ATLAS MAP SUPPLEMENT: CANADA

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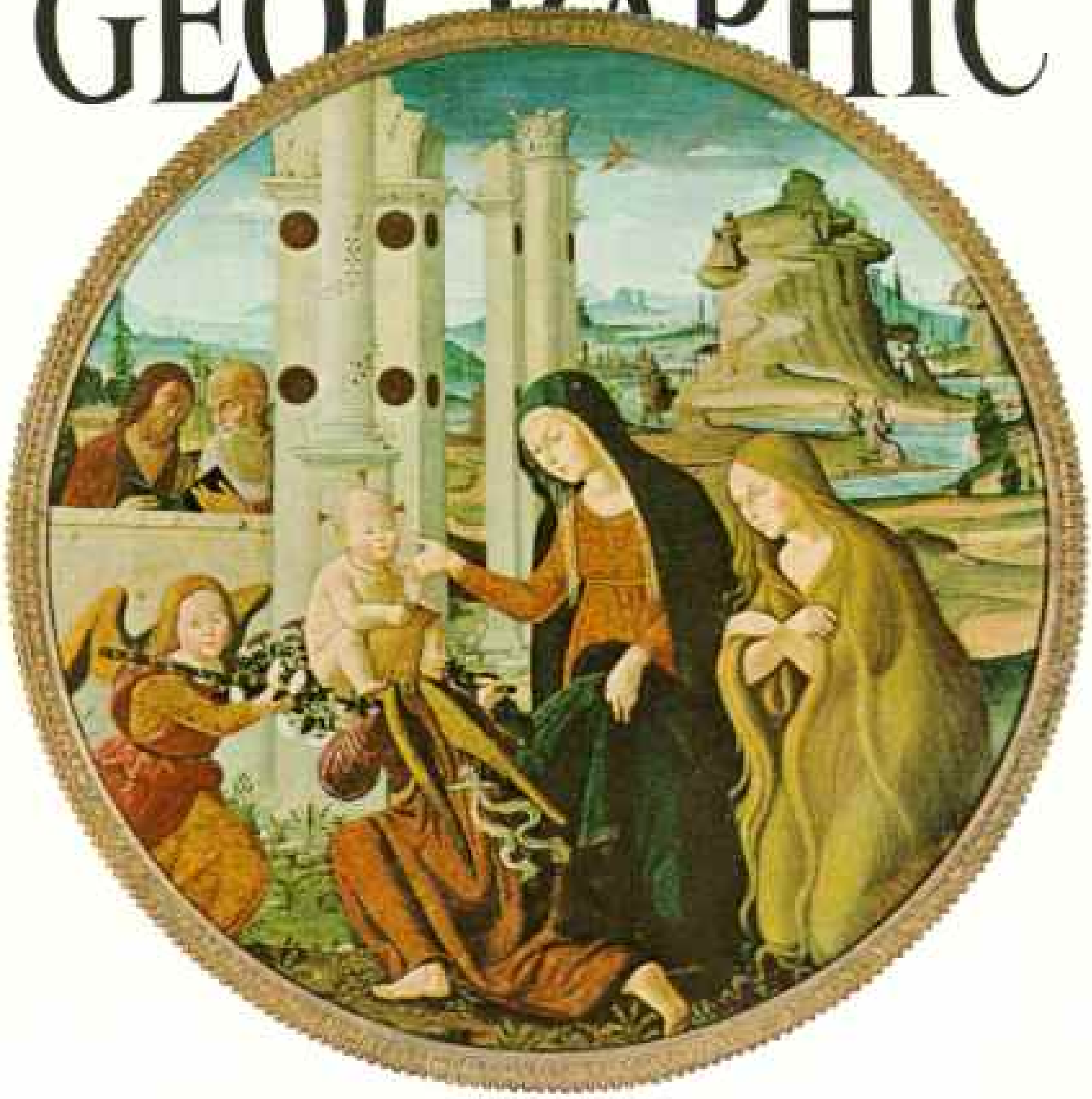

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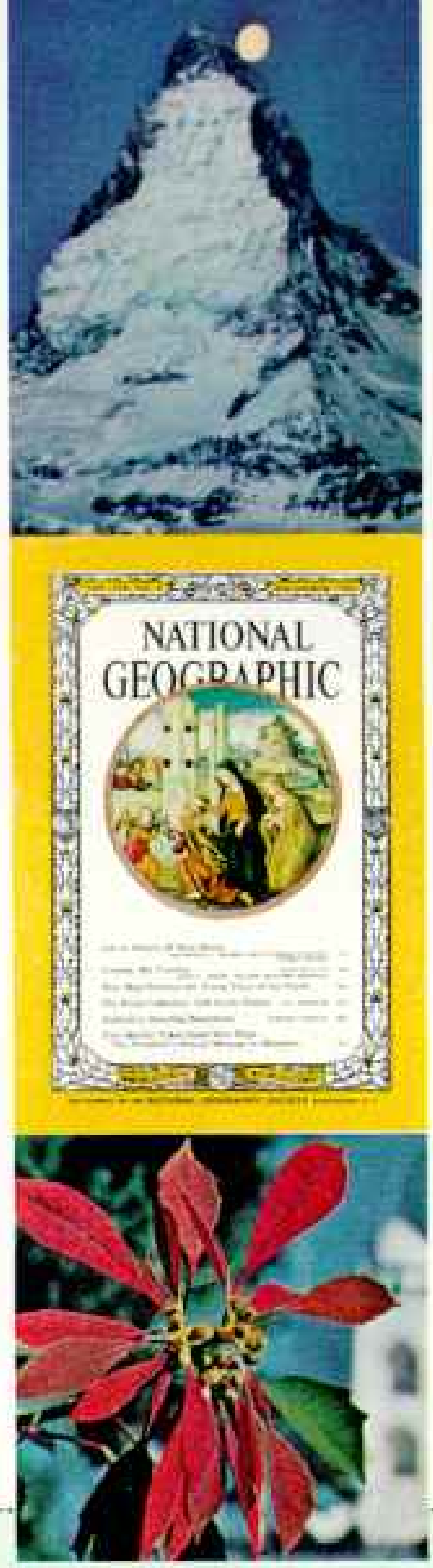

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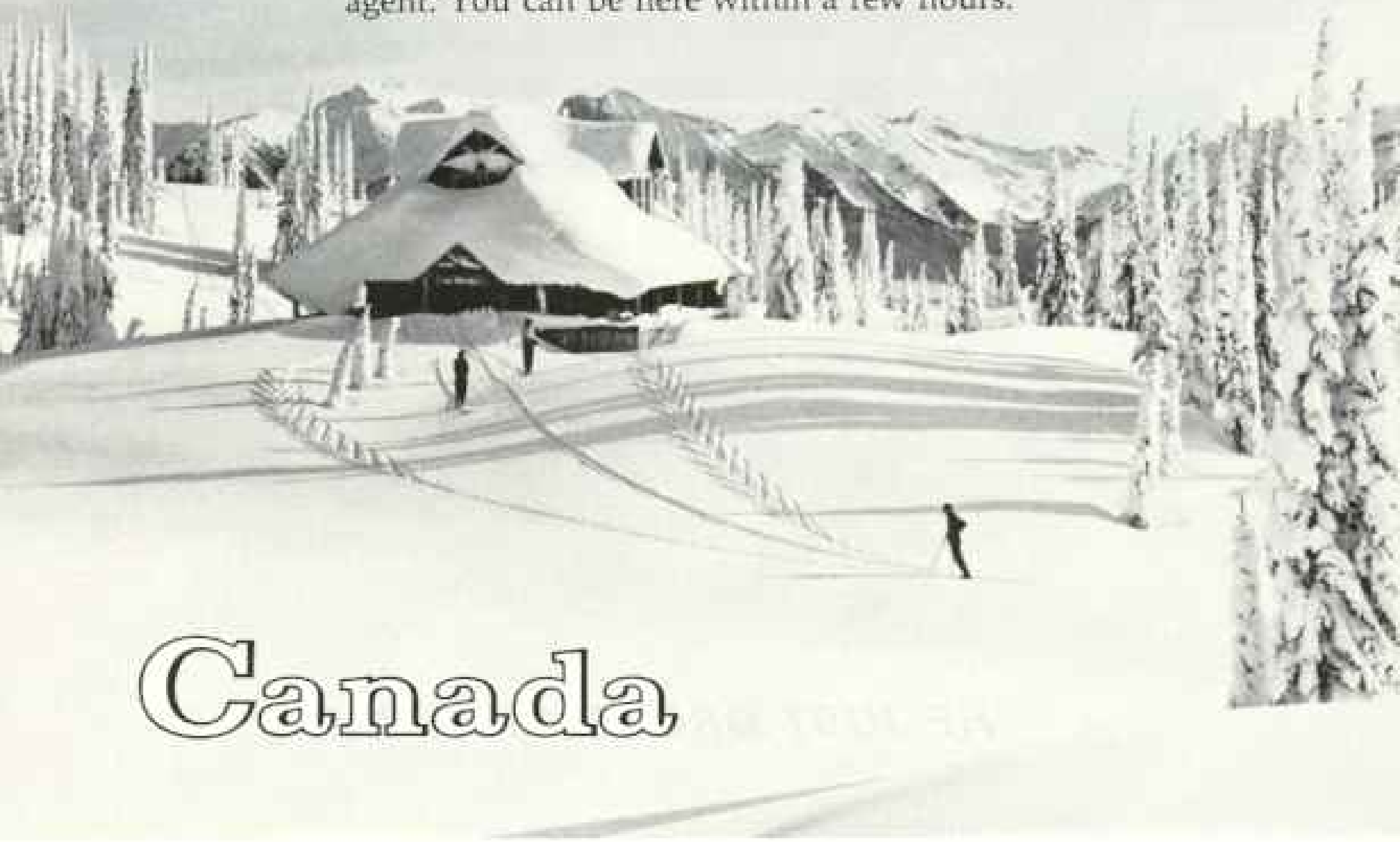

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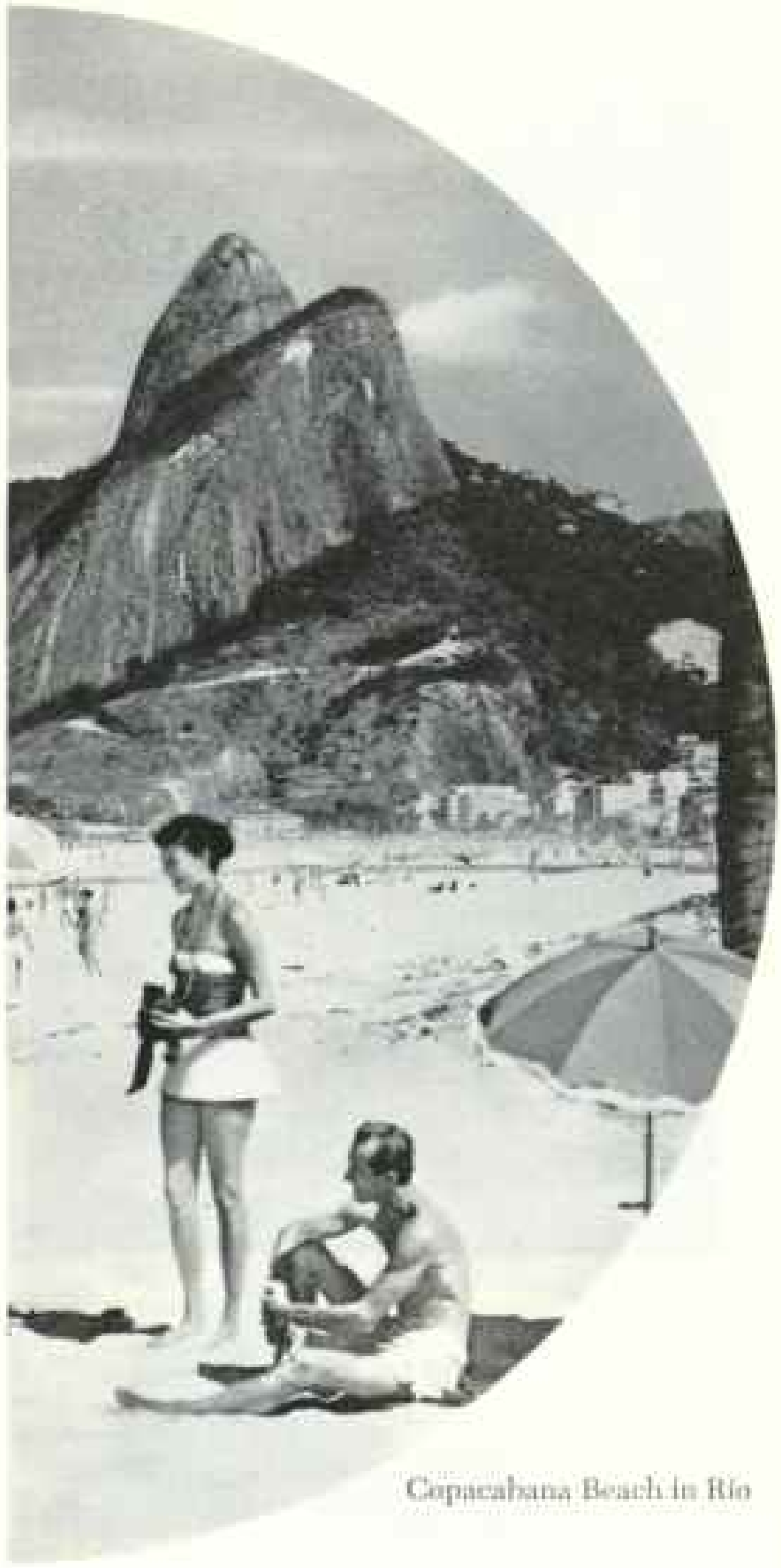

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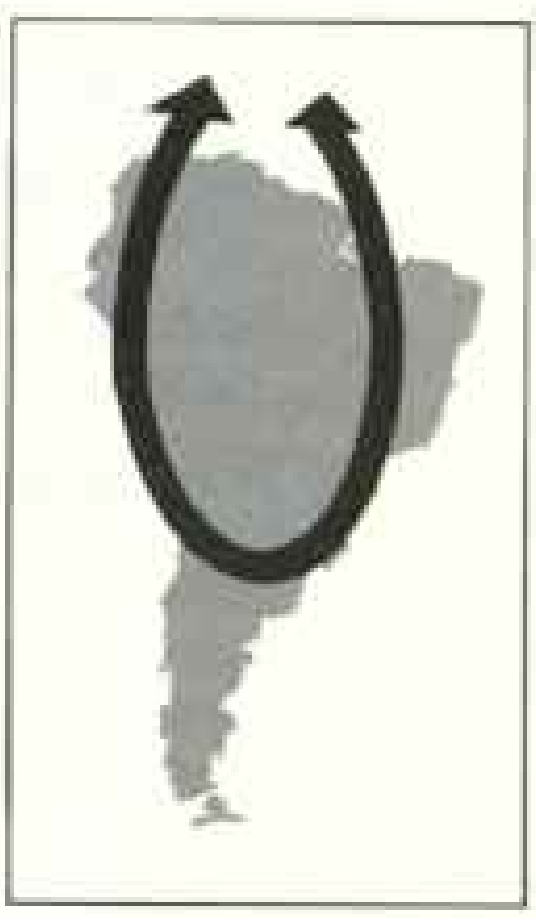

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Only a short time ago this baby's parents were pondering what seemed to them one of the world's most important questions: Will our baby be a boy or a girl?

Now it matters not at all that they were blessed with a son instead of a daughter. And questions of a far deeper concern are on their minds—how to insure his steady physical and emotional development, how to spare him illness and protect him from accidents.

Every new baby has one basic need right from the start—the loving attention of both mother and father. This makes him feel secure. And security is the foundation for a friendly disposition and the kind of character and personality that all parents want their child to develop.

Particularly during the first year, he should have monthly check-ups. At about three months of age, the first shots against diphtheria, whooping cough, tetanus and polio are usually started. If he's a little fretful and feverish following his shots, this usually means that he is building up immunity.

Though you may not realize it, accidents take the lives of many youngsters, especially when they begin to crawl, stand and climb. Medicines, poisons, cleaning materials and the like must be kept beyond a child's reach. Cover unused electric outlets and put away knives, needles and scissors.

How your baby will grow and develop, what he will need from the time you bring him home from the hospital until his first birthday is told in an attractive 30-page booklet from Metropolitan Life, called "Your Baby." Send in the coupon below for your free copy.

We make every grade of salt—for customers coast to coast

The five salt shapes magnified and stylized above (Cube and Octahedron at the top, Round in the center, Dendritic and Flake at the bottom), are some of the crystal forms of salt which may be important for your needs. Morton, the only nationwide salt company, offers more than 100 grades of salt, with many different physical characteristics—through 10 salt sources—with service through more than 30 sales offices and warehouses.

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THE NATIONAL GEOGRAPHIC MAGAZINE

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Life in Walled-off West Berlin

By NATHANIEL T. KENNEY and VOLKMAR WENTZEL
National Geographic Senior Staff

WHAT IS IT LIKE to be in Berlin, the world's No. 1 trouble spot, at this point in history? You feel a sense of unreality, of utter incredulity. Here is a place without parallel, unless it be the Holy City of Jerusalem, still split between Israel and Jordan.

Picture, if you can, a great world capital sealed off down the middle by a high wall backed by armed guards with shoot-to-kill orders. Right through the heart of the city runs the *Schandmauer*—"wall of shame"—as the West Berliners call it, the concrete barrier erected by Communist East Germans to check the hemorrhage of human beings fleeing Red rule to West Berlin.

East Berliners Risk Lives to Escape

Where this line between two worlds runs down the center of a street, all the windows on the lower floors of the houses on the Communist side were bricked up tight. At the point of guns people were moved out of the first and second floors and shipped away—no one knows where. Lifelong neighbors and families were torn apart (pages 762-3).

One day we visited the Harzerstrasse, one of the streets being sealed from inside the houses. The people had been moved out and most of the doors and windows of the first and second floors had already been bricked up. Communist guards watching the moving crews sometimes peered from windows.

Suddenly we saw a man step out onto a second-floor balcony. He looked down as if gauging the distance to the ground, then quietly removed a flowerbox from the ledge. With a shock we realized that he was planning to jump.

At a discreet distance we waited, in the hope of being helpful—and incidentally with Volkmar Wentzel's camera ready under his raincoat. The man did not reappear, and after waiting more than an hour we went on our way, thinking that he had probably been arrested or had changed his mind. Such a leap, we agreed, might well be suicide.

How right! From the policeman on the beat the next day, we learned that the man had jumped about half an hour after we left. With both legs broken and suffering from internal bleeding, he was in a critical condition in a hospital—but in West Berlin.

This was only a sample of the hundreds of tragedies happening here every day. Most of them do not appear in the newspapers, for this might betray the possible escape routes still available.

All Quiet at the Brandenburg Gate—Just Before the Reds Sealed the Border

Divided Berlin lies 104 miles inside Communist Germany, but the United States, Great Britain, and France guarantee the freedom of the Western

SC EXTACHROME BY NATIONAL GEOGRAPHIC PHOTOGRAPHER THOMAS ABERCR © N.G.S.

sectors. The great gate, built in 1788-91 under King Frederick William II of Prussia, stands just inside East Berlin. Russian and East German flags flank the gate. "Attention! You are now leaving West Berlin," warns the sign in this picture, taken on the eve of the border closing.

But ask any member of the West Berlin police, one of the ablest police forces we have seen anywhere. He will tell you about the man he helped pull out of the river the night before, a man who had blackened his face and body with shoe polish, fastened rubber flippers to his feet, and swum across the Spree River through a glare of searchlights and past border guards in motorboats. In some places the Spree is 250 yards wide.

Or you learn of the chimney sweep who lowered himself five floors to freedom, or the woman who jumped three floors, suitcases in hand, to her death. We could go on for pages relating desperate and tragic attempts to escape from Communist rule.

When first we arrived in Berlin last summer, the concrete curtain had not yet fallen. The Russians and their East German puppets were then just beginning to stir the Berlin pot to crisis heat.

In spite of its isolation, a hundred miles deep in Communist territory, West Berlin has been drawing five and a half million visitors yearly—a million and a half by air, the rest by automobile and rail (color map, next page).

By Helmstedt Corridor to Berlin

By all odds the busiest—and shortest—route is the Helmstedt corridor, which begins as you enter East Germany, just beyond the West German town of Helmstedt. Our car was halted before a barrier at a mammoth complex of low-lying buildings, where green-uniformed East German police called Vopos—short for Volkspolizei, "people's police"—inspected the papers of all civilian traffic as Russian soldiers watched (page 742). It took

Barbed-wire barricade appeared before the Brandenburg Gate when the Communists overnight, on August 13, began walling off East Berlin to prevent refugees from escaping to freedom. Russian guns in 1945 shelled the gate and shattered its winged statue of Nike in her four-horse chariot. West Berliners recast the bronze quadriga from the original molds, and East Berliners restored the gate—a rare instance of East-West cooperation. British soldier with binoculars peers into the Communist sector.

East German soldiers joined police as guards when the barricades went up. Though only trusted troops patrolled the barrier, many vaulted over and fled to the West. Before the gate stand East German army men in garrison uniform and militia in field dress.

WEST

Autobahn and railroad checkpoints, for German traffic only. 100 miles to Frankfurt am Main.

Eisenach

Gottingen

Railroad checkpoint, freight only

HARZ MOUNTAINS

Nordhausen

Braunschweig

Only checkpoints for military traffic, autobahn and railroad

Helmstedt

Aschersleben

Stassfurt

Bernburg

Magdeburg

MITTELLAND CANAL

EAST

Schönebeck

Kothen

Elbe

Zerbst

104 miles from Berlin to West German border via autobahn

Burg

ELBE-HAVEL CANAL

To Eisenach and Hof

Dessau

FRANKFURT AIR CORRIDOR

BERLIN TO FRANKFURT AM MAIN, 270 MILES

HANNOVER AIR CORRIDOR

BERLIN TO HANNOVER, 150 MILES

Brandenburg

AUTOBAHN

EAST GERMAN AND SOVIET GARRISONS

Werder

Bergholz-Rehbrücke

Potsdam

WANNSEE

GATOW AIRPORT

AVUS

Havel

CITY RING AUTOBAHN

Kleinmachnow

TELTOW CANAL

Zehlendorf

U.S. MILITARY HQ.

Grunewald

FREE UNIVERSITY

GRUNEWALD HUNTING LODGE

DAHLEM MUSEUM

Steglitz

KURFURSTENDAMM

RIAS

Lankwitz

WEST BERLIN CITY HALL

MARIENFELDE REFUGEE CENTER

WEST

Blankenfelde

TEMPELHOF AIRPORT

POTSDAMER PLATZ

AIRLIFT MEMORIAL

Lichtenrade

Tempelhof

Kreuzberg

Britz

Spree

Neukölln

TELTOW CANAL

Friedrich

EAST

SCHÖNEFELD AIRPORT

Rudow

"CONCRETE CURTAIN"

SOVIET WAR MEMORIAL

Treptow

Lichten

SOVIET MILITARY HQ

GERMANY

Hannover

Celle

Soltau

Hamburg

Wolfsburg

Railroad and canal checkpoints, freight only

Uelzen

Road, railroad and river checkpoints for German traffic only

Lauenburg

Salzwedel

GERMANY

Elbe

Ludwigslust

Stendal

Wittenberge

Elbe

Havel

Rathenow

HAMBURG AIR CORRIDOR

BERLIN TO HAMBURG, 177 MILES

RHINE CANAL

HAVEL CANAL

Nauen

Brieselang

EAST GERMAN AND SOVIET GARRISONS

Falkensee

HAVEL CANAL

Spandau

SPANDAU PRISON

Velten

Henningsdorf

FUNKTURM

OLYMPIA STADIUM

BRITISH MILITARY HQ

CORBUSIERHAUS

CHARLOTTENBURG CASTLE

Heiligensee

TEGEL CASTLE

Hohen Neuendorf

Charlotten burg

TEGEL AIRPORT

Tegel

Havel

Frohnau

MEMORIAL CHURCH

VICTORY COLUMN

TIERGARTEN

FRENCH MILITARY HQ.

Reinickendorf

North

BERLIN

BRANDENBURG GATE

Wedding

HUMBOLDT UNIVERSITY

UNTER DEN LINDEN

RESIDENCE OF TOP EAST GERMAN OFFICIALS

SEAT OF EAST GERMAN GOVERNMENT

EAST BERLIN CITY HALL

"CONCRETE CURTAIN"

Pankow

Prenzlauer Berg

shain

BERLIN

STALINALLEE

LENINALLEE

berg

A City Encompassed

AND ITS LINKS WITH THE WEST

JOHN LOWERS Staff artist Compiled by Eugene M. Scheel

half an hour to get a visa, pay the toll, and pass through customs.

The corridor itself is an autobahn, a four-lane concrete highway 104 miles long—a drive comparable to the New Jersey Turnpike. But we found the road bumpy in places, with unmown grass on either side and traffic in stretches limited to a single lane.

We saw neat fields and orchards, and grain coming to yellow ripeness under the sun. There was more pasture than we expected, perhaps betokening a lack of farm manpower.

Blocked Roads of 1948 Recalled

Smoke billowed from the tall factory chimneys of Magdeburg, largest city along the way. There we crossed the Elbe bridge that the Russians "closed for repairs" for 11 months in 1948–49, when the Red blockade forced the Western powers to supply West Berlin by air. It gave us a queasy feeling to think that the Communists might try closing it again.

The road stretches through the plain of Brandenburg, a peaceful-seeming landscape of farmlands and forest mingling dark pines and white birches. Here and there a solitary East German farmer plowed a field behind a horse or on a tractor. The silence of the countryside was shattered by the incessant roar of heavy trucks, outbound from West Berlin with cargoes of TV sets, generators, machinery, clothing, and other manufactured goods to be sold all over Western Europe.

East Germans picnicking beside the road looked impassive or sad, but not hostile; this was the true *Weltschmerz*, the world-sad-

ness of the oppressed German. On the last leg the cause loomed before us: a squat Russian World War II tank on a concrete pedestal (upper right).

After the tank came a happier symbol, the droll little mascot bear of West Berlin, done in bronze by the German sculptor Renée Sintenis. The last Vopo looked at our passports, and then the first West Berlin policeman did the same. It had been an easy drive. We wondered how long it would be that way.

Soon busy traffic swallowed us and we were in the heart of West Berlin. Neatly dressed people hurried about their business. More than the street signs, these things told us that we were among our own again.

East German officers and a World War II Soviet tank on a pedestal overlook autobahn traffic outside Berlin.

Here at the Helmstedt Checkpoint Begins the Main Lifeline to West Berlin

Shortest and busiest route to the island of freedom in a Communist sea is the 104-mile-long Helmstedt Corridor (map, page 740). All traffic must stop to be cleared for passage through Russian-dominated East Germany. At upper right waves the American flag, at left the Russian. British, French, West German, and East German flags are out of sight.

NATIONAL GEOGRAPHIC writer-photographer Wentzel clambered up a high crane on the West German side to take this picture.

Flowers from grateful Berliners greet combat-ready troops of the 1st Battle Group, 18th U. S. Infantry Regiment, who entered the beleaguered city August 20.


Ka
De
We
Ka
De
We
Ansbacher Straß

The first impression of the city was overwhelming. West Berlin's recovery has been fantastic.*

At the end of World War II, Allied bombs had all but eradicated Berlin, leaving vast windowless honeycombs of ruins and acres upon acres of rubble. Of the 149,960 buildings in the Western part of the city, 32,227 were demolished and another 100,000 heavily damaged.

On the Kurfürstendamm, West Berlin's Fifth Avenue, 200 of the 250 buildings were destroyed or severely damaged. Now the "Ku'damm" was a glittering showcase of the Western World. The smart shops, international clientele, new buildings, bright lights, and bustling traffic were equal to those of any modern Western capital.

Mountains Built of War's Fragments

West Berlin has risen from the ruins. Some 200,000 new residences have been provided —enough to house more than half a million people. The total street surface rebuilt or repaired amounts to a 35-foot-wide highway that would stretch all the way from West Berlin to North Africa.

Every scrap of rubble that could be salvaged—230,000 tons of metal and some nine million cubic yards of bricks—was used in rebuilding. The rest has been piled in huge hills and planted with flowers and grass, remolding the map of the city and adding hilly park scenery.

Of Berlin's 341 square miles on the flat Prussian plain, West Berlin occupies a little more than half. There are 2,200,000 West Berliners. Another 1,100,000 Berliners live "Over There"—in East Berlin.

Early we sought a vantage point from which to see it all at a glance. Near our hotel in the Grunewald rises one of the rubble mountains. Still unfinished, it one day will be 400 feet high, the highest hill in Berlin. In the evening we drove to the top and watched the lights go up. Near the Tiergarten, we saw the neon signs of cinemas and night clubs wriggle on and watched the floodlights dance on the fountains in Ernst-Reuter Platz, named for the late mayor of the early rebuilding days.

At dark we left, for we were not yet used to standing atop a dead city, and in imagination the things that crunched beneath our feet were the porcelain heads and limbs of dolls. We went to the Funkturm, the radio tower that is Berlin's counterpart of the Eiffel Tower. From here we saw the city just as well—and felt better.

Tall street lamps picked out the broad

*See in the NATIONAL GEOGRAPHIC: "Berlin, Island in a Soviet Sea," by Frederick G. Vosburgh, with photographs by Volkmar Wentzel, November, 1951, and "Modern Miracle, Made in Germany," by Robert Leslie Conly, June, 1959.

Shoppers from East and West mingle in this view of Tauentzienstrasse, photographed before the border closing. Defying Red policy, East Berliners made many purchases in West Berlin. Utility poles advertise KaDeWe—Department Store of the West. A telephoto lens compresses four blocks in this street scene.

Blonde bargain hunter tries on a kerchief before a mirror in KaDeWe. West Berlin, a fashion center, has been producing more clothing than any other European city except Paris.

US KODACHROME (ABOVE) AND EKTACHROME BY NATIONAL GEOGRAPHIC PHOTOGRAPHER THOMAS NEBBIA © N. G. S.

HE SATECHRUMES BY NATIONAL GEOGRAPHIC PHOTOGRAPHER THOMAS NEBBIA © NATIONAL GEOGRAPHIC SOCIETY

Policeman in a glassed-in observatory pushes buttons to regulate traffic at West Berlin's busiest intersection. Here Kurfürstendamm — Ku'damm to Berliners — begins at the ruined Kaiser Wilhelm Memorial Church (opposite) and crosses Joachimstalerstrasse. The Ku'damm, lined with fashionable stores, has become the liveliest shopping artery.

Bombed spire of Kaiser Wilhelm Memorial Church, the "broken tooth" as some Berliners call it, stands as a grim reminder of war's desolation. Honeycomb chapel and campanile, both new, flank the gutted tower.

boulevards in white ribbons of light. Berlin always had wide streets, a legacy from German rulers who liked parades of soldiers. Chicago, Illinois, had something to do with keeping them wide in the new city.

"We were making our master plan for streets," said Senator Rolf Schwedler, head of West Berlin's Department of Building and Housing. "I went to Chicago. Such density of traffic! But I knew I was seeing only the normal traffic of a modern city, such as our Berlin would be.

"So I borrowed many ideas from Chicago. You can see the result. I think you will find Berlin traffic still quite open."

And that was true. It moves swiftly and efficiently, directed by competent white-jacketed policemen. Even parking rarely presents problems, and the only bad jams are at the numerous detours resulting from the constant construction.

Senator Schwedler assigned genial Otto Streu of his staff to show us the city. We went first to the Brandenburg Gate, pierced by five portals and surmounted by a bronze four-horse chariot (page 736). Through the great gate on the East-West boundary line passed most of the traffic between the two parts of the divided city.

We saw the gaunt remains of the Kaiser Wilhelm Memorial Church at the head of Ku'damm, deliberately left in ruins so that war's futility will not be forgotten.

Home Gardens a Luxury

Another landmark is the largest apartment building in Berlin, the 530-unit Corbusierhaus, named for its Paris architect, Le Corbusier. It overlooks the stadium where the 1936 Olympic Games were held.

After the sightseeing tour, Herr Streu took us home for coffee. He has a pleasant garden in his back yard, and in this he is luckier than most Berliners, all of whom seem to love growing things. Apartment dwellers have to be satisfied with garden allotments some distance from their flats.

Sometimes the allotments are so far away


HERREN

Young Fräulein's smile seen on the Ku'damm contrasts to older faces wearied by war.

that the owners build cottages on the precious ground and pass weekends there, isolated behind hedges and grapevines. Often the gardeners build tiny model farmyards, complete with hand-mirror ponds and toy geese that bob their heads with every breeze.

Trees, parks, grass—they are Berlin's most conspicuous features, and they are not luxuries, but necessities, to people squeezed together in a city surrounded.

Since the war more than 5,400 acres of parks and green spaces have been restored and another 1,600 acres added. Trees have been planted by the hundreds of thousands, and West Berlin is rapidly regaining its title as the "Green Belt" city.

Beach Where Only Dogs May Bathe

Next to parks and trees, the Berliners love dogs. The Hundebadestelle on the Grunewaldsee, one of Berlin's lovely lakes, is a bathing beach for dogs only, as the name implies. It is a sight to see on a hot Sunday afternoon: all the dogs swimming, lolling on the sand, eating picnic bones, greeting friends—and the inevitable timid soul who ventures into the water only to the knees.

Sizzling sausages tempt passers-by at a *Schnell Imbiss*—literally, "quick bite"—a type of snack bar popular with Berliners.

Modern Japanese painting puzzles

The Berliner's love of animals also expresses itself in the well-stocked and popular zoo adjoining the Tiergarten. There a children's festival was in full swing, to the strains of a German band (pages 756 and 757).

Blue vies with green in the city's color scheme, for the lakes of West Berlin form a sparkling chain swelling from the Havel River. On their cool, shady shores stand open-air restaurants. Of the lakes for humans, the biggest and best is Wannsee, almost a square mile in area (page 752).

It was Sunday, and the thermometer stood at 90° F. Even the Ku'damm was empty of people and cars. Our guide for the day was Fräulein Ingried Fischer-Bobsien, a flaxen-haired wisp of a girl student from a graphic arts and public relations academy. She told us her friends called her "Bobsi," and so did we.

Since all Berlin had gone to Wannsee, we decided to go there too.

Bobsi accepted this hardship with equanimity. "I know where we can hire a sailboat," she said, and we took the Avus for Wannsee.

The Avus is a superhighway that cuts through the Grunewald. Though a city street, it has no speed limit, and we went like the wind the half-dozen miles to Wannsee. There the traffic choked us to a crawl, and only with difficulty did we find room to park at the place where they rented sailboats.

We made sail and careened into the water traffic, artfully dodging the hundreds of canoes, rowboats, racing shells, and outboard speedboats. There was even a large cruising yawl, a craft that could easily cross an ocean.

Jet Vapor Trails Mar Peaceful Sky

In late afternoon we dropped sail and poled the boat into quiet shallows where we ate buttered pumpernickel and drank Coca-Cola. We lay on our backs on the deck, watching the sky, thinking how peaceful it was, and almost forgetting we were on an island in a sea of Communism.

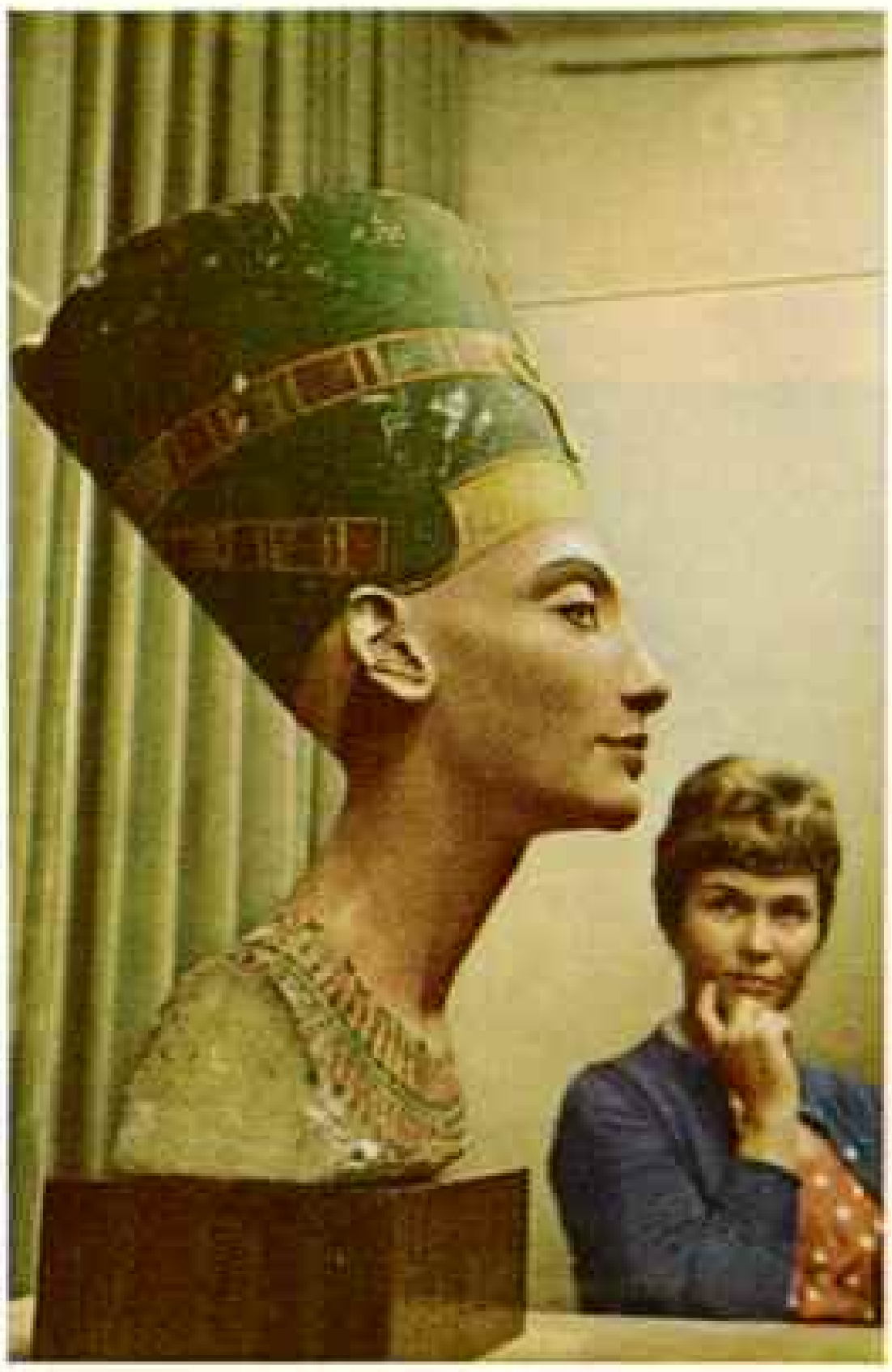
Then we saw the vapor trails of planes high above, crisscrossing the sky in parallel lines. They were Russians up there; our side was not flying jet fighters speck-high above Berlin. It was as if a cloud had suddenly crossed the sun.

On weekdays as on Sundays, we lived the life of West Berlin. We learned how to drive where we wanted to go and discovered al-

Bust of Nefertiti in the Dahlem Museum survived the war. Archeologists in Egypt unearthed the 3,300-year-old image in 1912.

visitors to the Academy of Arts

ITS ENTAGRAVINGS BY THOMAS BERGEN © B.A.V.



most immediately what happens when you challenge a Berliner's right of way. The offended driver fiercely taps his skull with his forefinger, and you see his mouth form the words *"bei Dir piept's wohl?,"* which figuratively means "You have something chirping up there, eh?"

The streets of West Berlin, like those of other German cities, have batteries of vending machines where, after the stores have closed, you can buy anything from a clean handkerchief to fresh fruit. But not all of these are mere voiceless automatons. You put in the money, pick up your purchase, and then, from the depths of the machine, comes a lady's tape-recorded voice.

"Vielen Dank," she says—"many thanks"—and then comes a spiel advertising a lottery.

Emergency Stores Jam Warehouses

The variety and freshness of foods obtainable in West Berlin were amazing. Some—but only a small percentage—came from farms in the city itself. Everything else originated in free territory many miles away and had to run the Communist gantlet.

West Berliners ate like kings. The abundance was mostly due to the trucks that rolled day and night over the autobahns, carrying the best foods from all free Europe.

But suppose they were to stop rolling? What if the corridors were cut off again?

Under orders of West Berlin's governing body, the Senate, the city had accumulated vast stockpiles for emergency use. We learned that supplies on hand at the time exceeded the total brought in by airlift during the 11-month blockade of 1948-49.*

Hundreds of tons of coal briquettes and mountains of coke for industrial use were piled up in fields and vacant lots. Enough raw materials and semifinished products had been stored to keep industry going at normal levels for a year, we were informed.

Warehouses, scattered around the city in secret locations, were crammed with potatoes, sugar, flour, and other vital foodstuffs—sufficient to last nine to twelve months with some rationing. Much of the food was fresh and under refrigeration. As they filled a warehouse at one end, Berliners used the food at the other so that it would not go stale.

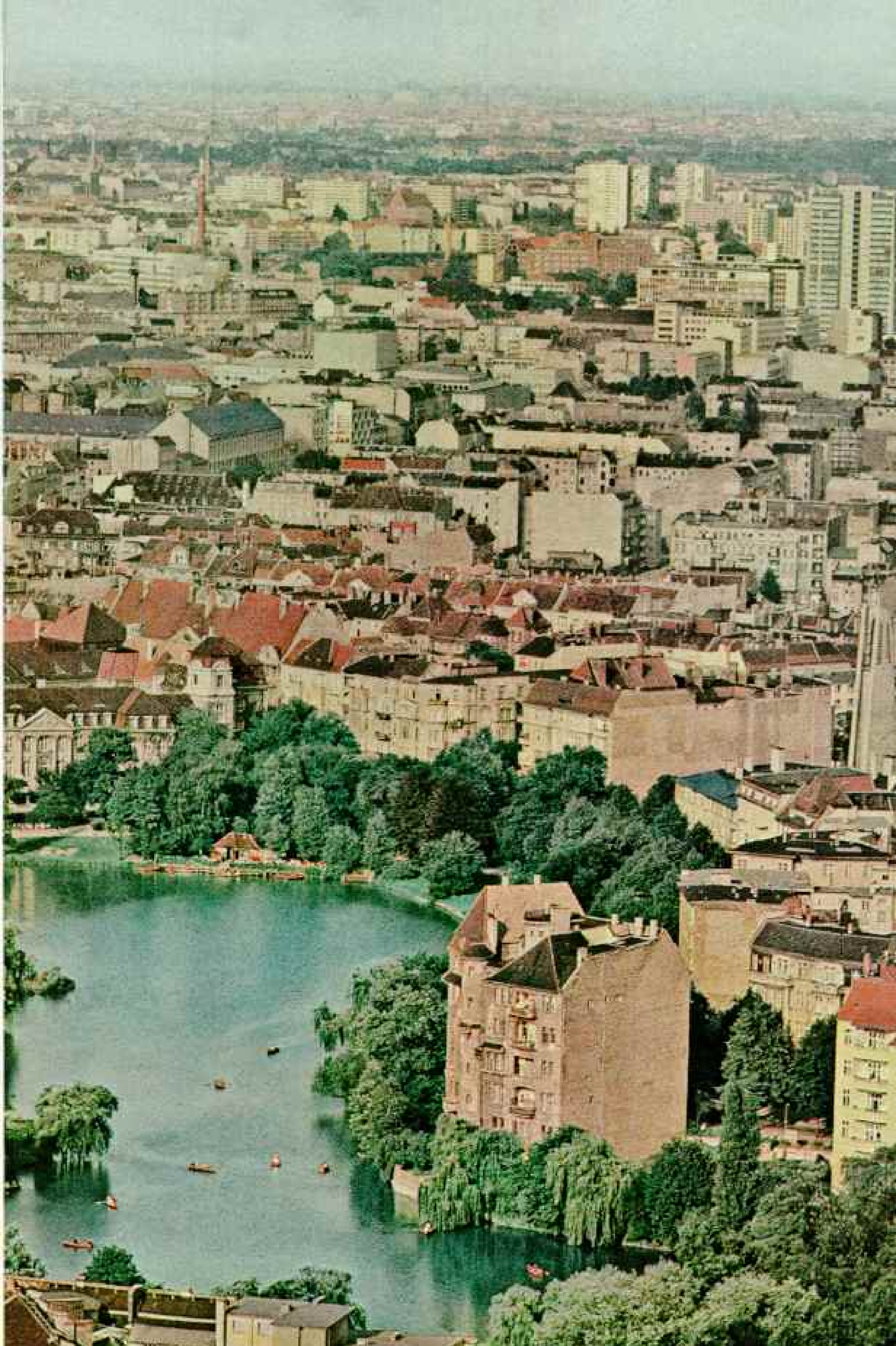
*See "Airlift to Berlin," a picture story, in the May, 1949, NATIONAL GEOGRAPHIC.

New Berlin Rises From War's Ashes: a View From the 453-foot Radio Tower

Ruins choked the city when peace returned in 1945. Rubble in West Berlin alone would have made 20 Great Pyramids. Undaunted, citizens cleared the debris, housed the homeless, and rebuilt their city. But even now the total population of 3,300,000 falls a million short of the prewar figure.

Looking across Lietzensee Park, this scene shows a skyline healed of scars. Modern spire surmounts St. Canisius Church at right; haze hides distant East Berlin. In the park (below) a willow-shaded pathway skirts the lake.

HD ENTACHROME (AGFA) AND KODACHROME BY NATIONAL GEOGRAPHIC PHOTOGRAPHER THOMAS NEBBIA © N.G.S.



Before the 1948 blockade, West Berlin depended upon Over There for electricity. The Communists pulled the switches during the blockade and left the West in the dark. The free city then built its own electric power plants, six of them, which now had at least a six-month supply of fuel.

Water? West Berlin's supply comes from deep wells, inexhaustible and out of reach of tampering.

West Berlin's stores were stocked to overflowing. With Bobsi we toured the huge KaDeWe, the store that sells everything (page 745). She would look at 20 sweaters and 20 pairs of slacks, then buy half a loaf of dark bread and a quarter-pound of butter for study-hour snacks.

KaDeWe's food department is on the topmost floor of its huge building on Tauentzienstrasse and would dwarf most American supermarkets. To give an idea of its variety, Bobsi asked a girl clerk to name the different kinds of bread at her counter.

The girl rolled her eyes to heaven but gamely began reciting. Bobsi kept count and finally announced:

"They carry 288 different kinds."

Ten Million Germans Flee

It was not so much the lure of this prosperity as a human need for basic freedoms that caused so many Germans to flee the regimented life in the East and become refugees. When we first arrived, the *Flüchtlinge* were arriving by hundreds each day—and, toward the end, by thousands.

A newspaperman friend phoned one day and said: "Go to the refugee center quickly. More than 2,000 crossed this weekend, which is 800 more than normal."

We went to the Marienfelde camp and talked to Heinz Ritter, the director. We stood amid milling crowds who had traded all but the clothes they wore for freedom.

Many refugees told of hope kept alive by the radio broadcasts of RIAS—Radio in American Sector. They called it "*Unsere Lebensader*"—"our lifeline."

Wannsee Beach draws as many as 40,000 bathers on a warm Sunday. Here, in the southwestern suburbs, the Havel River broadens into a chain of lakes that teem with boats. Steamers carry excursionists as far as the East German border. Other resort lakes that ring the city lie out of bounds to West Berliners.

KODACHROME (ABOVE) AND 35 EXTACHROME BY NATIONAL GEOGRAPHIC PHOTOGRAPHER THOMAS NEBBIA © N.G.S.

Inviting flat typifies those in the Corbusierhaus, named for the Paris architect who designed it, Le Corbusier. Berlin's largest apartment building, the 17-floor structure contains a shopping center and its own power station.

Balconied apartment building faces busy Rathenau Platz. More than 200,000 houses and apartments have risen since 1949; every fourth West Berliner lives in a new flat.

Though listening is forbidden in Communist territory under penalty of fine and prison, RIAS news and other programs from West Berlin are heard throughout East Germany and deep in Poland and Czechoslovakia.

"Since the war ended," Herr Ritter said, "almost 10,000,000 people have come from the East. They make up nearly a fifth of the West German population.

"East Germany is one of the few countries on earth, as a result, where the population declines despite more births than deaths.

"They flow through Berlin, the only safe way. They simply take the elevated or the subway—the father one day, the mother and baby the next. They leave everything except what little they can carry without arousing suspicion. The state then confiscates their homes, their furniture, their clothes.

"We receive them all here. We attend to their immediate needs. Your people screen them for planted spies and saboteurs."

We had seen this—a taciturn group of Americans, British, and French patiently questioning, checking papers, always patient and kind, but grimly efficient.

Something else we had seen—the look on the tired face of a young mother as she opened the CARE kit, something like an air-travel bag, that each refugee got upon arrival. There was nothing inside that a few dollars would not buy, but the few little things were just what she needed to feel like a woman again: such all-important nonessentials as lipstick, perfume, bobby pins for her hair.

We saw the children, clean and scrubbed, in the nurseries where they waited while the parents were cleared for forwarding by air to new lives in West Germany (pages 758-9).

The sight of these beautiful children, the loss of whom must be the most dreadful blow the East could suffer, almost did us in. We thought not of them, who now were free, but of the others who stayed behind.

A Visit to East Berlin

Soon after we arrived, we made a little tour of East Berlin. There was no problem at the time. You drove to the Brandenburg Gate and stopped while a green-clad Vopo looked you over and glanced at your license plates. Then he waved you through.

Tuba-tooting Pied Piper Leads Children to a Playground in the Zoo Beside the Tiergarten

A public park for two centuries, the Tiergarten lost its trees in the bitter winter of 1945–46, when Berliners had to cut them for firewood and turn rose gardens into cabbage plots. Today a million new trees rooted in battle-scarred soil make the park once again the city's "green heart." A sign proclaims, "We go to the children's playground."

Young competitors in a sack race forget the cold war. The Tiergarten lies within sight of the Communist barricades.

On the other side of the Brandenburg Gate a large, well-tended flower bed caught our eye. New linden trees, replacing aged ones removed by the Nazis before World War II, were now almost 30 feet tall.

But the rest of Unter den Linden seemed shabby, without heart or soul. One shop, crowded with women, was introducing Jacques Heim fashions from Paris; yet the small splash of chic only emphasized the drabness of this world. A Polish revolutionary art exhibit, though free, had no viewers.

Stalinallee, Over There's show street, is grandiose, but rather dowdy, and the streets paralleling it on either hand still look as if they had been bombed yesterday.

The bunker where Hitler died gets the treatment it deserves. The Russians blew up the entire subterranean structure and let nature take over. Nothing is there now but an unmarked and unkempt mound the size of a football field. We walked around on top of it, and this time we did not care what crackled beneath our feet.

Wandering through what was once the heart of Berlin, we found most of the fine old Prussian-Berlin-style buildings still gutted and forlorn; famous churches lacked steeples.

A large sign advertised the Adlon Hotel as being in business once again. Before the war it ranked with the old Waldorf in New York and Claridge's in London as one of the world's most famous and sumptuous hotels.

A driveway now led through waist-high weeds to the drab courtyard of the former servants' quarters; war had wrecked the main entrance. The reception room resembled a run-down country inn. Behind the desk stood an unshaven porter in shirt sleeves. A few seedy-looking travelers sat on cheap suitcases, waiting.

When we drove back through the Branden-

PHOTOGRAPHED BY NATIONAL GEOGRAPHIC PHOTOGRAPHER THOMAS NEBBIA © N.G.S.

burg Gate, we felt as if we had been in another world.

There is one group of men who actually sail to the "island" of West Berlin. These are the barge captains who haul in coal and other raw materials over the canal systems from Hamburg and the Ruhr (page 760).

Most of the barges carry "Hamburg" on their sterns as home port. Many shuttle between Berlin and Duisburg, the largest inland port in the world.

Interview With a Brave Skipper

For the past two or three years, we were told, the passage through Communist East Germany had been simple and uneventful.

"Just fill out your papers fully and accurately," said the typical Herr Kapitän of a self-propelled diesel barge. "The Vopos look only for technical mistakes, like adding figures wrong.

"It has not always been this way. I started on the run in 1949, just after the big blockade lifted. At that time, in addition to the Vopos, there were Russians at the control points. They searched the entire boat, even the children's mattresses.

"I had never any trouble. I found you only had to look at the Russians with big round eyes, as though you admired them, and they puffed all up and helped you through.

"As for the Vopos, they were always out of soap. I had special little packages of soap made up for them, flat so they could put them under their shirts without bulging. I soaped my way through several little blockades that followed the big one."

We went on deck, out of the clean, cramped living quarters under the wheelhouse, to watch the shore cranes unloading the barge's cargo of heavy steel forms.

The captain's wife was cooking potatoes

99 KODACHROMES BY NATIONAL GEOGRAPHIC PHOTOGRAPHER THOMAS NEBBIA © N.G.S.

in the tiny galley. Three children—a teen-age girl and two small boys in *Lederhosen* from Bavaria—sat near us and listened.

"This boat is our summer home," said the captain. "We live a good healthy life aboard. In the winter the children must stay ashore for school."

"East zone or West?" one of us inquired.

The captain was indignant.

"You think I would let my children learn Communist lies?" he asked. "I am a free man, and they will be free too."

He is also a brave man. We said we would conceal his identity in our article.

"Write my name and what I say," he said. "I have always spoken as I thought. The decent people Over There will respect me for this; I do not care what the others think."

Despite this, as the Berlin situation grew more tense, we decided to omit his name.

West Berlin, despite its isolation, was still one of West Germany's leading industrial cities. Electrical products, machines and machine tools, iron and aluminum hardware, optical goods, and precision instruments are its chief wares. The city has a huge garment industry, normally supplying 35 percent of all West Germany's clothing for women; many workers are also employed by chemical, food-processing, and liquor industries.

Flattened in the war, the big Borsig works now were spitting fire and smoke, swarming with workers, and palpitating with the thumping of hydraulic presses and giant lathes (page 765). Borsig makes heavy machinery like steam and nuclear power plants, ships' engines, and huge refrigeration units.

Officials merely shrugged when we asked about the difficulties of running an industrial complex on an island.

"On a whim, Communists might attempt to cut off all our raw materials," one said. "But all of us in West Berlin make do somehow."

Even when things run smoothly, industry and trade are difficult because the city is almost entirely cut off from its natural trading area. Only 1.8 percent of West Berlin's exports went to East Germany last year. The Communists did not let East Germans—who would normally be Berlin's closest customers—take home luxuries like television sets, porcelain, or clothing made in West Berlin.

Inseparable companions, youngster and dog arrive at Marienfelde after escaping from East Germany. A quarter of all refugees were children of school age or younger. Many took their pets with them.

Child and toddler share a bowl of soup at Marienfelde. During last summer's influx, West Berlin volunteers helped cook meals for the tide of refugees.

Among the Last to Flee, Refugees Wonder What the Future Holds

Empty homes, closed shops, idle factory benches, and untilled farms are the legacy left to East German Communist rulers by those who fled. Since 1945, ten million have gone to the West, a modern-day Exodus. Most crossed over in Berlin, afoot or by taking a 5-cent elevated train ride, until the Reds slammed the escape hatch shut last August.

At West Berlin reception centers, interviews, meals, receipt of emergency supplies, and billeting fill the first hours after arrival. Excitement stirs at talk of good jobs waiting in bustling West Germany. But eventually there comes a moment of repose, when thoughts of faces and scenes left behind creep in.

In such a quiet time, these refugees at Marienfelde Reception Center, who reached West Berlin just before the border closed, await a bus to Tempelhof Airport and a flight to a new life.

In the days before the Communists dropped the concrete curtain last August, we saw svelte ladies go into KaDeWe and come out waddling like fat ducks. Delicate inquiry elicited the information that they were from the East and were wearing six complete sets of unmentionables. It was the only way they could smuggle their purchases to their homes Over There.

Because there is a long haul in for raw materials and a long haul out for finished products, things made in West Berlin cost a little more than they should. To offset this, the German Government gives Berlin a subsidy in the form of a tax advantage: There is a West German tax of 4 percent on every business transaction. A "turnover tax" it is called, and it is levied on every sale.

West Berlin industry is excused from this tax. It gives West Germans an incentive to buy West Berlin goods. In addition, the city gets a direct subsidy from West Germany; in 1961 it amounted to $200,000,000.

Berliners are unhappy about receiving federal "charity," although as Mayor Willy Brandt points out, it is not unusual for a German state (Berlin is classed as a state of West Germany) to receive such aid. Other parts of Germany also are subsidized.

Furthermore, Berlin has been doing better each year, expanding its manufactures and paying more of its own way.

"In 1950," Mayor Brandt told us, "West Berlin lived only half by its own efforts. Now we pay 85 to 87 percent of our way. We get only 15 percent from outside."

Free University Has World Support

When Berlin was divided in 1948, the city's old liberal arts university, called Friedrich-Wilhelm University, fell into the Eastern sector. Renamed Humboldt University by the Communists, it continued to operate, but almost immediately a large group of its professors and students fled to West Berlin, refusing to live and work under Communist restrictions. They held classes wherever they could, meanwhile pleading for a permanent home.

The idea took fire. The city of West Berlin agreed to build a new university. The best professors offered their services. The Ford Foundation in the United States contributed generously. The result was the Free University, with 12,000 students from all over the world. It is an inspiring place; much of it is still under construction, but the completed buildings are strikingly modern. Its school of medicine will soon occupy a new hospital and medical research center.

Bill Wykoff, a Free University student from Pennsylvania, showed us his room and the shining kitchenette he shared with a dozen neighbors.

"Sometimes we go Over There and sit in

Barges Float Through East Berlin With Coal and Sand for the Free City

Two canals bring a third of West Berlin's supplies. Barges haul in bulky raw materials for factories and help the Western sectors stockpile almost a year's supply of coal and oil. In winter, when waterways freeze, trucks, trains, and planes provide West Berlin's lifelines to the West.

Under tow, these barges on the Spree River approach their destination, West Berlin.

Straining canalmen maneuver their barge along a Spree River wharf in East Berlin.

KODACHROMES BY NATIONAL GEOGRAPHIC PHOTOGRAPHER THOMAS NEBBIA © NATIONAL GEOGRAPHIC SOCIETY

Under Guard by Vopos, Masons Wall Themselves In

Mistrusting East Berliners, the Communists imported bricklayers from Saxony to build the barrier that stretches for 30 miles across the city. The wall divides families and friends and keeps workers from their jobs. West Berliners sometimes refer to it as "Ulbricht's Chinese wall," after East German boss Walter Ulbricht.

Standing on tiptoe near Friedrichstrasse, West Berliners try to glimpse a relative beyond the wall. Processed rubble forms the blocks. Daring Germans have escaped by crashing through such barricades in trucks.

Sealed and silent, doors and windows of this building on the border no longer open into West Berlin. A family of four and eight relatives escaped from a second-floor apartment on this very street, Bernauerstrasse, by sliding down a rope. But a woman died when she tried to leap to freedom from a third-story window. To bar escapes, the Communists made the border a no man's land of empty buildings and cleared ground.

While taking pictures such as these, GEOGRAPHIC photographer Wentzel was arrested by Vopos (page 764).

on Humboldt classes, or hold bull sessions with Commie students," Bill told us before the border was closed. "There's a little heat sometimes, but nothing rough."

More than a sixth of the Free University's students used to come from Over There, partly because the East tended until recently to offer college education only to children of workers and farmers, not to those of intellectuals. For the latter there was only the West.

Here again the East suffered a grave wound: Rarely did a graduate of the Free University go back.

When you visit the Free University, you realize that Berlin is still an international cultural center despite its painful history and its present isolation. You realize it also when you go to the concerts of the Berlin Philharmonic Orchestra.

The night before one Philharmonic concert in the Academy of Music auditorium, the rich sounds of a solo violin halted us in Manfred-von-Richthofen Strasse. In an apartment high above the quiet street, someone was practicing parts of the Robert Schumann C-Major Symphony.

We knew then we would hear the work next evening, for this was a fine violinist indeed and must belong to the Philharmonic.

Sure enough, the Schumann was on the program, but we could not pick out our violinist. This great, clear, precise orchestra had a single glorious voice.

"Day of Shame" Shocks Berliners

Such was the city's normal tenor of life until last August 13, known here as "the day of shame." Overnight, without warning, the Communist East Germans sealed off the border between East and West Berlin, first with webs of barbed wire and then with a solid wall of concrete blocks.

The news burst upon Berlin like a bomb, spreading swiftly by word of mouth, by big black headlines in West Berlin's four important daily papers, and by the broadcasts of RIAS. Berliners by the thousands flocked to the barrier, some merely angry or curious,

Steel ingots glow in the Borsig plant, symbol of West Berlin's rebirth. War razed the foundry; employees rebuilt it. Plants such as this one lost key men when Communists walled off West Berlin.

Carrying a pneumatic drill, a workman at the AEG Turbine factory personifies his city's prime asset: its industrious people. When barricades went up, West Berlin lost more than 50,000 workers, including much highly skilled labor. Many small firms quit overnight. Restaurant and laundry service slowed, and half the housemaids disappeared.

but many anxious to regain touch with loved ones on the other side.

At first the Reds sealed off only the streets, but soon—working feverishly, day and night—they extended the barrier all across the city, over streetcar tracks and railway lines, through subways and cemeteries, cutting every material and human artery that carries the life stream of a great metropolis.

The refugee flow fell off to a trickle, and the desperate few who now escaped did so only at risk of their lives—crashing cars or trucks at high speed through the wall, leaping from upper-story windows, swimming river or canal under cover of night. Many were killed or wounded by Vopos and soldiers.

In the Hands of the Vopos

One of us had a brush with the Vopos at the Wollankstrasse crossing in the shadow of the elevated railway trestle. Here, in notes made immediately afterward, is Volkmar Wentzel's account of the incident:

"For a better view in the trestle's gloom, I walked right up to the line, as I had a perfect right to do. My camera was around my neck and underneath my raincoat.

"I was watching members of a family desperately trying to speak to each other over a roadblock when a Vopo walked up and demanded my identity papers. I told him I represented the press. He still insisted on seeing papers, whereupon I showed him my White House photographer's card and passport, but refused to give these to him. He then suddenly, in judo fashion, grabbed my wrist, rather roughly twisted my arm behind my back, and pulled me over the line.

"In no time two civilians, one in a black raincoat and the other in a heavy turtleneck sweater, joined him, and the three of them led me off, bums'-rush style, to a small store well inside the East zone that had been converted into a police headquarters.

"Indeed this could well have been an office in Dachau or Auschwitz. I could easily im-

HE EKTACHROME (ABOVE) AND KODACHROME BY VOLKMAR WENTZEL, NATIONAL GEOGRAPHIC STAFF © N.G.S.

agine Adolf Eichmann sitting behind the railing at one of the tables, along with the other big bullies, each more brutal-looking than the other. In front of them they shuffled identity cards, passports, rubber stamps, and forms to be filled out by the bewildered people. In the words of Willy Brandt, 'Here the spirit of Hitler lives on.'

"They addressed each other as Genosse this and Genosse that, *Genosse* being a German equivalent of 'Comrade.' I stayed under the 'care' of the two unsavory civilians, who acted as though they had caught an important, sinister international spy.

"Going through my passport, they were impressed by all the countries I had visited. I told them that indeed I had traveled all over the world and met all kinds of people, but that never in my 25 years of globe-trotting had anything like this happened to me. I said I was astonished at being treated in such a humiliating way.

"'Surely the walls and the barbed wire you are putting up are not military objectives or secrets of the state,' I said. 'I was simply looking them over.'

"One of them said, 'You are now in the free German Democratic Republic. Here photography of such things is forbidden.'

"This didn't make much sense, but I decided not to argue the point. I was at their mercy. No one had seen me nabbed, so far as I knew, and even if they had, I could not count on outside help. They asked me to sit down on a wooden bench and left me waiting.

"This gave me a good opportunity to observe this headquarters in action. The glass door of the former shop opened and slammed continually. The Genossen greeted each other with hollow joviality, and those coming in always had new victims in tow, usually older people. They whisked them past me to another door where some rough cross-questioning took place. One old lady, dressed in black and at least in her eighties, was crying bitterly. They had dumped the contents of


Potsdamer Platz
ENDE

her bag on the counter and gone through everything. I saw many tears.

"After about half an hour my inquisitors returned. I could have my passport back and could leave if I gave them the roll of film exposed in my camera. I was sorry to lose this film, but I gave them the Kodachrome roll. I was glad to get out of there.

"Walking along the Wollankstrasse, I felt uneasy. A strange silence hung in the air; there were no smiles or laughter. People in twos and threes and often alone stood on corners looking westward. Only some children playing in a sandbox seemed unaware that they were being brought up in a giant concentration camp. I thought of the unbelievably shocking movies I had seen of the Warsaw ghetto during the war and now understood how this could be.

"In the window of a laundry I saw a *Bekanntmachung*, or notice. It announced that East Berliners henceforth were forbidden to work in West Berlin and went on to expound new labor regulations.

"A man in overalls with a bundle of laundry under his arm stepped up and said, 'That's all outdated. Since Sunday, not a lick of work has been done here. Morale and the production in our factories are zero.'

"He was excited and wanted to say more, but I had to stop him and change the subject abruptly because at a quick stride Black Raincoat and Turtleneck Sweater approached. The scoundrels were following me.

Wall Divides Families and Friends

"Back at the Wollankstrasse checkpoint, I saw a scene that has become commonplace—people waving to others a block away, some using field glasses to see their relatives, sweethearts, and friends."

Along the barrier, in the days that followed, we saw many poignant dramas:

A little car full of people and floral pieces pulled up at the West Berlin side of the line and the driver explained that they were bound for the funeral of the grandmother in East Berlin. Denied permission, they removed the floral pieces, set them up at the curb as if at the bier, said a prayer, and drove away.

At one point the line passed through the flower garden of an elderly West Berlin couple. They awoke to find the foot of their garden barred to them by strands of barbed wire, beyond which a soldier with gun and police dog tramped back and forth amid the flowers.

The Church of Atonement in Bernauerstrasse stands just inside the Communist sector, facing West Berlin. The Reds sealed it off with a 13-foot wall of concrete blocks, topped by broken glass, but left the church bulletin board outside, perhaps as a cruel joke. Stunned parishioners stood before it. "Where," asked a woman, "can we send our children for confirmation now?"

"One Lives as One Must"

How does the average person react to living under such conditions?

"Consider," says the young Berliner, "that we of my generation have never known anything else. One lives as one must—and becomes, perhaps, a bit of an opportunist."

A commercial artist put it this way: "We still have the rucksack psychology of the postwar years. You see it among the refugees from the East, carrying everything they possess in rucksacks on their backs. We may be in the same boat ourselves tomorrow."

Others share the resolve expressed ten years ago by the late Ernst Reuter, West Berlin's great mayor.

"Can Berlin and Germany survive 'half slave and half free'?" he was asked by a GEOGRAPHIC writer.

"No, not indefinitely," came the answer. "How long depends on our moral strength. Eventually this question, the division of Germany, must be settled. . . . In the long run the Soviets know they cannot digest these Germans. Military strength is not everything. Moral, political, economic strength is of greatest importance."

His jaw went taut with determination.

"Our dynamic influence at the Brandenburg Gate is the strongest moral force."

Barbed Wire and Bayonets Block a Subway; East Berlin Looks Like a Jail

This view across a salient of the East zone shows a sign (foreground) where West Berlin ends and a distant wall where it starts again.

Staff member Wentzel gave his impression of a deserted subway entrance in Potsdamer Platz: "A lifeless hole, littered with papers and trash, the gate bolted tight. Two armed men paced below, the echo of their steps mingling with the distant rumble of the trains. No more refugees would pass through here."

KODACHROME BY VOLKMAR WENTZEL, NATIONAL GEOGRAPHIC STAFF © N.G.S.

Canada, My Country

By ALAN PHILLIPS

CANADA IS DEPICTED in travel ads as a husky young woodsman in a red hunting shirt and a stiff-brimmed hat. We seem on the surface a simple people, sober and sound, if somewhat colorless.

No national image is more misleading. This is a complex nation, sired by France, suckled by Britain, and nurtured by the United States. We're so complicated that no one has ever defined the national character.

We're not British, though the British Queen is also Queen of Canada. And we're not French,

Sedan-lift riders dangle above Banff National Park in Alberta. Mirrorlike Lake Louise and its famed lodge nestle below glacier-sheathed Mount Victoria, standing high on the Continental Divide.

EXPLORING CANADIAN PACIFIC RAILWAY © N.G.S.

HS EKTACHROMES BY CHARLES H. WARREN | ABOVE A

Sightseers' tallyho passes an art show and a flower-decked lamppost, one of 300 that brighten Victoria, capital of British Columbia. Red Hudson's Bay blankets shield riders against sea

though a fourth of our 18 million people speak French as their native tongue.

The character of Canada was influenced by three Americans—Benjamin Franklin, John Jay, and John Adams. They went to Paris to settle peace terms in 1783 as victors in the American Revolution, determined, of course, to get all they could of British North America.

The British accepted a boundary from the St. Croix River on the Atlantic, through the middle of what is now the St. Lawrence Seaway, to Lake of the Woods. As settlers pushed westward, the line went with them along the 49th parallel to the Straits of Georgia and Juan de Fuca, and thus to the Pacific. (See the 10-color Atlas Map of **Canada**, distributed to members with this issue.)

This left Canada in a curious, unique situation. You can see it best in Ottawa, our capital, on the eastward-pointing toe of Ontario. At least that's where it first struck me.

I was standing on Parliament Hill, behind the Gothic mass of the Commons, looking north. Below me, a sheer drop, ran the mighty Ottawa River. Beyond the city of Hull on the far bank the unchanged hills receded. On my side a yacht nosed toward locks that ascend to a lovely, placid canal wandering southward through lush farms and woodland.

Canada has more spectacular scenery, but none, to me, so significant. On one side, sweeping north to the polar sea—primeval wilderness. On the other—civilization.

Only Russia Surpasses Canada in Size

This is Canada. On the map it's a mass of land and islands bigger than any but Russia's. In fact, inhabited Canada is a Chile strung east and west, a belt round the continent's middle, roughly 200 by 4,000 miles. In this narrow strip live nine-tenths of our people, locked between the bush and the U. S. border, between the unchanging wilderness and a dynamic society thrown up by a great industrial complex (map, right).

We are forever aware of the United States. Our movie heroes come with a made-in-U. S. A. label, for more than half our films are from Hollywood. Much of our news comes to us from the United States, for Associated Press feeds Canadian Press. We find ourselves

PAUL V. THOMAS © NATIONAL GEOGRAPHIC SOCIETY

breezes. Ferries to Seattle and Port Angeles, Washington, ride the harbor.

Totem pole's faces get bright paint in a workshop at Victoria's Thunderbird Park.

drawn to American TV, books, magazines, and fashions, and American food is often to our taste.

When I cross the border, I feel as though I am stepping into the future. Yet there at my back door, only two hours' drive, conditioning my thought, is the bush, as wild as ever —the bush of boyhood and camping trips. I know of no other country where past and future pull so strongly in opposite directions.

These two aspects of our destiny—the U. S. and the frontier—have wrought a transformation in the strip that is Canada. Traveling recently from sea to sea, I had the sensation of civilization evolving before my eyes, as in one of those films of plant growth that speed up time.

No one article can explore all the byways or report all the restless growth of my vast homeland. I sought those aspects which are typical and revealing; together they bring the giant into focus.

I began with British Columbia on the west coast. This is Canada's California, a province that runs to extremes.

Here are prim postage-stamp gardens, and —back of the Coast Mountains, where guides offer "a grizzly or your money back"—the largest ranches in Canada. In the gas-rich basin of the upper Peace River the temperature drops to 40° below zero, while people on the coast are picking roses. The brown hills around Kamloops in the interior are so dry that rattlesnakes and cactus thrive. But the

Canada's 4,000-mile "main street" along the U. S. border contains 90 percent of its population.

Vancouver towers gleam at dusk; marine gasoline stations appear to blaze on the harbor waters.

seaward slopes of the mountains are a rain forest of giant ferns where Douglas firs grow bark up to a foot thick.*

British Columbia's capital, Victoria, is farther from Canada's east coast than that coast is from London, England, and for the last 500 miles you are flying over mountains —the Rockies, the Columbias, and the Coast Mountains. They wall off the province. It stands alone, organically part of the U. S. west coast, a Canadian province only because, in 1885, the Canadian Pacific Railway was driven through and around these peaks with the help of thousands of Chinese coolies. This was growth forced by the United States. The railway was a lure to bring British Columbia into confederation before it was overrun from the south.

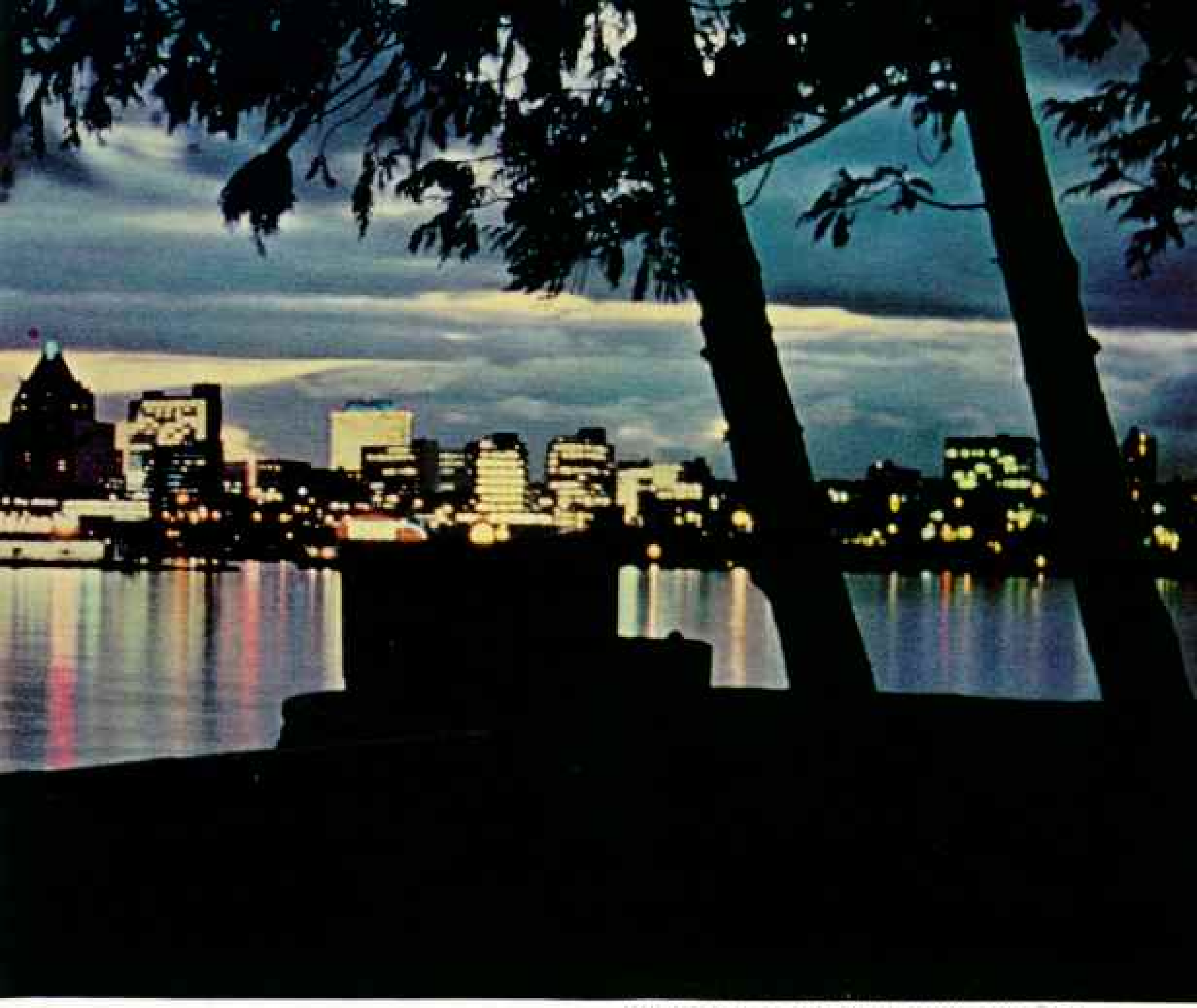
Tea and Crumpets in Victoria

At Vancouver, on the mainland, I transshipped from plane to ferry, threaded the maze of Gulf Islands, and glided into the heart of Victoria, on Vancouver Island.

Victoria's harbor looks like a stage set. Its small stone jetty, set off by gardens, is dwarfed by the fat-domed capitol and the stately Empress Hotel. Flowers bloom in lamppost baskets (page 770). It seems, as described by a visitor, "so English it brings tea to your eyes."

The Author: Alan Phillips, who has traveled his native Canada from coast to coast and into its Arctic regions, was born in Pinkerton, Ontario, and now lives in Stratford. Since 1945 he has written for Canadian magazines, movies, radio, and television, and produced a book-length study (*The Living Legend*, Little, Brown & Co.) on the traditions of the Royal Canadian Mounted Police.

*See in the NATIONAL GEOGRAPHIC: "Across Canada by Mackenzie's Track," by Ralph Gray, August, 1955; and "British Columbia: Life Begins at 100," by David S. Boyer, August, 1958.



KODACHROME BY DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF © N.G.S.

Soon the 9 o'clock gun, in the housing below the trees, will fire evening's benedictory salute

"You can still get crumpets and tea at four o'clock," said Bill Hawkins, the city's publicity director. "We've got cricket and old English pubs. But it's changing. We lost the battle to keep British bobby hats on policemen. Our slogan used to be 'A Little Bit of Olde England.' Now we prefer 'Gateway to Canada's Treasure Island.' After all, we've got hundreds of miles of beaches up-island, lakes few people ever set eyes on, trout fishing the year around."

We toured Marine Drive, which bends around the city. The Strait of Juan de Fuca shimmered on our right. Parkland beckoned on our left.

"Victoria's a way of life," Hawkins said. "I came here from New York to retire, to go fishing and hunting. Now I'm telling the world about this place."

We stopped to explore an old Victorian mansion, remodeled as an English coaching inn. The owner, Sam Lane, a former officer in Britain's Royal Air Force, showed us through a reproduction of the birthplace of Anne Hathaway, Shakespeare's wife.

"It cost me thousands of dollars," he said. "Everybody told me, 'You'll be broke in six months.' Well, while they were talking, we've shown a million visitors through here."

Now he was building a 17th-century English village. "This country isn't flowing with milk and honey," he said. "We need people with dedication, the old pioneer spirit."

I looked at him and at Hawkins, the ex-Briton and the ex-Yank, two tense, forceful men drawn here by the simple life but still geared for competition, for the fight for the best of both worlds.

I caught the plane to Vancouver. I had learned one thing: Even in Victoria, colonialism was dead. We were getting a new kind of immigrant. Lane and Hawkins were

Canadians now. They shared something in common. I hoped my trip would tell me what it was.

The plane came down on the flat green delta of the Fraser River, and I walked across to the hangar of Okanagan Helicopters, Ltd. When I lived here 14 years before, this company was Carl Agar, a middle-aged pilot who feared heights, with a mechanic and one Bell two-seater. Now it was the biggest commercial helicopter line in the world.

Making Molehills out of Mountains

"We couldn't have developed this country in any other way," said a tall, lean pilot, Alastair Smillie. This summer he would be one of fifty helicopter pilots flying oilmen and federal map makers around the Yukon and Northwest Territories, a near-empty region two-fifths as large as the United States that we usually refer to as "the north."

But there are many norths. There's the Yukon, range upon range of mountains, where flowers and vegetables thrive in the summer sun. And there's the central Barrens, where birches are mere flattened shrubs because of wracking winds.

This desert of tundra, stippled with shallow lakes and strewn with boulders, stretches from the bushland drained by the great Mackenzie River east to Hudson Bay and into the high north on the islands that hump from the pack ice nearly all the way to the Pole. Here, on cloud-wreathed Ellesmere Island, the Canadian shield, a U-shaped rampart of ancient rock around Hudson Bay, rises and curves down in lonely magnificence through Baffin Island to Labrador.

In all these Northwest Territories there are few roads and no rail lines. Development—oil strikes or mining—depends on airplanes.

Fisherman Challenges Fighting Trout on a Branch of the Similkameen River

Autumn leaves color a valley in British Columbia's Cascade Range near the U. S. line.

Tag on a red, or sockeye, salmon helps a biologist determine the numbers of the fish in the Adams River of British Columbia. Within two or three weeks, the salmon will spawn and die. By checking tags on dead fish, experts estimate the size of the spawning run. The Adams River forms part of the Fraser River system.

"A mining company can do in one season what used to take four or five years by pack mule," Smillie told me. "As Agar says, we've made molehills out of these mountains."

This was a man who could land on a crag with his skis jutting into space, a new kind of bush pilot. His predecessors had made the term synonymous with daring. One was Grant McConachie, who once saved himself from being stranded on a frozen lake by hammering out new engine parts from scrap iron. Now he bossed Canadian Pacific, Canada's second biggest airline.

I found McConachie in his office, brooding over competition with government-owned Trans-Canada Air Lines, our biggest carrier.

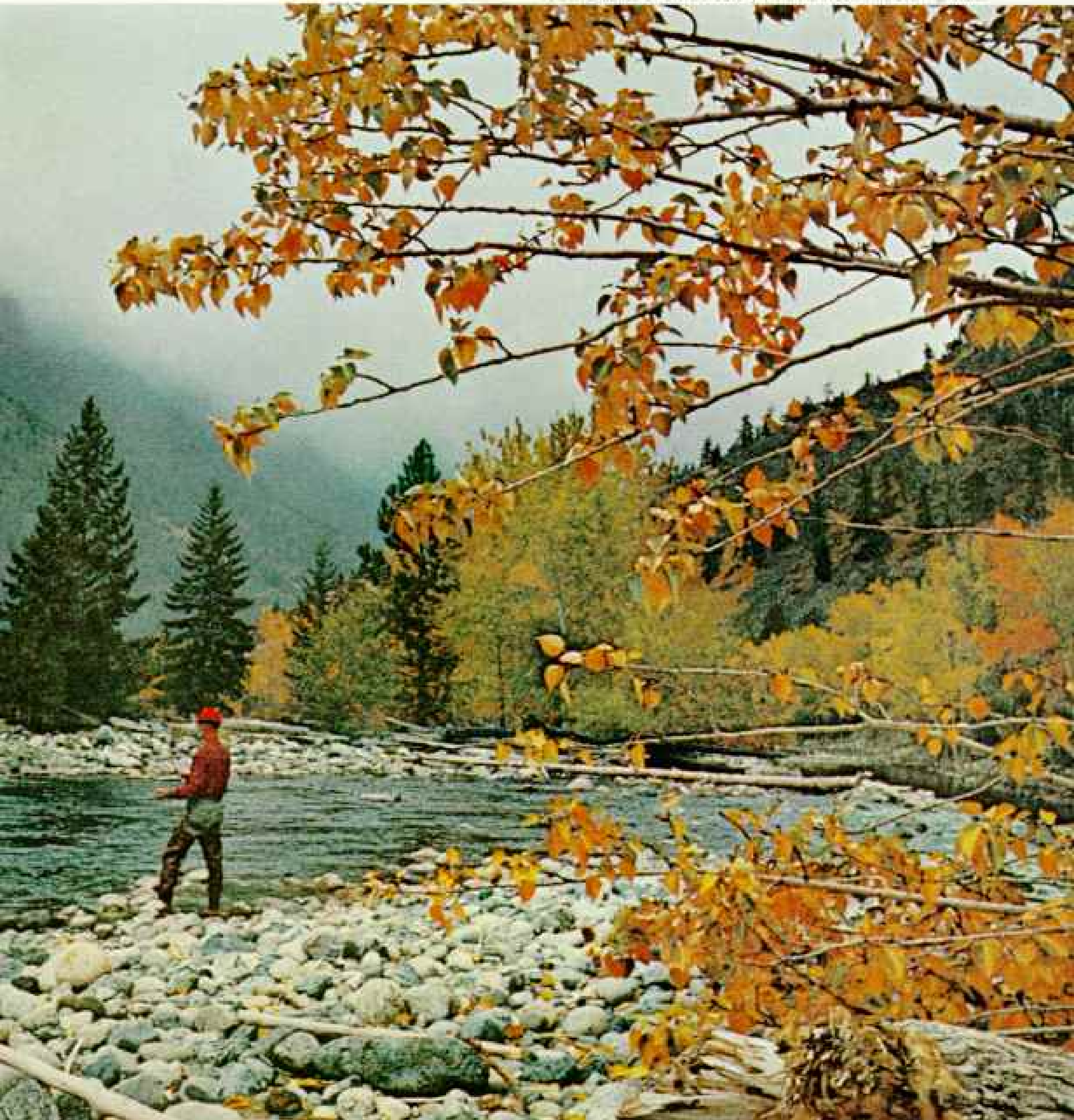
"This country would be a century behind without aviation," he said vehemently. "It's our merchant marine of the air."

His image conjured a vision of our land as an archipelago, each separate region an island linked by air and rail.

Vancouver—Canada's Western Gateway

I drove into Vancouver on its arm of the sea. Dogwood bloomed in its gardens. Sunlight gilded the snow of its peaks.

From my hotel room I looked down on the harbor, a long sprawl of wharves piled with yellow lumber, fruit from the Okanagan Valley, canned sockeye consigned to fifty countries, and fertilizer from the world's largest



Brontosaurus in reinforced concrete stands 32 feet high in Calgary, Alberta. Its 125-ton weight is double that of dinosaurs in the Age of Reptiles. Fifty life-sized models that greet visitors to the city's Zoological and Natural History Park trace life from early amphibians to the woolly mammoths of the Ice Age.

Indian bronco rider at Banff, Alberta, braces against the shock of his mount's stiff-legged landings. Each summer clans of the Stony tribe raise tepees on their traditional campground at the foot of Cascade Mountain for Indian Days, a week of dances, songs, horsemanship, archery, and nostalgia for former years.

lead-zinc smelter at Trail, British Columbia. I watched prairie wheat funneling into a Chinese freighter. They call Vancouver the gateway for everything west of Winnipeg.

I walked down Hastings Street, where in the old days you saw loggers out on a spree, roaring drunk. But today's loggers were steady family men who commuted regularly to work.

Behind its wall of mountains, Vancouver was growing up (page 772). The signs were everywhere: in the Bayshore Inn, where businessmen pulled up in float planes for dinner; in the new art gallery, the new library, the playbills for the fourth International Festival headlining the Peking Opera and the New York Philharmonic; in the pleasant plazas and one of Canada's handsomest head offices, the B. C. Electric Building. By night a pillar of light, the structure is a monument to the future, to the water power in the mountains.

I dined at the Ho Inn, in Canada's only full-fledged Chinatown, on a tasty prehistoric-looking rock cod, and listened to a transplanted friend from Ottawa, Steve Franklin.

"The climate pulls people from all over," Steve said. "It's just eighty years since Vancouver was a sawmill. Now it's our third largest city. That makes people optimistic, a bit brash. Last winter, for example, there was a storm in the Cascades. Slides and washouts blocked rail lines, and for 24 hours we were cut off from the rest of Canada. Of course, the papers here said instead that Canada

KODACHROMES BY J. BAYLOR ROBERTS (UPPER) AND DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF © N.G.S.

was cut off from B. C. That's what I mean."

From the coast to Alberta by railroad, through Kicking Horse Pass—named when surveyor Sir James Hector was kicked by his horse—is a matchless scenic ride.

Whenever I have time, I get off at Banff, a resort town ringed by the Rockies, swim in its hot sulphur springs, and drive up the magnificent Banff-Jasper Highway to Jasper Lodge, in Jasper National Park.

Here bears and branch-antlered elk stroll on the golf course. The bears used to turn off the sprinklers, until bear-proof valves were installed. I was told that one greenskeeper hired a man to do nothing but follow the bears and turn sprinklers on again.

Cowtown Runs an Oil Empire

The saw-toothed wall of the Rockies, like a too-perfect cardboard cutout, was still incredibly clear from Calgary's Hotel Palliser. Calgary, in southern Alberta, is a cowtown with a slick veneer of some 350 oil company head offices. Since 1947, when U. S.-controlled Imperial Oil brought in the Leduc field, Calgary has become another Dallas or Houston.*

Hoping to talk to a cowhand, I loitered on Eighth Avenue and accosted a man in cowboy garb. He turned out to be the doorman at the Palliser. My next prospect worked at a girls' riding school. A third was a contestant at the horse show. A woman came out of a beauty salon with her dog dyed to match her hair. The day was gone when a cowboy would ride into a Calgary hotel and order beer from the saddle.

But Calgary's heart was still with its past. Businessman Doug Johnson, who offered to show me the city, was wearing a string tie, Stetson hat, and high boots. We toured the new auditorium, the new art center, the new aquarium, and the new Glenbow Foundation, whose 15 field workers scour the west for mementos of pioneer days.

"Eric Harvie has been very successful," Johnson said of Glenbow's founder. "He is determined to preserve everything possible that relates to the history of the area. I feel it is his way of saying thanks to a city that has been good to him."

He showed me the zoo, Canada's largest, built up from an unwanted deer left behind by a circus. I admired the life-sized concrete dinosaurs rearing above the trees (page 777). The original models had once roamed these foothills.

At the horse show we met the popular American Consul, Edwin J. Madill, silver-haired, suave, and Stetsoned. His is one of the largest U. S. consulates in the world, he said—"36,000 Americans right here in Calgary, 80,000 in the area."

Farther Into Wilds for Wealth

Companies in which Americans own most of the stock control more than 70 percent of Canada's oil industry. I had heard it said that this is because Canadians won't gamble.

"Are Canadians really more cautious than Americans?" I asked Stan Paulson, who runs a tiny oil company called Mill Creek. When I'd seen Stan last, he was sparking an attempt to mine what could be the world's greatest oil resource, the Athabasca Tar Sands, whose reserves may total 300 billion barrels.

"Look," he replied, "I participated in a well in Oklahoma. I wanted to see how Americans operate. The organizers went to a dozen people in the over-50-percent tax bracket. If they lost, they could write it off. We can't. They were gambling ten cents, where I was gambling a dollar. No, Albertans and Americans are the same kind of people."

I asked him what had flattened the boom.

"The easier land is either explored or held by the majors. You've got to move into the foothills, or into B. C., Saskatchewan, or Manitoba. It costs more and it's trickier. Only some wildcat independent would take it on for the thrill of it."

"Where are you drilling?" I asked.

"Manitoba."

I left Calgary pining its past and flew eastward into Saskatchewan. The prairies flattened into a madman's checkerboard, gold-

Dome and glass façade contrast old and new architecture in Edmonton, Alberta's capital. The Legislative Building faces the offices of the province-owned telephone company, whose entrance bears a winged symbol of communications.

Cree and Metis women candle fillets of whitefish and cut out imperfections; they work for Co-operative Fisheries, Ltd., at La Ronge, Saskatchewan. The province's ten thousand lakes, hundreds of which have no names, yield 19 million pounds of fish a year, of which 6½ million pounds go to fur farms for use as feed.

*See "Alberta Unearths Her Buried Treasures," by David S. Boyer, NATIONAL GEOGRAPHIC, July, 1960.

Mountain climber rappels down sheer Devils Thumb near Lake Louise. Beyond rises Mount Lefroy's pyramidal crest. Lefroy and Victoria Glaciers endure as fragments of huge Ice Age sheets that gouged out the valley.

Jagged ramparts of the Queen Elizabeth

and-khaki-colored rectangles, bare as an elephant's hide. To the north they merge into black-spruce country, a labyrinth of lakes where one cast will hook that prince of small game fish, the Arctic grayling. To the south the Cypress Hills offer ranchers a strange oasis where scorpions crawl up semi-tropical trees.

Below me lay one of the world's great granaries. It makes this our boom-or-bust province, Canada's Kansas. A bumper crop may put a farmer on easy street, or hail, rust, drought, or grasshoppers may just as quickly break him.

The capital, Regina, is a pleasant, tree-shaded city growing steadily on oil and manufacturing. I talked to a farmer in town for the day, Bob Fulton,

KODACHROME BY DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF © N.G.S.

Ranges wall mile-high Maligne Lake in Jasper National Park. Fishermen cast for speckled trout

from Shaunavon, a lean, dry man in his forties with a stubborn Scottish chin. His father had broken the tough prairie sod with oxen, but he was a power farmer. He worked 1,500 acres with a single helper.

Saskatchewan Ships Wheat to the World

I asked Fulton why farmers were bidding up land prices.

"We need more land to keep our machinery busy," he said. "We're dependent on world markets and world prices, but we have to live in the world's second costliest country."

His dilemma was familiar. Canada ranks twenty-ninth in population; in world trade, fourth. Unlike the U. S., we must export to live. Revolution or recession anywhere in the world affects Fulton, and his concern makes internationalists of Canada's politicians.

He waxed momentarily bitter at "people down east who take food for granted."

"The price of bread keeps going up," he said, "and our price for wheat has gone down. We say Canada is a cow facing west. We feed it at this end, and it's milked down there."

Fulton's emotion faded with second thoughts. "I don't think we feel as ignored now as we used to. TV and traveling have made us more aware of each other."

The gap between west and east was slowly closing.

We had met at the Saskatchewan Wheat Pool, Canada's largest wheat-collecting agency, a farmer-owned co-op that markets half the crop. Seven out of ten Saskatchewan adults belong to co-ops, and this province, whose settlers symbolize self-reliance, has the only socialist government in Canada.

"Socialism is just a label," Fulton said. "No one in the east ever thought of investing here. Saskatchewan had to depend on its own efforts. Farm people had to cooperate to harvest their crops and get schools and churches."

Rails Tied Canada Together

I pondered this point of view as I flew into Manitoba. Two of the longest railway lines in the world, one publicly owned, the other privately owned, crossed the vast country that lay beneath me. I was flying with publicly owned Trans-Canada Air Lines, over the same area served by privately owned Canadian Pacific. Below me were the towers of our publicly owned TV network.

The government underwrote the east-west flow of goods and ideas. A north-south flow would be cheaper. Farmers like Fulton wouldn't have to share the cost of the long haul east. But then, of course, we wouldn't be a nation.

Manitoba, our third prairie province, is only 2 percent true prairie. Three-fifths is forest—moose and caribou country. The province's inland sea, Lake Winnipeg, is larger than Lake Ontario, and this is only one of thousands of lakes, many unnamed. Manitoba's marshes are among the greatest duck-breeding areas in North America. Its trappers take up to 1¼ million muskrat pelts a year, and its Indians gather wild rice for gourmets in New Orleans.

At Winnipeg the provincial travel branch was selling frontier vacations. You could drive to The Pas for the annual Trappers' Festival and watch fish-eating contests and husky races. You could visit the mining towns of the north: Thompson, the greatest nickel discovery since Sudbury; the copper and zinc mining center named Flin Flon, for Professor Josiah Flintabbatey Flonatin, hero of a humorous novel found near the site by the prospectors. You could take the Canadian National Railways' excursion northward to Churchill, a summer seaport on Hudson Bay that brings the wheatlands a thousand miles nearer Europe.

Winnipeg, a melting pot of 260,000, is financier and portal for the prairie (pages 788-9). Its wide, windy, bustling Main Street was the highroad west for French *voyageurs*, half-breed buffalo hunters, kilted Scots, and sheepskin-coated Ukrainians. Now the city's dump has been landscaped for a ski slide, and new factories heighten its resemblance to Chicago.

I dined on Winnipeg goldeye, a local herringlike fish smoked with willow wood. It tastes like Dover sole with brook-trout overtones. Then I boarded a plane for the thousand-mile trip to Toronto.

East of Winnipeg the plains break on the gnarled rocks of the vast Pre-Cambrian shield, and you fly out of Manitoba over Lake of the Woods. I spent my happiest summer here in 1947, writing in a cabin four miles from a neighbor, fishing for 50-pound muskellunge, and sharing a crescent of beach with two cantankerous cranes and a lone bald eagle.

Then I looked up one day at the water's edge and met the gaze of a timber wolf, heavy-shouldered, gray, silent, immobile. We exchanged stares for perhaps 15 seconds. Then he melted into the brush. It was as if I had dreamed him. But there were his tracks every morning circling the cabin. It seemed wise to take my wife and plump little one-year-old daughter elsewhere.

Paradox in World's Richest Rockpile

All this shield country, stretching into the Arctic, offers man a last unmarred retreat. Its strange rock hummocks, two billion years old, scarred by Ice Age glaciers, hold in their hollows uncounted thousands of lakes. They also hold the answer to what seems a paradox: our great wealth and small population.

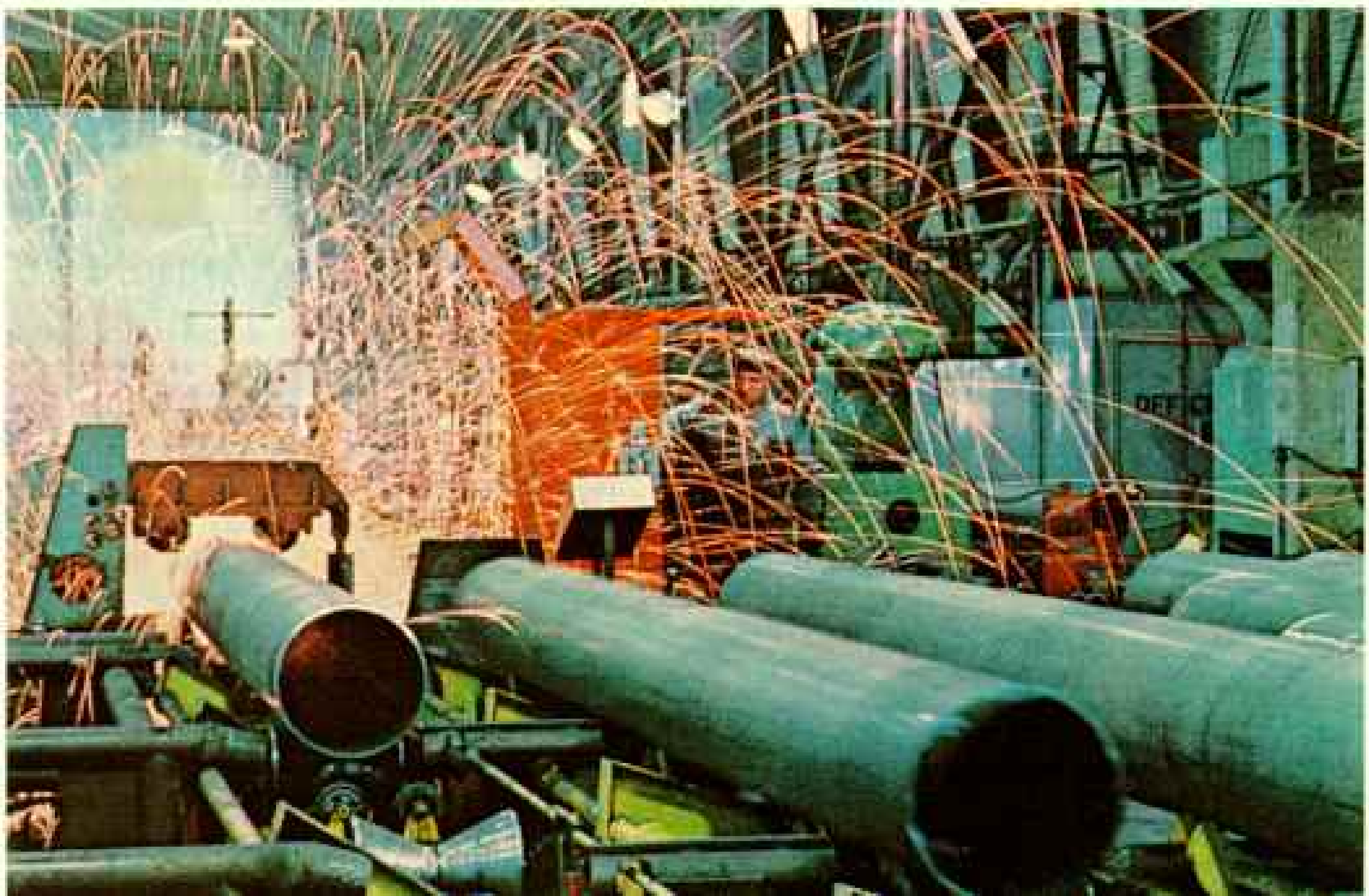
The shield is the world's richest rockpile, but it armors half of Canada. The area's great mining camps—the world's leading

Showering Grain Delights Farm Girls, But Not Their Surplus-burdened Father

Bumper crops in the 1950's built a backlog from which the Prairie Provinces struggled to recover. But a combination of drought last summer and increased sales abroad has eased the glut in storage bins. These Saskatchewan children play atop the harvest's mounting bounty.

Sparks cascade from saws cutting 16-inch gas pipe in Regina, Saskatchewan. The Prairie Pipe plant supplies steel tubes that tap oil and natural gas fields stretching from Manitoba to British Columbia. Alberta gas flows all the way to San Francisco, California, by a 36-inch line just completed.

ROSACHROME (UPPER) AND HS EXTRACHROME BY DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF © N.G.S.



CONDACHROME BY DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF © N.G.S.

Chipewyan Indian woman smokes her pipe at Churchill, Manitoba's port on Hudson Bay. A thousand miles closer to Europe than Lake Superior ports, Churchill loads 20 million bushels of wheat in ice-free August, September, and October.

suppliers of nickel, and a major source of gold and platinum—are no more than pinpricks in this immemorial mosaic of forest and water (page 821).

For example, there is Elliot Lake north of Lake Huron, in Ontario. In 1953 it was just a stand of timber, so wild that a bulldozer leveling brush ran over a large black bear.

Uranium Strike Brings Boom and Bust

Four years later, 11 major mines stood astride one of the largest known mother lodes of uranium. The 26-mile ride to the camp cost $35, and before we started the driver gave me a seasick pill. A clutter of trailers amid raw construction sites, the town of Elliot Lake had begun to take shape.

By 1958 it had a population of 25,000 and $100,000,000 worth of split-level homes, fluorescent lights, breezeway schools, shopping plazas, and crescent streets.*

Now it has shrunk to 10,000. Some U. S. Government contracts have expired. When the last uranium orders run out, the model community may well become the world's handsomest ghost town. Its miners will drift on, perhaps to another boom town financed from Toronto, Ontario's capital and the hub of Canadian mining finance.

Toronto Wears a Gayer Face

From the airport I entered Toronto on an expressway along Lake Ontario. Clusters of factories face the shore all the way to Niagara, 80 miles. This is fast becoming one of the world's great concentrations of industry, Canada's burgeoning Ruhr.†

One-third of the nation now produces two-fifths of our goods in the little wedge of land we call Southern Ontario. Its flat, near-treeless sandy southern tip along Lake Erie grows 90 percent of our tobacco. The Niagara vinelands, "the sun parlor of Canada," are among North America's biggest wine-making areas. Ontario's old farms made Canadian bacon a byword, and they supply the U. S. with some of its best purebred cattle. Ontario, in short, is our richest province.

On a recent visit to Toronto, I found the city sprightly, with an increasingly cosmopolitan flavor. You can sit down to goulash at the Hungarian Village or drink Rhine wine by the carafe at the Rathskeller. Toronto has new night clubs, TV studios, and small film companies.

On a summer Saturday morning, you can shop for suckling pig at the century-old St. Lawrence Market, picnic in sylvan ravines in the heart of the city, and ride the spotless subway to a grimy waterfront that is slowly being landscaped.

I walked along Spadina Avenue, past a sign on a store boasting, "We speak English." In front of another store, a man was staring at a placard.

"What's this mean?" he asked a workman who paused beside him.

"What's the matter with you?" said the workman. "You don't speak Ukrainian?"

It was a sign of the times. About 44,000 Europeans arrived in 1960 in Ontario. Premier Leslie Frost has predicted that ultimately a large number may come from the

*Elliot Lake's boom was described in "New Era on the Great Lakes," by Nathaniel T. Kenney, NATIONAL GEOGRAPHIC, April, 1959.

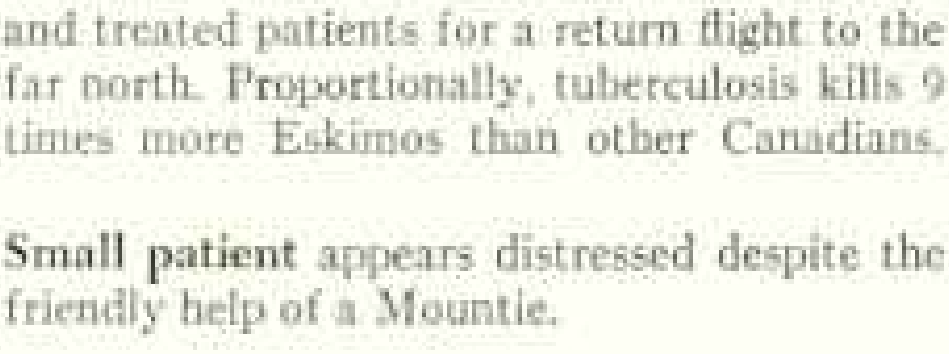
†See "Ontario, Pivot of Canada's Power," by Andrew H. Brown, NATIONAL GEOGRAPHIC, December, 1953.

From Tundra to Hospital in Three Hours: Mercy Airlift Saves Eskimo Lives

Mounted Police at Churchill load supplies and treated patients for a return flight to the far north. Proportionally, tuberculosis kills 9 times more Eskimos than other Canadians.

Small patient appears distressed despite the friendly help of a Mountie.

Life in balance, a three-year-old pneumonia victim perspires from fever as she flies from Baker Lake, Northwest Territories. A few days later she was healthy and smiling.



KODACHROME BY DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF (C) N.G.S.

Klondike veteran of the 1898 gold rush, Pat Brady has worked his claim near Dawson, Yukon Territory, since 1917. By tilting his pan, he washes away silt and recovers heavier gold. Where miners once sought bonanzas, he manages to make a living.

United States "to take advantage of unfolding opportunities" offered by the province's rapid growth.

Americans have already poured billions of dollars into Ontario industrial development. Plants principally owned by American firms turn out half the output of the province, giving us what economists call a "branch-plant economy," sensitive to any recession in the United States.

This poses by far the most serious problem in U. S.-Canadian relations, one that has long perturbed Prime Minister John Diefenbaker. To get his views, I wrote his office in Ottawa for an appointment.

Ottawa, unlike London, is not a natural capital, nor is it entirely planned, like Washington. It began in 1800 as a lumber town so tough that loggers in calked boots kicked one another to death in its taverns. When I saw it first, on leave from the Navy in 1941, the Parliament Buildings, towering on their magnificent river-cliff site, seemed a patch of grandeur superimposed on an ordinary middle-sized city (page 794).

Since then, Ottawa has grown more beautiful every year. The National Capital Commission has bought up 80,000 acres and is building 40 miles of parkway extending into the Gatineau Hills. In spring, tulips and daffodils offer a dazzling display. In autumn, ski slopes flame with hardwood color.

Cameras Besiege a Mountie at His Post

I arrived under the Peace Tower a few minutes early for my appointment with the Prime Minister. A bevy of camera-happy girls were giggling over the handsome young mounted policeman standing stiffly on guard in his hot, heavy red serge tunic.

"How many times a day do you get your picture taken?" I asked him.

"About 150 times an hour in the summer."

"What question are you asked the most?"

"How many times a day do I get my picture taken."

I went into the House of Commons. The P. M.'s suite is tucked away at the end of a marble corridor. He waved me to a chair.

"Now what can I do for you?" he asked.

"What do you think, sir, is the most significant change taking place in Canada?"

"The national development policy which is opening up the north. For many years the north was considered worthless. Now it's regarded as a storehouse—a safe-deposit box, if you will—of minerals which are necessary to the preservation of freedom everywhere in the world."

"More than 50 percent of these mines are financed by Americans," I said. "How can we keep control of our country without blocking development?"

The Prime Minister smiled slightly.

"American investors know there is no security in any part of the world to equal that here. We welcome that investment. We ask only that the investors consider Canada's future as well as their shareholders in the United States.

"It must be a Canadian company, incorporated here. It must have a percentage of stock available for Canadian investors. It should buy as much in Canada as can be justified. And we'd like a fair share of the research—too little, if any, is done here now. And too many U. S. firms are sharpening their

Aurora borealis gives enough light to read by at Yellowknife, Northwest Territories, a town of 3,800. Shimmering curtains of the northern lights occur when solar particles bombard the earth's polar field and excite molecules of air to luminosity.

Translucent blocks of a lighted igloo shine in the Arctic night at Cape Dorset, Baffin Island. Intrigued by the glow of seal oil lamps within, the photographer captured the effect on film by placing electric floodlamps inside the snow-slab dwelling.

export efforts while seeming to restrain, or failing to encourage, exports by branch plants here.

"Furthermore," the Prime Minister said, warming to his theme, "we cannot permit the directors of American companies to set our government policy. If you remember, in 1957 a Canadian auto corporation wanted to sell a thousand

Gateway to the West and the Arctic,

AQUACHROME (ABOVE) AND ITS EXTACHROME BY DAVID S. BOYER © N.G.S.

New oil refinery in St. Boniface, the French-speaking suburb of Winnipeg, operates around the clock.

"The Play of the Acrobats," a modernistic statue in a pool, adorns the Polo Park shopping center, Winnipeg.

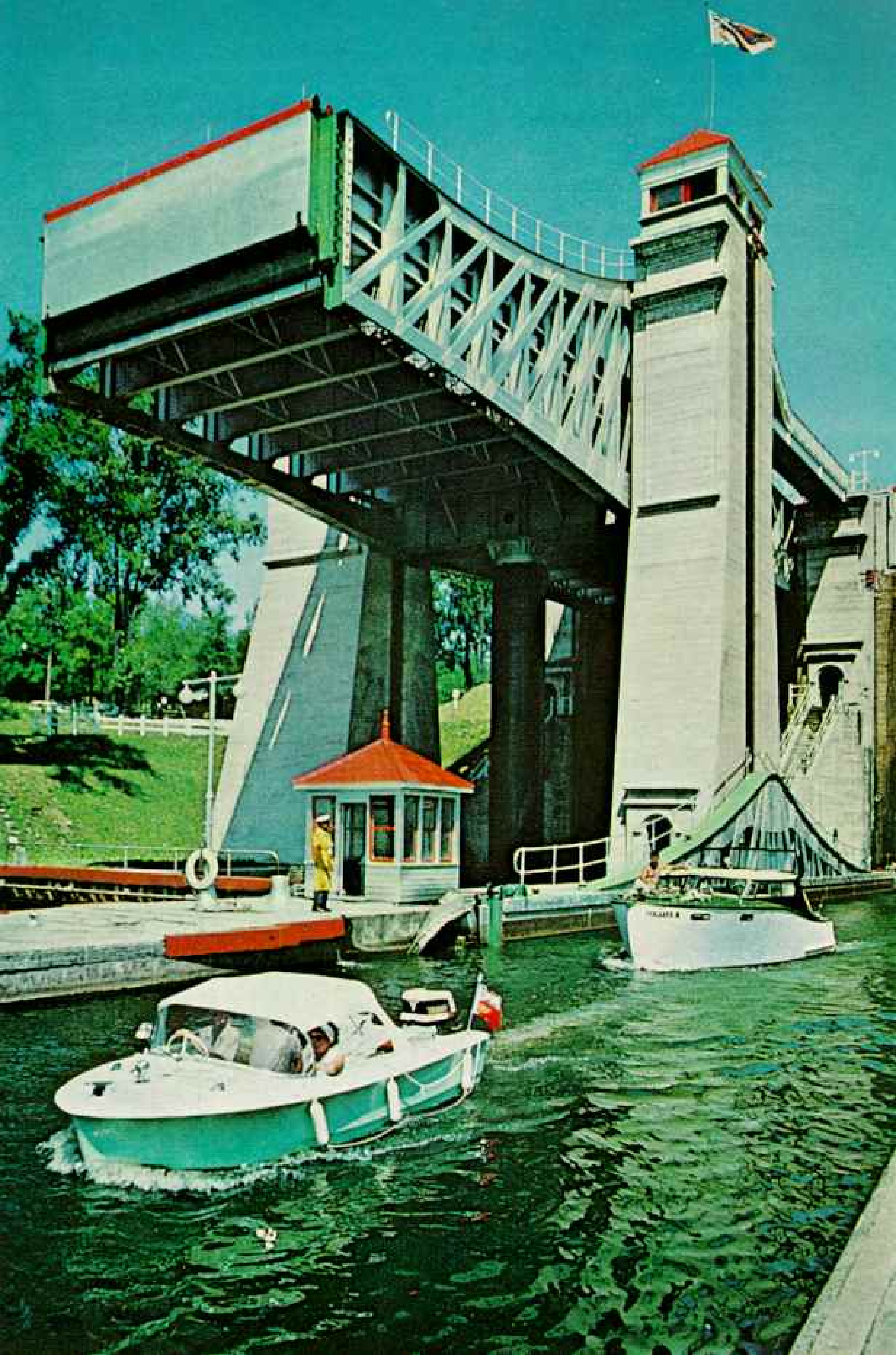
trucks to China. They got the order, but the mother corporation said it couldn't be done. We will not accept that.

"Our concern," he concluded earnestly, "is not anti-American. The United States is Canada's greatest customer. Canada is the U. S.'s greatest customer. We buy almost as much from Seattle as from Norway, almost as much from Chicago as from West Germany. We're such close neighbors, we have so much in common, that it's hard to realize that we're bound to have differences."

One difference, not merely between the neighbor nations but among Canadians themselves, was plain here in Ottawa, in Lower Town's twin-spired Basilica and the black-robed nuns on the streets. Ottawa spans two worlds. Across the river lies Quebec, a province with its own language and customs, its own books, films, painters, and playwrights.

Winnipeg lies in Canada's center. Red River feeds Lake Winnipeg and ultimately Hudson Bay

PHOTOCHROME BY, ARRAN-HUNTING SURVEY CORPORATION



its separate schools and hospitals run by Roman Catholic clergy.

Just as Canada resists the impact of outsiders, so Quebec struggles against the Anglo-Saxons. A former Governor General, Lord Durham, saw Canada as "two nations warring in the bosom of a single state."

Now a fresh wave of nationalism was sweeping Quebec. The week before, a friend of mine was dining in Murray's in Montreal when 70 French employees of the Canadian Broadcasting Corporation marched in and demanded that their orders be taken in French. They'd been eating there in English for years. Murray's now has menus in two languages.

I asked a friend in the CBC about it.

"It's true," he said. "Not long ago we settled a strike with our French-speaking union, and *Le Devoir* in Montreal ran headlines demanding we fire our negotiator. His telegram agreeing to the union demands had been written in English."

Traveling by train, I followed the Ottawa River to the St. Lawrence. There Montreal, Canada's largest city, sprawls over its island, even up the slopes of Mount Royal. Sometimes called "the Paris of North America," Montreal is a city with indisputable charm and sophistication. It is also a manufacturing center, the hub of rail and air networks, and a world port 800 miles from the sea (page 799).

Skyscrapers Change City's Face

I emerged from the hillside station of the Canadian National Railways, and change struck me like a physical blow. Gone were the shabby shops of yesteryear; within six blocks soared seven new skyscrapers.

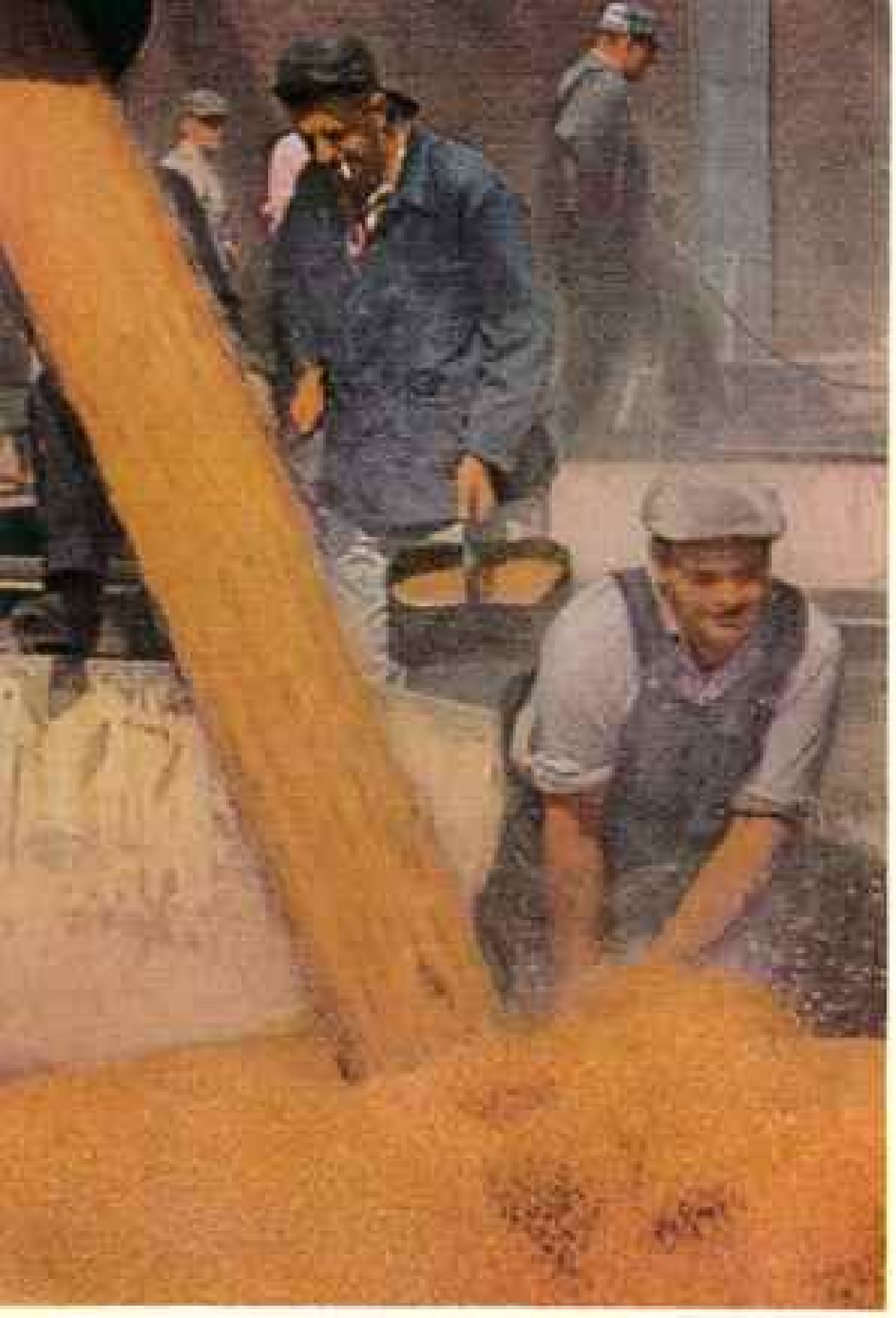
I lunched on a pedigreed lobster at Pauzé's, a century-old sea-food bar, and spent the afternoon in nostalgic sightseeing. The Old Quarter was still a maze of twisting cobbled streets, smoky sailors' taverns, and Louis Quinze churches. Bonsecours Market still sold home-cured tobacco and pigeons for pies. Sherbrooke Street was still elegant, with

Huge Lock Lowers Boats in a Giant Bathtub on the Trent Canal

Here, at Peterborough, Ontario, the world's largest hydraulic lift seesaws two water-filled compartments. In less than eight minutes these boats dropped 65 feet to the downstream lane. Walled pool between the towers rises to discharge upstream traffic. Trent Canal, which links Lake Ontario and Georgian Bay, saves 430 miles.

Speedboaters cruise among the forest-clad Thirty Thousand Islands of Georgian Bay, an arm of Lake Huron.

PHOTOGRAPHED BY WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF



Trimmer distributes wheat pouring from a grain elevator into a ship's hold at Port Arthur, on Lake Superior. Man with a bucket samples the grain for grade and moisture content.

Daybreak Tints the St. Clair River; Refinery Lights Blaze in Sarnia, Ontario

This link between Lakes Huron and Erie separates Michigan, on the left, from Canada's "Chemical Valley," a $400,000,000 industrial complex. Burning off excess gas, a tower of flame balloons above the Polymer Corporation plant. Lake freighters pass on the river.

its elms and gray stone mansions, now converted to luxury shops. Sixty years ago, 42 of Canada's most powerful millionaires had lived here within a mile of one another.

Now the rich had fled up Mount Royal, which humps from the city's center, diverting traffic but offering green glens of seclusion for escapists. I rode up in a horse-drawn victoria. On the slope stands St. Joseph's Oratory, made famous by Brother André, who died 24 years ago at 92. The miraculous cures attributed to him have made this one of North America's best-known Catholic shrines.

Next day I called on Valmore Gratton, the city's economist and industrial commissioner. He smiled with satisfaction when I mentioned his altered skyline.

"But won't this strangle the atmosphere?" I said. "All this functional glass and steel — it could be London or Chicago."

His smile faded. "That is the problem everywhere. But we will keep our atmosphere. This is the largest French-speaking city outside Paris and the largest French TV center in the world. We have a dozen French theater companies, a hundred French folk-dance groups. We have kept our taste for good food and wine. Steak here isn't just meat."

EXTACHROME AERO (ABOVE) BY GEORGE HUNTER AND 11 EXTACHROMES BY WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF © N.G.S.

I agreed, and mentioned the demonstration at Murray's.

"I would regard this as an escape valve or passing mood," he said. "There is resentment in certain quarters that we do not have full control of our economy. Most activity here is financed by Anglo-Saxon or U. S. capital. Our young are aggressive and impatient. They want to go too fast."

From Montreal's new international airport, I took a plane that followed the St. Lawrence to Quebec City, capital and cultural citadel of the province. When the clouds parted, I could see the habitant farmhouses, their fields stretching behind them in strips that gave each a ration of riverfront.

The airport limousine sped into Quebec along Grande Allée, under the arch and into the old walled city. I glimpsed cloistered gardens and black-robed figures. Downtown, students thronged the streets, the girls chic, the boys gay. I felt as if I were watching a play set in 17th-century France with all the players in modern dress.

We pulled up outside a huge medieval castle, the Château Frontenac (page 804). After checking in, I strolled out into the Place d'Armes, pausing to admire the highly var-

In bearskin and scarlet tunic, Drill Sgt. D. J. Read shouts commands at the Changing of the Guard (left). From July to September the ceremony occurs daily at the Parliament Buildings in Ottawa.

BY KODACHROME (BELOW) AND KODAK FILMS BY WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF © N.G.S.

Future Officers Whirl Their Ladies at a Christmas Ball in Kingston, Ontario

Cadets train at the Royal Military College for commissions in Canadian Army, Navy, and Air Force. Completion of a four-year course gives them degrees in arts, science, or engineering.

Fanfare of trumpets heralds Prime Minister and Mrs. John G. Diefenbaker, who emerge from the Gothic arch of the Peace Tower to review a Dominion Day parade by the Canadian Guards. Crest of the Royal Canadian Corps of Signals emblazons the trumpeters' blue banners.

Peace Tower (opposite), core of the Parliament Buildings, sees the Changing of the Guard. The slender shaft memorializes more than 66,000 Canadian volunteers who gave their lives in World War I. Hands of its clock match a master chronometer at the Dominion Observatory.

"Close Shot!" wigwags a lawn bowler on the green at the Royal Canadian Yacht Club, Toronto

Women kneel to measure the distance between their bowls, or woods, and the white jack. More than 10,000 Canadians play bowls, a sport once banned by English monarchs lest it divert men from the practice of archery.

Launching 40-pound stones down 138-foot ice rinks, curlers aim for the bull's-eyes at the Mount Royal Curling Club. Brooms sweep ice ahead of stones to speed them.

nished wood of one of the horse-drawn hacks called *calèches*.

The driver was young, a student.

"Quebec's calèches are genuine," he said proudly. "They have been known here since the 17th century."

I asked him about the upsurge of French nationalism.

"It is not new," he said. "We are four million among eighteen million. We must fight to keep what we have.

"Don't forget we helped drive the Americans back in 1775. There was hand-to-hand fighting on those streets down there."

He gestured toward Lower Town, where American Gen. Richard Montgomery, who led the invasion, was killed by a cannon blast.

A better-known battlefield is the Plains of Abraham, skirting the city above the busy St. Lawrence. Here, on a fateful morning in 1759, Wolfe's British Army, having wormed up the cliffs, defeated Montcalm and ended French rule on the North American mainland.

Now the plains were flowering meadows where lovers sat in the afternoon sun. But the after-effects of that battle still troubled the nation it created. That night a chance-met notary gave me a history lesson.

Renaissance Stirs French Canadians

"You must understand," he said, "we French felt abandoned by Louis XV after the British conquest. The French Revolution later repelled us. We withdrew into ourselves. Now we are coming out. We are having, three centuries late, our own revolution. We are now in reaction against old taboos. I think we are on the verge of something great."

"It sounds less like revolution," I said, "than renaissance."

"You are right. We are not so much anti-English as pro-French."

I thought of Quebec en route to Prince Edward Island. My seatmate was a young French-Canadian engineer, flying via Sackville, New Brunswick, to Baie Comeau, one of the new company towns flung like stepping-stones into the hinterland north of the St. Lawrence. In that wind-swept land of granite crags and tortured trees, enormous reserves of pulpwood, power, titanium, iron, and copper are pulling Quebec pell-mell into modern society. This young man worked for the Aluminum Company of Canada. As we parted, he gave me a last word on French-English relations.

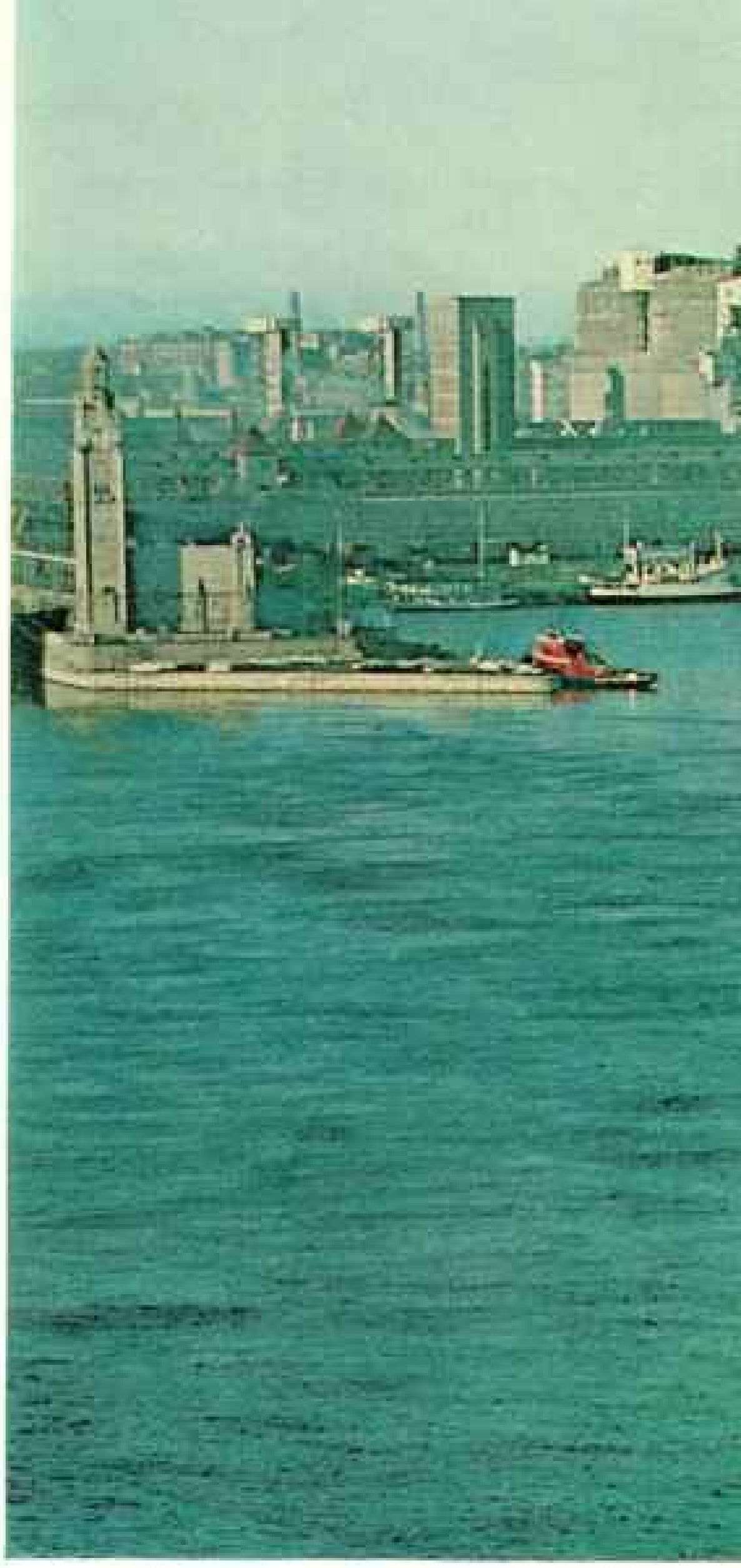
"What are these 'rights' of ours?" he asked. "That I should be made vice president of my firm because I am French? We no longer talk about rights. We are earning them."

Lobsters Versus a Causeway

From Sackville, I drove to Cape Tormentine and crossed Northumberland Strait on what they call "the small ferry," the S.S. *Prince Edward Island*. I joined two islanders at the big wooden dining bar.

"Our whole lifeline depends on the ferry service," one said. "The federal government's been studying a causeway for donkey's years. Traffic would double in two years."

"**A thousand times goodnight!**" says Julie Harris to her Romeo, Bruno Gerussi, at the Shakespearean Festival in Stratford, Ontario. Stratford's stage resembles Elizabethan playhouses.



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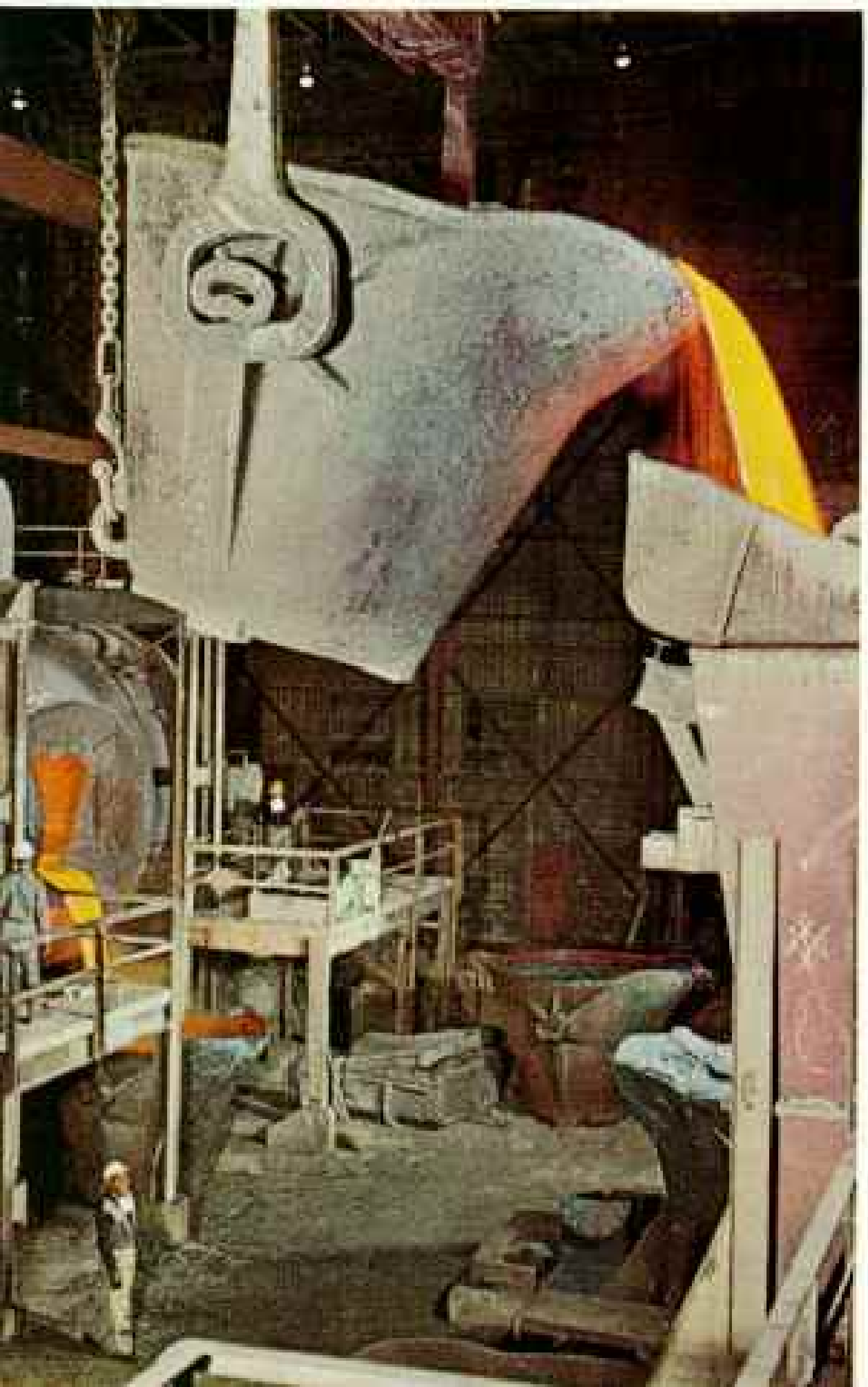
NATIONAL (BELOW) BY GEORGE HUNTER © N.G.S.



Polish Liner *Batory* Visits Montreal, 800 Miles From the Open Sea

Geography dictated the city's founding in 1642 because the Lachine Rapids, just upriver, stopped ships here. Ships as large as the 14,000-ton *Batory* now can steam into the Great Lakes by way of the St. Lawrence Seaway.

Iron ore (left, above) spouts from conveyer belt into ship's hold at Sept Îles, Quebec.

Molten copper slag pours from bucket into reverberatory furnace at Murdochville, on the Gaspé Peninsula. Drained from the converter in background, the slag is reheated to set the residual copper, then jettisoned. This plant produces 4,000 tons of copper a month, 10 percent of Canada's output.

The second islander shook his head. "You're sailing over the richest lobster grounds in the world," he said. "I think that's one of the reasons they're afraid to build the causeway. It would change the flow of tides. They don't know what that would do to the lobster."

The low red banks of Prince Edward Island, our tiniest province, loomed ahead, ending that perennial Canadian argument, transportation. Four hundred miles of Appalachian ridges cut off the Maritime Provinces—Nova Scotia, New Brunswick, and Prince Edward Island—from the central Canadian market.

I drove with the second islander to Charlottetown, Prince Edward Island's capital, through gentle, rolling hills patched neatly with wood lots, green meadows, and red fields.

"The whole island is one big farm, 120 miles long by 35 at its widest," he informed me. "Everyone's close to the soil here. Girls learn crop rotation in school. It's wonderful soil, that red stuff. We ship seed potatoes all over the States."

Premier Known by First Name

We came into Charlottetown between big frame houses on wide streets. My friend dropped me off, and I sauntered through the main square. Farmers in overalls chatted on the sidewalk. One said, "Hello, Walt," as a burly, friendly-looking man passed. From his pictures, I recognized Walter Shaw, Premier of the province.

Savoring lunch and leisure, a steel worker relaxes between labors on Montreal's Place Ville Marie, largest office building in the nation.

Magic of mink in a model's jacket stirs interest at a Montreal fur fashion show. Furriers prize Canadian pelts for luster and thickness, the gift of cold winters.

Casual couple laze in sun and solitude atop Mount Royal Park, a wooded knob in the heart of Montreal. Their view sweeps 60 miles to New York's Adirondacks.

Next day I drove along the north-shore highway. White beaches and dunes stretched for 25 miles. I stopped to query a motel operator out mowing his lawn.

"There were 2,500 bathers and campers parked under those trees last summer," he said. "Along the south shore there are miles of beaches, still unused. I know half a dozen Americans who've come here these past three years. They've bought 50- to 100-acre farms with big old farmhouses for anywhere from two to six thousand dollars. They put in a picture window, and they've got themselves a 50-acre estate with private beach."

At Covehead I stopped to talk to four lobstermen sitting listlessly by a stack of traps.

"I've been fishing since I was 13 years old," a thick-bodied, lobster-red man told me, "and this is the poorest May I've ever seen. I had 300 traps out and got only 110 back."

Ice had carried away the rest.

"I just lost 380," said a younger man in a black shirt.

"What will you do?" I asked.

"Starve to death, I guess."

"You're cheerful about it," I commented.

"Might as well laugh as cry," he said.

Winter Lingers Into May

Later I found that only a few lobstermen had suffered badly. But ice in May is a fact about Canada that the map does not explain. Canada's cities are on about the same latitude as Paris. The map does not show the chill from icebound Hudson Bay that in spring lingers over parts of Ontario and Quebec, delaying the start of the growing season as much as three weeks.

Eminent visitors, Mr. and Mrs. Georges Vanier tour Arvida, Quebec. He is Canada's first Governor General of French descent.

Between classes, a coed scurries across the campus of McGill University, Montreal's oldest, founded in 1821. She wears the school's scarlet blazer.

Climate has helped keep New Brunswick's population sparse. Only 8 percent of the land is cultivated. Driving into the interior, I picked up the Saint John River. This lovely stream drains hay and potato fields in the northwest, flows through neighborly clusters of white clapboard cottages, spreads into marshes alive with ducks, winds through woods wild with game, and finally lazes along the elm-shaded streets of Fredericton.

Normally Fredericton, the capital, pulses peacefully as its river. But now the Saint John was in flood. Houses stood floor-deep in water, isolated and forlorn. Crews of men were salvaging logs. Pumps throbbed continuously.

The flood had been predicted by the local daily, the *Gleaner*. Its editor-owner, Michael Wardell, is a former British brigadier. Ten years ago he resigned as an executive of Beaverbrook Newspapers, Ltd., and came here to build a publishing empire.

I found Wardell at his desk in his apartment—the Eagle's Nest, townsfolk called it. He was surrounded by papers and an air of crisis, a fierce, ageless man in Savile Row tweeds.

"The flood left thousands of people in misery and despair," Wardell proclaimed. "Yet we don't build the dam that not only could prevent this but could supply the power we badly need. And yet we have the most brilliant engineers anywhere."

I could see that Wardell was a crusader, a type familiar to New Brunswickers. They claim a world-renowned crusader—one whose fame rests more in the British Parliament and Fleet Street, however, than in tree-shaded Fredericton. But William Maxwell

Ballerinas on Blades Etch Fire on Ice in Darkened Mount Royal Arena

Four teen-age skaters wearing ankle lights take a bow after tracing graceful movements of the Dutch Waltz across the rink. Fifth bulb-lit performer, caught in a time exposure, appears enmeshed in a tangle of golden twine after concluding a scratch spin. All are members of the Figure Skating Club of Mount Royal, Quebec.

Advice from an expert: Jacques Plante, star goalie of the Montreal Canadiens, counsels young amateurs in the Mount Royal arena. Ice hockey is Canada's national game. Mr. Plante was the first goalie in the National Hockey League to use a plastic mask, now widely accepted.

Puck Bounces Away as Embattled Goalie Blocks a Score

Leg raised as if to stamp the skittering puck, a teammate skates in to clear the goalmouth. Action occurs between teams of the Pee Wee class, whose members range between 10 and 12 years. Mount Royal Municipal Arena sponsors some 40 junior hockey teams and conducts classes for young figure skaters, some from the U.S.

KODACHROMES BY DAVID S. BOYER AND JOHN E. FLETCHER, NATIONAL GEOGRAPHIC STAFF © N.G.S.

Aitken, Lord Beaverbrook, colleague of Churchill, minister in British cabinets of two world wars, and one of the world's leading publishers of newspapers, books, and magazines, has never forgotten the province of his schoolboy days. From here he launched a career in business that earned him a fortune before he moved to London in his early thirties and took up journalism and politics.

A library, law school building, monument, theater, and hockey arena show Lord Beaverbrook's love for Fredericton. His latest and perhaps most lasting gift, a marble and limestone art gallery, displays Gainsboroughs, Hogarths, and Turners among its treasures.

Between Fredericton and Saint John, New Brunswick's port on the Bay of Fundy, the scenery consists mainly of trees. Half the province's income derives from its pulp, paper, and lumber preserve of balsam and spruce.

Harbor Once a Forest of Masts

Saint John has the gray patina of old Atlantic ports. Its King Street is main street to New Brunswick's logging camps and tide-swept Bay of Fundy villages. From a city square, where traffic flows round a shady park, King drops three blocks to Market Slip, smelling of tar and oakum. Here a fisherman was casting his nets within sight of shoppers,

Winter Holds Quebec City in a Snowy Grip; Ferry Threads an Ice-cut Channel

Here, in 1759, James Wolfe died capturing the city for the British, and the French Marquis de Montcalm suffered mortal wounds in defeat. Sixteen

KODACHROME BY DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF © N.G.S.

years later Gen. Richard Montgomery fell leading Americans in a vain attack. Turreted hotel, the Château Frontenac, lifts its green roofs above Upper Town. Aluminum walk winds around barracks of the Citadel. Frozen St. Charles River, beyond Upper Town, meets the St. Lawrence at right.

HIS EXTACHROME BY DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF © N.G.S.

Flashing skis shave packed slopes on Mont Tremblant, Quebec. Zigzagging through flagged gates, a competitor for the Ryan Cup kicks up an icy wake as he runs the giant slalom course in the Laurentians. He starts an all-but-headlong dive down the Flying Mile. Up the snowy swath, at right, chair lifts shuttle skiers to the mountaintop.

and a stubby schooner from Fundy's largest island, Grand Manan, was unloading smoked herring and the dark-red edible seaweed called dulse.

Just 178 years ago, when this was a wooded cove, 3,000 refugees from the American Revolution landed here. By 1800 the slip was white with sails. This was the age of tall masts. The Shipping Register of Liverpool for 1843 shows that out of 156 ships of 500 tons or more, 130 were Canadian-built.

Then, in the 1850's, a shrewd little Halifax merchant named Sam Cunard began to build—in Scotland and England—the iron steamships that doomed the era of wood and sails in the Maritimes. Saint John dropped from our fifth to our 20th largest city, a story common to other Maritime ports.

Brine Spices Halifax

I drove into our third Maritime province, Nova Scotia, around the Bay of Fundy, through the Tantramar Marshes—mile after mile of waving grass, a hayland called "land of the flapper." The flapper, I learned, is a hinged trap on the dikes to hold back the surging salt tide, highest in the world, while allowing fresh water to drain off.

I lingered in the Annapolis Valley, where apple trees were blooming, and savored the land of Evangeline, the tragic heroine who never was—except in the mind of Longfellow.

Coming into Halifax was like coming home. The gray, gay seagirt capital had added suburbs and store fronts. But the air was the same, still spiced with salt and fish. Its sounds were the same: the braying of liners, the tooting of tugs. And sailors wandered the streets in search of girls as they had when I sailed convoy out of here in World War II.

Next day I climbed to the Citadel, the star-shaped, stone-walled central fortress that overlooks the huge natural harbor. For two centuries this port was the bastion of British North America. It was Halifax, standing guard at the colony's entrance, that kept George Washington from capturing Canada, and Halifax in the last World War was the anonymous "east coast Canadian port" of newspaper date lines.

At noon an elderly blue-clad man fired an ancient iron cannon. The sound echoed over

ANSCOCHROME BY KATHLEEN REVIS © NATIONAL GEOGRAPHIC SOCIETY

Sturdy Sleigh Suffers No Skids or Stalls in Quebec's Icy Upper Town

France transplanted, the old section preserves Gallic charm with small hotels, intimate restaurants, and a chimneypot skyline. Horse-drawn taxi is known as a cariole.

harbor, shipyard, naval base, and piers mooring deep-sea freighters; over the business section rambling above the harbor; over the city of Dartmouth on the far shore; and down the Citadel's opposite slope to the North West Arm, an inlet flecked with yachts.

I fell in with some Dalhousie University students. One pretty brunette came from Cape Breton, northern tip of the province. Her Scottish accent brought to mind a dramatic motor trip I once took around that magnificent island. Following the Cabot Trail, I skirted misty headlands dropping sheer to the sea, the bonnie Bras d'Or Lakes, and rolling moors cut by rushing salmon streams.

"They speak more Gaelic there," the brunette told me, "than in Scotland itself!"

"What will you do when you graduate?" I asked.

"Go to England, perhaps," she said. "You just need your B.A. to teach school there."

Here was the paradox of the Maritimes: a people intensely proud of their region who often leave it in search of greater opportunities. No other part of Canada produces so many leaders.

Province Stresses Higher Education

I lunched with Michael Knight, Deputy Minister of Trade and Industry for Nova Scotia. He told me of plans to meet one of the area's needs—cheaper power—by more efficient use of Cape Breton's great coal reserves. Inevitably, we touched on Nova Scotia's most valuable export, brains.

"Our population is only 730,000," Knight said, "yet we have five universities and several colleges—an unusually high ratio of educational facilities to population. We'll always have a surplus of brainpower. But it

seems to me that less of it is leaving us now."

"And I guess some leave and come back?" I suggested, knowing that Knight had.

"I'll tell you why. You can be on the best trout stream in the country within an hour. I know a hairdresser who leaves his salon an hour early, at four o'clock, and by eight o'clock he's back home with a deer. The boys who leave here want to come back to this; so we're going to make it possible for them to get jobs."

Here again was the same recurrent theme, this awareness of past and future, the lure of the wilds and the pull of progress.

Cobblestones Vanish in St. John's

But before I could ponder it deeply, I had one more province to visit, the Island of Newfoundland—so salty that stenographers call their boss "skipper" and businessmen bellow sea chanties under the shower.

The capital, St. John's, has been sacked by pirates and burned many times, by the Dutch, by the French, and by accident. It's an outpost so easterly that ships from New York bound for Liverpool are one-third of the way across when they pass it.

I arrived with romantic wartime memories of a city foreign in appearance and history. From the Newfoundland Hotel I strolled past the columned Colonial Building. From here the British governed Newfoundland until 1949 when the colony joined Canada, the result of a referendum that narrowly carried under the coaxing and haranguing of the present Premier, Joey Smallwood.* The building's imported Irish stone was

*See "Newfoundland, Canada's New Province," by Andrew H. Brown, NATIONAL GEOGRAPHIC, June, 1949

Percé Rock, a massive monolith on the Gaspé Peninsula, bulks above the Gulf of St. Lawrence, where the village of Percé borders a half-saucer cove. Bonaventure Island, a refuge for sea birds, looms across the sound.

Freshly baked bread draws youngsters to an outdoor oven in Grande Vallée, Gaspé.

Cheerful trencherman Lorenzo Boulianne assembles seven of his ten children for dinner in Arvida, Quebec. Mrs. Boulianne serves; she eats only when the others finish.

RUDOLPH'S MAP BY WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF © N.G.S.

PHOTOGRAPHED BY B. ANTHONY STEWART (ABOVE) AND WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF © N.G.S.

Crew of a Nova Scotia dragger haul in flounder off Chêticamp. Hardy men of the sea take a billion pounds a year from the Atlantic shallows.

Fishermen clean the day's catch of cod at dockside in Petty Harbour, Newfoundland.

patterned with cracks, caused, it is said, by the heat of Newfoundland politics.

The faded frame houses curving down to Water Street still had a faintly Old World look. But the cobblestones were gone. Water Street's shops had had their faces lifted. Only the coves, as they call the alleys opening onto the wharves, hinted of the romance I remembered.

Fish Caught by Basketful

I stood on a creaking wharf in the raw May wind and looked round the harbor (page 818). How often I had gone through its neck on the heaving deck of a corvette. On the far side, where we used to tie up, three Portuguese trawlers were taking on supplies.

The Portuguese have come here at least since 1501, four years after John Cabot found the sea so "full of fish . . . that one takes them . . . with baskets." Basque, Breton, and British fishermen

made this a brawling port when New York City was a wilderness.

In the morning I took a cab out through suburbs and a green belt to the modern buff-brick capitol building. Robert Wells, a native of one of the little outports, was supervising the government's effort to improve the island's economy by moving the more isolated villages and grouping them around fish plants.

"Until 1949," Wells said, "I doubt if we had a hundred miles of road. The only way into the outports was by boat. Now, suddenly, we build 1,600 miles of road. We connect 500 settlements. They get cars, trucks, electricity, people selling electric stoves and refrigerators. A leap, if you like, into the 20th century."

Houses Sail to New Homesites

"What happens is interesting," Wells went on. "You know, Newfoundlanders are great sailors and travelers. They talk of Hong Kong or New York, but it means little as far as changing themselves.

"But when the next community changes—bang! A man on an offshore island comes back from the mainland [Newfoundland] and says, 'Why, I knew Joe Blatt all my life. Now he's got a car!'

"The women see the mainland women have refrigerators. This exerts a real pull. So they talk for a couple of years and decide to move. If the whole village moves en masse, the government will put up $600 per family. So they jack up the houses, put them on skids, pull them down to the launching area when the tide is out, get them on rafts, hitch up two or three motorboats, and they are on their way.

"One man towed his house 58 miles. Only the second-story windows were out of water."

At lunch in the cafeteria I spotted Premier Smallwood, listening through earphones to the noon radio broadcast. He was like a small dynamo at rest.

As I entered his anteroom after lunch, I could hear him through the green baized door shouting irately into his telephone. An irrepressible man this, who shouts, "All aboard!" when he steps into his private elevator.

His door burst open. "They've given this forty-thousand-dollar contract to a couple of firms in Toronto," he said to no one in particular. "What a struggle to get Newfoundlanders to patronize our own industries. It makes me sick."

He smiled suddenly, disarmingly, and ushered me into his office. "You have to make the welkin ring," he said. "Shout and roar

HS EKTACHROME BY WALTER MEAYERS EDWARDS © N.G.S.

Mining a mountain of potatoes, a worker fork-feeds a grading machine at Grand Falls, New Brunswick. A conveyer belt carries large potatoes to sorters and packers.

New Brunswick is a major producer of potatoes, of which the average Canadian consumes some 150 pounds a year. Certified seed stock finds a ready market abroad.

Bright triangles sweep across Cape Breton's Bras d' Or Lake as sailors coax

BY NATIONAL GEOGRAPHIC PHOTOGRAPHER B. ANTHONY STEWART © N.G.S.

sun-drenched prams past Baddeck Light

Third-generation shipwright John McKay still busies himself around his boatyard in Shelburne, Nova Scotia. Of the same family that produced Donald McKay, famed designer of fast American clippers, the octogenarian has built 169 sturdy craft. A scallop dragger takes shape behind him.

NOVA SCOTIA

Junior Bengal Lancers in Halifax Prepare to Parade Like Cavalrymen

Led by a color-bearer (left), the teen-age riders display helmets, lances, and fluttering pennants suggestive of a British cavalry regiment, popularized by book and movie, from which they took their name. In demand for shows and expositions, they specialize in precision riding. Here they circle Fort Needham Park.

Bonnie miss with copper curls attends homecoming week at Antigonish, Nova Scotia, a July event that draws kilted clansmen from Canada and the United States. This teen-ager lives in Albany, New York.

Youthful sword dancer in Fraser tartan jumps nimbly between blade and scabbard at Highland Games in Antigonish.

St. Ann's on neighboring Cape Breton holds a Scottish Gaelic Mod each summer. Clans compete in Highland Games, piping, and Gaelic songfests.

KODACHROMES BY B. ANTHONY STEWART © N.G.S.

and wake people up. Make them feel they aren't in a dormitory. That's what this island was, a dormitory. We used to have tens of thousands of workers go away every summer and come back and sleep for the winter. Do you know that some of the highest-paid steel riggers in New York City live 40 miles from here? Thousands of Newfoundlanders, by the way, are now living in New York and Boston."

Labrador Needs Big Adjectives

I asked Mr. Smallwood what was happening in Labrador, part of his province.

"You have to search for superlatives," he said, standing up to search. "People thought Knob Lake, the biggest new iron project in the world, was big. We have one coming into production soon near it that is one of the biggest projects in the country.

"Here"—he sketched a map of Labrador in the air with his hands—"we have Wabush Lake, where even greater deposits have been found, incredible, incalculable. And here on the Hamilton River"—he paused for effect—"we have Grand Falls, 78 feet higher than Niagara. A gigantic thing, gigantic. I've slept beside it. A lake of water falls every minute. It's an awesome, frightening sight.

"Now, we're going to divert that river so that it falls from a cliff top, straight down to the turbines. Picture it. All that fantastic amount of water falling 1,040 feet. Bigger than Hoover Dam. Bigger than Grand Coulee Dam. As big as both of them put together. We may be running the subways of New York by electricity from Grand Falls!"

He leaned for a moment against the wall, as if overcome by his vision.

"Now, when you've got that much power, that much iron, what are you going to have? A great electric smelter. It's inevitable. All the Queen's horses and all the Queen's men can't stop it."

I saw why Newfoundland had changed. This was a dramatist with a story to tell.

On the way out, the premier's economic aide, Gordon Pushie, warned me, "This island will shut down tight tomorrow. It's the 22d of May, the Queen's birthday. Everybody goes fishing. The Canadian National's 'Trouter's Special' will drop fishermen at ponds and rivers all over the island."

I debated taking the narrow-gauge trans-island local, a train once charged regularly by moose until it changed its whistle, which sounded too much like a moose's mating call. But I decided to tour the outports instead.

Soon I was skirting little villages that hid behind the headlands. Each turn presented a new seascape, each conversation gave me a new insight into the lives of the hard-working, independent villagers. In Port de Grave, I stopped to talk to two men in oilskins.

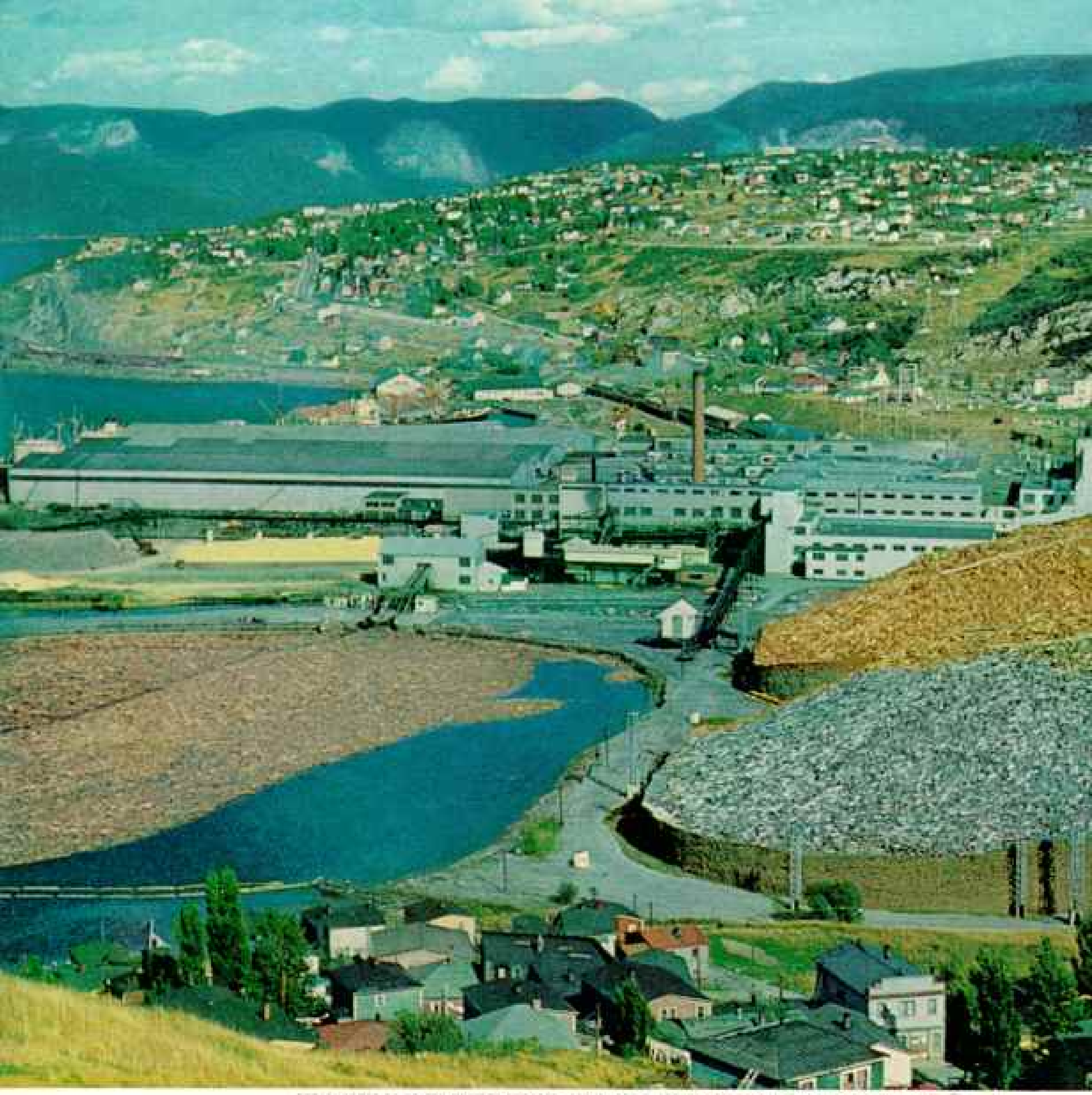
"If the price of fish had gone up as much as the price of traps," said one, "we'd make lots of money. But we have to get three times more fish now or we're up against it."

"You could always go somewhere else," I said.

Sea of logs jams a pond beside Bowater's pulp plant at Corner Brook, Newfoundland. Distant tug rounds a point on the Humber estuary with another boom of logs. Corner Brook claims a population of 25,000 and one of the largest newsprint mills in Canada.

Wreathed in fur, the French-speaking trapper at upper left wears an unusual collar: the pelt of a cross fox, a variety of the red fox, caught near Arichat on Isle Madame, Nova Scotia.

Gas mask and oxygen inhalator enable a coal mine rescue worker to walk through pockets of poisonous gas in case of an emergency. He stands by at Dominion Coal Company's No. 20 Colliery, Glace Bay, Nova Scotia.



PAINTINGS BY WALTER MEAYERS EDWARD (ABOVE) AND B. ANTHONY STEWART, NATIONAL GEOGRAPHIC STAFF © N.G.S.

He stared at me incredulously, then he laughed.

"Why would you quit when the fish might come better than ever?" he asked. "Then if the fish don't come, you can't quit—you've got to work yourself out of debt."

He looked lovingly at the sleek lines of his new boat.

"You go farther afield with the big fast boats, but the sea's the same. We work hard while we're at it. Twenty hours a day for six weeks. But we live well, too. If we wanted to live like we lived twenty years ago, we wouldn't have to work very hard."

I headed home past the cottages with the new cars parked outside. "What do the fishermen do in the winter?" I asked friends later.

"Some cut wood for the big pulp plant at Corner Brook," said one. "But they don't stay. It's traditional not to work in the winter."

Said another: "It's the last sane place in the world."

The exaggeration came back to me in Toronto a few days later. An American marketing director for Canada was telling me the only real difference he saw between Americans and Canadians.

"If I call an account executive here at three o'clock Friday afternoon and tell him I want to discuss a TV ad, he'll say, 'Fine. How about Monday morning?'"

Canadians refuse to put work ahead of

PAINTINGS BY WALTER MEAYERS EDWARDS (ABOVE) AND WILLIAM MENTZEL, NATIONAL GEOGRAPHIC STAFF © N.G.S.

everything else—an important difference, in my opinion, which I will try to explain.

Alone among American nations, we severed our ties with Europe peaceably, and this may account for our lack of hoopla in politics, our somewhat dull, unemotional stability. We're economic compromisers, distrustful of theory from either right or left.

Canada: Country by Coalition

We never had a Revolution, a Civil War, or a Wild West to fuse the nation in violence and suffering. We're a coalition of regions, existing by compromise and subsidy, growing rich at varying speeds on metals, wood, and power in the hinterland.

The U. S. needs these resources. We need money to develop them. Our relations are often a poker game, and we hold a pretty good hand. But ironically, the more we win, the more we merge our differences in what has been called the American way of life.

You see it at Inuvik, only 60 miles from the Arctic Ocean, where the government has built a modern town for 1,300 residents, complete to movie house, skating rinks, and central steam heat. From here administrators, teachers, and doctors serve an area bigger than the three U. S. West Coast States combined, a land now being combed for minerals, oil, and gas.

Inuvik is also the center of a vast natural fur farm, a malevolent maze of channels writhing to the polar sea, a kind of Arctic everglades where muskrats breed by thousands.

Here Eskimo trappers tie up to the wharf,

polar-bear skins drying on their booms and radios blaring from their cabins. A grinning Eskimo youth, in the fur parka of his forefathers, wheels a truck down the birch-clad slopes, a couple of Eskimo belles beside him. A Loucheux Indian girl totters by in high heels, balancing boxes of Rice Krispies. In snug new homes supplied by the government, Eskimo tractor drivers strum cowboy songs on mail-order guitars with hands trained to hold a hunting spear.

For better or worse, the 20th-century way of life is prevailing; across the U. S. border, as through a picture window, we see the future glittering, a promise and a challenge.

But even as the Canadian moves toward it, memories stir—of silent woods, a loon's cry echoing over the lake, the sense of mystery and wonder in the presence of creation.

The wilderness is still near in the hearts and lives of many of us, an immense backdrop that puts our pursuit of prestige and ease in perspective. It anchors our faith in something more than man, restrains us, sobers us, complicates our psyche by the longing for simplicity, and strengthens the values we cling to as we change.

Four-masted Portuguese schooner threads The Narrows at St. John's, Newfoundland, putting in for cod bait. Signal Hill, where Marconi received the first transatlantic wireless message in 1901, dominates the harbor.

English fishermen settled St. John's early in the 17th century. French troops sacked it more than once during colonial wars. In 1949 the city became a provincial capital when Newfoundland joined the nation of Canada.

Atlantic tide surges into Peggy's Cove, Nova Scotia, a challenge to artist and photographer.

Young Titan of the North

RIGHT AFTER the exploration crews came the city planners. That's why Lynn Lake, in the rugged northwest of Canada's Manitoba Province, is more than just one of the world's great nickel deposits. It's the very model of a modern boom town.

Where all was forested wilderness 10 years ago, rows of neat houses stand (opposite). They hold all that a housewife could desire, except food freezers. These are unnecessary. Dig a few feet down, and the ground is permanently frozen—fine for storage.

Lynn Lake typifies the kind of change charted on the National Geographic Society's new map of **Canada.** Latest plate in the Society's Atlas Series, it reaches members as a 10-color supplement to this issue.*

Riches Locked in Ancient Stone

Canada ranks second in area behind the Soviet Union, followed by China, the United States, and Brazil. To help visualize the vast resources spread across Canada's wilderness, place a dinner plate over the map, centering on Hudson Bay.

The land covered will comprise the heart of the Canadian shield—some of the oldest rock on earth, spread over seven times the area of Texas, rich in iron, lead, zinc, nickel, gold, silver, and copper. But the terrain is difficult, settlement is thin, and transportation becomes a prime problem. To carry away minerals, one must build highways or railroads.

Lynn Lake has such a railroad, and so has the three-year-old nickel town of Thompson, Manitoba. Along the Labrador-Quebec border, look for Schefferville and Wabush Lake; from there iron ore rolls south to the port of Sept Îles on the St. Lawrence River. Near-by Port Cartier, still being built, receives iron from new mines at Gagnon, 140 miles north. Much of this ore travels the St. Lawrence Seaway to the mills of Ohio and Pennsylvania.

Like a red thread, the new Trans-Canada Highway runs 4,877 miles from Victoria on the Pacific to Nova Scotia and Newfoundland on the Atlantic, spanning major water gaps by ferry. Motorists see 12,000-foot peaks of the Rockies, the bountiful prairie lands, the Lake Superior wilderness—a breath-taking cross-section of all ten provinces (an alternate route offers ferry service to Prince Edward Island).

Only a 90-mile stretch appears in dashed lines, in Canada's Glacier National Park, British Columbia, where snowfall one year measured 54 feet. This stretch is to be finished next year; in one section, where the snow piles deepest, 2,300 feet of the road will be under an arched steel roof. Meanwhile cars must loop 177 miles around the Big Bend of the Columbia River.

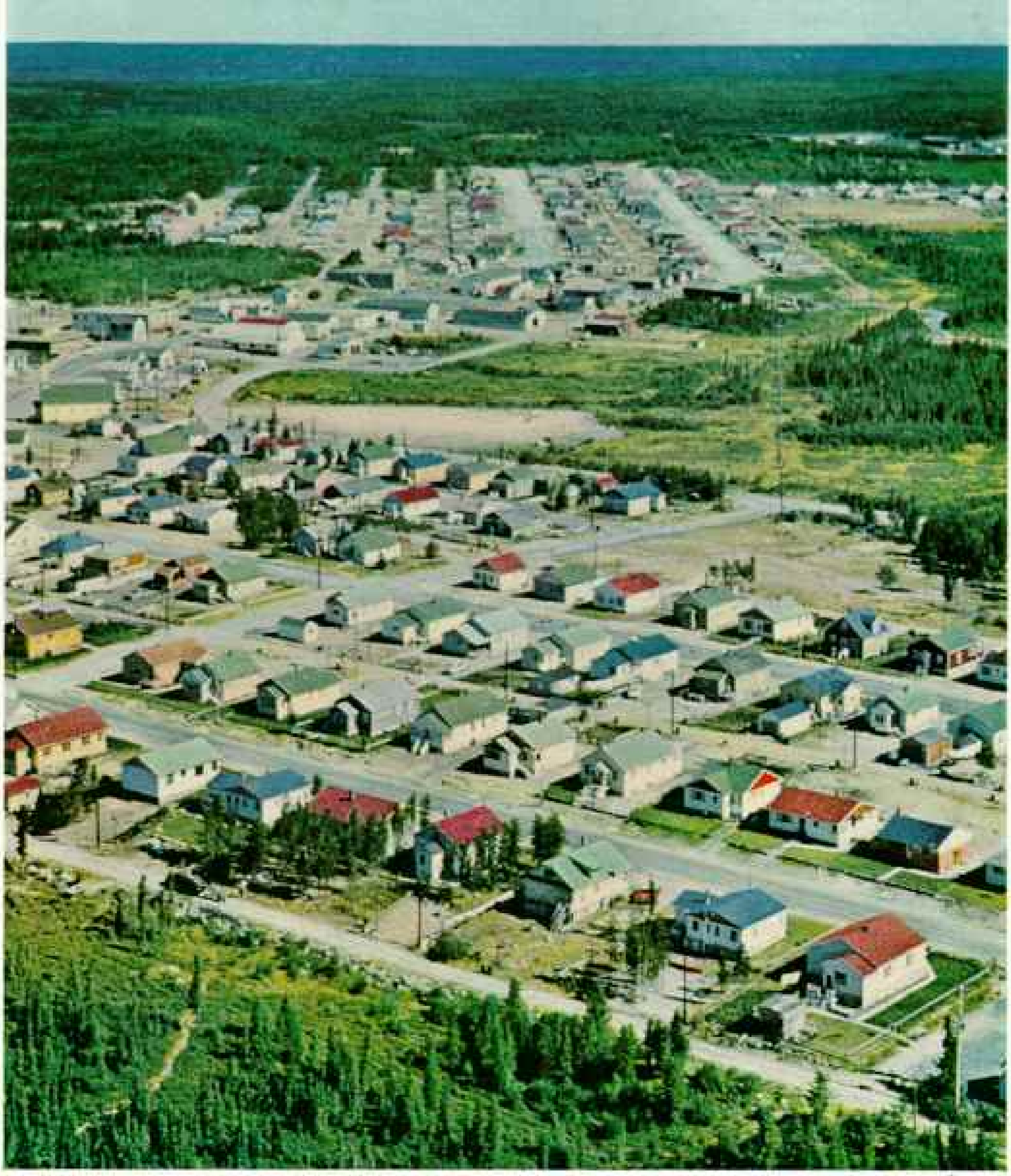
Dominating the top of the map are the Northwest Territories, covering a third the area of the United States, yet holding barely 23,000 inhabitants—fewer than the people doing business every day in the biggest office building in Chicago. Here lone trading posts receive supplies once a year, by means of "cat swings," treks by tractors pulling sleds.

The Territories' chief town is the gold-mining center of Yellowknife on Great Slave Lake, newly reachable by road. Yellowknife boasts Canada's northernmost golf course, where tournament contestants each June 21 tee off in the dawnlike glow of midnight.

The winding line of red tree symbols marks the northern limit of wooded country. Near the map's top left corner, where the tree line meets the Arctic Ocean, appears the brand-new town of Inuvik, dedicated only last July. It stands on piles of wood and steel driven into the permafrost. This will prevent the houses from sinking into mud when the soil above the permafrost turns slushy—a principal cause of the downfall of neighboring Aklavik.

Far across the sweep of the Territories, on the southern end of Baffin Island, flourishes the town of Frobisher Bay, on an inlet first visited in 1576 by Englishmen, Martin Frobisher and his armored band seeking the Northwest Passage. Now modern jet planes climb from a 9,000-foot paved runway into northern skies.

*__Canada,__ twenty-eighth in the series of uniform-sized maps issued as supplements in the past four years, becomes Plate 19 in the Society's Atlas Series. To bind their maps, a quarter-million members have ordered the convenient Atlas Folio, at $4.85. Single maps of the series, at 50 cents each, or a packet of the 21 maps issued in 1958–60 at $8.25, may be ordered from the National Geographic Society, Dept. 92, Washington 6, D. C. A combination of the 21 maps and folio is available at $12.50.



HIGHLIGHTED BY DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF © N.G.S.

Boom town in the wilderness, Lynn Lake thrives on bonanza deposits of nickel discovered in 1941 beneath dense forests of Manitoba's far north. The community took shape a decade ago with houses hauled in by sled from Sherridon, 120 miles to the south, where the nickel was giving out.

Pneumatic drills crack rock as men enlarge a passage between shafts in Sherritt Gordon's mine at Lynn Lake. Nickel, cobalt, and copper streak the ore.

The Kress Collection

A GIFT TO THE NATION

Masterpieces in galleries of 21 American cities fulfill a chain-store founder's dream of sharing his Old World art treasures with all the people of the land

By GUY EMERSON, Litt.D.
Art Director, Samuel H. Kress Foundation

THE MUSEUM DIRECTOR was at first astonished and then openly skeptical when I called up and offered him some paintings.

"What kind are they?" he asked.

"Italian Renaissance paintings," I told him. "Very valuable ones."

"What do we have to do to get them?"

"Just provide a place to put them," I replied. "Could we discuss it at lunch?"

He was still dubious.

"Well, I don't go out to lunch," he said. "I bring it in a paper bag. And anyway, I'm very busy and don't think I can see you today."

So I made myself a little clearer. I would be in his city only for the day, I said; he must see me now or never. Shortly we were conferring in his office.

The upshot of the meeting was that the leading museum of a west coast metropolis received about a million dollars' worth of European paintings from the Samuel H. Kress Foundation. And the museum thereby became a partner in a plan based upon a democratic idea—that people throughout the United States, rather than a comparative few in one or two cities, should share in the Kress Collection of the world's great art.

Hundreds of Paintings Bestowed

The art-donation program reaches a climax this December at the National Gallery of Art in Washington, D. C. A special showing will present 93 paintings from Kress Collections in 21 cities. The selections come from State, municipal, and university museums that

PETER PAUL RUBENS (1577-1640) Flemish *Marchesa Brigida Spinola Doria*

With this exquisite portrait of a Genoese noblewoman, NATIONAL GEOGRAPHIC *introduces 29 paintings from Kress Collections in cities throughout the Nation. These representative works form part of a six-week exhibition that opens December 10, 1961, in the National Gallery of Art in Washington, D. C.*

Diplomat as well as painter, Rubens served Spain in negotiating peace with England in 1629. This painting shows the granddaughter of a doge before a palace.

National Gallery of Art, SAMUEL H. KRESS COLLECTION

National Gallery of Art, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

CANALETTO (1697-1768) Italian *Portello and Brenta Canal at Padua*

Son of a stage painter, Antonio Canale (Canaletto) won immense popularity with his luminous panoramas. The Portello, a Padua city gate astride the main road to Venice, is the canalside structure at left center; it still stands (opposite, below). Distant dome caps the Church of Santa Maria del Carmine.

Is this the scene that Canaletto painted? Art experts agree that it is, but note dissimilarities between this photograph of Padua today and the vista as Canaletto observed it. Waterway is the Bacchiglione, not the Brenta. Bridge has four spans, not three as the artist portrayed it. But the Portello bears marked resemblance to Canaletto's, and a church dome is visible in the distance.

range westward from Allentown, Pennsylvania, to Honolulu, Hawaii. Also on display will be the National Gallery's own permanent Kress Collection of nearly 500 canvases, wood panels, and sculptures, and more than 1,300 magnificent Renaissance bronzes.

Twenty-nine of the paintings, representative of the collections in each of the regional galleries, are reproduced in these pages of your NATIONAL GEOGRAPHIC.

In a ceremony during the exhibition, the 21 galleries will receive title to their paintings from the Kress Foundation, which has distributed them over the past 20 years. I know that millions of people throughout the country feel, as we do, a justifiable pride in the completion of this program.

Today all these cities, and indeed all Americans, benefit from the enterprise of a multimillionaire who was not content to enjoy his wealth in a conventional manner—a man whose aspirations carried him from drab coal

KODACHROME BY NATIONAL GEOGRAPHIC PHOTOGRAPHERS B. ANTHONY STEWART AND JOHN E. FLETCHER © N.G.S.

Art treasures deck the apartment of Mr. and Mrs. Rush H. Kress, shown with their pet, Cotton. The New York residence formerly was the home of Mr. Kress's brother, the late Samuel H. Kress, founder of the Kress Foundation. Rush Kress now guides the Foundation, whose goals include sharing the Kress Collection with the Nation. The Canaletto on the wall now hangs in the National Gallery (preceding pages).

fields to a brilliant world peopled by some of history's greatest geniuses.

Each time I reflect on it, I am amazed and moved by the story of Samuel Henry Kress, a $25-a-month schoolmaster who became a philanthropist ranking with Andrew Carnegie, the Rockefellers, and the Guggenheims.

There was little in Kress's beginnings to suggest that one day he would amass a vast fortune—built upon the sale of such prosaic wares as kitchen utensils, shelf paper, and hairpins—and use that wealth to endow his fellow Americans with gifts of beauty beyond price.

Born in 1863 in Cherryville, Pennsylvania, he was the son of a colliery office manager. The Kress family was descended directly from a German settler who came from Hesse-Nassau in 1752 and later served with the Northampton County militia in the American Revolution.

Sam finished high school at 17, then for seven years taught the sons and daughters of anthracite miners and quarry workers in a one-room school. Out of his salary he saved

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The Author: Versatility marks Dr. Guy Emerson, retired banking executive and internationally known amateur ornithologist. In 1939 he sighted 497 species, a record that stood for 14 years. He has prepared his own edition of the Psalms, and in 1921 published a study of the American spirit entitled *The New Frontier*. His enthusiasm for art dates from Harvard days, when summer walking trips acquainted him with Europe's museums.

enough to buy a small stationery and novelty shop at Nanticoke, 40 miles from his birthplace. This venture prospered, and soon he added a wholesale firm in Wilkes-Barre.

With these successes behind him, Kress decided to invade the five-and-dime chain-store field. He opened his first store in Memphis, Tennessee, in 1896. From this nucleus grew the empire that today operates 265 stores in 30 States.

Titians and Tintorettos Given Away

Enjoying the fruits of his success, Kress became a transatlantic commuter for both business and pleasure. Visiting the great European galleries again and again, he developed an enthusiasm for art. He found himself drawn more and more toward the great painters of Italy, particularly the masters of the Renaissance.

Before long, Sam Kress resolved to form a collection encompassing the work of every important Italian artist, so that Americans could study and enjoy a comprehensive selection at home. His original intent was to build a public gallery in New York City. But when plans took shape for the magnificent National Gallery of Art in Washington, D. C., he saw it as an ideal repository, in which the art treasures he had collected would be shared with others.

His many gifts to the National Gallery helped to place that institution in a class with such famous Old World museums as the Louvre, the Prado, and the Uffizi Gallery.

But that was not the end of it, for in the past two decades the Kress Collection has been spread nationwide. Direct gifts have brightened the walls of regional galleries with the works of such masters as Titian, El Greco, and Tintoretto.

"Too good to be true. There must be a catch in it."

These were the words I heard most frequently as I traveled about the United States for the past 15 years in my capacity as Art Director of the Kress Foundation, scattering largess in the form of rare works of art.

JACOPO TINTORETTO (1518-1594) Venetian *Summer*

Born Jacopo Robusti, son of a tintore, *or dyer, Tintoretto acquired his name from his father's trade. Tintoretto studied under Titian, who discharged the youth, some biographers say, because he was jealous of his talent. Tintoretto's work has been described as Michelangelo's draftsmanship with Titian's color. "Summer" is one of a series depicting the seasons.*

National Gallery of Art, SAMUEL H. KRESS COLLECTION

KODACHROME BY NATIONAL GEOGRAPHIC PHOTOGRAPHER JOHN E. FLETCHER © N.G.S.

Light creates an illusion of space and pointed rocks suggest movement in Domenico Veneziano's "St. John in the Desert," a small wood panel. Once given away, it was later bought by Samuel Kress for $145,000 (text, pages 860-3). Domenico portrays St. John the Baptist discarding his clothes for an animal skin as he begins a new life in the wilderness. No other painter has depicted this moment in the prophet's life. John Walker, Director of the National Gallery, where the painting now hangs, and Fern Rusk Shapley, Curator of Research for the Kress Foundation, show their delight.

It was not too good to be true. There was no catch in it. The Kress Foundation attached no strings to its gifts.

As recipients, the Foundation usually selected museums in cities served by S. H. Kress and Company stores. It required only that the museum provide fireproof display space with proper control of light, temperature, and humidity. The Foundation assumed all other responsibilities, such as restoration, framing, crating, shipping, and insurance.

North Carolina Joins Art World

An outstanding example is that of North Carolina, a progressive State that nevertheless lacked a major art collection.

The omission was a challenge to two native sons. One of them, Robert Lee Humber of Greenville, asked Sam Kress if he would give the State a million dollars' worth of paintings—provided the State Legislature would appropriate an equal sum for art purchases.

The Legislature did so, and the Foundation made its gift, but between request and response many problems intervened. Mr. Kress suffered an illness that incapacitated him during the last decade of his life, and his younger brother, Rush H. Kress, already head of the stores, assumed leadership of the Foundation also. Then, too, there was no record of the original agreement.

Smoothing the way and enlisting the support necessary to assure the gift was former Governor Luther H. Hodges, now U.S. Secretary of Commerce. His vision and tact were responsible in no small degree for the fact that today the North Carolina Museum of Art at Raleigh possesses 73 pieces from the Kress Collection, the largest group outside the National Gallery.

Among the treasures to be shipped to Washington for the National Gallery show are ten

from Raleigh, including Rembrandt's "Young Man With a Sword" (page 831), Titian's "Adoration of the Child" (page 830), and Neroccio de' Landi's "Visit of Cleopatra to Antony" (page 832). As in the case of the paintings sent by the other galleries, all selections were made by Director John Walker and Chief Curator Perry B. Cott of the National Gallery, and by the Kress Foundation.

San Francisco Gets Its Patron Saint

At San Francisco's M. H. de Young Memorial Museum in Golden Gate Park, we were presented with a problem of a different nature. Dr. Walter Heil, then Director and now Director Emeritus, particularly wanted a painting that the Foundation was not in a position to bestow.

As an old friend, Dr. Heil had visited Sam Kress many times in his art-crowded penthouse on Fifth Avenue in New York (page 826). There Dr. Heil had made mental note of the paintings he would select if ever they became available.

To use his own words, Dr. Heil's aim was to create for San Francisco a museum that would be "a miniature National Gallery—that is to say, a Kress Collection like the one in our big sister institution in Washington which covers the entire field of European painting from the end of the Middle Ages to the threshold of modern art."

The de Young, Dr. Heil pointed out, ranked as the oldest and largest municipal museum in the West, with an attendance of about a million persons a year.

What Dr. Heil wanted most of all was "St. Francis Venerating the Crucifix," by Doménikos Theotokópoulos (El Greco). This superb painting shows the gentle patron saint

National Gallery of Art, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

SIMON VOUET (1590-1649) French *Muses Urania and Calliope*

Following 14 years of study in Venice, Vouet returned to France in 1627 as the king's first painter and became the dictator of the Parisian art world. Few of his works have journeyed to the United States; this panel hangs in the National Gallery. Urania, muse of astronomy, wears a crown of stars and leans on a globe. Calliope, muse of epic poetry, cradles Homer's Odyssey.

TITIAN (1477?-1576) Venetian *Adoration of the Child*

Born Tiziano Vecelli, son of a rural magistrate, Titian considered himself the equal of the many great men who came to him to sit for portraits; he completely dominated the art of Venice. Painting vigorously for more than 80 years, Titian amassed a fortune from the masterpieces that poured out of his workshop on the Grand Canal. The dreamy quality of this early painting, here reproduced about actual size, contrasts with his vigorous later style.

North Carolina Museum of Art, Raleigh, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

North Carolina Museum of Art, Raleigh, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

REMBRANDT VAN RIJN (1606-1669) Dutch *Young Man With a Sword*

The serenity that marks this portrait, painted in 1635, reflects the happiest, most prosperous period of Rembrandt's life. His wife's death in 1642 ushered in a series of misfortunes that culminated in bankruptcy 14 years later. Elaborate trappings and rich colors distinguish this canvas from the sober style of many commissioned portraits by the artist. The subject may have been one of Rembrandt's pupils.

NEROCCIO DE' LANDI (1447-1500) Sienese

This long, narrow panel may have decorated a cassone, *Renaissance equivalent of the bridal hope chest. The painting closely follows Plutarch's story of Cleopatra's arrival by galley on the River Cydnus in southern Turkey: "She herself lay all alone under a canopy of cloth of gold, dressed as Venus in a picture, and*

of San Francisco kneeling before the Saviour on the Cross (page 854). Dr. Heil saw it as the ideal choice for the city's Kress Collection.

Unfortunately the El Greco was not among the Kress Foundation's properties. Dr. Heil knew that the El Greco was in the hands of a New York dealer, bearing a price tag that put it far beyond the reach of the San Francisco museum.

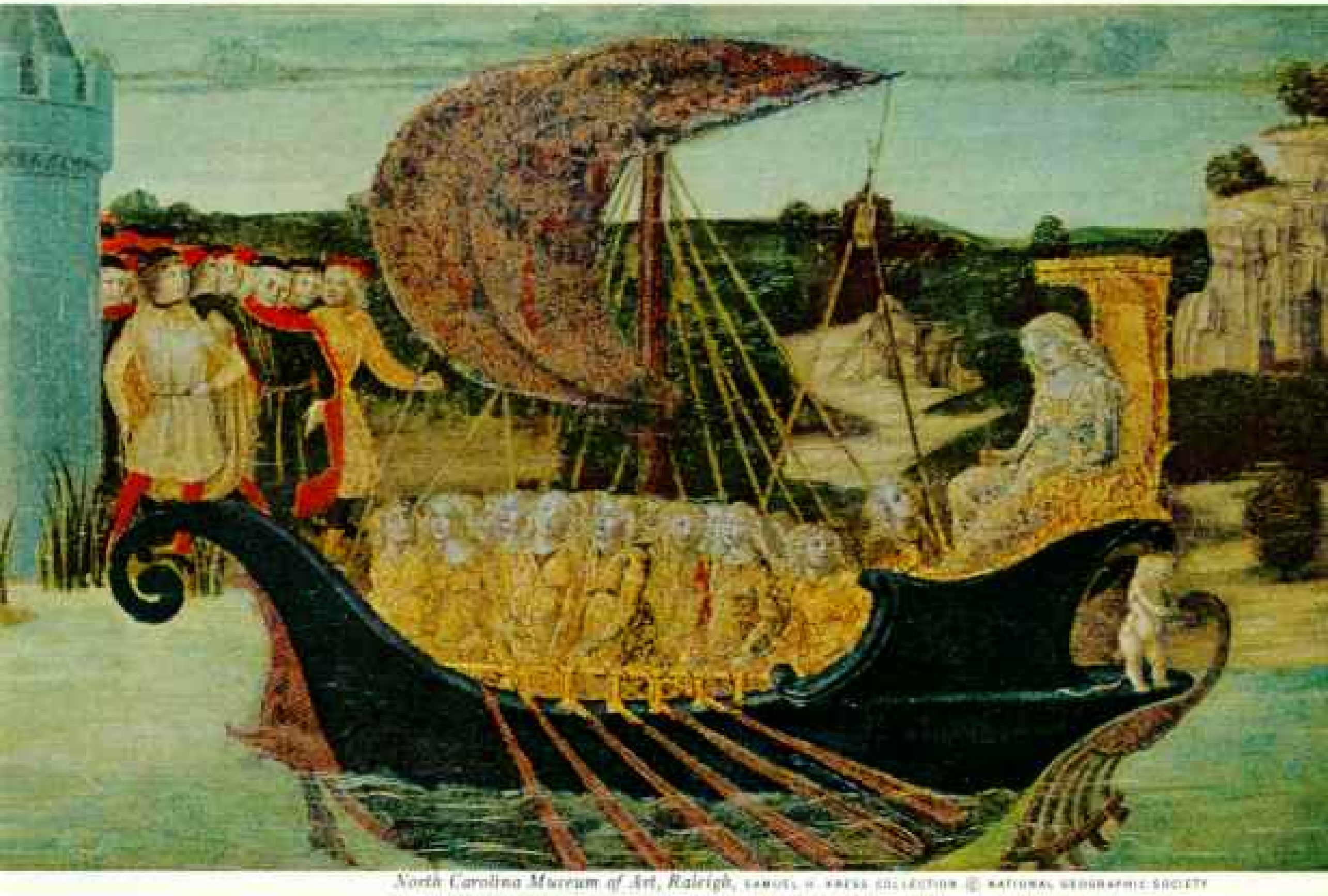
To help Dr. Heil create his National Gallery in miniature, the Foundation purchased the St. Francis. It also bought Dr. Heil's personal favorite, "Young Mother," by Pieter de Hooch.

San Francisco recently added three galleries to the de Young Museum to house its 39 Kress Collection paintings. These works, assembled during five years of planning and research, encompass the major European schools from the 14th to early 19th century. They range from "A Crowned Virgin Martyr," painted about 1334 by the Florentine, Bernardo Daddi, to a portrait, "Don Ramón de Posada y Soto," painted in 1801 by Spain's great Francisco de Goya y Lucientes.

For the National Gallery show the de Young Museum is sending nine paintings, including the El Greco "St. Francis" and de Hooch's warm, glowing "Young Mother," regarded by Dr. Heil as representing perfectly the golden age of Dutch painting (page 853).

Bonanza Waits in Washington

Kress donations sometimes descend upon museum directors like bolts from the blue. Such an experience befell Richard F. Howard, of Birmingham, Alabama. Ten years ago Mr. Howard set off on a tour of museums to borrow paintings for his opening exhibition. Between planes at Toledo, Ohio, Mr. Howard heard himself being paged.



North Carolina Museum of Art, Raleigh, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

Visit of Cleopatra to Antony

beautiful young boys, like painted cupids, stood on each side to fan her. Her maids were dressed like sea nymphs and graces, some steering at the rudder, some working at the ropes.... Venus was come to feast with Bacchus, for the common good of all Asia."

Answering the page, he found himself talking by telephone with David E. Finley, then Director of the National Gallery.

"Rush Kress is here and he wants to see you," Mr. Finley said. "How soon can you get to Washington?"

"I knew it must be important," Mr. Howard recalled, "so I replied, 'By the next plane.' A few hours later I was seated beside Mr. Kress in the big Board Room at the National Gallery. He wanted to know all about Birmingham, myself and my background, and my dreams for the Birmingham Museum of Art. Fortunately, I had come armed with blueprints of the galleries planned for the north wing of the new City Hall.

"I had told him of the air-conditioning equipment, the fact that the Police Department was just downstairs, and other details. Mr. Kress suddenly stopped me, swung his hand over a large expanse of floor space indicated on a blueprint, and said: 'We will make this into a Kress gallery for you.'"

That was only the beginning of a frenzied period in Mr. Howard's life. Soon he was examining Kress paintings stored at the National Gallery, in New York, and at Huckleberry Hill, an estate in the Pocono Mountains of Pennsylvania. In the Poconos, the Foundation maintains a fireproof laboratory and storage vaults equipped to keep temperature and humidity at the constant levels so vital to delicate works of art.

Police Escort Art-laden Van

The paintings selected by Mr. Howard were assembled at Huckleberry Hill, where the final preparations were completed by the Foundation's expert restorers and framers. Then, carefully crated, the paintings were loaded into a huge van and dispatched toward Birmingham, with Mr. and Mrs. Howard

KODACHROMES BY NATIONAL GEOGRAPHIC PHOTOGRAPHERS B. ANTHONY STEWART AND JOHN E. FLETCHER © N.G.S.

Matching colors with a master, Conservator Mario Modestini of the Kress Foundation applies fresh paint to damaged areas of Vouet's "Muses Urania and Calliope" (page 829). Specialists in this demanding field must combine the skills of historian, radiologist, and detective to complete their tasks with fidelity. Early restorers often used brushes freely; modern workers apply new paint sparingly.

trailing closely in their own automobile.

Four days later the little convoy was met outside Birmingham by State and city motorcycle policemen and given a triumphant escort to City Hall.

The Kress donation stimulated such enthusiasm in Birmingham that a campaign for a modern museum was launched soon after the temporary quarters opened in 1951. Eight years later the Kress Collection paintings and other accessions were moved to the magnificent new Oscar Wells Memorial Building, the result of a bequest by Mrs. Helen Wells, widow of a prominent banker.

The Birmingham museum now owns 36 paintings, four stained glass windows, two sculptures, and 14 rare examples of early Italian furniture from the Kress Collection. Three of the paintings are to appear in the National Gallery exhibition: "Christ Showing the Symbols of the Passion," by Jacopo del Sellaio; "Madonna and Child," by a Florentine painter in the workshop of Domenico Ghirlandaio; and "A Young Hero Armed by Bellona and Mercury," by Paris Bordone (page 862).

Spanish Touch for Arizona

When the first of the regional gifts was made, to the University of Arizona Art Gallery at Tucson, the Foundation donated 24 paintings that exemplify the chronological development of Renaissance art. Also included were a limestone statue of the Madonna and Child from 14th-century France and a 16th-century Florentine walnut chest.

As it happens, the Rush Kresses had made their winter home at Tucson for many years,

and Mrs. Kress formerly studied at the university. Both are keenly aware of southern Arizona's Spanish-American heritage and its strong cultural ties with the neighboring State of Sonora, Mexico.

Accordingly, the Foundation made an additional gift to the Arizona museum: 26 paintings by Fernando Gallego from the retablo, or altarpiece, of the Cathedral of Ciudad Rodrigo in the Province of Salamanca, Spain. The 15th-century retablo originally provided a Biblical narrative of man from the Creation to the Last Judgment, but about half the panels are now missing. The paintings at Tucson have been called the finest of their kind in the Americas.

Cannonball Lops Off a Head

Foundation technicians at Huckleberry Hill spent two years cleaning and restoring the panels. A portion of one damaged panel, the "Christ Delivered by Pilate," was left unrepaired, however, as a reminder of history. In the Napoleonic Wars, Wellington's troops besieged a French force at Ciudad Rodrigo. The British fired a cannon ball that obliterated a face in the painting and set a fire that burned other panels.

The Gallego paintings spurred the Arizona Legislature to provide funds for the university's new art center, which now houses the Kress Collection.

The National Gallery show is to include four paintings from Tucson: Lucas Cranach the Elder's "Madonna and Child," Giovanni Battista Piazzetta's "Young Man in Oriental Costume," Giuseppe Bazzani's "The Incredulity of St. Thomas," and Elisabeth Vigée-Lebrun's "The Countess of Schoenfeld."

The last of these represents an art form that was highly popular and extremely lucrative in the 18th century—portraying the ladies of high European society. This painting, done in Vienna in 1793, depicts the wife

Dr. Franklin D. Murphy (left), Chairman of the Executive Committee of the Kress Foundation's Board of Trustees and Chancellor of the University of California, Los Angeles, examines the new book *Art Treasures for America*, an anthology of the Kress Collection, with Art Director Guy Emerson, author of this article.

NATIONAL GEOGRAPHIC PHOTOGRAPHER WINFIELD PARKS

William Rockhill Nelson Gallery of Art, Kansas City, Missouri, SAMUEL H. KRESS COLLECTION © N.G.A.

GIOVANNI BELLINI (1430?-1516) Venetian *Madonna and Child*

One of the greatest Venetian painters, Bellini studied the variations of light as no previous artist had ever done. His early works, in tempera, show the careful draftsmanship and emotional intensity of the late 15th century. With maturity, he mastered the medium of oil, new to Venice, and the poised serenity of the high Renaissance.

Brooks Memorial Art Gallery, Memphis, Tennessee, SAMUEL H. KRESS COLLECTION © N.G.A.

THE MONTAIONE MASTER *Madonna and Child With Four Saints*

An anonymous artist of the school of Siena painted this gabled dossal, or altar painting, in the late 13th century. The work bears close resemblance to a Madonna in the Church of San Regolo at Montaione; hence the attribution. Woman at left holds an ointment jar, symbol of Mary Magdalene, while the figure at right clasps the thin cross associated with Margaret of Antioch.

of the Minister of Saxony to Austria with her young daughter (page 842).

The Spanish-American tradition runs strong in the border city of El Paso, Texas, across the Rio Grande from Juarez in Mexico. El Paso's lively art colony includes the nationally known Peter Hurd and Tom Lea, the latter a trustee of the Museum of Art. As Curator of Western Americana, Woody Crumbo, the Potawatomi Indian painter whose work has attracted wide attention, assists Director Reginald Fisher.

Dr. Fisher has made a fascinating comparison of early art in the Spanish Southwest and pre-Renaissance Italian painting, examples of which are in the El Paso Museum's Kress Collection. He explains:

"In the 18th and early 19th centuries, the folk artists of the Rio Grande Valley worked in the same cultural tradition as artists of Italy in the 1300's. The southwestern artists painted the same saints, the same episodes, in the same religious spirit that the Italians had shown—not because they copied a style but because they shared a culture. The Christian faith carried forth by St. Francis of Assisi, founder of the Franciscan order that helped colonize this region, is the dominant influence in their work."

In addition to the Italian primitives, the El Paso Museum's Kress Collection of 56 paintings includes representatives of other periods and schools. From these, five were chosen for the National Gallery exhibition, including Anthony Van Dyck's famous "Portrait of a Lady" (page 843).

Memphis: Six Paintings Become 240

Another city holding a special place in the Kress Foundation's affections is Memphis, Tennessee. Here Sam Kress launched his first 5-10-25-cent store 65 years ago. Memphis's Brooks Memorial Art Gallery, surrounded by hollies and magnolias in beautiful Overton Park, opened in 1916.

Sixteen years later Mrs. Louise B. Clark became the director, and her experience offers a sort of capsule story of the growth of art museums in the United States.

"In the early days," Mrs. Clark told me, "we had 4,200 square feet of space and an annual budget of $5,000. Our collection consisted of six paintings, ten prints, one Dresden

(Continued on page 843)

The Columbia (South Carolina) Museum of Art, SAMUEL H. KRESS COLLECTION © N.G.A.

Portland (Oregon) Art Museum, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

ANONYMOUS
FLORENTINE
Charity of St. Nicholas

An impoverished nobleman despairs because he lacks dowries for his three daughters. To a window comes St. Nicholas with an endowment in the form of three golden balls. In many countries the parents surprise children with gifts on December 5, eve of St. Nicholas's Day.

BERNARDO STROZZI
(1581-1644). Genoese
St. Lawrence Giving the Treasures of the Church to the Poor

When sentenced to die, Pope Sixtus II commanded his archdeacon, St. Lawrence, to distribute the church's gold and silver vessels to the needy. Strozzi spent 13 years in a Capuchin monastery.

FRANCESCO GUARDI (1712-1793) Venetian *View of Venice*

Guardi, like his master Canaletto, concentrated on scenes of his beloved Venice. Whereas Canaletto preserved architectural detail, Guardi dissolved reality into a shimmer of light and atmosphere. Canaletto won immediate popularity; Guardi stood in less esteem until Impressionism vindicated him. Here gondoliers ply the Grand Canal in the shadow of the Church of Santa Maria della Salute, while sailboats skim the Giudecca Canal at left.

Motor launches and steamships churn lagoons where sails once brought the world's trade to Venice. Otherwise two centuries have wrought little change in Guardi's view. Weather vane of fortune still caps the turret on the Dogana di Mare, the triangular customs house on the tip of Punta della Salute. Church of Santa Maria houses Titians, a Tintoretto, and other priceless works. Across the Giudecca Canal rises the Franciscan Church of the Redentore, built in thanksgiving for the delivery of Venice from the plague of 1575-6—the same epidemic that took Titian's life. La Grazia Island lies in the distance.

The Columbia (South Carolina) Museum of Art, SAMUEL H. KRESS COLLECTION; ROSATAROWE BY JOHN SCOFIELD, NATIONAL GEOGRAPHIC STAFF © N.G.S.

University of Arizona Art Gallery, Tucson, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

ELISABETH VIGÉE-LEBRUN (1755-1842) French *Countess of Schoenfeld*

Portraitist of the court of Marie Antoinette, Madame Vigée-Lebrun fled France and the Revolution in 1789. In Vienna she executed some 30 portraits of Austrian aristocrats, including this likeness of a noblewoman and her child.

SIR ANTHONY
VAN DYCK
(1599-1641) Flemish
Portrait of a Lady

An assistant to Rubens in Antwerp before he established himself as a master of portraiture, Van Dyck painted scores of fashionable women. Rich brocades, laces, and pleated ruffs—high style in the artist's time—made excellent subjects for his virtuoso brushwork.

His sitter wears her hair tightly drawn back from the forehead and bound by a jeweled fillet.

Painting hangs in the Museum of Art, El Paso, Texas (page 845).

El Paso (Texas) Museum of Art; SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

vase, and 60 books. Today we have some 240 original paintings, including 27 Renaissance masterpieces donated by the Kress Foundation, as well as outstanding prints, textiles, early American glass, and a complete collection of porcelain birds and flowers made by Dorothy Doughty of Worcester, England. We now have about 20,000 square feet of space and an annual budget of $65,000.

"Before the arrival of the Kress Collection in 1958," Mrs. Clark went on, "mid-southerners had to travel many miles, to such cities as Washington and New York, to see paintings by the Italian masters. Now Sunday-school classes, art instructors and students, and the general public come from all over Tennessee, Arkansas, and Mississippi to see our beautiful collection. Interest in Italian painting has grown so that we have found it necessary to add many books on the subject to the library section of the gallery."

Four paintings from the Memphis gallery are scheduled for display at the National Gallery. They include "The Madonna and Child With Four Saints," by the Montaione Master, an anonymous painter of the 13th-century Sienese school (page 837).

St. Martin's Friend Misidentified

The Kress Foundation's gift to the Denver Art Museum, arriving on September 20, 1954, in a special sealed car and with myself as escort, was undoubtedly the most impressive shipment ever to roll into that city's

Union Station. As trucks arrived at the museum with crate after crate of paintings and sculptures, reporters for press, television, and radio scurried about with cameras, tape recorders, and pencils.

When the Gothic stone sculpture of "St. Martin and the Beggar" emerged from its wrappings, a radio commentator with his tape-recorder microphone in hand asked the identity of the small figure at the foot of St. Martin's horse. He was told that the figure represented the donor, meaning the 15th-century Norman who gave the statue to a chapel in Villediers, near Le Mans, France.

HA ERTAGNRIME BY TED BRUMSTEIN, RAPHO-GUILLUMETTE © NATIONAL GEOGRAPHIC SOCIETY

When the tape was broadcast later, museum staff members were amazed to hear the figure described as a representation of "Mr. Samuel H. Kress, the donor."

Kress Gift Helps Fund Drive

Just as in Birmingham and other cities, the Denver Art Museum's Kress Collection, opening in 1954, created a veritable cultural renaissance in the city, State, and region.

The stipulation that the gift be housed in fireproof, air-conditioned, and humidity-controlled quarters provided the impetus for a much needed building program. For years the museum's permanent collections had been displayed in cramped fourth-floor galleries in the City Hall.

After voters twice rejected financing through a municipal bond issue, the museum began a drive for private funds for a new building. The campaign was given a decided lift in January, 1953, by the announcement of the Kress Foundation gift. By the end of that year the museum listed 1,186 new accessions. Donors were confident that their contributions would be in good company with the Kress donations.

As the center of a seven-State area, Denver has an influence that reaches far beyond Colorado boundaries. On spring and summer Saturdays, trains and buses bring thousands of boys and girls from Kansas, Nebraska, Wyoming, and other States to see the sights of Denver. On their itinerary are the Renaissance masterpieces and other treasures in the museum, and the entire staff of Director Otto Karl Bach turns out to serve as guides and guards.

Following the throngs through the Kress gallery one Saturday, I was amused and touched to see a weary little boy curled up asleep on a Persian rug beneath "Madonna and Child With Four Saints," by the 15th-century Master of the XL Monogram.

From its Kress Collection of 35 paintings and three sculptures, Denver is sending six paintings, including "Nativity," by the un-

Junior art critic in the Seattle Art Museum studies a *tondo*, or circular painting, with the intentness of a connoisseur. "Adoration of the Christ Child," a devotional panel by Cosimo Rosselli, shows St. Joseph, the infant John the Baptist, and the Madonna praying over the Child. Rosselli, a member of the Florentine school, executed three frescoes in the Vatican's Sistine Chapel.

Head cocked, legs crossed, a Boy Scout in the El Paso Museum of Art seeks the proper angle to view Jusepe de Ribera's painting of St. Bartholomew. The white-bearded saint holds a knife, emblem of his martyrdom. While preaching in Armenia, tradition says, he was seized by heathens, skinned alive, and crucified.

El Paso caterer, preparing for a banquet at the museum, takes time out for a critical inspection of Van Dyck's "Portrait of a Lady."

Eye-filling spectacle of Bernardo Bellotto's "Entrance to a Palace" captivates young visitors to the El Paso museum.

Honolulu Academy of Arts, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

PIERO DI COSIMO (1462-1521) Florentine *St. John the Evangelist*

A lover of symbolism, Piero depicts a legendary incident in Ephesus, where St. John was ordered to drink a cup of poisoned wine. Before he could lift the chalice, the poison departed in the form of a snake. Fingers raised in Latin style give a blessing.

High Museum of Art, Atlanta, Georgia, [illegible]

GIOVANNI BATTISTA TIEPOLO (1696-1770) Venetian
Offering by Young Vestal Priestesses to Juno Lucina

In the 18th-century rococo period, architecture was the queen of the arts, painting a mere handmaiden. Tiepolo imbued most of his works with an architectural quality. Critics dispute the meaning of this canvas from the Palazzo Barbaro, Venice. Some doubt that the scene portrays Juno and the vestals, though Juno's bird, the peacock, perches on the temple portico. They suggest that the artist portrayed the offering of gifts from Mark Antony to Cleopatra.

identified Master of the Braunschweig Diptych, for the Washington show (page 856).

Medicine, not art, first attracted the Foundation to the Kansas City area. Shortly after the Foundation gave $400,000 to strengthen the graduate-school program of the University of Kansas Medical Center in Kansas City, Kansas, Rush Kress was taken on a tour of the William Rockhill Nelson Gallery of Art in Kansas City, Missouri. He was told of the museum's weakness in some areas of Renaissance art. As a result, the Nelson gallery now owns a Kress Collection numbering 14 paintings and two sculptures. Six are to be shown in the National Gallery display, including Giovanni Bellini's "Madonna and Child" (page 856).

Unique among the regional galleries, the Art Museum of Allentown, Pennsylvania, owes its very existence to a Kress Collection. It is also the only museum where paintings and sculptures are grouped together as a Samuel H. Kress Memorial Collection. Both circumstances derive from the fact that Sam Kress's birthplace, Cherryville, lies only ten miles away.

For years, the closest thing to a museum in Allentown consisted of two rooms in a stone

Philbrook Art Center, Tulsa, Oklahoma, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

BERNARDO BELLOTTO (1720-1780)
Venetian *View of Dresden From the Right Bank of the Elbe*

Bellotto, who fell in love with Dresden at first sight, lived there 15 years. His paintings of the Altstadt, or old city, serve as a guide for reconstruction; World War II air raids destroyed 10 square miles of the German city. Augustus Bridge survived the bombings, but retreating Nazis blew it up. Our Lady's Church, whose dome rises beyond the span, was demolished and has been left in ruins as a memorial.

house owned by the city park department. When civic leaders drew attention to the need for an important art collection, the Foundation offered a group of paintings—provided a suitable building was erected. The selections emphasized German and Dutch works, in recognition of the ancestry of many Allentown residents.

Meeting this challenge, local citizens, foundations, and corporations raised funds to buy a recently vacated church and transform it into a handsome museum. The gallery now owns a Kress Collection of 52 paintings and sculptures. Its six entries in the National Gal-

lery exhibition include two fine examples of the Dutch school—"The Young Fisherman," by Frans Hals (page 852), and "Soo de Ouden Songen," by Jan Steen (right).

Latest of the fine new museums to join the Kress Collection family is the Joe and Emily Lowe Art Gallery of the University of Miami, on the campus at Coral Gables. A special Kress Wing was tailor-made to house 40 paintings and four sculptures by Italian, Flemish, and North German artists of the 14th through 18th centuries. Six of the paintings are to be placed on display in the National Gallery exhibition. They include Bernardino Fungai's "Madonna and Child With Saints and Angels" (page 858).

Atlanta Draws Visitors From Afar

I wish I had space to detail the coming of Kress paintings to each of the galleries that the Foundation has aided. As Renaissance times set Europe's cultural pulses to throbbing, so the Kress gifts have brought stimulating days to the beneficiary cities.

Columbia, South Carolina, for example, which had no gallery only 11 years ago, now knows the pride of having lent paintings for exhibition in Venice and Milan, once centers of Old World renascence.

Visitors to Oklahoma, primed for tomahawks and powwows, voice astonishment at encountering Bellotto's "View of Dresden" (page 848), part of the 34-painting Kress legacy to Tulsa's Philbrook Art Center.

Love of good painting is so universal that museum guides never know what nationality they will meet next. For example, some German visitors to this country made a special trip to the High Museum in Atlanta to see Kress Collection paintings, works that trace changes of style from 13th-century Siena to 18th-century Rome.

A vibrant source book on the revolution in painting wrought by the Renaissance appears on the walls of the Portland, Oregon, Art Museum. Paintings from the late 13th to early 16th century follow a theme carefully worked out by the museum and enthusiastically fulfilled by the Foundation.

Houston, Texas, whose thriving port weaves increasingly closer ties with Latin

JAN STEEN (1626-1679) Dutch
Soo de Ouden Songen

Steen's humorous scenes of everyday life often illustrated proverbs, and frequently he used members of his family as models. Failing to earn full livelihood as a painter, he worked at times as brewer and tavern keeper and shared the common pleasures he portrayed. Title of this work comes from an old Dutch adage: "As the old folk sing, the young folk pipe."

America, holds 36 Kress paintings, creations of men from the same cultural cradle that produced Columbus and the conquistadores.

And Kress paintings at the Honolulu Academy of Arts afford thousands of students and visitors to our newest State their introduction to one of the richest eras of Western painting.

Mention of students brings me to another Foundation program. In distributing the collection of 1,500 paintings and sculptures, we reserved some 150 for the Study Collections, special ensembles of art that we placed on 19 college campuses across the country.

We arranged the Study Collections to illustrate, with original works, the changes that European art experienced through the ferment of the Renaissance. Distributed by geographical area, they are now providing, no doubt, many of our own great artists of the future with knowledge that no textbook can offer.

An encounter in Rome about 1920 gave Kress direction and purpose in his acquisi-

Allentown (Pennsylvania) Art Museum, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

Allentown (Pennsylvania) Art Museum, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

tions. He met Count Alessandro Contini-Bonacossi, one of the period's foremost collectors, and Kress set out to emulate him.

Introduced by the count, Kress formed a lasting friendship with the late Bernard Berenson, the most famous Renaissance art authority of his time. Kress joined the select group of those who made regular pilgrimages to Berenson's villa I Tatti, near Florence, which was willed to Harvard University in 1959. Largely because of "B.B.'s" influence, Kress decided to concentrate upon Italian painting and sculpture.

How well he succeeded was summed up by David K. E. Bruce, former trustee and president of the National Gallery of Art and now our Ambassador to the Court of St. James's. In 1939, when Kress made his first donation to the Washington gallery then under construction, Mr. Bruce said: "Experts state that there is no private collection in the world, and few museums, which can illustrate in as complete a manner as the Kress Collection the development of the Italian school of painting and sculpture during the Renaissance period."

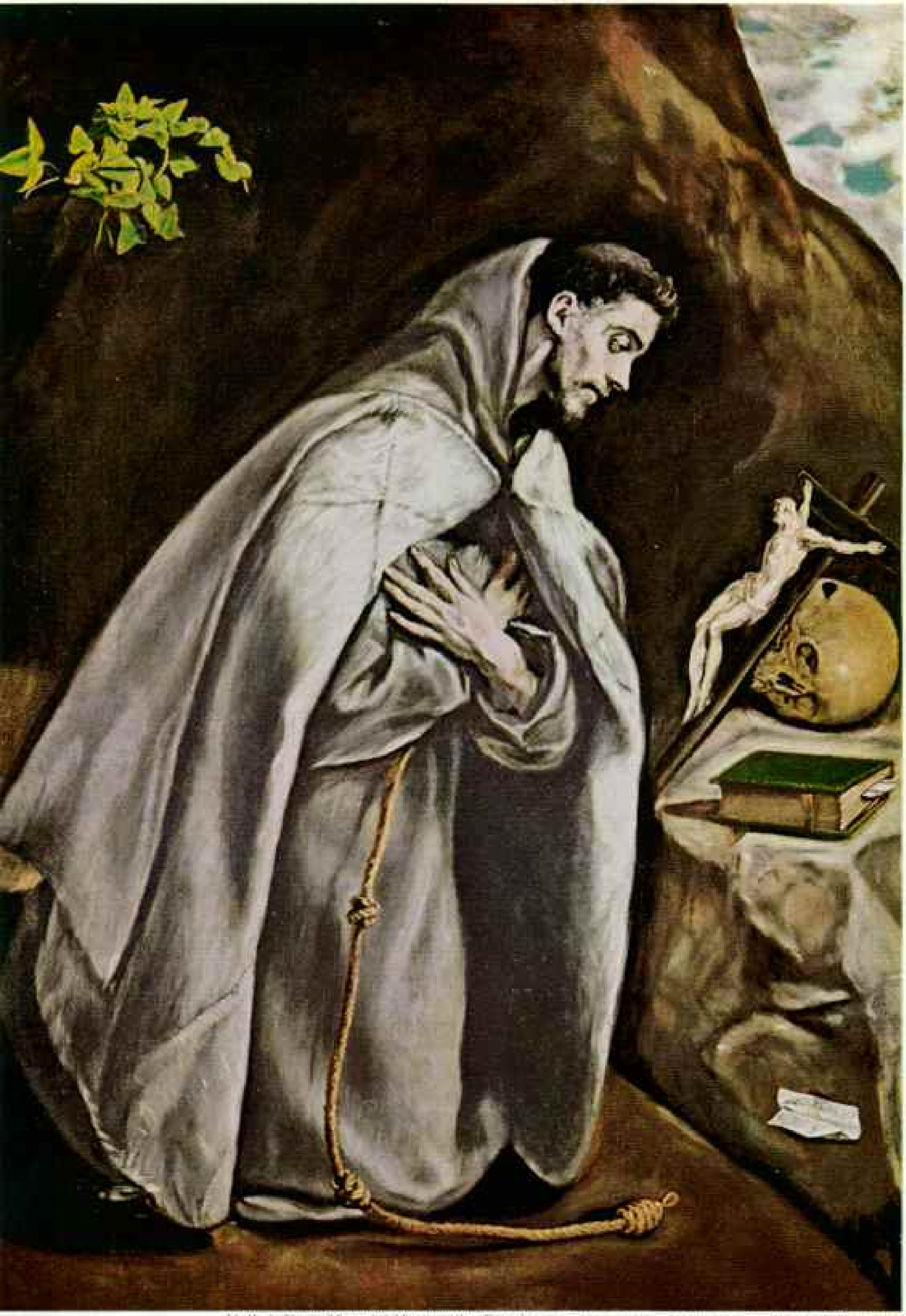
FRANS HALS (1580?-1666) Dutch
Young Fisherman

Hals demonstrated rare talent for capturing fleeting changes in the human face. His broad brush strokes and sharp contrasts of light and shade anticipated Impressionism.

PIETER DE HOOCH (1629-1683?) Dutch
Young Mother

De Hooch's canvases have been praised as poems of light wrought with conscientiousness and refinement. The artist painted this middle-class family scene about 1663.

M. H. de Young Memorial Museum, San Francisco, SAMUEL H. KRESS COLLECTION



M. H. de Young Memorial Museum, San Francisco, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

EL GRECO (1541-1614)
Spanish *St. Francis Venerating the Crucifix*

Born Doménikos Theotokópoulos in Crete, El Greco studied under Titian in Venice before settling in 1577 in Toledo, Spain, where he acquired his nickname (the Greek). Scrap of paper at lower right bears his signature in Greek. Here St. Francis has withdrawn to the hills to pray.

LORENZO LOTTO
(1480-1556) Italian
Portrait of a Bearded Man

Eloquence without flamboyance is the hallmark of Lotto, as demonstrated by this simple figure against a plain background.

Kress Collection restorers of the "Bearded Man" revealed a quality and harmony of color hitherto hidden by extensive retouching.

Isaac Delgado Museum of Art, New Orleans, SAMUEL H. KRESS COLLECTION © N.G.A.

And Director Walker of the National Gallery has written: "This great collection owes its origin to . . . a conviction in the minds of two hardheaded men of affairs, Samuel H. Kress and Rush H. Kress, that works of art enrich and give meaning to human life." *

While building his collection, Sam Kress had many an eye-opening adventure on "Art Dealer's Row," which centers mostly along Manhattan's East 57th Street. Despite his lack of formal art training, he won the dealers' respect as a knowledgeable bargainer.

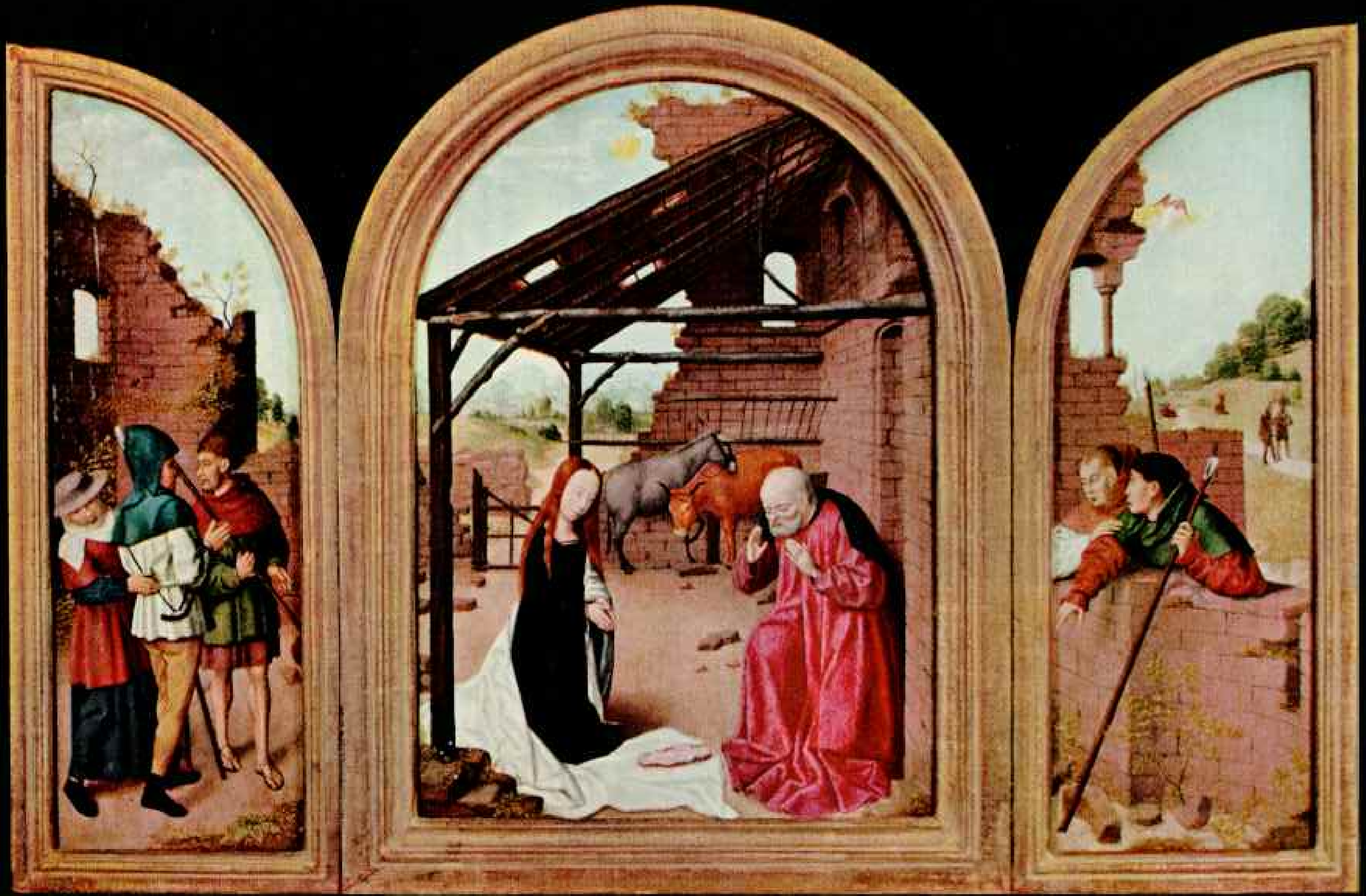
Here Kress became a principal customer and close friend of the late Lord Duveen of Millbank, head of Duveen Brothers, Inc., most famous of the art dealers. Duveen coached Kress, encouraged him, and sold him hundreds of art works, leading him to become the National Gallery's most lavish contributor of paintings and sculptures.

Masterpiece in Dime-store Window

The Kress-Duveen relationship was put to severe strain one Christmas season when the art dealer, strolling Fifth Avenue, was brought up short by an unbelievable sight in a Kress store window. It was Giorgione's magnificent "Adoration of the Shepherds," a costly painting that Duveen had recently sold to Kress.

Duveen's first reaction was extreme shock, but as a favored purveyor of masterpieces to Kress, he was in no position to complain about what he regarded as a breach of propriety. He did mention the matter, however, and gracefully accepted Kress's explanation: The spirit of Christmas had moved him to share his treasure with the New York shopping crowds. The Giorgione now hangs in the National Gallery.

* For an expert's description of the Kress Collection and its growth, see in the NATIONAL GEOGRAPHIC: "The Nation's Newest Old Masters," November, 1936; and "Your National Gallery of Art After 10 Years," January, 1952, both by John Walker.



Denver Art Museum (opposite) and Isaac Delgado Museum of Art, New Orleans, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

MASTER OF THE BRAUNSCHWEIG DIPTYCH Dutch
Nativity Triptych

An anonymous Dutch artist executed this 15th-century triptych. Because its style resembles that of the Braunschweig Diptych (two-leafed tablet), experts believe the same artist created both works. The Virgin and St. Joseph adore the Christ Child as shepherds approach the manger.

PAOLO VERONESE
(1528-1588) Venetian
Sacra Conversazione

Addressing Madonna and Child, St. Lawrence holds a palm frond, symbol of martyrdom. St. Agnes is accompanied by her lamb. St. Anthony Abbot, father of monasticism, carries a crutch, emblem of age.

BERNARDINO
FUNGAI
(1460-1516) Sienese
Madonna and Child
With Saints and Angels

Artists of the Sienese school loved to paint the Madonna. Fungai's restful, idealized paintings rarely expressed pathos or movement, but this tondo exhibits an almost playful freedom of composition.

As the Christ Child rides a flower-decked litter, He clings to an angel to keep from falling. St. Mary of Egypt kneels at right; a miraculous growth of hair answered her prayer for clothing in the desert. Behind the wall stand John the Baptist and Jerome, who also knew life in the desert.

St. Francis, on the distant hill, receives the stigmata. Below him St. Christopher carries the Infant Christ across a stream.

The painting, a favorite of Rush Kress, hangs in a new wing of the Joe and Emily Lowe Art Gallery in the University of Miami.

Gilded frame postdates the panel, which illuminates the cover of this issue of the GEOGRAPHIC.

Joe and Emily Lowe Art Gallery, University of Miami,
SAMUEL H. KRESS COLLECTION

One of my favorite Kress stories involves Berenson and a wealthy young American businessman and an exquisite little wood panel called "St. John in the Desert." Years ago, before Kress had any connection with the painting, the young American appeared at Berenson's villa I Tatti, announcing that he wished to start a collection and desired expert guidance.

Berenson was away, so Mrs. Berenson guided the young man around the galleries of Florence. She was highly impressed by his appreciation of art.

As the visitor prepared to leave, Mrs. Berenson remarked to Miss Nicky Mariano, B.B.'s assistant and secretary at I Tatti:

"He deserves one of our pictures for his collection, and I shall give him our small 'St. John in the Desert.' It is a charming thing but not definitely attributed to anybody. B.B.

Museum of Fine Arts of Houston, Texas, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

won't mind my giving it away, I'm sure."

When B.B. returned he immediately noticed a gap on the wall.

"That little St. John," he said. "What became of it?"

Mrs. Berenson told him.

It was a severe blow, for B.B. had valued the painting for its beauty alone, considering its attribution and probable worth as of secondary importance. However, he accepted

BERNARDO BELLOTTO
Market Place at Pirna

Pirna, Saxony, which escaped the air raids that wrecked neighboring Dresden, today looks much as it did two centuries ago. Sunlight bathes the City Hall and its clock tower. Empress Catherine II of Russia presented the painting to King Frederick II of Prussia.

the loss philosophically. He displayed equal stoicism many years later when the painting was discovered to be the work of Domenico Veneziano, and was sold to Sam Kress for $145,000!

Visitors to the National Gallery may admire the panel, which measures 11⅛ by 12¾ inches, or about the size of the NATIONAL GEOGRAPHIC spread open before you (page 828). From a strictly commercial viewpoint, it may be said that Kress paid $1,022.25 per square inch for the Domenico.

Foundation Also Aids Research

I first met Sam Kress in 1936, when he was the active head of his stores and I was a vice president of the Bankers Trust Company of New York. He was a shy, retiring bachelor, with a strong distaste for publicity. This quality is reflected in the Foundation he created in 1929, "to promote the moral, physical, and mental well-being and progress of the human race." Unlike most large organizations of its kind, the Kress Foundation even today has no public relations director.

The Foundation's many grants in the field of medical research, a special interest of Rush Kress, have been made public by the recipients rather than the donor. They include large donations to the New York University Medical Center, the American Heart Association, and the National Association for Practical Nurse Education, and the gift of a betatron unit to the Memorial Center for Cancer and Allied Diseases in New York City.

When Sam Kress's illness removed him from business and philanthropic activity, the mantle fell upon his brother. Rush Kress invited me to join the Foundation's Board of Trustees in 1946. I accepted with reluctance; by that time I had retired from banking and looked forward to devoting more time to the National Audubon Society, which I served as president for four years and as a director for eighteen.

Soon afterward I was named Art Director of the Foundation, and found myself deeply involved in the distribution of paintings and sculptures to the 21 American museums. Rush Kress and I decided upon this plan after constant changes and substitutions in the National Gallery's collection made many works available for distribution elsewhere.

As selections for the various museums progressed, the delicate work of restoration and framing went forward. A collection of 800 original Renaissance frames, acquired for the Foundation by two Italian experts who combed Europe, was put in the hands of master framers working under the direction of Conservator Mario Modestini (page 834).

I never tire of visiting Mr. Modestini's laboratories in New York and at Huckleberry Hill. Using centuries-old skills as well as those born of modern science, he performs daily miracles of research and restoration. With X-rays and infrared rays he penetrates beneath centuries-old layers of paint and varnish to disclose altered designs painted over by the old masters.

Synthetics Replace Raw Egg

The Modestini laboratories employ an important advance in the restoration technique—the use of a synthetic medium to replace egg as a binder where paint has chipped or peeled. Tests made in the laboratories and under the big skylights atop the National Gallery suggest that polyvinyl acetate mixed with dry pigments is likely to stand the test of time far better than the traditional egg medium.

As the result of Mr. Modestini's painstaking work, paintings leave his laboratories looking as bright and fresh in color as they did when they stood on the artists' easels.

Besides the National Gallery and regional collections, the Foundation has made important contributions to the Metropolitan Museum of Art in New York and to the Philadelphia Museum of Art. Gifts to the Metropolitan Museum include superb French furniture and porcelains from the collection of

Students with drawing boards head for a sketch class in the new Oscar Wells Memorial Building of the Birmingham (Alabama) Museum of Art, owner of the painting at left.

PARIS BORDONE (1500-1571)
Venetian *A Young Hero Armed by Bellona and Mercury*

Titian's pupil, Bordone shows Bellona, goddess of war, strapping a shield on a nobleman. Mercury, known by his serpent staff, bestows a helmet.

Birmingham (Alabama) Museum of Art.
SAMUEL H. KRESS COLLECTION
ACQUARONE, BY JAMES BUCK © NATIONAL GEOGRAPHIC SOCIETY

Seattle (Washington) Art Museum, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

PETER PAUL RUBENS *The Last Supper*

In this sketch for a ceiling decoration in an Antwerp church, the artist generates tension and excitement with gestures of head and hand. Rose red of Christ's mantle, the blue and yellow of St. Peter's robes, and the crimson glow of the curtains provide a striking color contrast.

Lord Hillingdon, and the magnificent Adam Room from Croome Court, country seat of the Earls of Coventry.

The Philadelphia Museum received a series of tapestries depicting scenes from the life of Constantine, after designs by Rubens and Pietro da Cortona. Originally from the Barberini Palace in Rome and then separated for many years, the tapestries have been reunited once more and will decorate the museum's great stairway.

Europe, too, benefited by Sam Kress's generosity. Grateful for the enjoyment he derived from the Old World's treasures and monuments, he saw in restoration work his best opportunity to reciprocate.

Among many Italian buildings which he restored wholly or in part through his personal philanthropy, he loved most of all the Gonzaga Palace in Mantua. Even now, at least two decades after his last visit there, members of the staff tell of his affection for this strange and beautiful palace with its miniature suite and private chapel for the

dwarfs whom the Dukes of Mantua kept for entertainment.

Following the pattern of these philanthropies, the Foundation has extended the work to other parts of Italy, to Greece and Turkey, and especially to Germany. Heavily bombed Nuremberg, ancestral home of the Kress family, has received large Foundation grants to assist in postwar rebuilding.

But the outstanding monuments to Sam and Rush Kress are the collection in Washington, which forms so important a part of our magnificent National Gallery, and the affiliated regional groupings. Under the Kress plan of distribution, these masterpieces become available to millions of people who never would have seen them otherwise.

All involved in the Kress art project take pride in an achievement that brings to mind Bernard Berenson's words in the preface to his monumental, Kress-financed edition of *Italian Painters of the Renaissance:*

"Without art, visual, verbal and musical, our world would have remained a jungle."

ABRAHAM VAN BEYEREN (1620-1675) Dutch *Still Life*

Forgotten after his death but rediscovered by the art world two centuries later, Van Beyeren fancied the flickering highlight and the glittering reflection. Silver coffee pot on a banquet table mirrors part of the room.

Seattle (Washington) Art Museum, SAMUEL H. KRESS COLLECTION © NATIONAL GEOGRAPHIC SOCIETY

Drab in contrast to her resplendent mate, a female **golden bowerbird** perches in the elaborate, flower-flecked bower he has built —lured there by a courtship display of spectacular hovering and wild acrobatics.

Australia's Amazing Bowerbirds

Building unique courtship arbors, males decorate them with favorite colors and stolen trinkets

By NORMAN CHAFFER

Photographs by the author

With a fine sense of artistry,

EARLY EXPLORERS, probing the unknown wilds of *Terra Australis*, were amazed at the many natural curiosities they viewed for the first time—high-leaping "kangurus" that carried their young in abdominal pouches, incredible molelike "duckbills" that laid eggs, strange flightless birds, weird insects.

Not so lively as these marvels, but equally intriguing and puzzling, were the strange arbors which the travelers occasionally found in the forests. Some were man-high masses of vegetation; others were two parallel walls of arched twigs thrust neatly into the earth and flanked by colorful decorations.

One viewer speculated that they must be kangaroo nests. Another thought them toys built by the aborigines to amuse their children. Great was the eventual astonishment to learn that these bowers were created by birds.

Named for the unique structures they build, bowerbirds are found only in Australia and the New Guinea region. Accomplished architects and exterior decorators, these strange

KODACHROMES © NATIONAL GEOGRAPHIC SOCIETY

the male golden bowerbird embellishes each end of his display perch with gray-green lichens

creatures are also skilled painters and mimics.

The bower, constructed by the male bird, is not a nest. It is the focal point of the male's territory, the place where he courts his mate. Gathering hundreds, even thousands, of brightly colored or glittering objects, some hard-working suitors decorate a display area outside the bower. Some species even paint the inside; others feature neat lawns, or gardens, of moss, flowers, and lichens (above).

When the female appears at this gaily bedecked bower, the male stages a dazzling courtship display which excites both birds and eventually leads to mating.

For many years I have been photographing and studying these extraordinary creatures, learning many new facts about their habits and behavior. Pursuit of the strange bower-builders has led me over much of eastern Australia, from coastal rain forests to the sun-drenched plains of the interior.

Best known of all the Australian species is probably the satin bowerbird, which inhabits forested areas of the east coast. About the

size of a pigeon, the male is glossy blue-black, the female modest gray-green. This species builds an avenue-type bower—two parallel walls of erect sticks with a corridor between them (page 870). The walls, each about a foot in length and height, almost invariably run north and south. No one knows why.

Smallest Bird Builds Biggest Bower

Our rarest and least known form is undoubtedly the beautiful golden bowerbird, found in northeastern Australia's Atherton Tableland. Smallest of all the Australian species, it builds the largest bower. This is a maypole-type structure, with two towering heaps of sticks and creepers woven around central saplings (opposite).

Other Australian species are the regent bowerbird, the fawn-breasted bowerbird, the great bowerbird, and the spotted bowerbird. Some authorities regard the western form of the spotted bowerbird as another species. A number of other species inhabit New Guinea and near-by islands.

When I started work with bowerbirds, I wished to make movies as well as stills, but I found that the sound of my movie camera frightened the birds. After some thought I solved the problem without wasting film: I simply borrowed my wife's eggbeater and simulated the whirring of the camera's gears. When a bird appeared, I turned the eggbeater until he overcame his fear of the sound. Then he would remain without noticing the noise of the camera.

The spotted bowerbird, I soon discovered, was an engrossing subject for study. One of nature's best mimics, he can imitate other birds, barking dogs—even the galloping of horses! A wide-ranging species, he builds bowers much like those of the satin bowerbird, but larger. Sometimes the bower walls arch overhead, thus forming a tunnel.

To decorate his bower, Spotty—as he is often affectionately called—fancies such objects as bleached bones, pebbles, colored glass, screws, wire, bottle caps, copper cartridge cases, and buckles. He has a reputation for stealing kitchen utensils and jewelry. I once watched one determined bird try to make off with the windshield wiper of my car.

Spotty considers anything he can lift as fair booty. My friend Alec Chisholm, a noted ornithologist, tells of a woman in New South Wales who parked her car, leaving the keys in the ignition switch, and went on foot to meet her husband. When the two returned 15 minutes later, the car keys were missing. The husband knew of a spotted bowerbird's arbor half a mile away. He went to look—and found the keys hanging in the bower.

The great bowerbird, of northern Australia, is closely related to Spotty and behaves very similarly. His bower is even larger, three to four feet long. He likes red objects and often groups his decorations neatly by color.

The satin bowerbird, on the other hand, rejects red colors, preferring blue or yellowish-green objects. He brings fresh flowers to the arbor daily. Woe betide the gardeners who try to raise blue flowers, such as delphiniums or cornflowers, in areas that he frequents.

At one satin's bower I counted 100 fresh flowers; another was decorated with at least 100 blue tail feathers of the crimson rosella parrot. To test the bird's color discrimination at one bower decorated with blue feathers, I added other feathers that had been dyed red, orange, green, and tan. When the bird returned, he carefully picked up the dyed feathers and carried them away from the bower.

The little bags used to hold laundry bluing are favorite prizes. Forty of the blue bags were once found at a single bower in Queensland. One distraught woman, who had lost a number of bags, blamed her young son and spanked him soundly before she discovered that the real culprit was a satin bowerbird.

Beak Becomes a Paintbrush

Some bowerbirds paint their bowers as well as decorate them. For paint, the satin bowerbird may use charcoal mixed with saliva, chewed-up bark, or even a pilfered packet of laundry bluing. His brush is his beak, which holds a wad of chewed bark that serves as sponge and stopper—a rare instance of a bird using a tool.

Many observers have witnessed the visit of the female satin bowerbird to the bower and the male's courtship display. As far as I can find out, however, only my friend Ellis McNamara and I have seen both the display and the mating. Ellis photographed the event in 1954; I did so a year later. Some of my notes follow:

"The male began calling in a peculiar 'churring' manner and commenced display-

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The Author: Norman Chaffer, nature photographer and lecturer, has given years to the study and photography of bowerbirds in his native Australia. Contributor of numerous articles on these remarkable birds, he is preparing a book on his observations. He is a fellow of the Royal Zoological Society of New South Wales.

Thrush-sized Bird, Smallest of His Family, Builds a Towering 8-foot Bower

Not a nest, the bower is built by the male golden bowerbird (*Prionodura newtoniana*) solely as a place for courtship. His horizontal display perch, decorated with lichens, connects with a secondary tower. Industrious males repair their bowers yearly, adding new materials. Forest ranger Lionel Dansie examines this maypole-type bower deep in Queensland's rain forest on the Atherton Tableland. After the courtship, the male and female part. She builds a small nest some distance away and raises the young alone.

Glossy blue-black male satin bowerbird parades before the green female. Australia's best known bowerbird builds a neat, avenue-type bower formed of parallel walls of twigs thrust upright in the ground. He usually paints the inner walls with pulp —often made of charcoal or shredded bark mixed with saliva— and decorates the area with bright trinkets. He shows a decided preference for the color blue, with greenish-yellow his second choice. For such decorations, *Ptilonorhynchus violaceus* often plunders his fellows' mating grounds.

Spectacular dance by the male may last half an hour or more. This oft-repeated ritual attracts the female and stimulates the mating instinct in both.

In a burst of rage, the male drives the hen from the bower after mating. This about-face may rise from an instinct to defend his area against all comers.

Something borrowed, something blue. With a cigarette package of his favorite color, a male satin bowerbird entices his mate. Sometimes he dances with a yellow leaf in his beak (right).

ing. Presently the female arrived and, after playing about in front of the bower for a short period, entered it from the rear. The male displayed energetically, and with constant vocal efforts which included many strange churring and scolding notes not at all pleasant to the human ear.

"Sometimes he postured for minutes, with tail elevated, bill pointed to the ground, and body held high on stiff legs. Sometimes he picked up the display objects and pranced around with a half-hopping movement and various wing-waving actions [page 870].

"The female stood quietly within the bower in a rather crouched attitude, sometimes adjusting the twigs, and once went through the actions of bower painting. The male showed great excitement. Several times he leaped back and forth across the bower entrance before the female. During this maneuver his wings were flung open and the expanse of the scintillating back and outspread wings was directed toward the watching female.

"As I watched entranced, the display continued for more than half an hour, culminating in the mating. The male continued to display afterward, while the female remained quietly in the bower. Then, for unexplained reasons, the male began to attack her, driving her several times from the bower" (page 871).

I wondered what had caused the attack. The defense of his territory is a strong instinct in the male. Having fulfilled his mating role, it may be that this strange bird, who had gone to such great lengths to entice the female to his bower, now considered her a trespasser in his domain.

Rare Bird Poses a Challenge

Through the years, I have known a number of such fascinating moments with bowerbirds. Photographing the rare golden bowerbird, however, was the climax of half a lifetime of nature photography. Few men had even seen this elusive creature, found only in Australia and New Guinea. No one had ever photographed it. I resolved to do both.

Fellow ornithologists Jack Waterhouse and Bill Moore joined me on this quest. Together we traveled more than 4,000 miles in our search of the Atherton Tableland, one of the world's wildest, most inaccessible areas.

Great Bowerbird Presides Over His Loot

Status symbols of *Chlamydera nuchalis*, the **great bowerbird,** include bones, silver, cups, electric cords, thimbles, broken glass, nails, toy saucepans and teapots. One collection contained a pair of spectacles.

Automobile ignition keys and even a glass eye have come into the magpielike grasp of other species.

Bird's treasure chest, collected by the author from a single bower, includes fork, brush, toy colander, and even a red plastic Santa.

Australians sometimes apply the term bowerbird to anyone who accumulates odds and ends.

The Atherton Tableland in northeastern Queensland is a fascinating place, with an array of strange wildlife. Here we glimpsed the tree-climbing kangaroo and the egg-laying platypus. Among hosts of interesting birds we saw the Victoria riflebird of paradise, the powerful flightless cassowary, and the brush turkey that builds huge incubators of decaying vegetation to hatch its eggs.

We also saw the display grounds of the stagemaker, or tooth-billed catbird—a close relative of the true bowerbirds. The bird himself regaled us from his singing stick with an inexhaustible medley of calls.

The stinging tree grows in this area, and I can testify to the swelling and excruciating pain caused by the touch of its foliage. Ticks and blood-sucking leeches were also a constant annoyance. Often I returned to camp with my socks soaked in blood.

Day after day without success we sought the golden bowerbird. Dan Buckley, a forest ranger, guided us to a bower he had discovered, but the bird did not appear.

Then Lionel Dansie, another ranger, led us 3,500 feet up a mountain to another bower where we waited hopefully. Peering through the forest shadows, we saw at last a flash of gold, heralding the end of our search.

A resplendent golden bowerbird, no larger than a thrush, came into view. His plumage was rich yellow and olive brown, shot through with a golden sheen; a pearly opalescence glowed along the edges of the feathers.

I had found my quarry. Now I had to capture him on film.

About eight feet from the bower, we built a blind of coarse sacking and brush. I set up my cameras, and we settled down to wait. After a long vigil, we saw the bird skim down to his perch. I fired the flash. He was gone in an instant, but it did not matter. I had caught him in both color and black and white (page 867).

On a later visit, I made additional pictures of this rare bowerbird and of his shy mate as well. I watched the male's spectacular hovering display, frequently with a flower held in his bill.

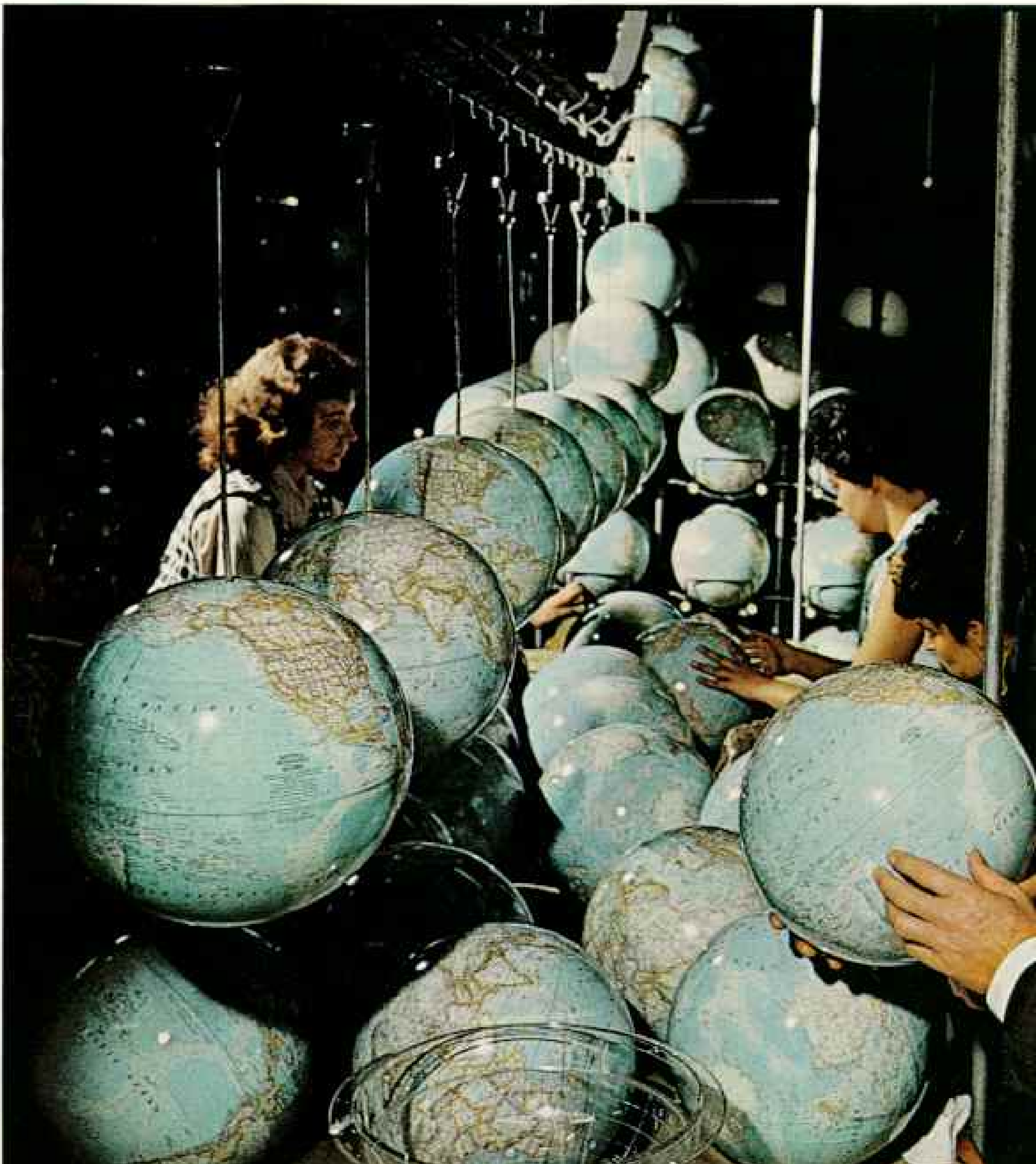
What other birds, I asked myself, can match the fascinating behavior of the bowerbirds? As far as I am concerned, they are the wonder birds of the world.

THE PRESIDENT'S ANNUAL MESSAGE TO MEMBERS

Your Society

THE JAPANESE and other Orientals have a delightful custom of bringing the calendar to life by bestowing a name upon each year. Thus in Japan, China, and Korea this has been the Year of the Ox. For those of us who administer the affairs of the National Geographic Society, however, 1961 will always stand as the Year of the Globe.

Few ventures in your Society's long history of increasing and diffusing geographic knowledge have met with a more enthusiastic response than the National Geographic Globe.



Takes Giant New Steps

To date, more than 120,000 of these unique free-moving spheres have been delivered to the homes of members.

Last year a trip to the South Pole by one of the Society's officers emphasized to me anew the desirability of a globe on which one could easily view the Southern Hemisphere and its polar region without standing on one's head.

Then, in the spring of 1960, an old U. S. Naval Academy schoolmate—Luther I. Replogle—stopped in my office for a casual visit. Like me, he had found his future in geography—but in the manufacture of globes.

As we chatted, I mentioned the advantages of a globe freed from its transfixing axis. My visitor agreed, and out of that conversation came the decision to produce a new kind of globe—Mr. Replogle's company to manufacture the spheres and the National Geographic Society's cartographers to produce the spherical map, in 24 sections, or gores (pages 876-7).

"If you give us first-rate map gores," he said, "we can make you a first-rate globe."

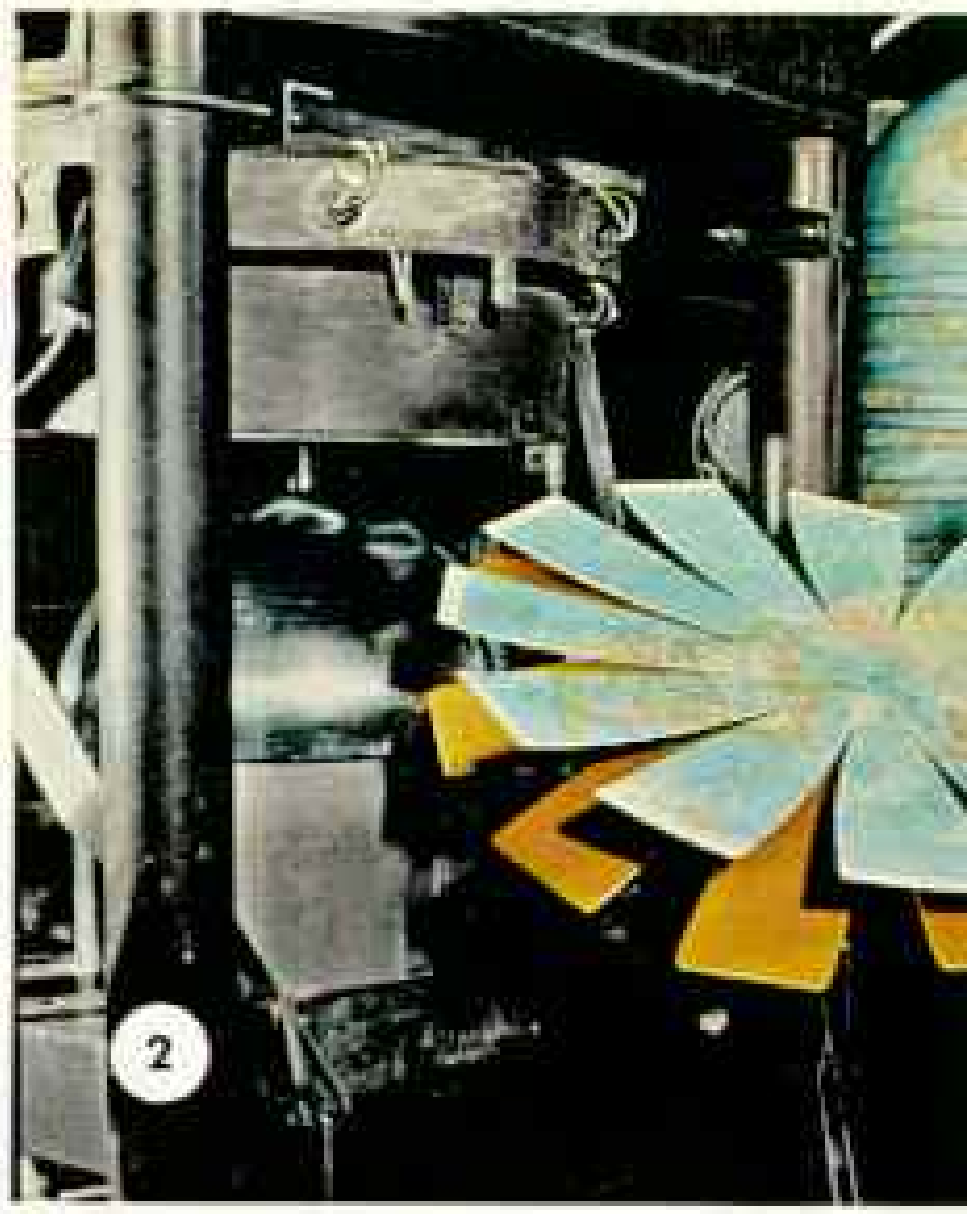
Globe Acquires a "Thinking Cap"

Given a green light, our map makers embarked upon their ambitious project. Chief Cartographer James M. Darley and cartographers Ralph McAleer and Wellman Chamberlin led the global task force; 4,743 man-hours later they had completed the 10-color map for a unique globe crowned by a revolutionary plastic Geometer, which quickly became known as the "thinking cap."

Manufacturing a globe is a fascinating process—one that weds art, science, and technology. This past summer I flew to Chicago to witness the fabrication of the 100,000th National Geographic Globe at the plant of Replogle Globes, Inc.

As I followed that globe from beginning to end of the manufacturing process, I was struck by something cosmic in the very setting. Overhead, conveyers whirled finished spheres in stately orbits. Below them, ranks of plastic bases glittered like stars. I stood amid a galaxy in miniature.

Finished globes ride a conveyer belt to final inspection. More than 120,000 have been delivered to National Geographic members in 100 countries. The Society's President, Dr. Melville Bell Grosvenor (left), tours the Replogle plant in Chicago with Luther I. Replogle, head of the company.



Precise machines, skilled hands shape Geographic globes

FIRST, National Geographic cartographers in Washington, D. C., designed and drew a 10-color map of the world, with all the beauty and accuracy for which the Society's maps are famed. Though flat, the map consists of two rosettelike hemispheres which, when combined, cover a 12-inch sphere.

Northern and Southern Hemispheres, lithographed by A. Hoen and Company in Baltimore, are glued to a tough strawboard backing at the Replogle plant in Chicago. With a sensitive electronic device dubbed "the bombsight," workmen then punch holes precisely at North and South Poles.

1. Flat hemispheres, lacquered and dried, slide into a punch press. Centered upon the polar hole, the press drops like a cookie cutter and slices out the cartographic rosette. Each petal-like gore represents 30 degrees of longitude. Safety straps on the craftsman's wrists pull his hands back when the razor-sharp blades descend.

2. An operator fits rosettes upon a metal shaping die. A diaphragm draws each gore into a precise fit. Then a hydraulic press forms the gores into perfect finished hemispheres.

3. A workman inserts a heavy cardboard hoop, applies glue, and joins Northern and Southern Hemispheres. He then slips the globe into the metal clamp behind his head, and an overhead conveyer whisks it away.

4. Globes swing past a painter's spray gun. As they rotate, he applies a lacquer that imparts gloss and protects the map surface from handling damage.

5. Globes come to rest at an inspection center. Packers apply the polar caps and make rigorous final examinations. Globes then acquire their Geometers, or "thinking caps," transparent plastic domes with scales that measure distance, direction, and area.

Members may order **National Geographic Globes** for their own use, or as Christmas gifts, complete with Geometer, Great Circle Ring, stand, and index. Address National Geographic Society, Dept. 93, Washington 6, D.C. Request later billing or enclose remittance—$16.85 postpaid.

Touring the plant, I marveled at the ingenuity and skill with which the beautifully lithographed rosettes, the molded hemispheres, the glistening lacquer were brought together into the finished product.

Here I found no mindless assembly line, but dedicated craftsmen presiding over ingenious machines. The keen-eyed workers who punch polar holes into the flat gores by means of a complex "bombsight," the "Equator girls" who band 0° latitude with an incredibly deft flick of the wrist, the final packers—all inspect constantly and reject ruthlessly any globe that fails to meet the most stringent standards.

We tried to foresee, and to forestall, any possible shortcomings in the globe. Unfortunately, we were not wholly successful. One woman complained that the colors clashed with her decor; a dismayed gentleman requested a refund because his globe portrayed Africa as larger than the U. S. A.!

Globes Track Satellites in Space

But, seriously, the globe has received heartwarming praise from both scientists and laymen. The Smithsonian Institution's Astrophysical Observatory promptly adopted it for use in satellite tracking stations and reported: "You have created a new concept in world globes."

The author of a textbook on navigation writes: "The Society has made a substantial contribution in this instrument to a fundamental visualization of our planet for both geographers and navigators."

However, the commendation I most cherish came in a letter from a Massachusetts member: "The *terrific* globe arrived today and actually got my youngsters away from our television set."

The success of the globe was important in our continuing battle against rising costs. In an era of constantly spiraling prices, it has been a particular pleasure for me to announce that National Geographic Society dues will not be increased for 1962.

One of the factors that enabled your Board of Trustees to hold the line against inflation for one more year is a major technical advance in the most expensive of our operations, the printing of the NATIONAL GEOGRAPHIC.

In printing its magazine, your Society does not compromise on quality. NATIONAL GEOGRAPHIC is a product of the finest presses, papers, and inks available. In fact, a graphic artist of international reputation states flatly: "The NATIONAL GEOGRAPHIC is the best-printed magazine in the world." We appreciate such comments, and we intend to continue to deserve them.

Our own exacting experts, and those of our printer, the R. R. Donnelley & Sons Company, engage in constant research aimed at ever-higher quality and lower costs.

Printing Discovery Helps Control Costs

I recall a visit I paid to the plant in Chicago a year ago. Our giant new presses roared as webs of highly coated paper passed at full speed between whirling metal cylinders. But too often, as I watched, a warning bell would clang and a press would grind to an emergency stop.

Why did they stop? Because a tiny irregularity in the paper—a defective mill splice, a wrinkle, or most often a small lump of the clay used in the coating—would scar or smash the metal plate on the cylinder. Before the press stopped, hundreds of feet of expensive paper would be wasted and valuable time and money would be lost in making and installing new plates.

This year I visited the plant again and saw not a single emergency press stop. I also saw the reason why: an important innovation adapted by Donnelley technicians. I watched closely as two workmen covered an impression cylinder with a sheet of special packing material (opposite). This simple and ingenious safeguard now permits most imperfections in the paper to pass between the cylinders without damage. Wastage is thus confined to the small section of imperfect paper itself. This single step has substantially reduced our rate of waste—not only in paper, but in ink, metal, and printing costs—with a saving of many thousands of dollars.

Photographers Amass National Awards

Even more important than such technical improvements is our constant effort to make each issue more interesting and valuable than the last. One measure of success here lies in the awards recently won by GEOGRAPHIC staff men for their pictures and articles.

In the 19th annual News Pictures of the Year competition, sponsored by the Encyclopaedia Britannica, the National Press Photographers Association, and the School of Journalism, University of Missouri, NATIONAL GEOGRAPHIC photographer Thomas Nebbia

Dramatic break-through in printing techniques enabled the Society to hold down rising costs in 1961.

In the past, as paper flashed through huge web presses, foreign matter in the coating, such as tiny lumps of clay, often damaged metal printing plates. Such "smashes" ruined hundreds of feet of paper and compelled pressmen to stop the machinery. Technicians at the Chicago plant of R. R. Donnelley & Sons, where NATIONAL GEOGRAPHIC is printed, adapted special packing material that minimizes the impact of clay lumps.

With Gaylord Donnelley, president of the printing firm, Dr. Grosvenor watches pressmen install a fresh pad.

A single machine inserts thousands of Atlas Maps an hour. If done by hand, the job would require scores of workers. This multiple-exposure photograph freezes action as a plowshare-like device opens pages of freshly bound GEOGRAPHICS racing in from the left. A metal plate holds pages open as maps slide in beneath it.

KODACHROMES BY NATIONAL GEOGRAPHIC PHOTOGRAPHERS KATHY LITTLEHALES (ABOVE) AND JOHN E. FLETCHER © N.G.S.

scored an unprecedented sweep of the first four places in the category of "National Magazine—Color" with pictures of Hawaii and Portugal in 1960's July and November issues (pages 40 and 655). Gilbert M. Grosvenor captured first prize in the "Magazine Picture Story—News" class for his May, 1960, photographic report on the 11-nation tour made by former President Dwight D. Eisenhower to Europe, Asia, and Africa.

President John F. Kennedy presented staff photographer Robert F. Sisson with the White House News Photographers Association's first-place award for his color photograph of an Algerian schoolboy published in June, 1960 (page 788).

In addition, a poll of more than 400 picture editors from newspapers throughout the United States named NATIONAL GEOGRAPHIC's

New 10-story building adjacent to the National Geographic Society's present headquarters in Washington will meet the need for expanded facilities. Glass-and-marble façade combines a classic appearance with the latest technological advances. Dr. Thomas W. McKnew, Executive Vice President of the Society, and Edward Durell Stone, the architect, examine blueprints and model.

Breaking ground for the building, Dr. Grosvenor takes the controls of a power shovel. Chief Justice Earl Warren, a Society Trustee, and architect Stone stand beside the cab. Cypress stumps estimated to be 100,000 years old were found when excavators uncovered a Pleistocene swamp.

KODACHROME BY NATIONAL GEOGRAPHIC PHOTOGRAPHER J. BAYLOR ROBERTS (C) N.G.S.

Director of Photography, James M. Godbold, as the individual who made the greatest contribution to photography in 1960.

Society Experiences Record Growth

The audience that enjoyed these prize-winning efforts was broader than ever before, and it continues to grow. In 1961 your Society welcomed a record 495,000 new members. Each month's issue of the magazine went to a record 2,770,000 homes. Almost one in every ten of these magazines was delivered to a member in a foreign country—eloquent evidence of the Society's world-wide scope.

An outstanding example of the loyalty and support of our membership abroad is far-off New Zealand, where membership renewals for the coming year have reached 99 percent—a figure unparalleled in our history.

During the year, two magazine staff men, Howard La Fay and Thomas J. Abercrombie, went on assignment to Easter Island. This tiny dot in the South Pacific is one of the most isolated inhabited places on earth. Only one ship a year calls there, remaining just long enough to unload mail and cargo.

Nonetheless, our field men—to their delighted surprise—were greeted by a National Geographic member. He was the island's priest of 25 years' residence, Father Sebastian Englert, renowned scientist and authority on Easter's mysterious past. Father Sebastian proved to be an enthusiastic reader, whose collection of GEOGRAPHICS dates from 1926.

His one mild complaint concerned the delivery of his favorite publication—twelve issues, once a year!

The constant growth of your Society's membership and activities has forced an expansion of its Washington headquarters. With our staff spread over the city in four separate locations and with present facilities far outgrown, the Society broke ground this year for a new 10-story building in the same block as its present home in the heart of the Nation's Capital. The ceremony gave me the opportunity to satisfy a lifelong ambition—to run a power shovel (page 880).

Fittingly enough in view of your Society's profound interest in our planet's past, excavators at the site uncovered the remains of a prehistoric swamp. Here we came upon perfectly preserved remains of cypress trees that had flourished an estimated 100,000 years ago. When the new building opens in 1963, samples of this ancient wood will be displayed, along with your Society's other treasures of exploration and discovery, in a handsome new Explorers Hall.

Architect Edward Durell Stone, designer of our new headquarters, envisions the glass-and-marble structure as "a blend of the National Geographic Society's dignified traditions and the finest modern technological refinements."

White marble piers—modern versions of the monumental column—will soar from the spacious one-story portico to the roof (page 881). They will be made of a choice Vermont marble called Imperial Danby—the same material used in exterior walls of the United

Conqueror of the silent world under the sea, Capt. Jacques-Yves Cousteau (right) joins Dr. Leonard Carmichael, Secretary of the Smithsonian Institution and Chairman of the Society's Committee for Research and Exploration, in inspecting an ancient amphora at National Geographic headquarters. Cousteau's underwater explorers raised the jar from a Greek wine ship that sank in the Mediterranean some 2,200 years ago. Behind the two men is a photograph of *Amphitrite*, Captain Cousteau's new inflatable ship, off Villefranche on the French Riviera. The National Geographic Society has supported Cousteau's varied explorations and researches continuously since 1950.

KODACHROMES BY FRANK AND JOHN CRAIGHEAD © NATIONAL GEOGRAPHIC SOCIETY

Taking Aim For Science, Naturalists Shoot a Grizzly With Hypodermic Darts

Aided by the Society, scientists with gas-operated rifles immobilize grizzlies, then take their temperature, pulse, and even dental impressions in researches led by Frank and John Craighead.

Strapping a radio transmitter to a drugged bear, biologists working with the Craigheads in Yellowstone National Park prepare to trace its travels. A tracking system designed and donated by the Philco Corporation helps the team study the vanishing grizzly's behavior patterns.

States Supreme Court Building in Washington—specially chosen because time does not cloud its gleaming whiteness.

This serene and timeless structure will house the most modern facilities in American publishing. One entire floor will be devoted to an advanced photographic laboratory. Greater use of electronic devices will increase efficiency in many phases of the Society's work.

These varied activities at headquarters all serve a single purpose. They help the Society in its continuing effort to advance the frontiers of knowledge. To this end, your Committee for Research and Exploration supported 23 separate projects during 1961. With Society aid, scientists have been enabled to explore the heights of the Himalayas and the depths of the sea.

Society Blazes Scientific Paths

Most significant of our present field efforts focuses upon Olduvai Gorge, in eastern Africa. Here prehistorian L. S. B. Leakey followed up his 1959 discovery of *Zinjanthropus*, "East Africa Man," who made crude tools and roamed Tanganyika 1,750,000 years ago, by

Tools shatter the silence of centuries as workmen restore a fortresslike pueblo beneath

unearthing the remains of an even older manlike creature, as related in the October, 1961, GEOGRAPHIC.

In 1960-61, the Society's support made it possible for Dr. and Mrs. Leakey to accomplish more in a single year than in all the preceding thirty. And their discoveries are revolutionizing our knowledge of prehistory.

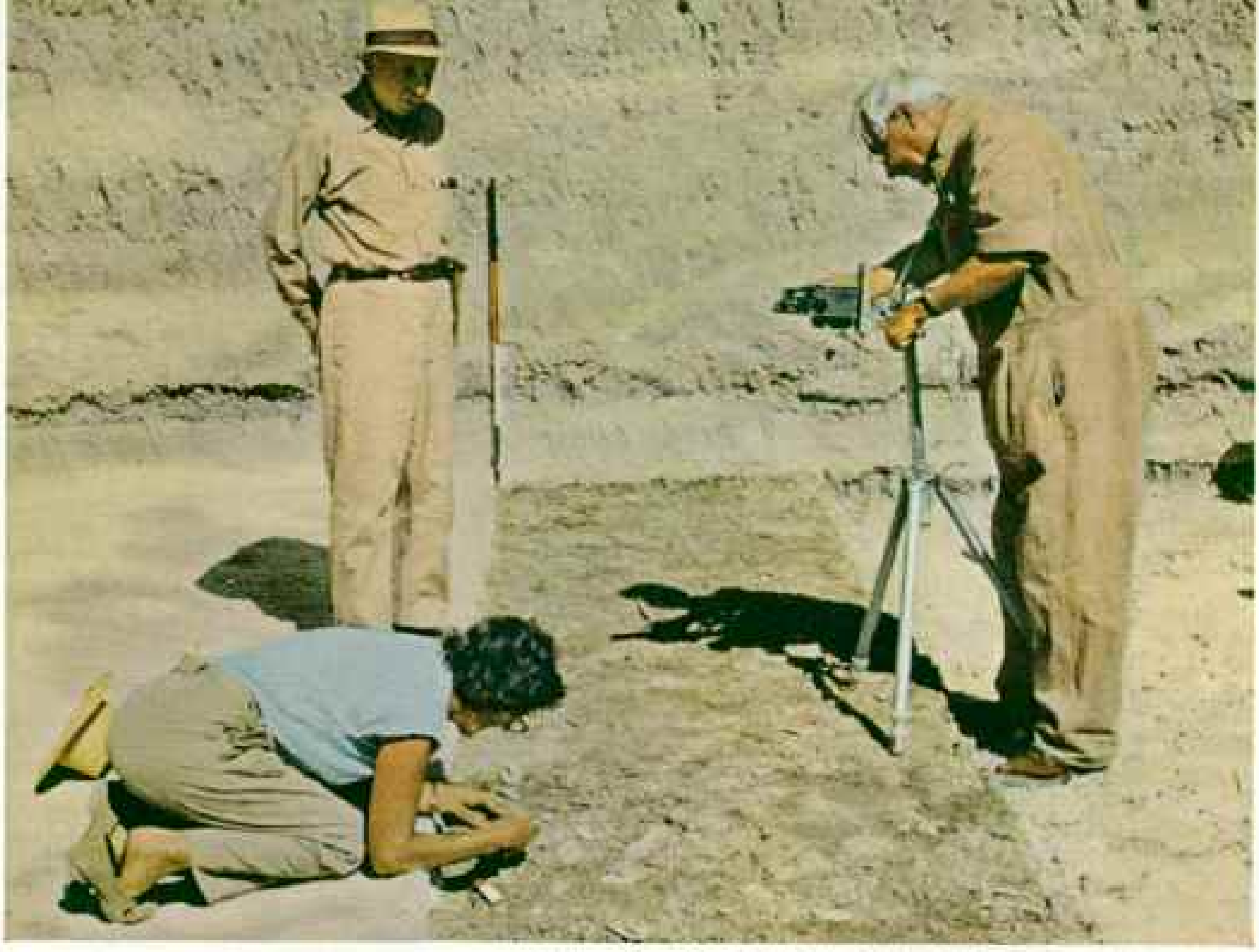
An important new discovery has now been made at Fort Ternan, Kenya, 200 miles north of

the cliffs at Wetherill Mesa, Colorado

REDACHROMES BY WILLIAM BELKNAP, JR. © NATIONAL GEOGRAPHIC SOCIETY

Workmen Inspect a Wall That Stood for 700 Years

Wetherill Mesa, a remote sector of Mesa Verde National Park, once supported prosperous Indian farmers who lived in great cave apartments below their fields. Late in the 13th century they abandoned their homes, never to return. Archeologists sponsored by your Society and the National Park Service are excavating the site for clues to the builders' disappearance. Other specialists are restoring the majestic ruins, which then will be opened to the public.



KODACHROME BY DEE BARTLETT, HARVARD DENIS PRODUCTIONS © NATIONAL GEOGRAPHIC SOCIETY

Finders of earliest man, Dr. and Mrs. L. S. B. Leakey have pushed back the frontier of prehistory by a million years. At Olduvai Gorge in Tanganyika, Dr. Leakey focuses his camera while Mrs. Leakey uncovers the fossil bone of an animal on the 1,750,000-year-old living floor of East Africa Man. Dr. Matthew W. Stirling, of the Society's Research Committee and a Research Associate of the Smithsonian Institution, inspects the site.

Olduvai, by the distinguished husband-wife team, again with the Society's support. There the Leakeys have unearthed fossil beds 12 to 14 million years old.

Leakeys Find Vital Link Between Eras

"The site is far exceeding our wildest expectations," writes Dr. Leakey. It forms a vital link between previously found deposits of the Lower Miocene period, dated 35 to 40 million years ago, and the 1¾-million-year-old fossils at Olduvai.

"The discovery of such a site," says Dr. Leakey, "would of itself be of major scientific importance, even if no hominoid remains had been found, but already Fort Ternan has yielded remains of at least three different kinds of primate. . . . It is impossible, I feel, to exaggerate the importance of this new discovery."

In our own country, a peat bog near Rawlins, Wyoming, has given up one of the most nearly complete skeletons of a mammoth yet found in North America. Crude tools found with the enormous bones indicate that 10,000 years ago Stone Age Americans hunted here. With Society support, archeologists from the University of Wyoming and Harvard's Peabody Museum of Archaeology and Ethnology are studying this site.

Among other important researches, your Society is continuing its long-range program with the University of Miami's Institute of Marine Science by cosponsoring a thorough scientific investigation of the ecology of coral reefs. Also under Society auspices, Capt. Jacques-Yves Cousteau's ship *Calypso* is sounding the silent world of the Atlantic off South America, and free-diving archeologists working for the University Museum, University of Pennsylvania, are probing secrets of a centuries-old Byzantine shipwreck near Yassi Island off the coast of Turkey.

In the months to come, the NATIONAL GEOGRAPHIC will bring to members brilliantly illustrated accounts of each adventure, each advance. As your officers and Trustees look back on 1961, they are proud of your Society's record. As we look ahead to 1962, we feel that, in Robert Browning's words, "The best is yet to be."

Melville Bell Grosvenor

Delight your "hard-to-buy-for" people *with an imaginative gift by Taylor.* *For weather-watchers...outdoorsmen...or your good friends who appreciate the unusual...there's a precision Taylor instrument that will reflect your discriminating good taste. Choose them at your favorite Department, Hardware, Jewelry, Drug, Optical or Sporting Goods store.* **A** *Windscope® Wind Speed and Direction Indicator, #3105, $99.95.* **B** *"Federalist" Barometer, #2499, $65.00.* **C** *Indoor-Outdoor Maximum-Minimum Thermometer, #5323, $19.95.* **D** *Deluxe Window Thermometer, #5314, $3.25.* **E** *"Suburban" Indoor-Outdoor Thermometer, #5338, $11.95.* **F** *Maximum-Minimum Thermometer, #5458, $12.95.* **G** *"Ambassador" Stormoguide® Barometer, #2574, $15.95.* **H** *"Weather-Hawk" Recording Barometer, #2316, $49.50.* **I** *"Navigator" Car Compass, #2975, $6.95.* **J** *"Commander" Marine Compass, #2966, $17.95.* **K** *Brass Case Barometer, #2237, $65.00.* **L** *Skin-Diver's Depth Gauge and Compass, #2060, $15.95.* **M** *"Ashton" Hygrometer, #5547, $2.95.* **N** *"Consul" Stormoguide Barometer, #2583, $9.95.* **O** *Roast Meat Thermometer, #5937, $2.98.* *Taylor Instruments* **MEAN ACCURACY FIRST**

A home FOR LIFE

THE BEAVER is one of the most industrious of animals. He toils with loving care on the construction of a home for his family. Beavers mate for life, and their homes are built with an eye to permanent use. When a man builds or buys a home he, too, likes to feel that it is permanent. For it is at home that the family develops roots and friendships. Safeguarding the home for the family is but one of Sun Life's many services for the security and protection of yourself and those you love.

Sun Life, one of the great life insurance companies of the world, maintains 150 branch offices in the United States and Canada, and operates in several countries abroad.

SUN LIFE ASSURANCE COMPANY OF CANADA

Head Office: Montreal

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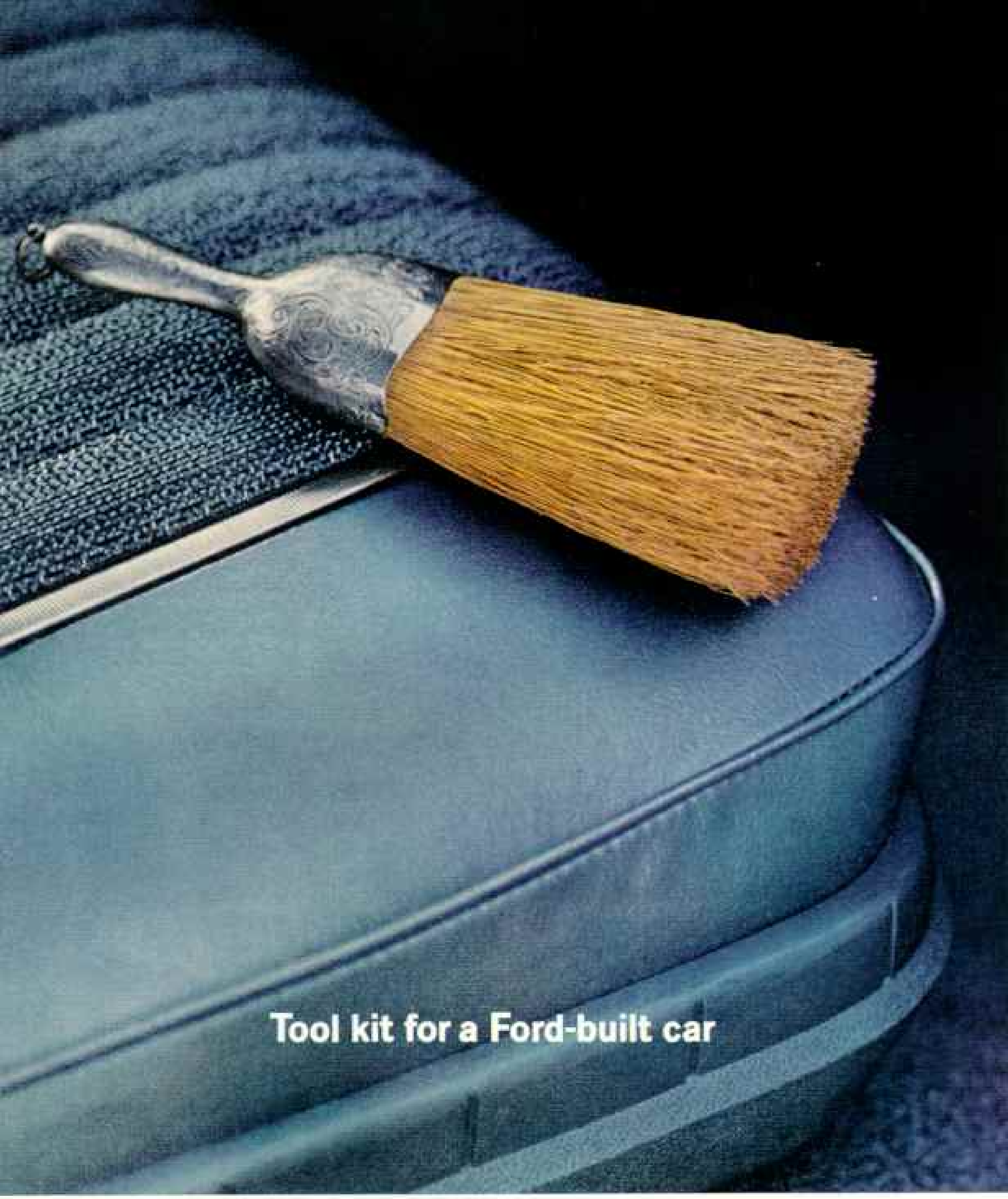

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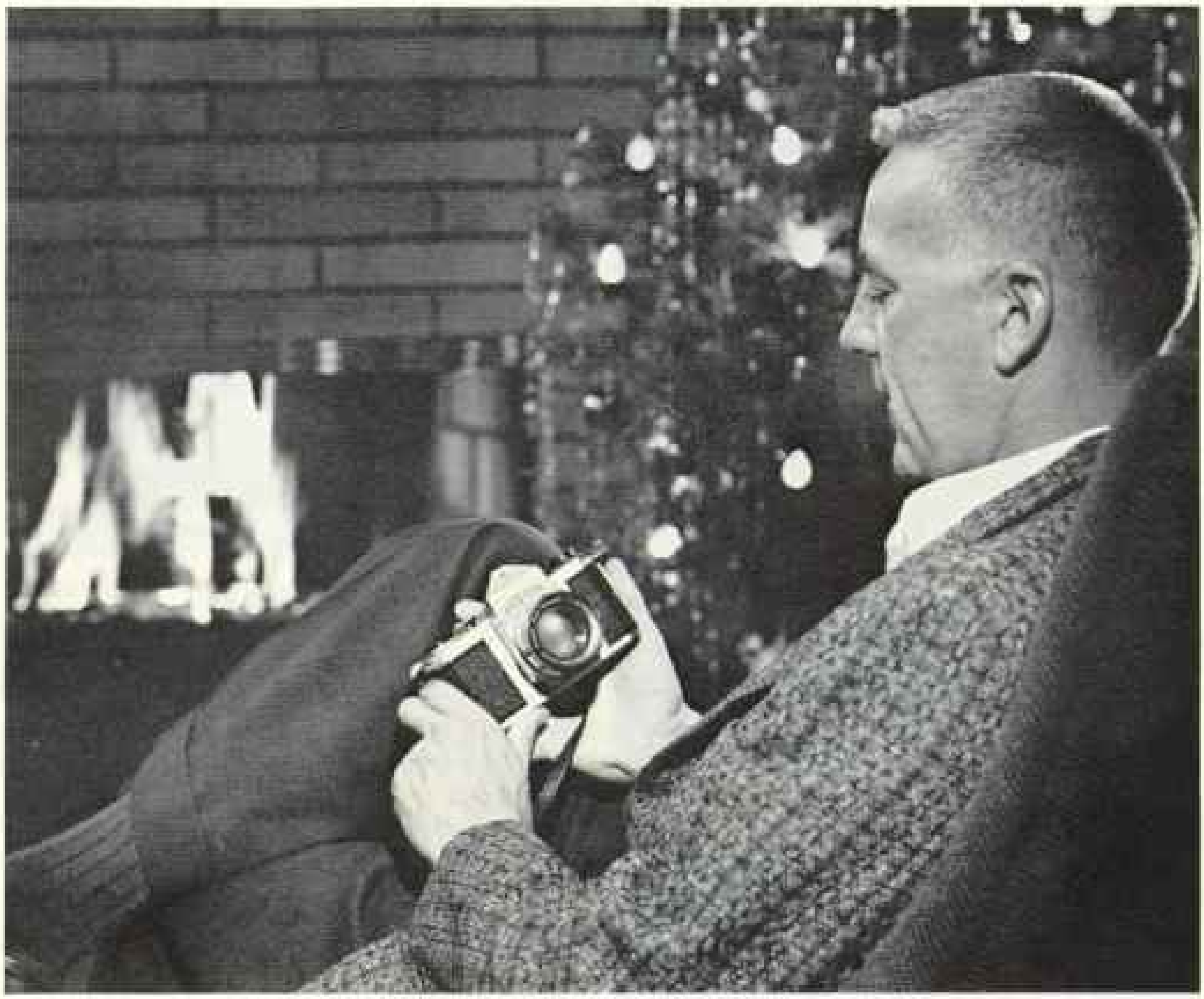

DECEMBER 25, 11:47 P.M.

You've had a busy—even hectic—Christmas day, yet it's been deeply satisfying. Back home again, you reflect on the pleasure of visiting friends and relatives. Best of all, you know that your most-appreciated gift—the one you'd hinted about for weeks—has recorded the memories of this Christmas day so they can be enjoyed for years to come.

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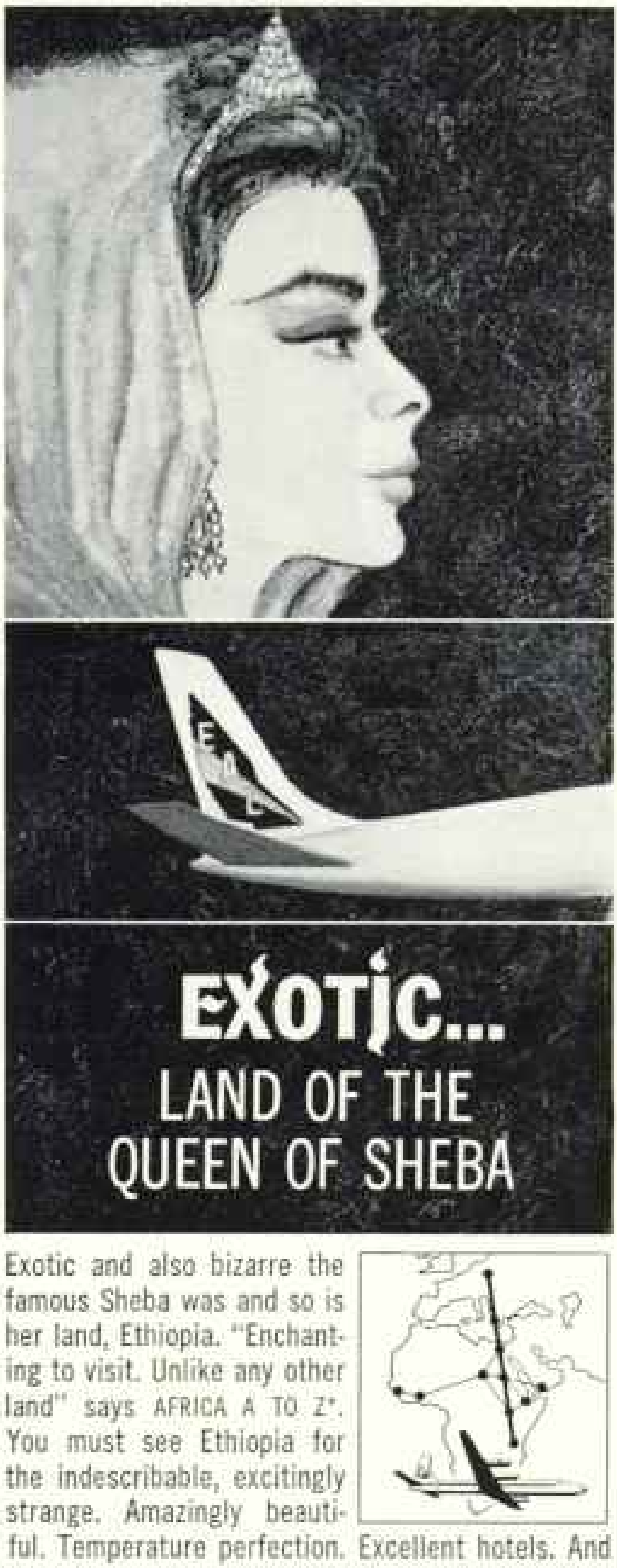

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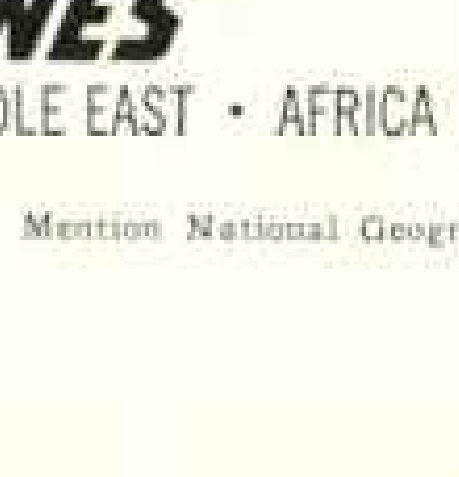

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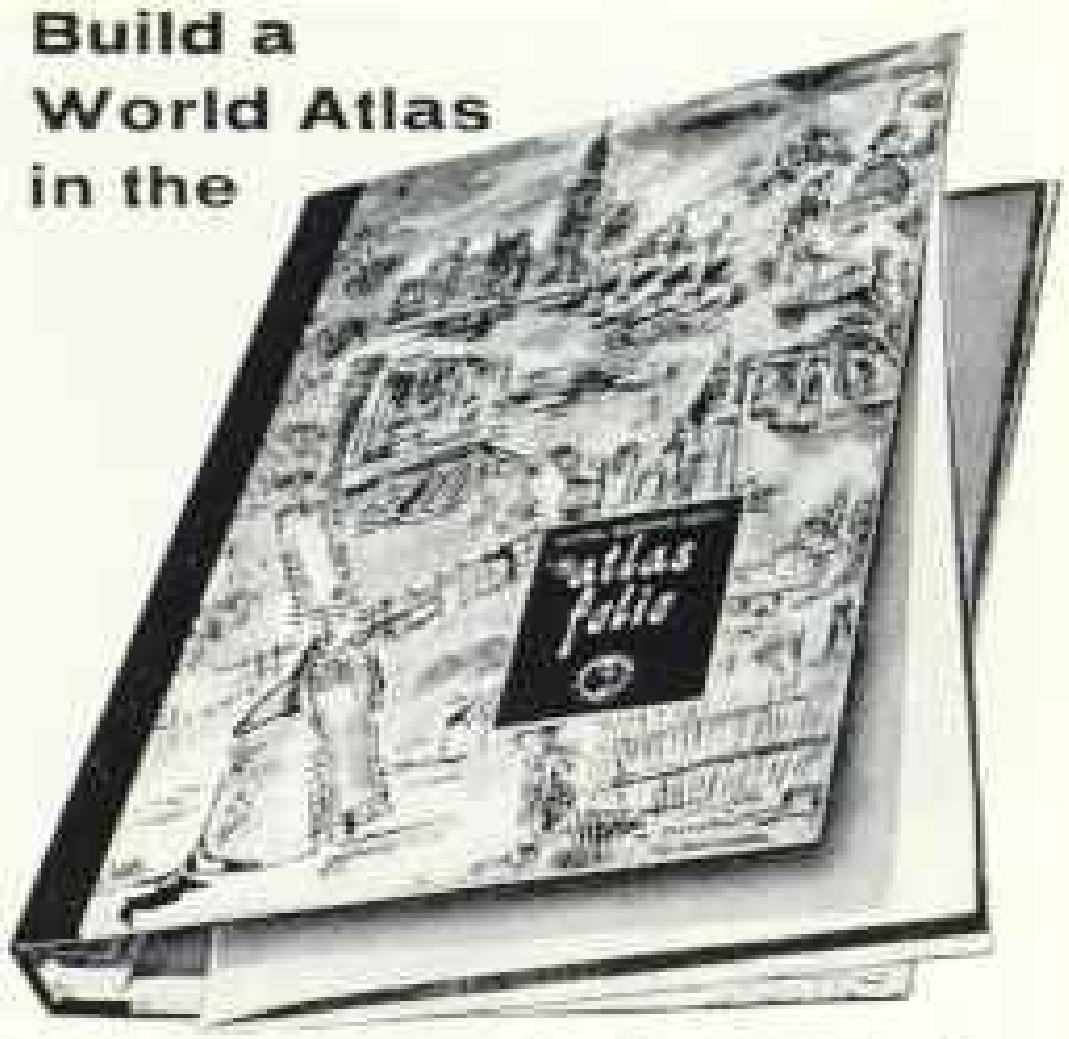

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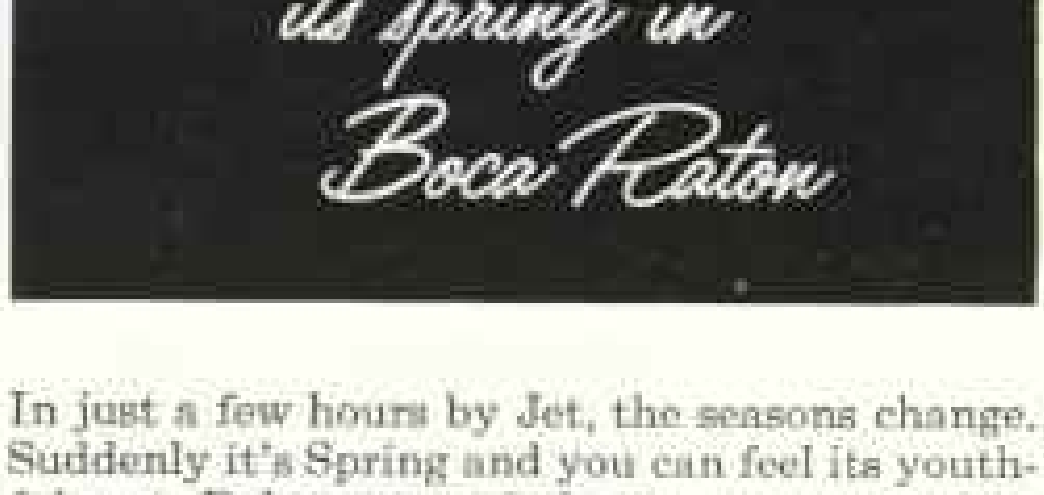

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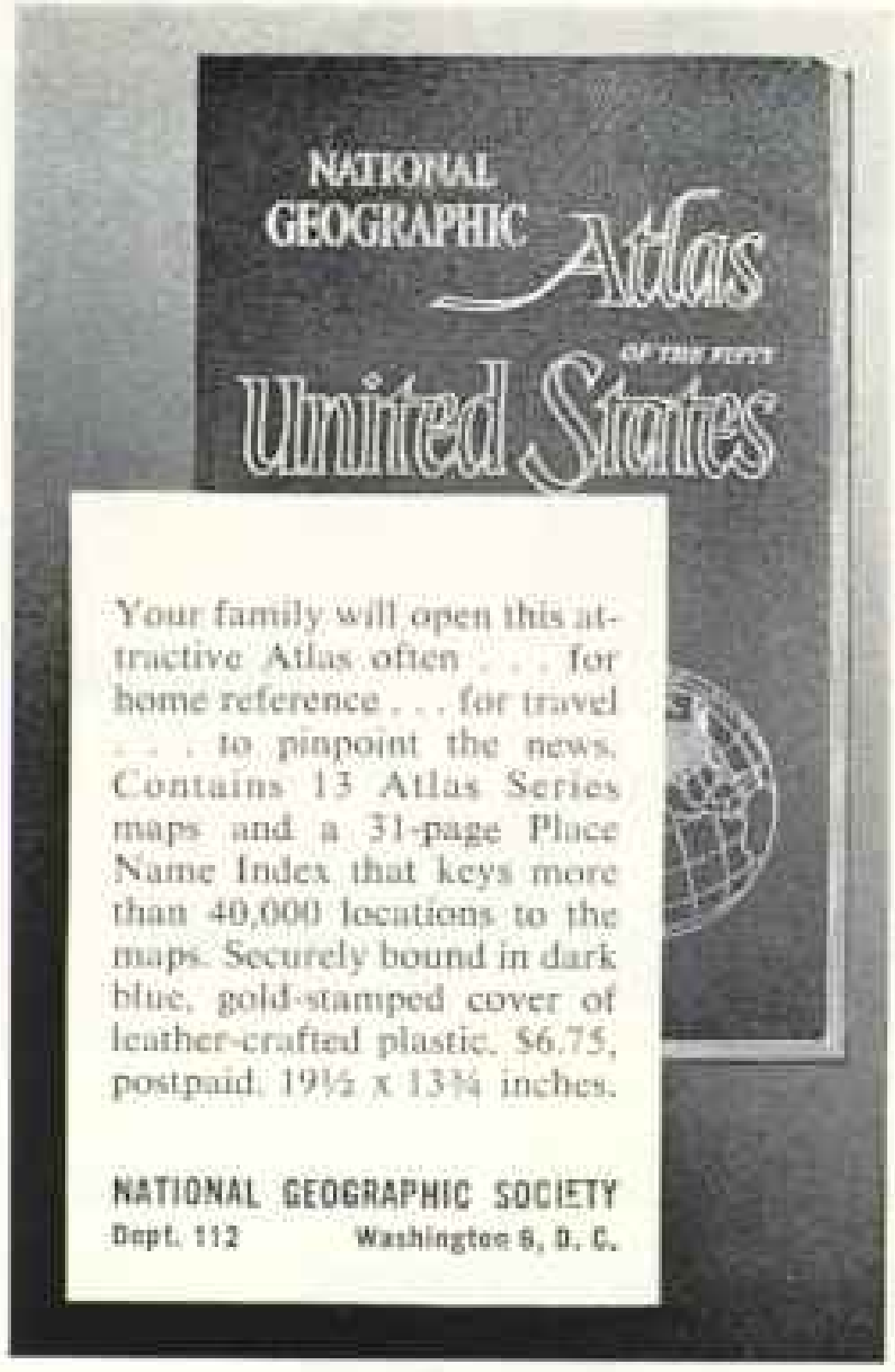

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So if you lead an active life and want to keep it that way, an ounce of Kellogg's Concentrate daily may be a big help. Look for it in your grocer's cereal section.

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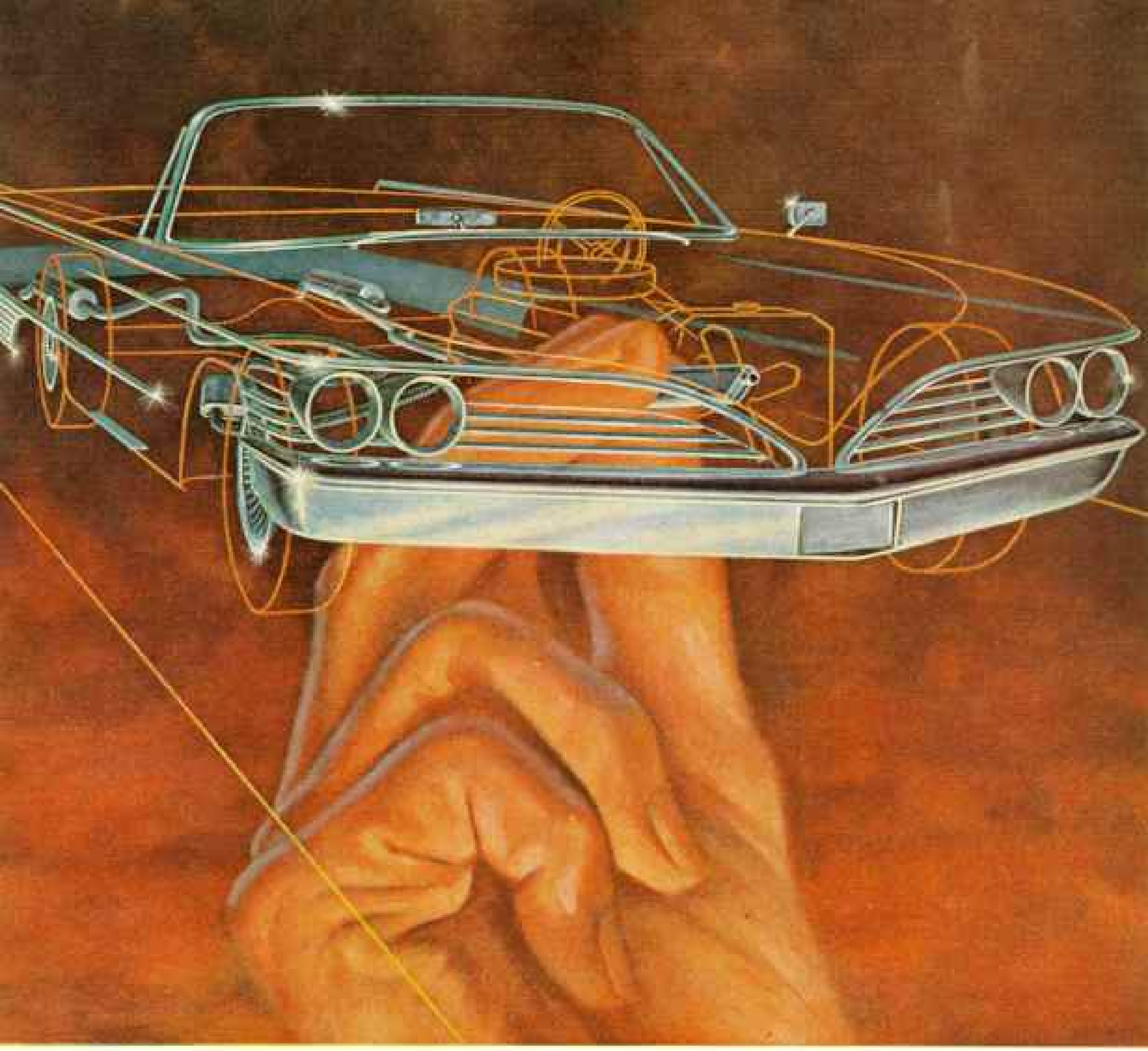

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