the foreman spoke briefly over the mine telephone and turned to tell the workmen what had happened.

"Tunnel collapsed on level C," he announced. "A block about 50 feet long and 10 feet thick fell from the ceiling. No one working there at the time."

The black-faced miners smiled, made small jokes about the work of the shoring crews, and went on with their labor.

"Things are a lot better for us down here than they were before the war," the foreman told me. "The air is cleaner, we have better tools, and the pay is higher."

#### Dread Enemy—Gas—Goes to Work

Gas, the ever-present enemy of the coal miner, is put to work in the Saar pits. It is pumped to the surface and used to heat the boilers which furnish the power to drive the pumps. The surplus is treated in a modern plant and piped to

#### Not a "Necktie Party," → but a Miner's Space Saver

A coal mine is a dirty place, and clothes are expensive. Saar miners change from the skin out before going down the shaft, leaving their good clothes hanging from the ceiling of their dressing room. They place shoes and valuables in small wire baskets and padlock every chain.

✚ This miner hoists his clothes aloft.

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### Allied Bombing, Which Smashed Saarbrücken, Lifted the Face of Its Main Street

World War II left the Saar's capital a waste of rubble. When energetic Saarlanders rushed to rebuild the city, the City Planning Commission insisted on modern buildings and setback store fronts. Clothes in this smart shop are expensive; suit and coat cost more than \$50 each.

Paris, where housewives use it for cooking.

The workers in the Franziska shaft waste no time during their 6-hour shift. Each crew is paid according to its total production, and every man is alert to see that his fellows do their full share.

Saar pay scales are so adjusted that the men who do the hardest physical labor get the most money. Boys begin work at the mines at 14. For two years they attend trade schools, working part of each day at simple tasks above ground.

At 16 to 18 they go down the shaft. First they work in the tunnels, shunting coal cars,

operating elevator controls, and performing similar easy tasks. As they learn the trade, they are assigned to crews working "on the face"—the men who actually mine the coal.

This is the hardest work in the mine. The pay is high, but a man cannot maintain the pace for many years. A miner usually stays "on the face" until he is 40 or 45. Then he is shifted to a less onerous job, and his pay drops accordingly.

The 1,100 men in the Franziska shaft produce 3,000 tons of coal a day. Experts estimate that the seams contain about 11 million tons of "fat coal A," the best in the Saar. The

mine is expected to continue production until 1965.

We went back up the shaft in our creaking cage to a shouted miner's farewell of *Glück auf!*—"Luck on the way up." Saarlanders, like miners in Germany, use the expression on all occasions, even as a greeting.

We took showers with the departing shift in an enormous tile bath. It took me nearly an hour to get the coal dust out of my eyes and ears. The miners, who had more experience and were a little less particular, spent only a few moments in the shower, leaving with eyes black-rimmed like movie sirens of the silent days.

#### Farming Supplements Miner's Income

The mine director introduced me to Johann Schneider, a tall, heavy-set, fair-haired man of 50. Schneider, now a coal-car unloader, has worked in the Saar mines for 36 years. He invited us to visit his home, 12 miles away in the little village of Uchtelfangen. We rode there with him in one of the dozens of company-owned buses which transport the Franziska miners to and from work.

Schneider's home is a spacious 8-room stucco, with a stable beneath the back of the house. A vegetable garden occupies the back yard, and a pasture stretches beyond the garden. Like almost half of the Saar workers, he has a small farm producing milk, eggs, vegetables, and feed for his livestock.

"Six acres are my own, and I lease six more," he told me as we walked over the meticulously tended fields. "With three cows, a couple of pigs, and a flock of chickens, I save a lot of grocery bills."

Frau Schneider, gray-haired and comfortably plump, had a hot supper on the table when Johann entered the house. She served him while he ate; then the couple and their two daughters walked a mile to their leased ground. Johann hitched one of the cows to a wooden plow and turned up a row of potatoes while his wife and daughters walked behind, gathering the crop. At dusk we returned to the house, where the Schneiders' two sons were finishing their own supper.

"Hans here is 16," Schneider said as he introduced us. "Johann is 23. Hans has started at the mine with me, but Johann is a school-teacher at St. Ingbert. Thank God, they were both too young to be in the war."

The Saar suffered heavily during World War II. Part of the Siegfried Line lay within

its boundaries; the countryside is still littered with great blocks of blasted concrete, remnants of forts, and "dragon's teeth" tank obstacles, on which Germany based her defense. When American troops entered Saarbrücken in March of 1945, after converging drives by Lt. Gen. George S. Patton, Jr.'s, Third Army and the Seventh Army of Lt. Gen. Alexander M. Patch, they found the city four-fifths destroyed or damaged. Saarlouis suffered even more, and a fourth of Neunkirchen was smashed. Half of the 127,000 homes in the Saar were destroyed or seriously damaged. More than 20,000 civilians were killed.

Many of the Saar's young men were in the Afrika Korps, and a lot of them spent several years in American prison camps. We encountered many English-speaking Saarlanders who had acquired their second language behind barbed wire.

The Schneider home was undamaged. For more than 100 years the family has occupied the same building, adding and remodeling from generation to generation. Schneider took an enormous, well-worn family Bible from the living-room table and showed us the records of his family's births, marriages, and deaths stretching back for 300 years.

#### Four Generations of Miners

"We came to the Saar from Switzerland in 1700," he said. "Here's my great-grandfather Jakob, born in 1803. He was the first of us to work in the mines. Grandfather Valentine followed him, then my father, Jakob, who was born in 1873. And now Hans will carry on."

The Schneider family is typical of the stability of the Saar labor force. Nearly 85 percent of the population is native born. German is the mother tongue of 99 percent, and nearly three-quarters are Roman Catholic. Women outnumber men six to five, and 20 percent of the wage earners are women.

"My wife doesn't earn a salary," laughed Schneider, "but with housekeeping, cooking, milking, keeping the chickens, and helping with the farm, I guess she earns her keep."

Frau Schneider stuck her head out of the kitchen, a smile on her rosy face. "I earn my keep just washing your dirty mine clothes," she said. "The rest you get free!"

Schneider finds that his dual task of working and farming makes a hard life, but a satisfying one.

"I haven't missed a shift in 36 years," he



### Clothes Don't Make the Saar Man, but They Tell What He Does

Saarlanders cling to distinctive dress for certain occupations. The costumed youth at left is an apprentice carpenter. For three years he will wear this velveteen coat and trousers, floppy hat, and double-breasted vest; he may never work on the same job more than six weeks, nor sleep more than three nights at home. The top-hatted gentleman is a chimney sweep. Carrying brushes, rope, and ladder, he customarily cycles to work.

said proudly. "The work is hard, but it's dependable. And if I hadn't been a miner, I could not have afforded to educate my son to be a schoolteacher."

I asked him how he felt about the Saar's future.

"That's none of my business," he answered. "The higher-ups will decide, anyway. They can't make a Frenchman out of me, but if they want to call me a Saarlander, I don't mind."

He looked around at his comfortably furnished living room. "Whatever they call me and whatever they do with the Saar," he smiled, "I'm going to get along. And I'll do a little better than most people, because I work harder."

It occurred to me, as I drove back to Saarbrücken, that Johann Schneider, with his pleasant home and his happy family and his long hours of hard work, would be an asset to

any country, a citizen to be proud of. I wondered if coal is really the Saar's biggest resource. Maybe the people are more important.

Basically, Johann Schneider is the "Saar problem." But he doesn't know it.

For a month I toured the Saar countryside, from Homburg to Mettlach, from Saarbrücken to St. Wendel. I visited the great Völklingen Steel Plant, where 10,000 workers turn out 850,000 tons of steel per year (pages 563, 573). I went through the Villeroy and Boch ceramic plant at Mettlach, where 5,000 Saarlanders produce 400,000 square yards of wall tile every month and where the value of the annual output exceeds \$15,000,000.

At Wadgassen I saw skilled glass blowers in the Villeroy and Boch crystal factory, where some of the finest tableware in the world is made. In rolling mills and foundries, in small

factories, and in collieries I talked with Saarlanders and watched them work. A few were interested in politics. Most preferred to talk about their jobs.

#### Opinions Differ on Saar's Future

Back in Saarbrücken I discussed the Saar's future with Franz Ruland, who bears the lengthy title of Minister of Economics, Transportation, Food, and Agriculture. Herr Ruland thinks the Saar is doing very well as an autonomous state, and he presented an impressive array of arguments to support his contention.

"Under the present economic union," he said, "our products enter France duty free. France is basically an agricultural country, and the French market can absorb more of our industrial products than Germany. The competition, were we part of the German economy, would be more than we could meet."

Herr Ruland spread a set of charts on his desk.

"We've expanded and modernized the Saar economy," he continued. "Our light industrial production is double the prewar level. We have 35,000 people working in fabrication industries now. There were a little more than half that many in 1939. Coal and steel are still our biggest money-makers, but we're developing a better balance.

"Before the war we exported nearly all our coal and steel. Today we use 40 percent of the coal and 30 percent of the steel in local industry. There's been an economic revolution here in the past seven years.

"I am entirely optimistic concerning the economic future of an independent Saar. It is in a better position than any other state in Europe."

Herr Ruland's optimism is not shared by everyone, even within the Saar government. One highly placed official, who asked that his name not be used, contended that the



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#### The Saar's First Family Studies the State's First Seal

Minister-President Johannes Hoffmann holds his grandson, Hans-Georg Linsenmeier, who points to a heraldic bridge symbolic of Franco-German unity. Heinz-Juachim, the elder brother, holds the framed official seal. Frau Hoffmann designed the emblem (page 574).

economic union with France had been successful because of exceptionally favorable postwar market conditions.

"The Saar would be better off if we were granted free access to the German market. It would be harder at first, but our future would be brighter as partner of the dynamic, growing German economy," he declared.

This official pointed out that the Saarlanders, by nature a frugal and saving people, have withdrawn their savings from Saar banks, even though times have been of great prosperity.

"Today's attitude seems to be to spend money as fast as you get it, for tomorrow it may be worthless," he said.

Figures from the Saar's Bureau of Statistics support his contention. Postal Savings accounts have dropped steadily. So have savings accounts in the state's private banks.

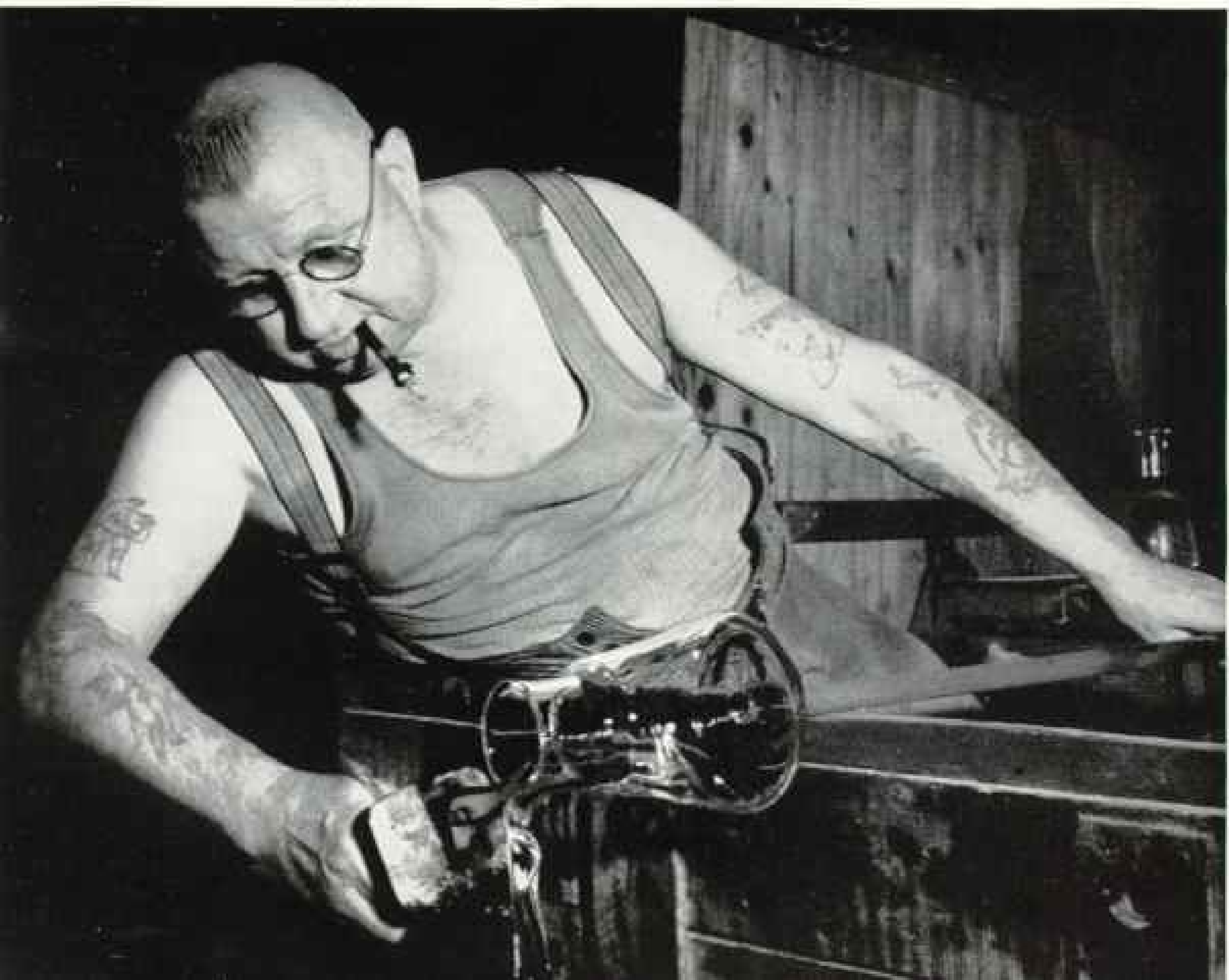
Other statistics, however, indicate that the Saar's present position is enviable. Over-all industrial production in 1952 reached an all-time high, 30 percent above the prewar year of 1938. Steel production was the highest in Saar history. Light manufacturing concerns did a business of nearly \$200,000,000.

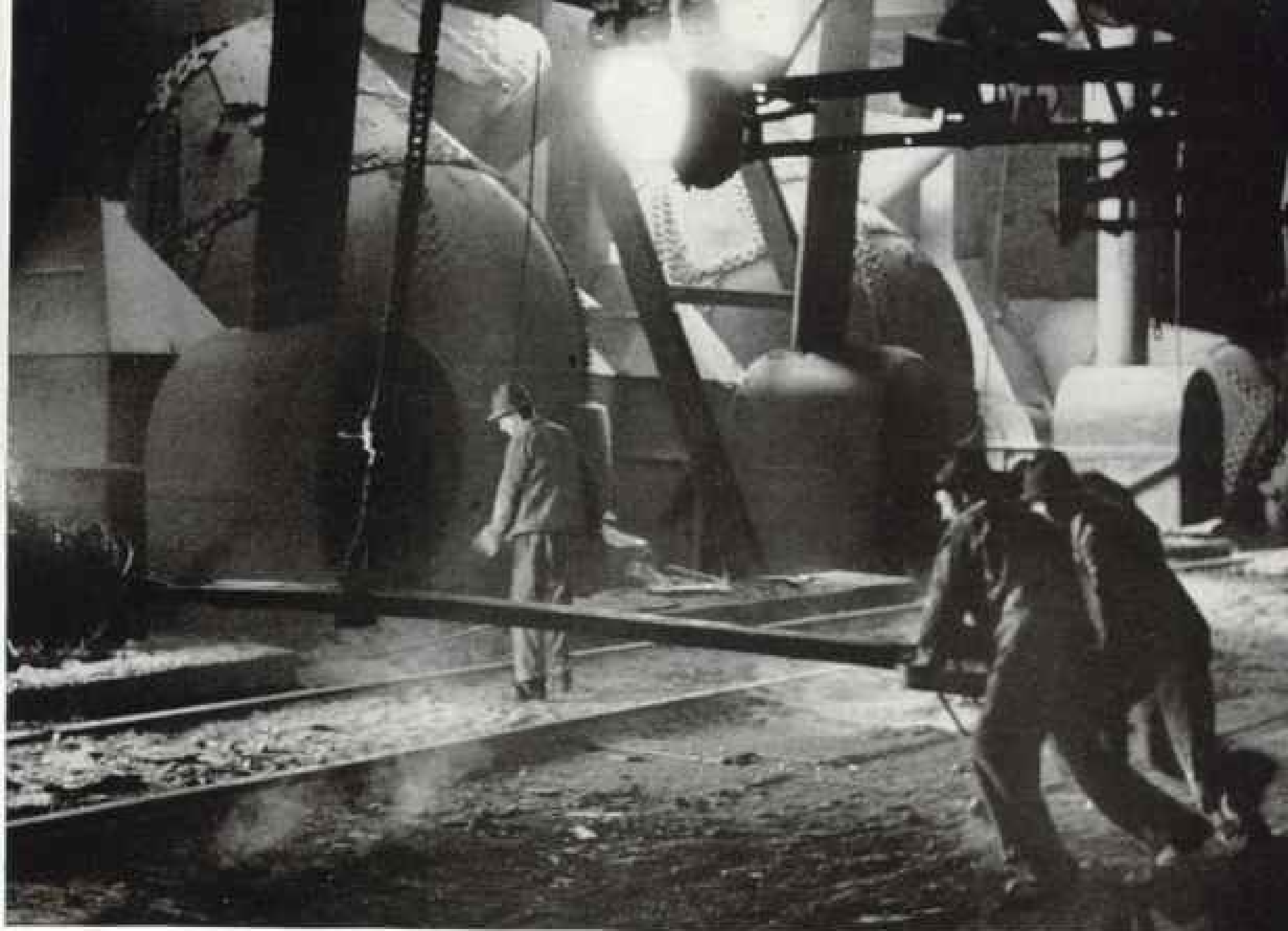
Saarlanders built 6,000 new homes, 4,000 multifamily dwellings, and repaired 5,000 more houses.

The present-day Saarlander is strongly German in culture. He likes heavy German food, prefers German clothes and music and literature, and speaks German. All Saar newspapers, books, and magazines are in that language.

But it was not always so. The Saar has been changing hands since the days of Caesar, and the people have been subjected to many influences from many lands.

Caesar's legions marched through the Saar Valley, as did the troops of such subsequent conquerors as Charles V, Louis XIV, Napoleon, Von Moltke, and the United States' audacious General Patton. And the political complexion of the valley has been chameleon-





### Steel and Glass Furnaces Convert Saar Coal into Jobs and Riches

Völklingen workers, charging a Bessemer converter, add a giant shovelful of high-grade scrap metal to the molten mass within the furnace. Steel scrap supplements iron made from neighboring Lorraine's ore.

← This glass blower has worked 43 years in the factory of Villeroy and Boch at Wadgassen. Highest paid craftsman in the plant, he turns out 160 lead-crystal pitchers a day. His shears cut hot glass like butter.

like ever since the beginning of modern history.

The valley was first settled, in pre-Christian times, by the Celts. The word "Saar" probably comes from their term for running water. The Saar was under Roman domination from the time of Caesar until early in the fifth century. The Romans were defeated by the invading Huns, who were in turn conquered by the Franks.

#### Saar Has Been Both French and German

The Franks gave way to the Holy Roman Empire. After the 11th century the Counts of Saarbrück, provincial nobility and local war lords, gradually expanded their holdings. In 1235 the title passed to the French Counts of Sarrebruck-Commercy.

The Counts did homage to their neighbors: the Bishop of Metz, the King of France, and the Holy Roman Emperor. From 1381 until 1574 the rulers of the Saar shuttled from French to German allegiance and back again. The Thirty Years' War found them on the

French lists, and their troops served in the armies of Louis XIV. One Count of Nassau-Saarbrücken fought against France in the 17th century, but his son joined the French against the League of Augsburg. Thence, until the French Revolution, Saarlanders served in the French court and army.

During all this period, the Saar nobles, first the Counts of Saarbrück, then of Sarrebruck-Commercy, and finally the Counts of Nassau-Saarbrücken, had maintained at least a show of independence.

But early in the 1790's the people of the Saar joined the rush of Europe's masses to identify themselves with the French Revolution. Much of the Saar was received into the French Republic. Disillusionment came quickly, however, and the Saarlanders hastened to resume their separate identity.

In 1797, the German emperor ceded the Saar territory to the French Republic, but in 1814, after Napoleon's downfall, the first Treaty of Paris restored in general the Saar's frontiers to those of 1792, except that France



was allowed to keep the district of Saarbrücken and a part of Lebach. After Napoleon's ill-fated attempt at a comeback, however, the second Treaty of Paris in 1815 detached all of the Saar from France. For more than a century it was German.

This long period of uninterrupted German attachment coincided with the meteoric rise of Germany in European affairs. The population of the Saar grew from 80,000 to 500,000 in the century before 1900; by 1918 it reached 700,000. The German cultural pattern became the Saar way of life.

#### France Surprised the Diplomats

The French demand for the Saar in 1919, at the end of World War I, came as a surprise to American diplomats engaged in writing the peace treaty. As a compromise, the Saar was placed under the administration of the League of Nations, where it remained until 1935.

In the 1935 plebiscite, when they had their first chance to express an opinion as to their future, 477,119 Saarlanders voted to rejoin Germany, 46,613 asked retention of the League's administration, and only 2,124 voted for union with France. The area was promptly returned to the Reich.

At the end of World War II the Saar was made a part of the French Zone of Occupation. The French authorities made no attempt to incorporate the Saar with France. Instead, they set about establishing it as a self-governing state. At first the French High Commissioner had a veto power over the actions of the Saar Government. This, however, was soon abandoned, and M. Gilbert Grandval, French High Commissioner, was made French Ambassador to an autonomous Saar.

#### Saar Has Own Constitution

"We intend in no way to infringe upon the culture, customs, traditions, and language of the Saarlanders," Ambassador Grandval announced in 1947. "We wish simply to aid them, since they desire their Saar political autonomy, to create and establish their cultural autonomy."

The present constitution, adopted in 1947, declares that "the sovereignty rests with the Saarvolk." It divides the powers of government between a Cabinet and an elected Landtag, or parliament.

All Saarlanders more than 20 years of age

can vote. A bill of rights, included in the Saar Constitution and modeled on that of Germany's Weimar Constitution of 1919, restricts the powers of government over the individual.

Saar officials point to many concrete evidences of independence. The Saar prints its own stamps and operates its own tobacco monopoly. A Saar team took part in the 1952 Summer Olympic Games in Helsinki, Finland. The state is an associate member of the Council of Europe, with three delegates and three alternates in the Consultative Assembly.

The chief visible evidence of French influence in the Saar is the French franc, which is the official currency of the state.

The chief executive of the Saar is a Minister-President, chosen by the 50 elected members of the Landtag. The Minister-President chooses his own Cabinet, subject to Landtag approval.

#### People Hope for No More War

The present Minister-President, chosen in 1952 for a second term, is short, rotund Johannes Hoffmann. He received me in the comfortable living room of his modest home, his wife at his side and two grandchildren fighting for space on his lap (page 571).

"There is only one answer to the Saar problem which can satisfy everyone," he said. "That is European unity. If we can achieve that, there will be no 'Saar problem.' The Saar will take its rightful place as a part of the European Community."

The Minister-President moved the children from his lap, walked to the wall, and took down a small painting of the new Saar seal, designed by his wife. He pointed to the bridge, which surmounts a white cross quartering a blue and red shield.

"This bridge is our symbol and our hope," he said. "The Saar need not always be an invasion path between France and Germany. It can become a bridge over which those two great nations can meet in peace. That is what we are working for."

"If we succeed, people will stop talking about the Saar problem. They will recognize it for what it is, the Saar opportunity."

The people of Minister-President Hoffmann's Saarland may not share his vision, but they share his hope. A tall coal miner sat next to me on the dressing-room bench in the great Maybach Mine and discussed



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**Saarbrücken or Pittsburgh, the Five-o'clock Rush for Home Differs Only in Setting**

Thousands of Saarbrücken's workers live in suburbs; rush hour reminds New Yorkers of their own commuters' crush. Wartime shell fragments pocked the Central Railway Station.



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### Hühnerfeld Youngsters Have a Right to Smile: They're Getting a New Youth Center

Carpenters are scarce and expensive in the Saar, where war destroyed or damaged 65,000 homes. Miners and workers have formed cooperatives to help one another build new houses. Since 1946 one group in Hühnerfeld has completed more than 100 homes like the one in the background. Now they're working on a play center for children. These kids, like others in the village, spend their play hours helping with the job.

his own primary concern for the future of his country.

"I don't care what they do with the Saar," he sighed, "as long as they avoid another war. I always remember the only promise Hitler ever made that he kept."

"What was that?" I asked.

"He came here to make a speech in 1935, after we had voted to rejoin Germany," said the miner. "I remember his very words: 'Give me 10 years, and you will not recognize your cities.' The 10 years were up in 1945.

He told the truth. I couldn't recognize my home town. After the bombing was over, I couldn't even find it."

The miner pulled on his hobnailed shoes. "We aren't politicians here," he said. "We're just people. All we ask is a chance to work, to raise our children, and to live our own lives. If we can do that, I'll accept any settlement."

He walked to the mine cage, turned, and waved goodbye.

"Glück auf," he said.

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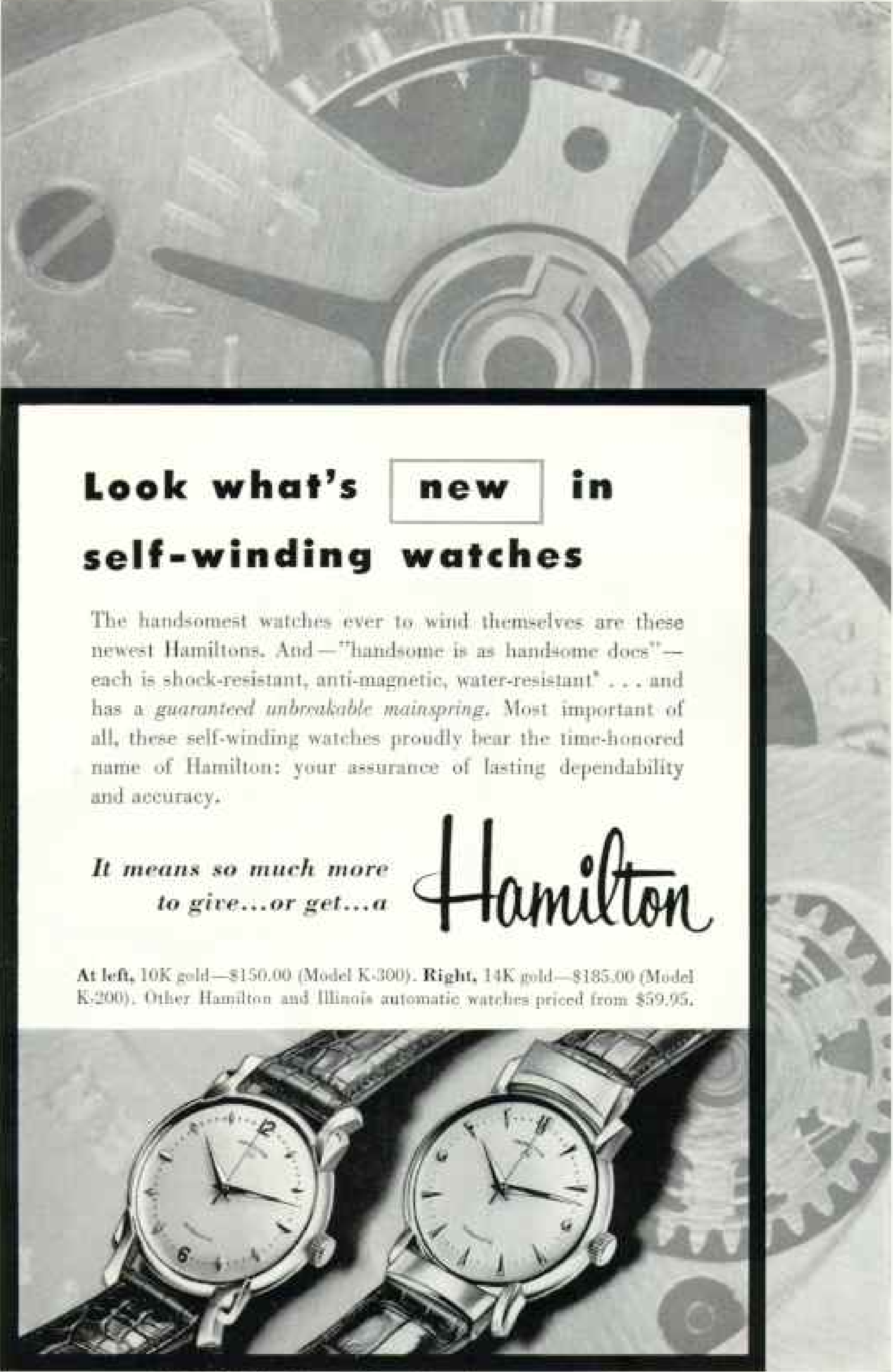
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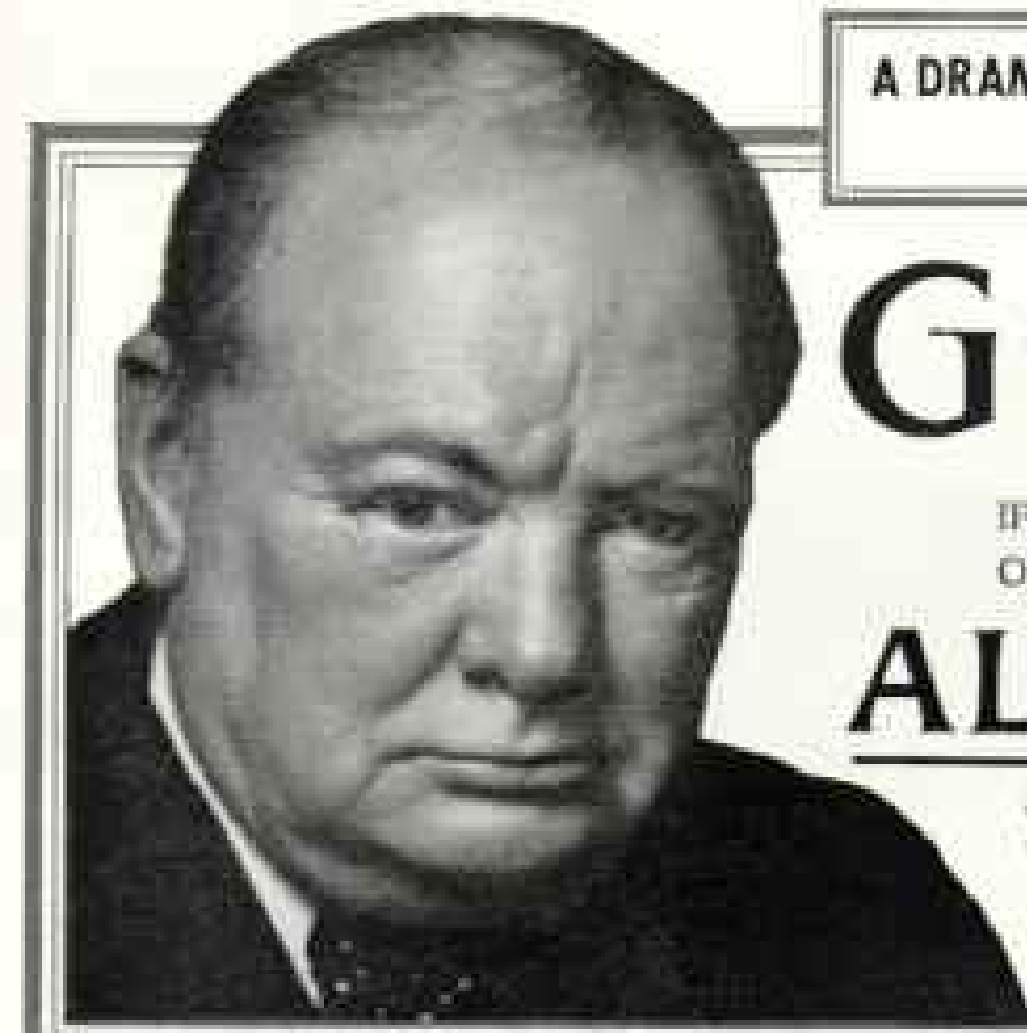
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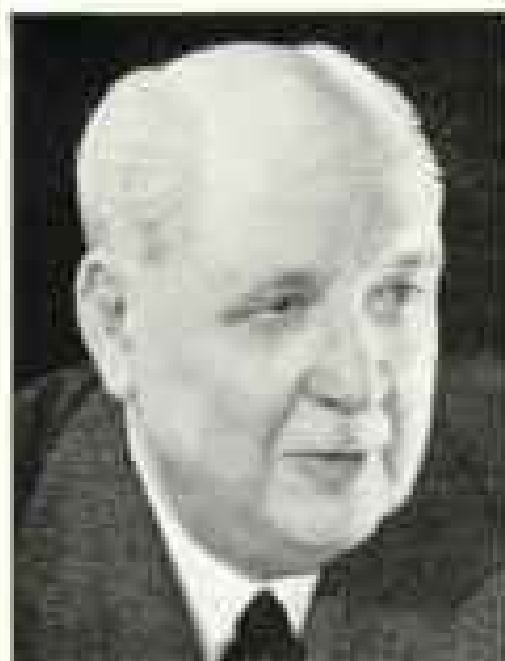
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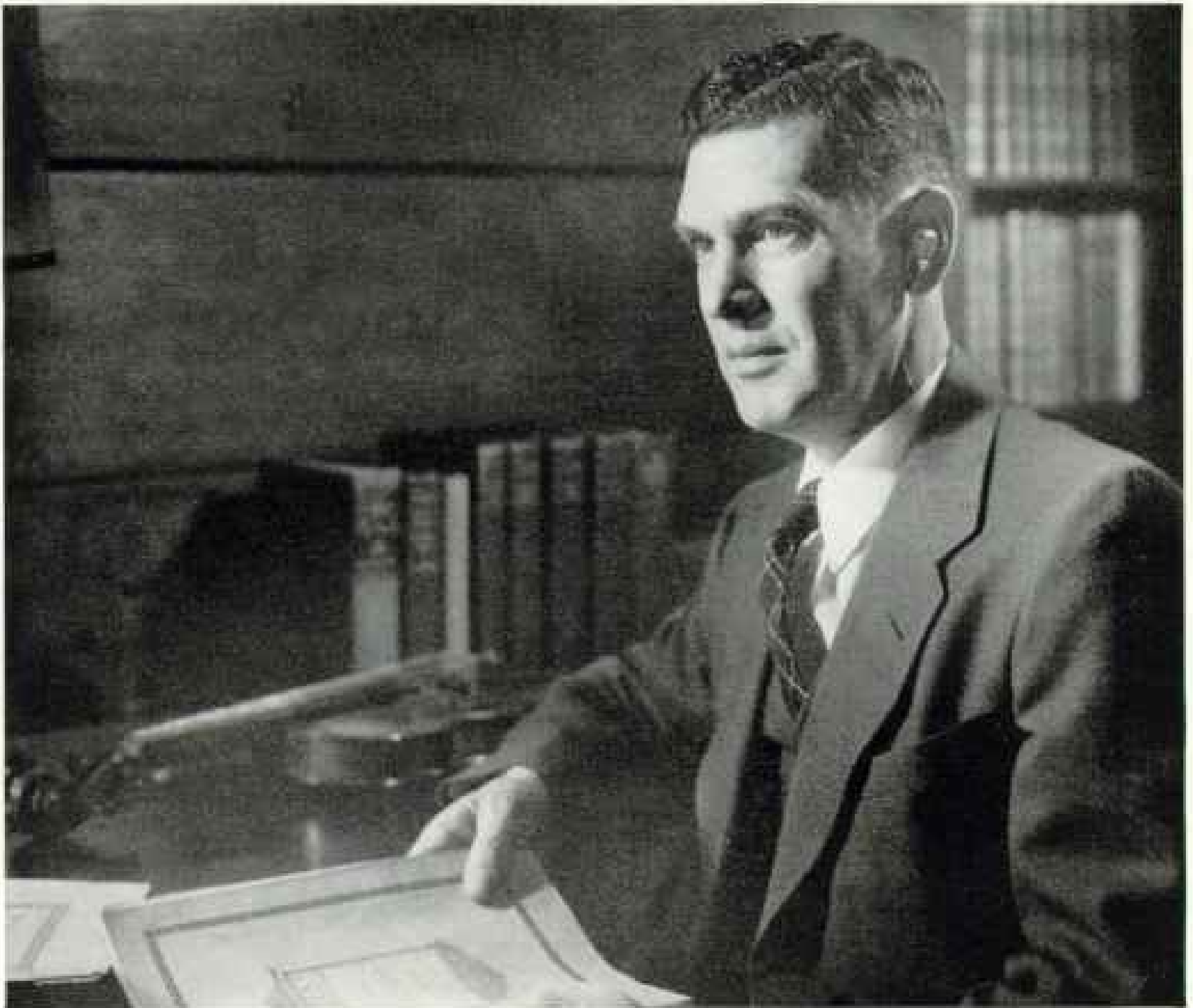
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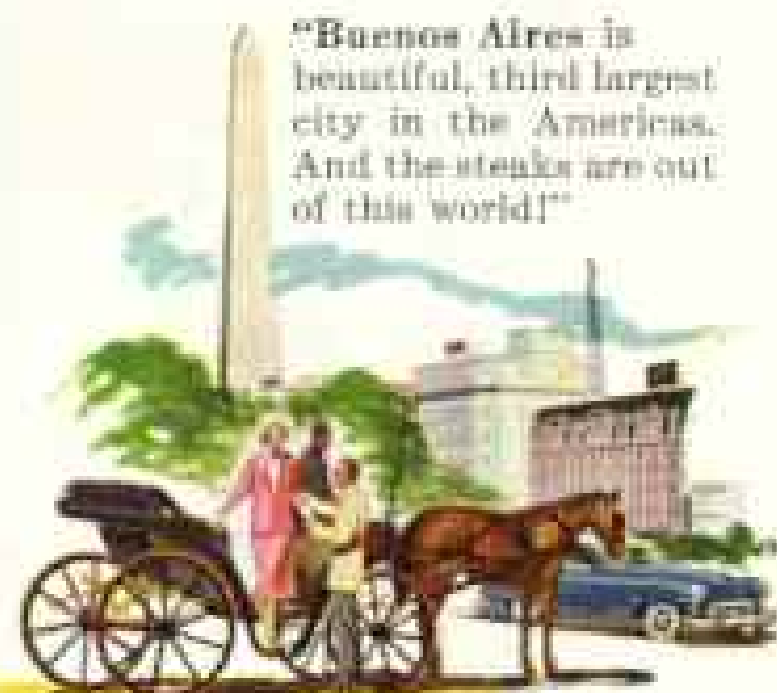


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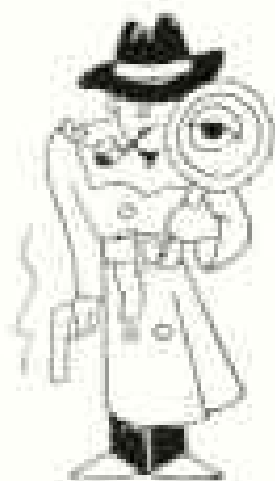


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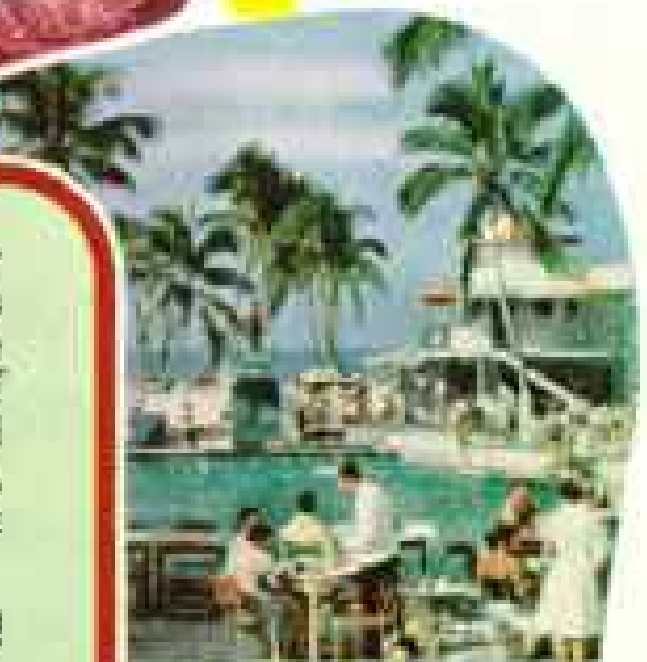
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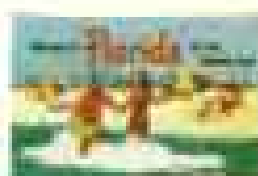


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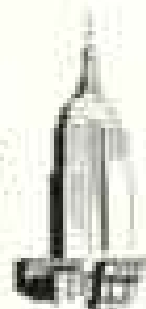
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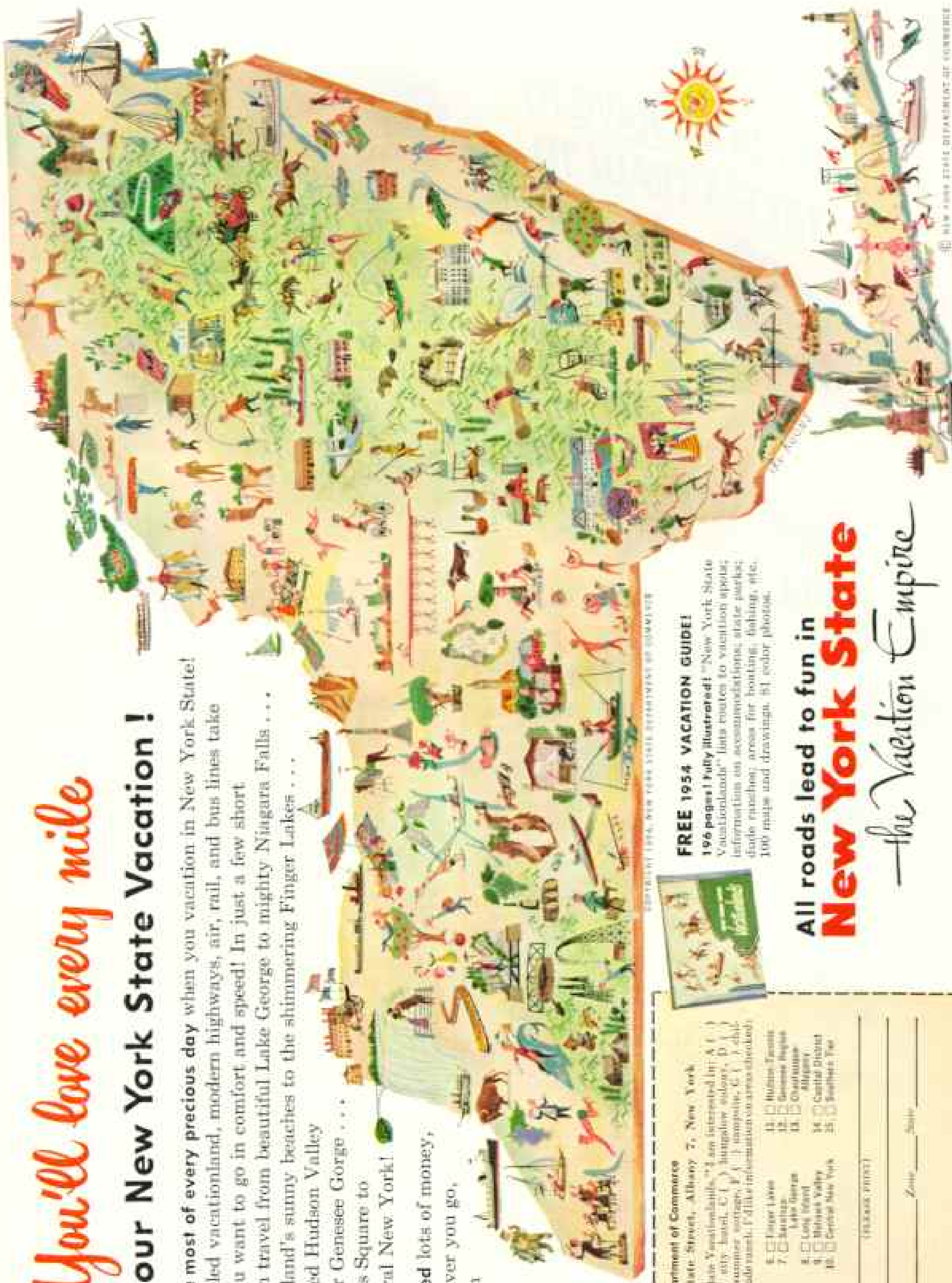


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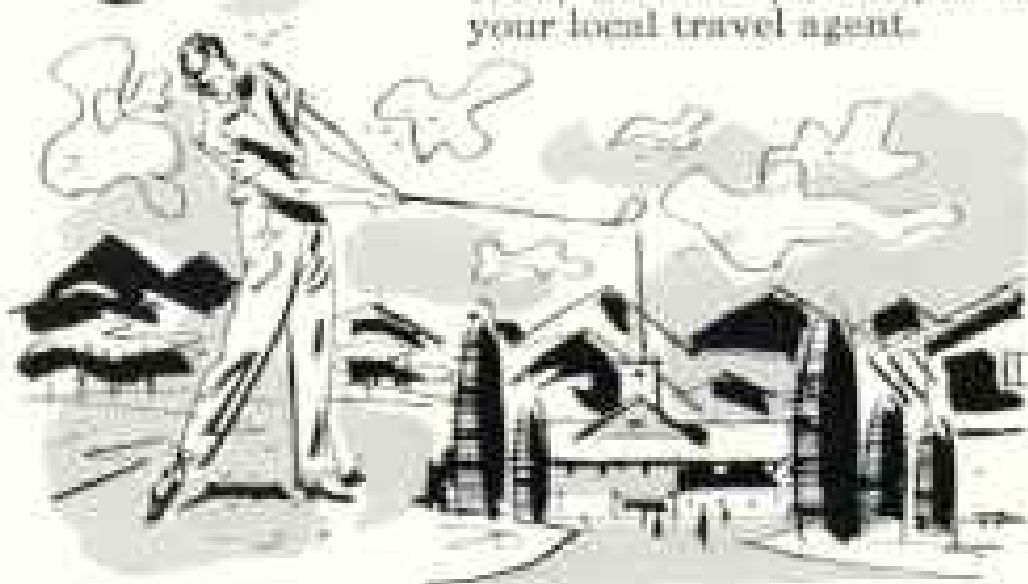
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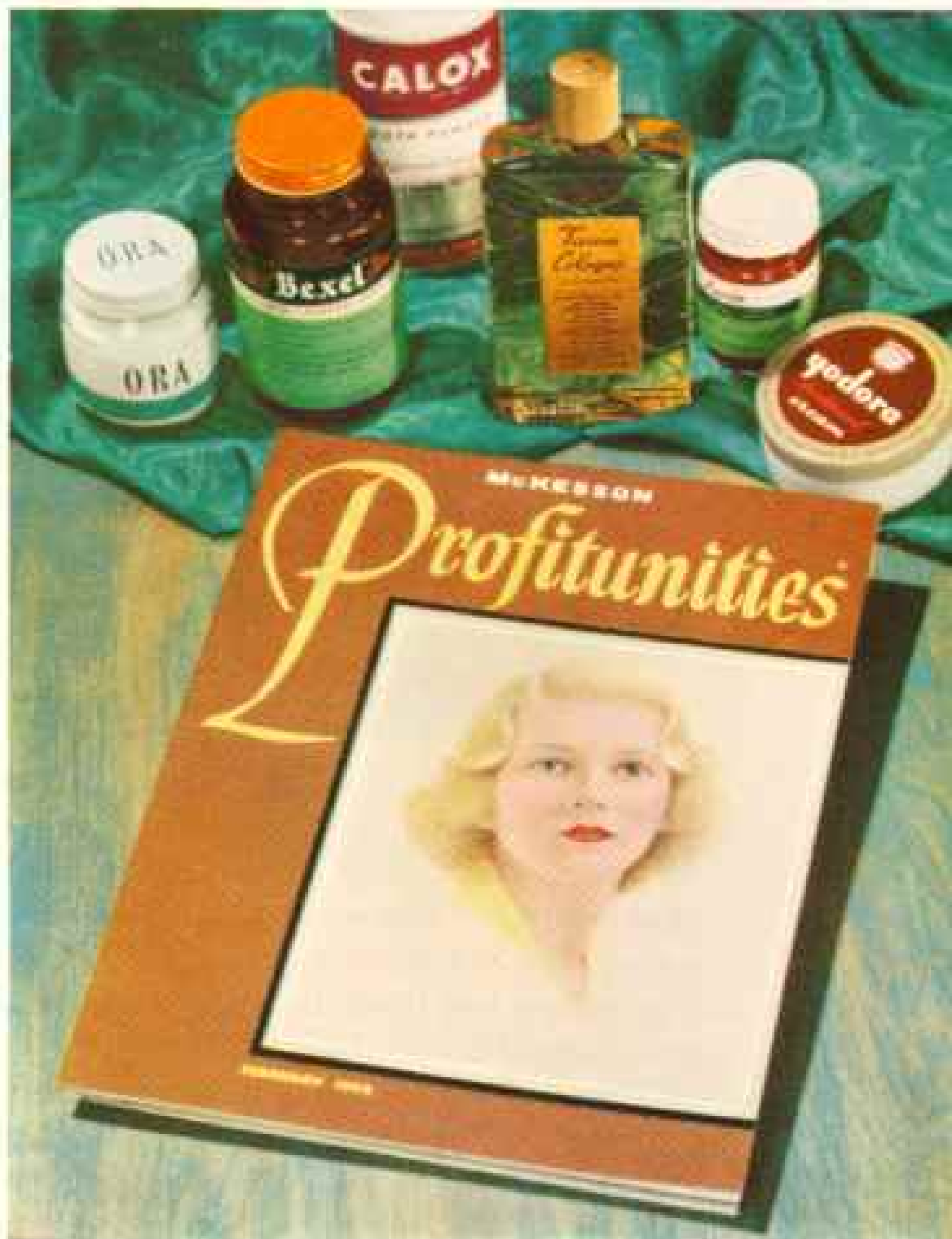
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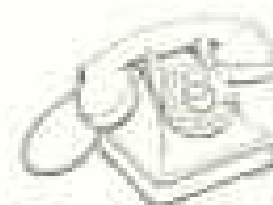
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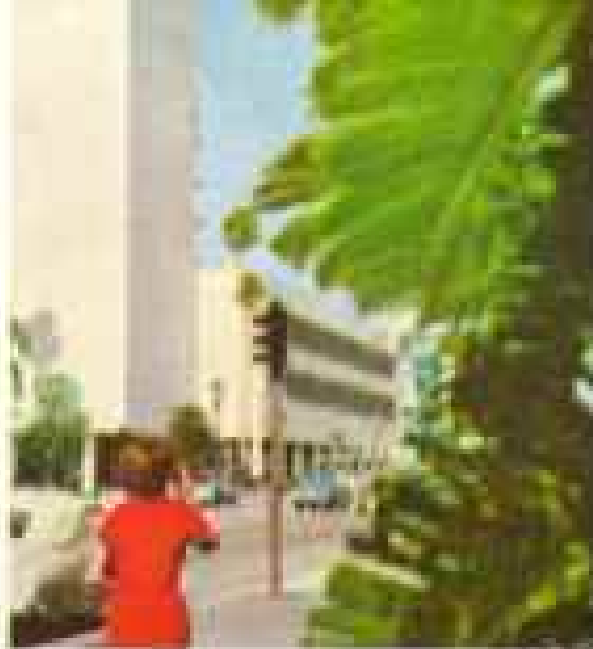
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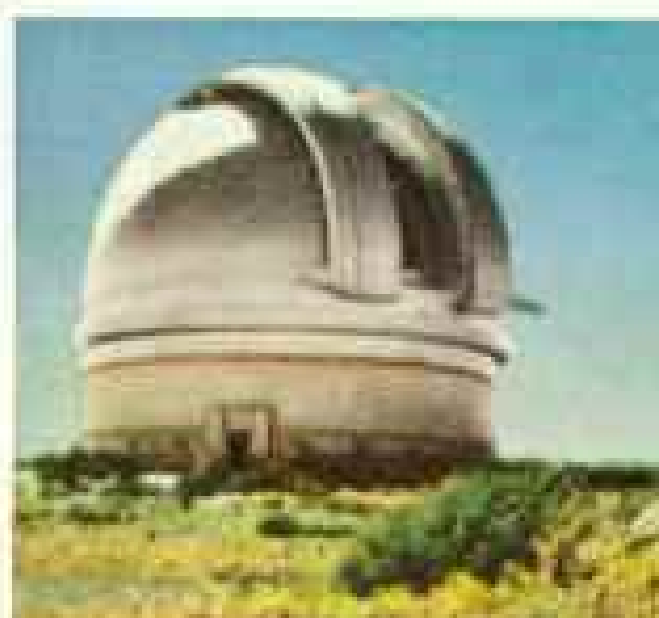
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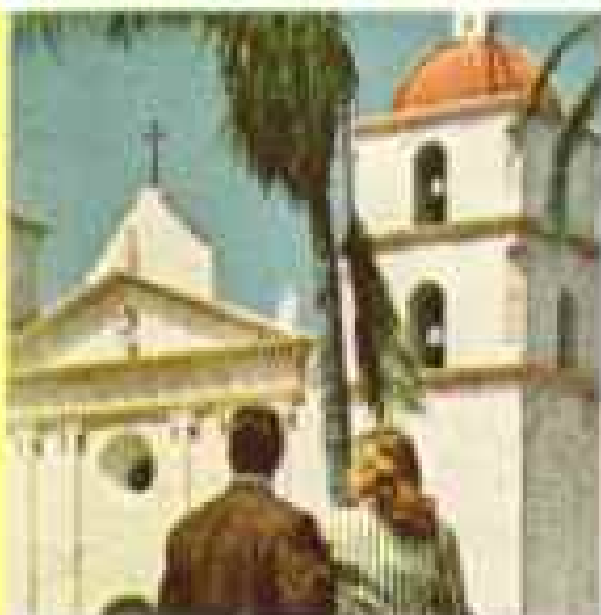
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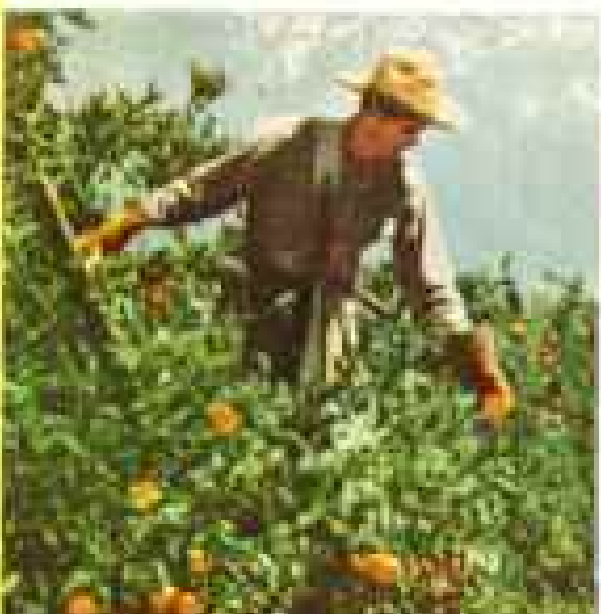
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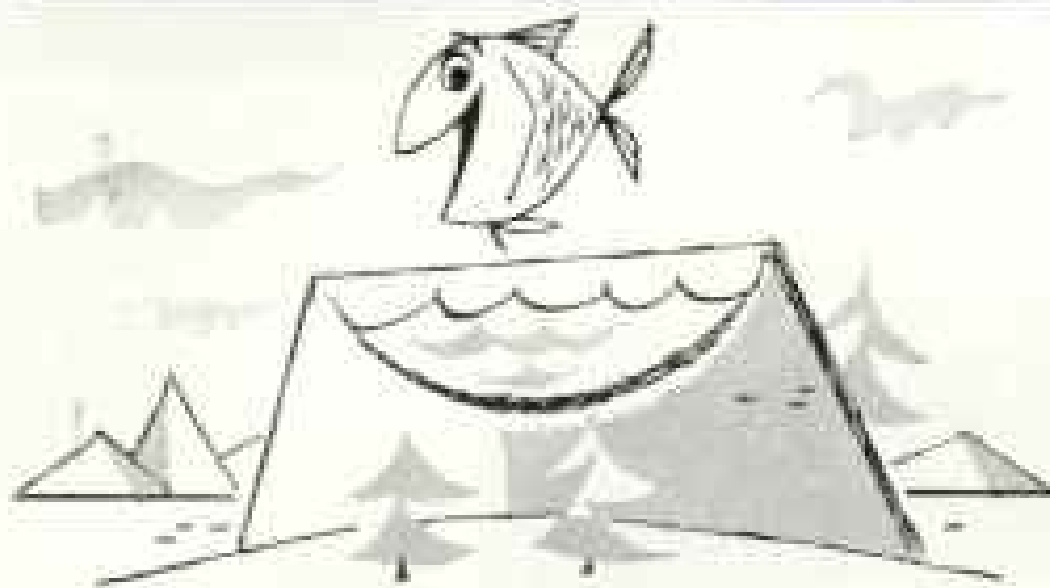
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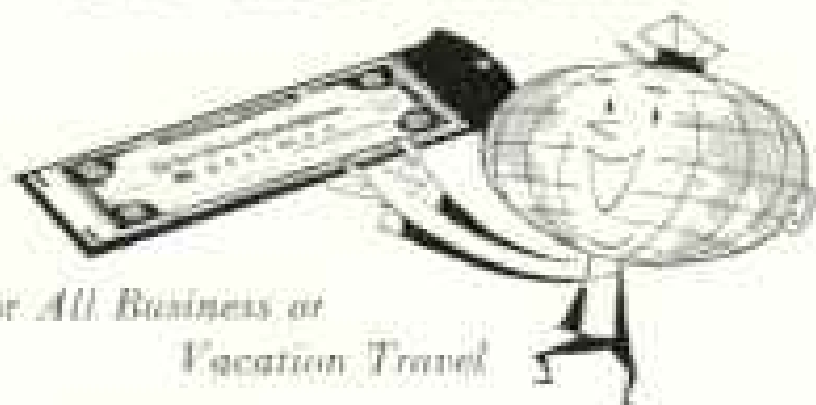
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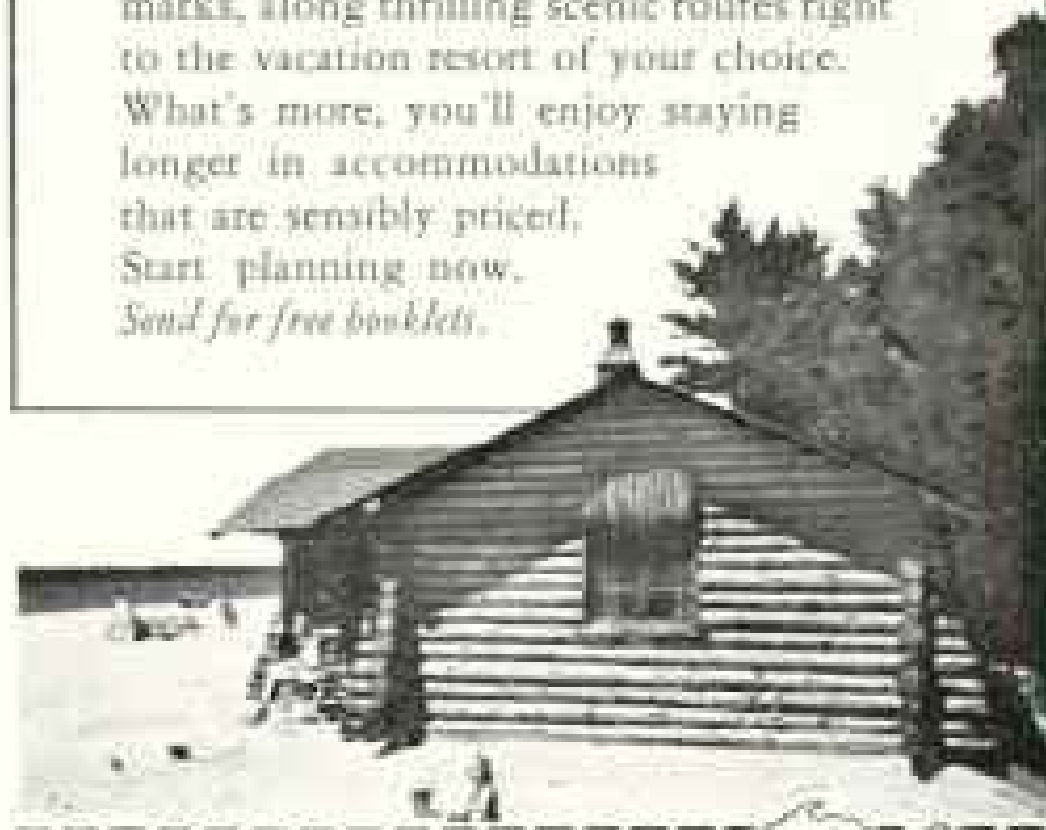
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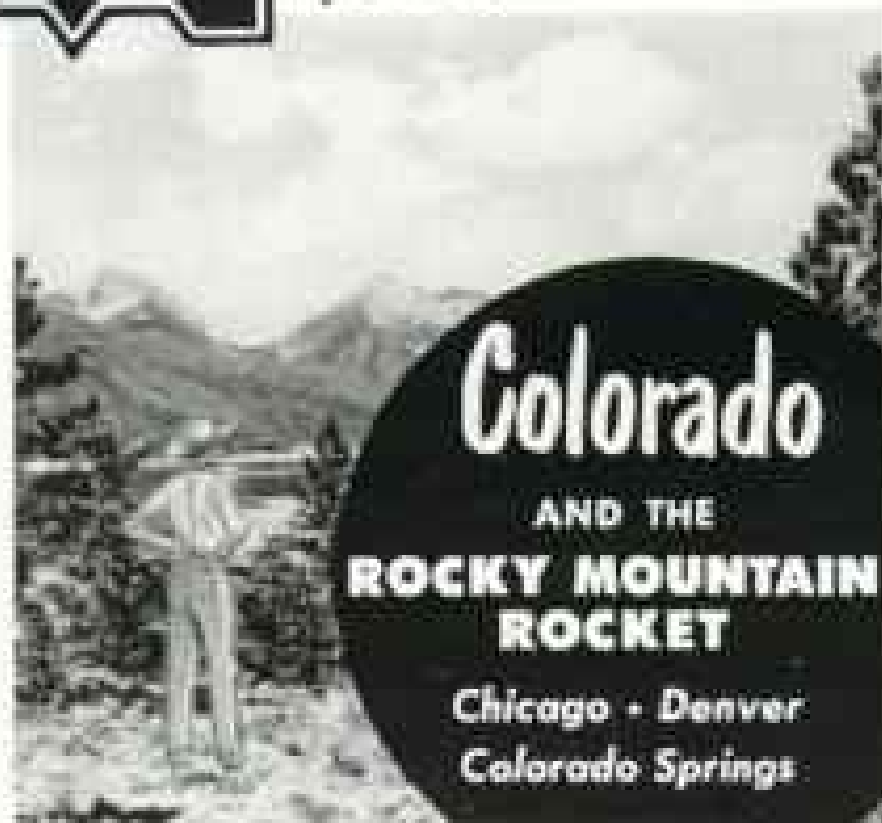
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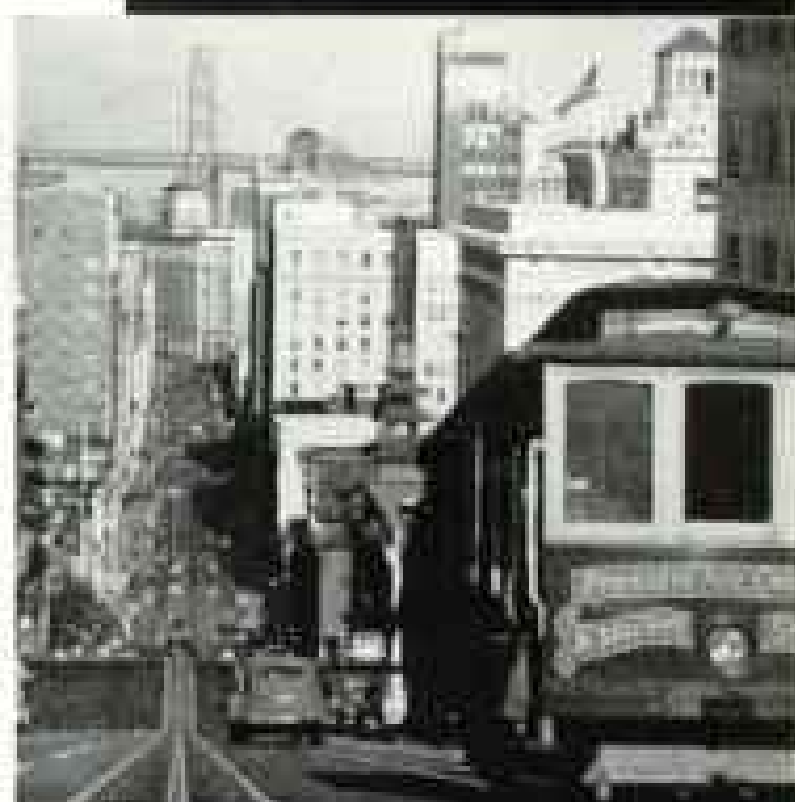
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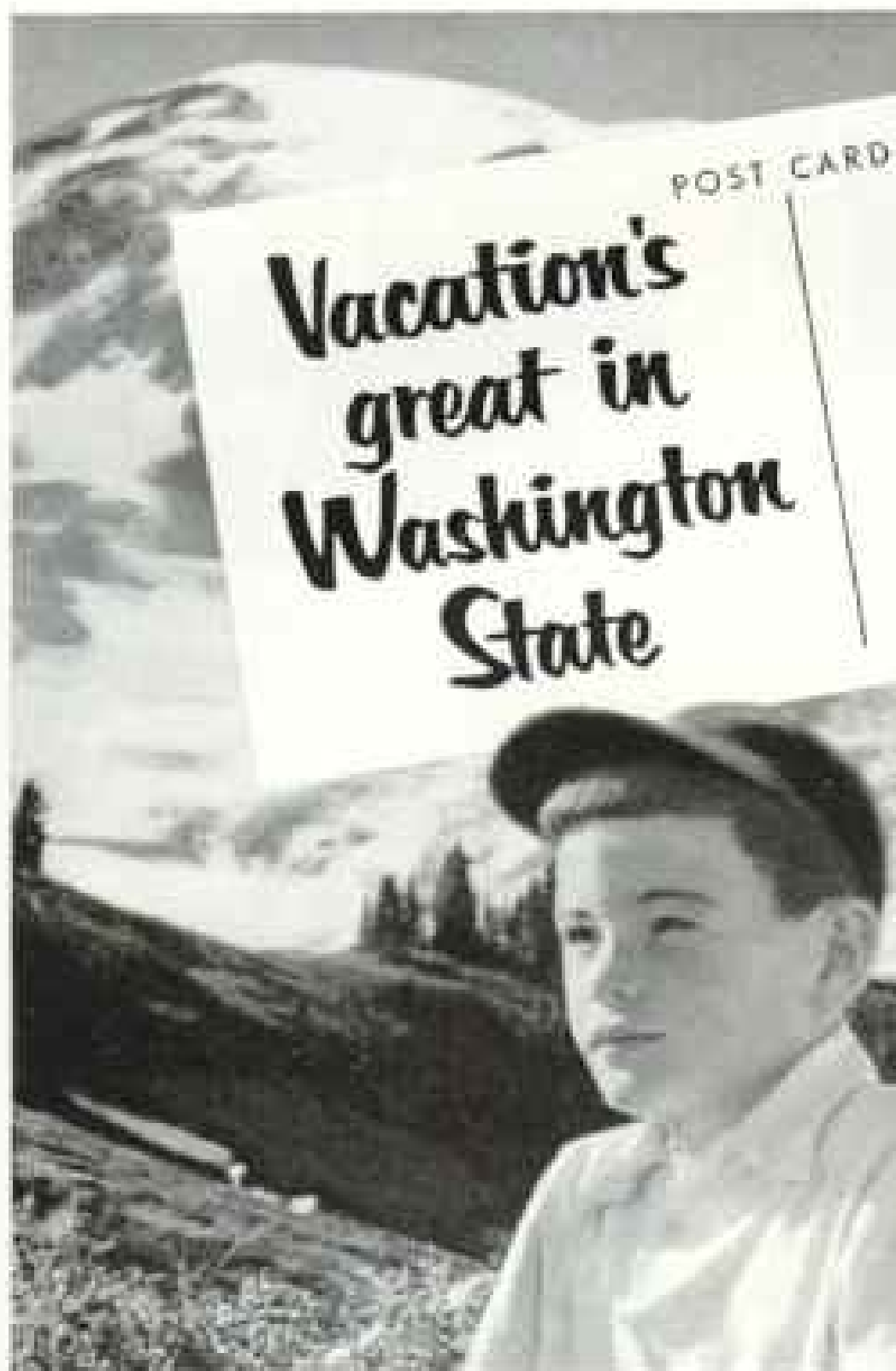
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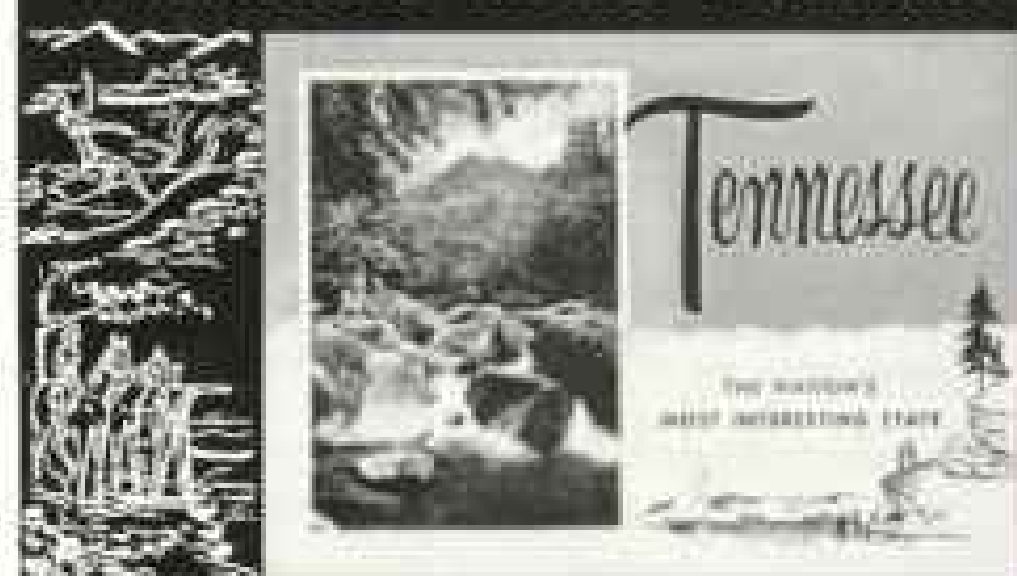
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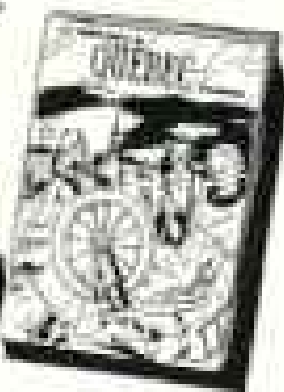


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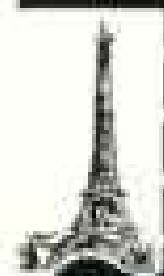


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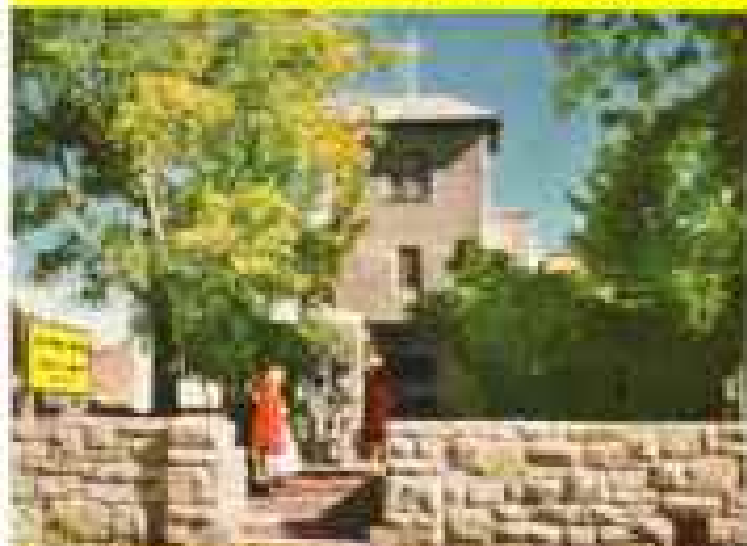


A 7000-mile Network of paved highways in New Mexico carries you to never-ending points of interest—such as towering Shiprock (*above*). This Land of

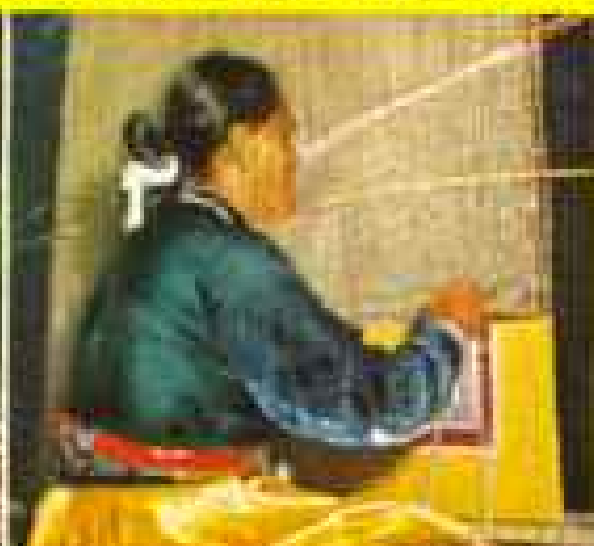
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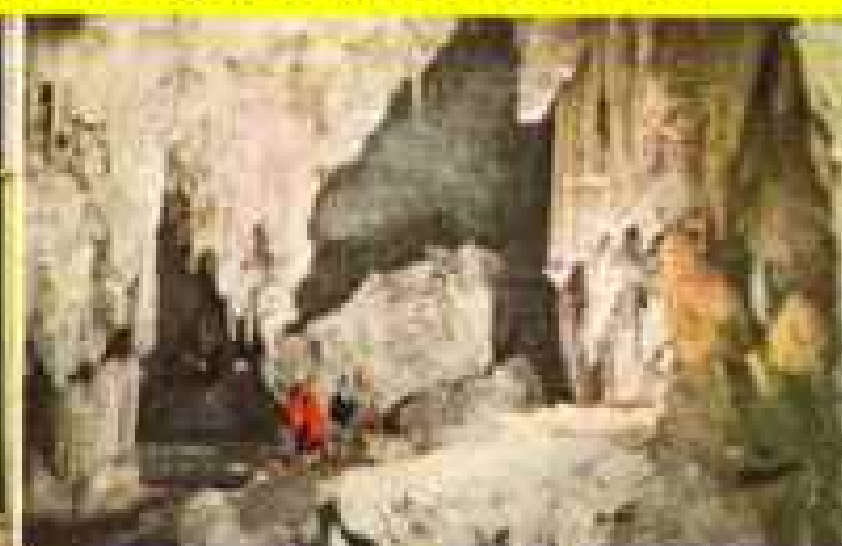
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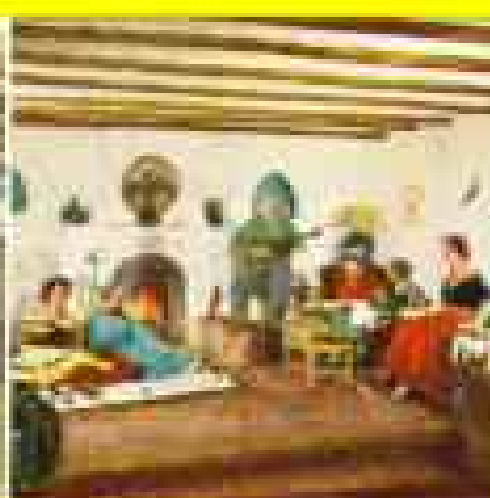
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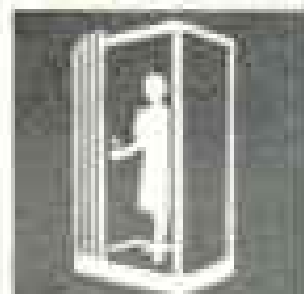


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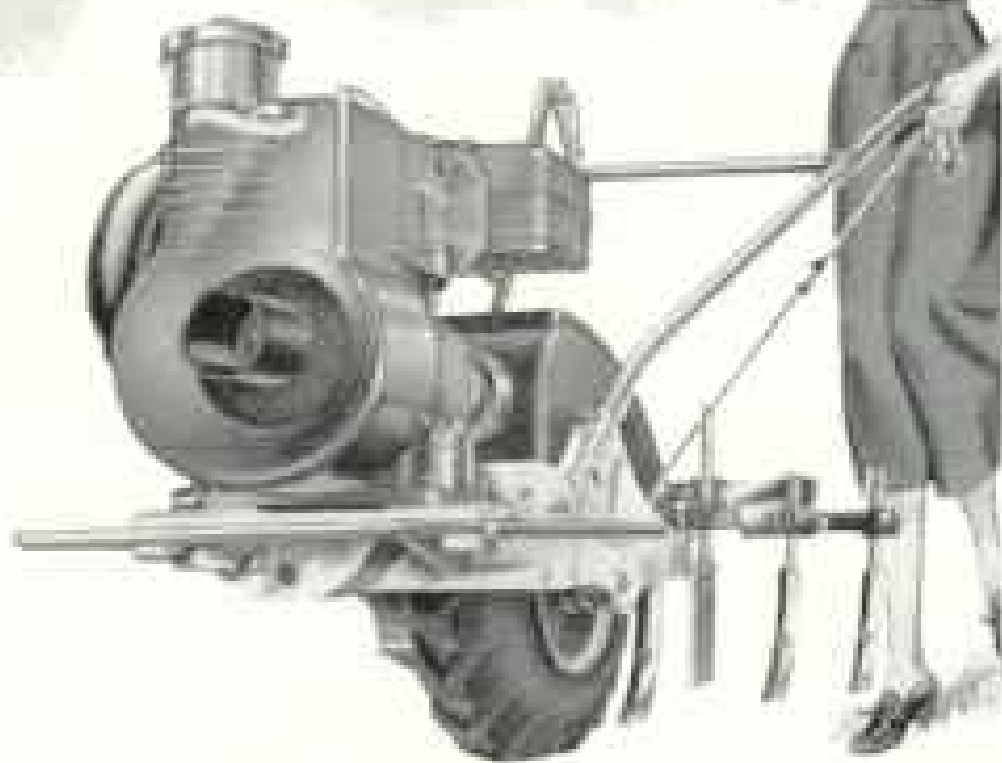
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You can easily see why time favors cancer when you consider its nature. It usually develops in just one place and as long as it remains localized, complete cure is possible by surgery, X-ray, radium and certain other radioactive substances.

If treatment is delayed, however, cancer can spread to many parts of the body and become incurable. This is why early detection of cancer is so important. While pain is not usually an early symptom of cancer, there are certain symptoms by which the commonest kinds of cancer can be diagnosed early. These warning signs are:

1. Any sore that does not heal.
2. A lump or thickening in the breast or elsewhere.
3. Unusual bleeding or discharge.
4. Any change in a wart or mole.
5. Persistent indigestion or difficulty in swallowing.
6. Persistent hoarseness or cough.
7. Any change in normal bowel habits.

These danger signals do not mean that a person necessarily has cancer. Indeed, many people who suspect they have the disease find, upon examination, that they do *not* have cancer. However, the danger signals do indicate that something is wrong, which you should have checked by your doctor.

*Being on the alert for cancer's warning signs is your responsibility in the drive for early cancer detection.* In fact, the American Cancer Society has estimated that early cancer treatment saves the lives of 70,000 people in our country each year—and *another 70,000 could be saved if more people were aware of the danger signals of cancer.*

Unfortunately, cancer often develops silently without noticeable symptoms. Here too, there is a safeguard—periodic medical examinations. These are particularly important for all men and women who have reached the ages of 40 and 35 respectively. The value of these examinations is underscored by the fact that half of all cancers occur in body sites that the doctor can readily examine.

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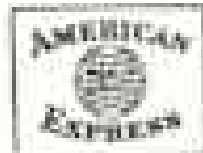


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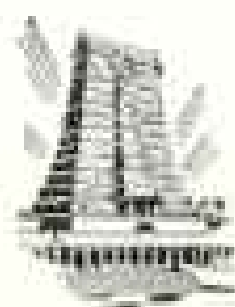


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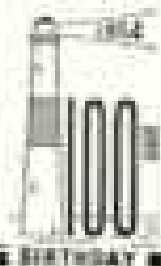
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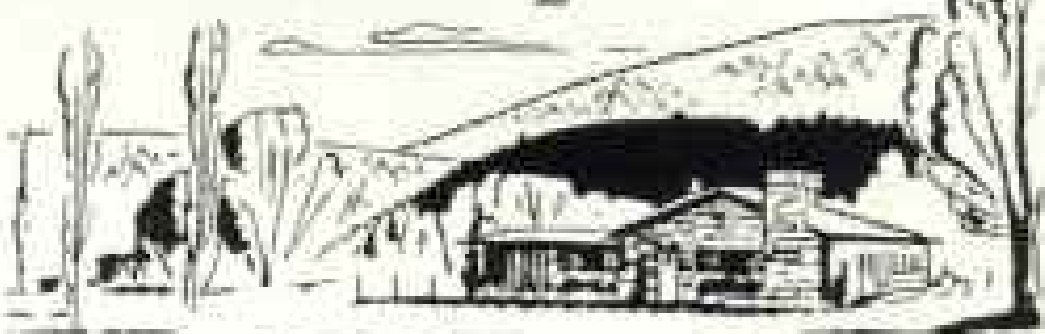
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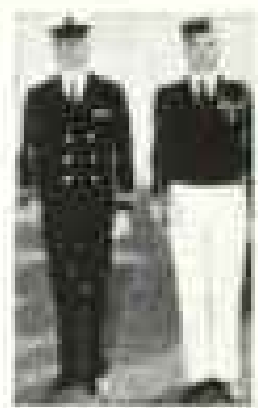
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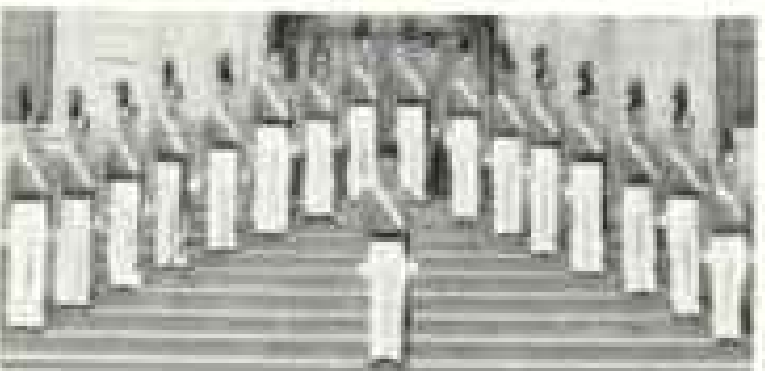
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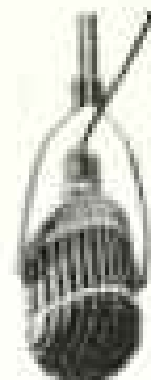
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