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AUGUST, 1932

CONTENTS

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THE NATIONAL GEOGRAPHIC MAGAZINE

ONTARIO, NEXT DOOR

Alert, Energetic, and Resourceful, Its British Pluck and Skill in Arts and Trades Gain for This Province a High Place Under the Union Jack

By FREDERICK SIMPICH

AUTHOR OF "EVERY-DAY LIFE IN ABYSSINIA," "ALONG THE NILE," "MYSTIC NEPHI," "THE STORY OF THE RUHR," IN THE NATIONAL GEOGRAPHIC MAGAZINE

A GIANT link in that globe-girdling British land chain on which the sun never sets—such is Canada. Her location in the new Commonwealth of Nations is one of singular advantage.

Canada's area is greater than ours. Yet it is not her size, but intensive effort in her developed regions that gives her strength. Her population of more than ten million is concentrated in a fairly narrow zone along her frontier, adjacent to the United States. But in that zone she has laid 56,000 miles of steel! On a railway map these lines hang across the top of our border like a colossal red tennis net slung from Atlantic to Pacific.

Rails made Canada. She laid hers more quickly than any nation had ever done before; in the past 25 years her treasure-earning feats with mines, fields, forests, and factories have been swifter, perhaps, than any others in economic history.

In one bold gesture she bought back from the Hudson's Bay Company a far-flung empire in her west and carved vast new provinces from it. With incredible speed she rushed rails across these new lands and strewed them miraculously with men, machines, and cities—even with new plants and trees. Like magic, empty prairies changed to fruitful farms. At the boom's peak, excitement aroused our own Middle West, and tens of thousands quit their homes for the bonanza wheat lands of western Canada. There men sowed grain and reaped gold till the wheat stream down the Great Lakes and over the Atlantic to Europe became a new wonder of the world.

Lean years come with the fat, even as among the Pharaohs. But Canada need not live by bread alone. Nickel, copper, coal, and silver enrich her hills. Now, passing the United States, she holds second place in the world's gold output, led only by South Africa. Inevitably, hers is a great destiny.

Where Indians paddled birch canoes and trappers used sleds on frozen rivers for winter roads, Canada builds paved highways now. And millions of American visitors go each season to see the wonders of this new northland. An amazing army this, equal to more than all the residents of Canada.

ONTARIO ON THE MAP

And Ontario, like a colossal motor, is the heart of Canada. Here lives a third of all the Dominion's people. Here is more than a third of all Canadian wealth.

THE DOMINION'S PARLIAMENT BUILDINGS AT OTTAWA AND THE GRACEFUL PEACE TOWER, AS SEEN FROM THE EAST GATE

The Prince of Wales laid the cornerstone of this 300-foot tower in 1919. It incloses the great carillon, installed just below the clock. The smallest of its 53 bells weighs 10 pounds; the largest, 22,400 pounds. The original Houses of Parliament were destroyed by fire February 3, 1916.

An Imperial Economic Conference, sponsored by the Canadian Government, to convene at Ottawa on July 21, 1932, focuses world interest upon Ontario to-day. Representatives of Great Britain, Australia, New Zealand, Newfoundland, the Union of South Africa, and the Irish Free State have been called to study plans for promoting closer trade relations among the British Commonwealth of Nations. India, though not a dominion, is also represented; so, too, are certain minor parts of the British Commonwealth.

Exceeded by other provinces in forestry and fisheries only, Ontario takes first place in farming, trapping, mining, electric power, banking, and manufacturing. Not only that; she is dominant in many cultural ways. And while Quebec, New Brunswick, Manitoba, Saskatchewan, Alberta, and British Columbia share the common frontier with us, all our relations—social, financial, and economic—are closest with Ontario. Toronto papers reveal our kinship in thought and behavior.

Photograph by W. Fletcher Kelly

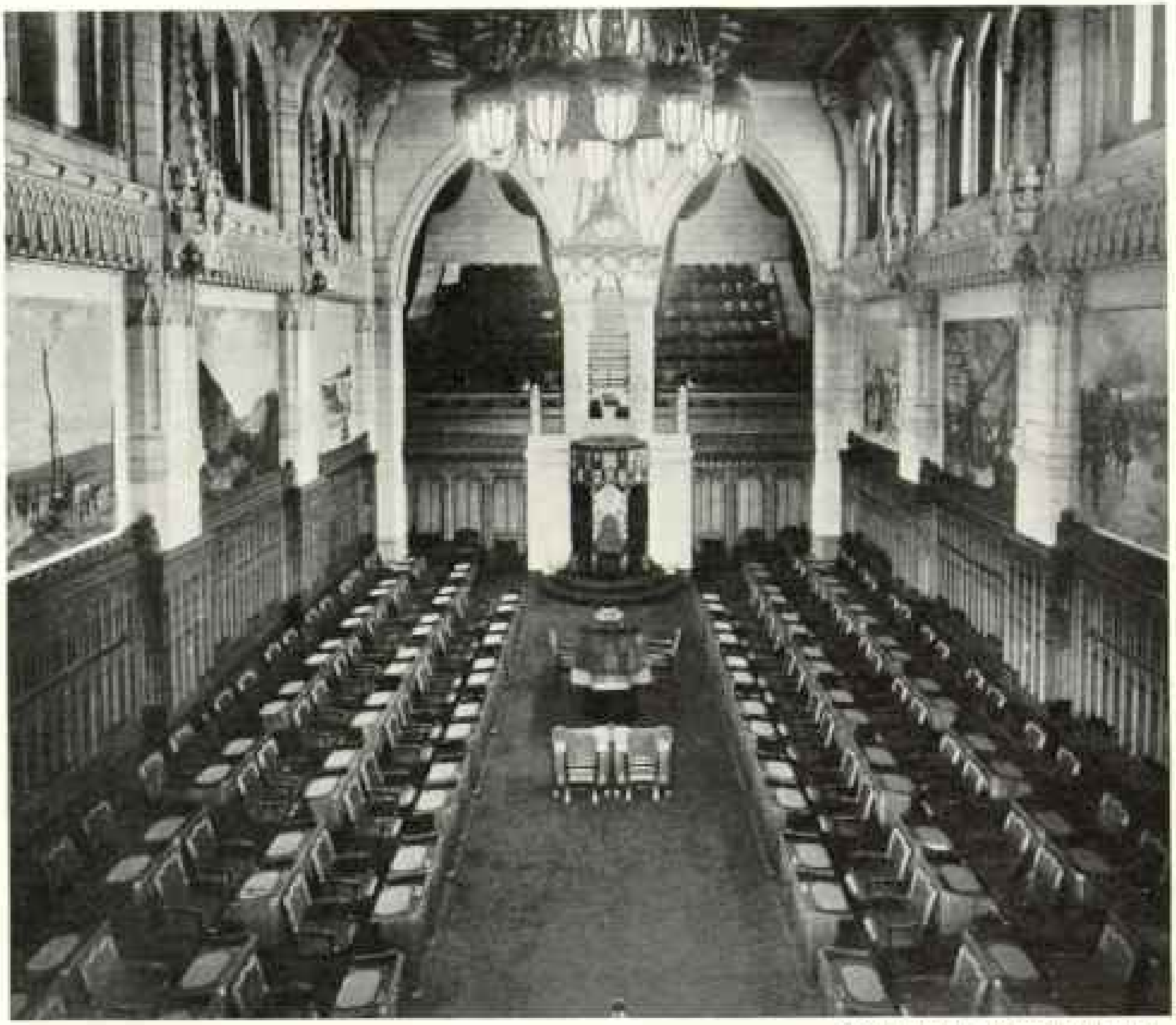
CANADA'S ALTAR OF REMEMBRANCE IN THE PEACE TOWER AT OTTAWA (SEE OPPOSITE PAGE)

The altar, a gift of the motherland, holds the Book of Remembrance, in which are inscribed the names of all Canadian soldiers who lost their lives in the World War.

On the map you see Ontario shaped roughly like a tilted bust, its face against Hudson Bay, measuring about 1,000 miles up and down. It lies above the Great Lakes and south of Hudson Bay; roughly, also, Quebec is east of it and Manitoba on the west (see map, page 130).

Its organized districts include Nipissing, Cochrane, Timiskaming, Sudbury, Algoma, Thunder Bay, Rainy River, and Kenora.

Patricia District, still largely unexplored and uninhabited, is a wild area, comprising nearly two-fifths of the whole Province. It covers that great northwest bulge of Ontario west of James and Hudson bays and north of the Canadian National Railway. Though a subarctic land minus rails, wagon roads, and important settlements, Patricia has new gold mines at Red Lake and elsewhere—reached by airplanes, canoes, or dog sleds; and, of course, it is still the undisturbed haunt of wild animals. Canada caught and skinned about 5,000,000 fur-bearing creatures in 1930.



Photograph by W. Fletcher Kelly

THE SENATE CHAMBER IN THE PARLIAMENT BUILDINGS AT OTTAWA

The original federation of British provinces to form Canada was less than a sixth the present area of the Dominion. Expansion to the Pacific came when the Dominion, in 1870, purchased the vast territory of the Hudson's Bay Company and carved new provinces from it, all represented now in the Parliament in Ottawa.

While Spaniards prowled Latin America for gold, the French and English ranged these lakes and woods for pelts. Single shipments often brought fortunes.

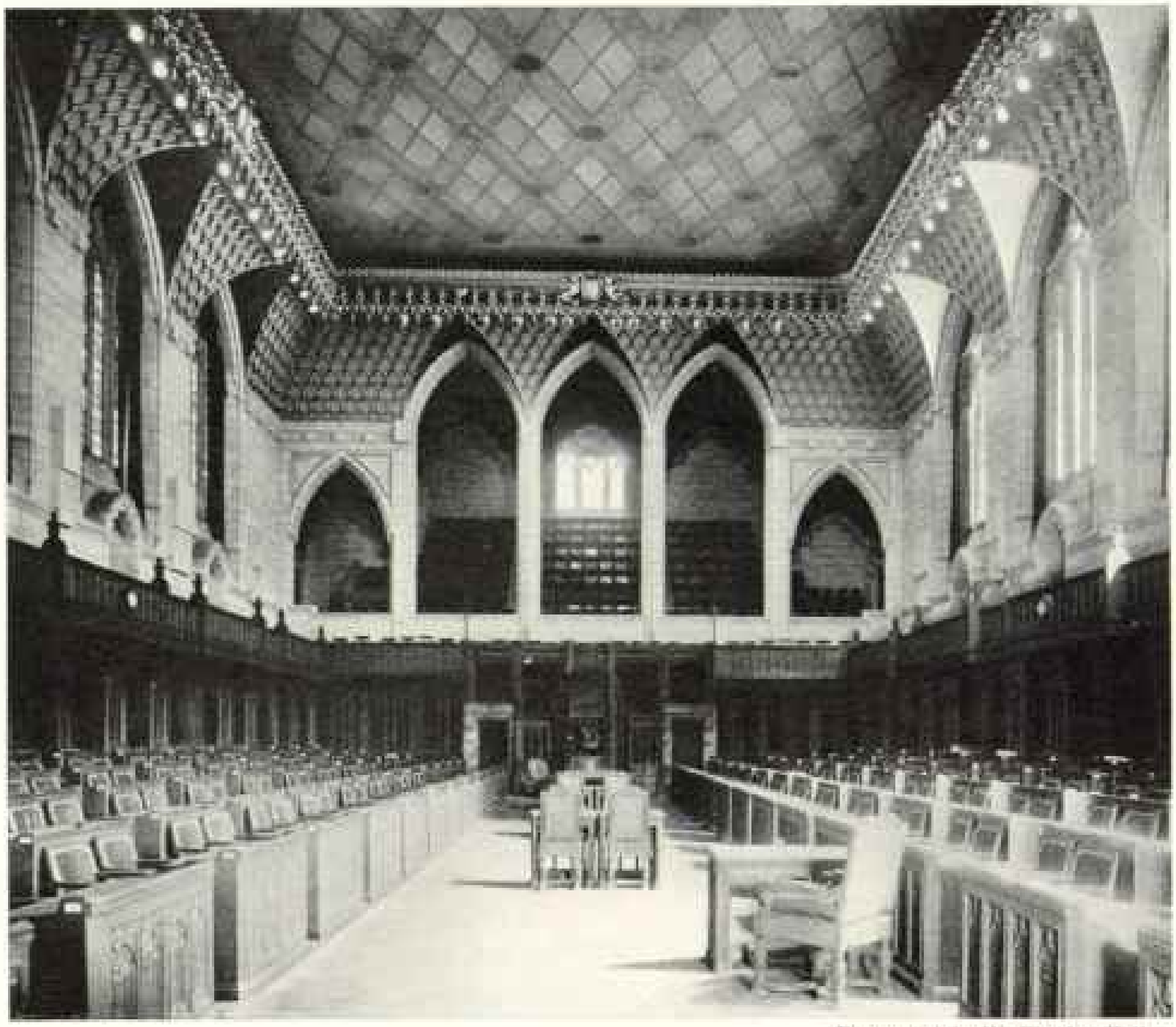
Why, you ask, was the world so mad for furs? That is an old fact in history. The story goes back to A.D. 476, when the barbarians took Italy. These invaders wore the skins of wild beasts, and soon rich Romans aped the style. When various courts of Europe rose from the Roman Empire's wreck, to wear furs became the special right of kings and nobles.

By the 16th century, wealthy merchants and social-climbing "burgesses" also gained the right to don decorative furs—except the ermine. That was still for kings. As wealth grew, the call for fine furs outran the supply.

Russians, in quest of fur, explored much of Asia. The first tribute paid by Siberian tribesmen to Moscow in 1555, says Middleton in his *Romance of Ontario*, was 1,000 sable skins. And the discovery of Canada was chiefly important to France, and indeed to all Europe, because the country was a vast new storehouse of furs.

Next to furs, French interest here was in converting Indians. News of their pagan plight was trickling back to Europe about the time of the Reformation and soon after Francis Xavier had been named a saint for his missionary exploits in the East Indies.

French ships for Canada were urged to carry priests. Champlain, religious himself, brought the first. Cultured Jesuits soon acquired tribal tongues, Indian lore



Photograph by W. Fletcher Kelly

THE HOUSE OF COMMONS IN THE PARLIAMENT BUILDINGS AT OTTAWA

The form of self-government common now to all British dominions was first developed in Upper Canada, as Ontario was then known, though the system was first actually employed in Nova Scotia. Here, too, after the union of Upper and Lower Canada, was found the mainspring of the movement for the federation of the British provinces into a transcontinental Dominion.

and customs, and set down in their travel narratives, or *Relations*, the records of early Canadian history.

So the speed with which much of Ontario was explored was due to Europe's fur hunger and the zeal of priests. These same forces, of course, brought the French down our own Mississippi—by way of Ontario.

FROM CULTURAL CLASHES CAME A NEW PROVINCE

Though Quebec was French, it was English-speaking people who first colonized what is now Lower Ontario, while it was yet under the Governor at Quebec.

To make life easier for French-speaking subjects, the British (by the Quebec Act of 1774) left French civil law in force, although English criminal law was decreed.

At once language troubles and other problems came to irk the English-speaking colonists, now drifting up the St. Lawrence Valley beyond the French settlements. Among other things, they wanted to own lands under the English freehold system, and not to pay yearly tithes to seigniors, as by French custom.

To this Great Britain agreed in 1791. So a new province, called Upper Canada (now Ontario), was established. It embraced all land west of the Ottawa River, which still separates Quebec from Ontario. Even to-day the language changes as you cross this line. Riding west, railroad signboards change from "Traverse du chemin de fer" to "Railway crossing."

© International News

SOLDIERS AND CIVILIANS MASSED IN REMEMBRANCE DAY CEREMONIES AT OTTAWA

Seen from the Peace Tower in Ottawa (see page 132), 5,000 soldiers and 50,000 civilians are gathered about the tomb of Canada's Unknown Soldier. Huge crowds also assemble here during the carillon concerts, when the bells are heard all over the city.

And the Quebec medicine billboard reading, "L'enfant pleure pour," etc., becomes, in Ontario, "Children cry for it."

MEN OF VARIOUS RACES SETTLED ONTARIO

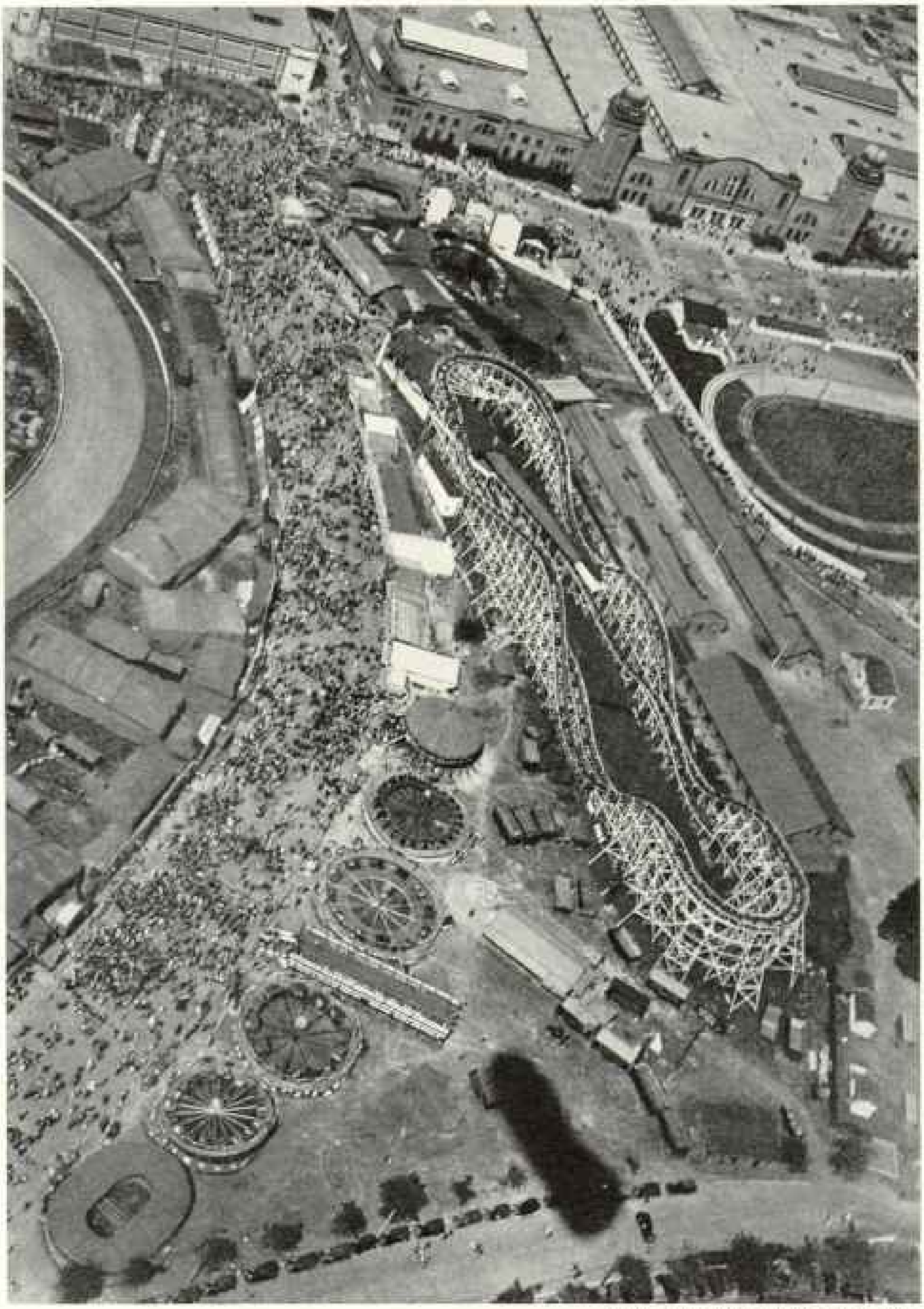
You cannot find a "typical Ontario face" any more than you can identify a home-town mind in America. Racial origins are too diverse.

When Col. John Graves Simcoe, first Lieutenant Governor, set up his new capital at Niagara village in 1792 and offered free land to all comers ready to serve the King, a stream of immigration began which was to form the character of the new province.

For years a steady flow came from the United States. Some were German Lutherans and Mennonites; many were United Empire Loyalists; but from Scotland, England, and Ireland came another stream. Immigration has never stopped. Toronto to-day has an "East Side" as polyglot as New York's, though not so named. Incidentally, perhaps 50,000 of its residents were born in the United States. Of late years the French from Quebec, with their language, faith, habits, and newspapers, are drifting steadily west, in north Ontario.

Finns, Russians, Poles, Germans, and Chinese pack the mines and lumber camps. Greeks, Syrians, and Italians are here, engaged as cooks, waiters, barbers, bootblacks, gardeners, dry-cleaners, peddlers, hucksters—many growing rich, just as in the States. In one country-town hotel I identified five different races among the help. In mining towns like Sudbury, group after group may pass you in the Saturday night parade, their talk a lingual riddle such as fell on ancient Babylon.

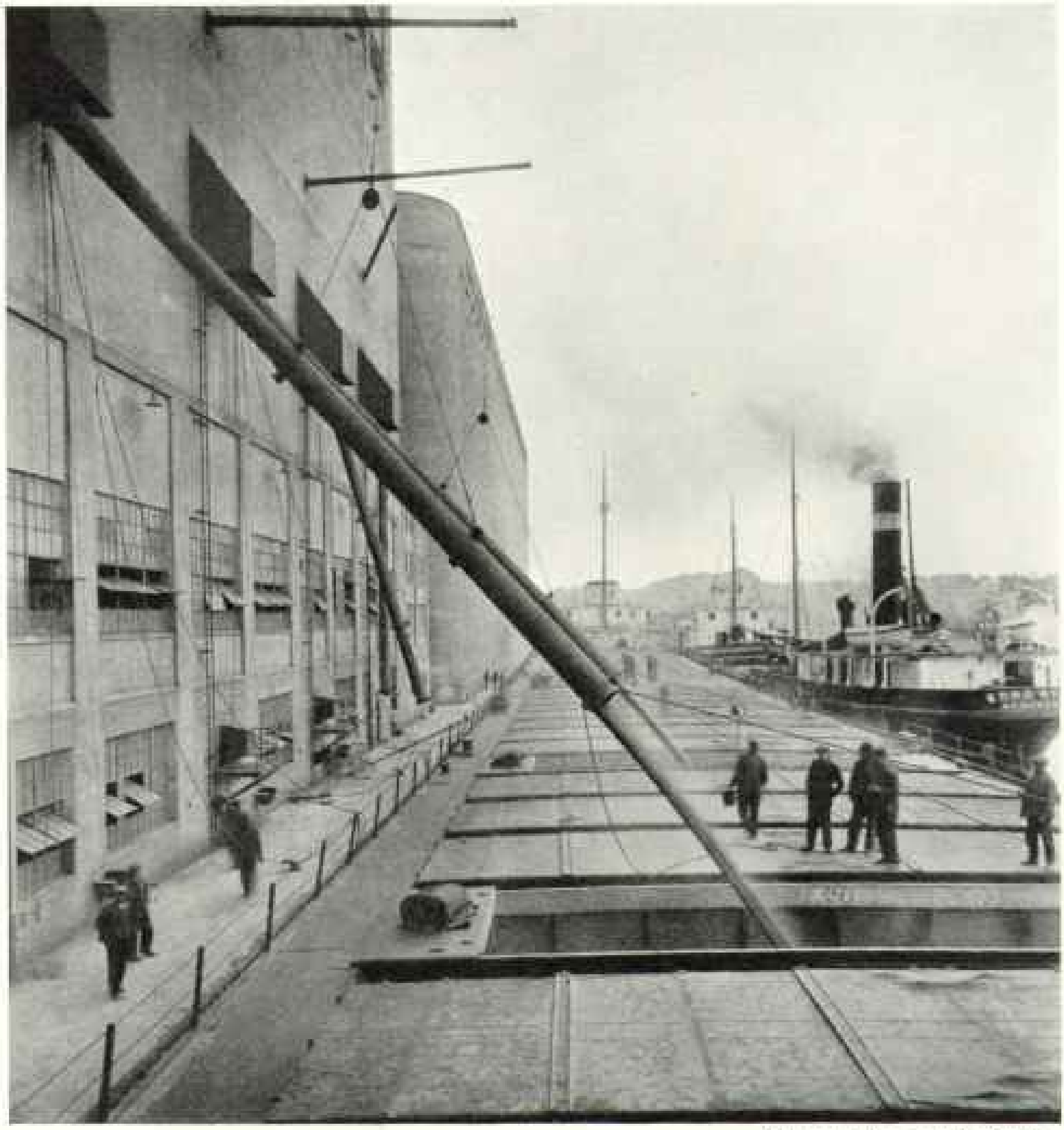
Yet, pick the census reports to pieces and you see how completely British Ontario is, how predominantly English-speaking.



Photograph by Pringle and Booth, Ltd.

THE "MIDWAY'S MILE OF MERRIMENT," AT THE CANADIAN NATIONAL EXHIBITION, HELD EACH YEAR IN TORONTO

Art, industry, music, sport, pageantry, science, wild life, and historical displays—all are part of this great fair, founded at Toronto more than 50 years ago. About 2,000,000 people attend, mostly from Canada and the United States, some from distant lands. In the foreground the dirigible from which the photograph was made casts its shadow.



Photograph by Lovelady Studios

POURING WHEAT FROM AN ONTARIO ELEVATOR INTO THE HOLD OF A LAKE SHIP

Grain trains from western Canada converge at Fort William and Port Arthur, on the northwest shore of Lake Superior (see, also, page 168). In one year elevators here have received 230,000 carloads of wheat. The unloading record for one day is 2,748 cars. To transfer grain from elevators to ships, tubular spouts pour wheat into all of a ship's hatches at once—as much as 550,000 bushels in five hours into one great vessel. The largest shipment of grain in any one day was on November 29, 1928, when 6,395,814 bushels were shipped from the lakehead.

Proof is in the printing. A truly astounding stream of English dailies, weeklies, magazines, books, and pamphlets, sacred and profane, rushes from Ontario's ever-whirring presses. The catalogue of the Toronto Public Library shows that of the 880 books written in or about Canada, or by Canadian writers, and circulated in 1930, all but 124 were in English. And Ottawa, with its Royal Flying Corps, King's Representative, Parliament Houses, red mail wagons, helmeted policemen, and afternoon teas, is unmistakably British.

SERENE AND DIGNIFIED IS OTTAWA, CAPITAL CITY OF CANADA

Like Guadalajara, Ottawa awakens to the music of bells. Fifty-three of them, in

Drawn by C. E. Riddiford

THE PROVINCE OF ONTARIO IS THE HEART OF CANADA

One-ninth of the area of all Canada and one-third of the Dominion's population are included in Ontario's borders. The number of its square miles exceeds those of Texas, Mississippi, Arkansas, and Louisiana combined.

size from 10 pounds to 10 tons, hang high up in the slim, graceful Peace Tower of the Parliament Buildings (see page 132).

Mellifluously they ring out the fleeting hours. Majestically they thunder forth the power and glory of their giant melody when twice a week the carillonneur strikes their keys. Then all Ottawa halts to hear; strangers, astounded, marvel as tidal music echoes through city streets, floats across rivers, and floods the very heavens.

Then you may hear "God Save the King" or the solemn music of some famous old Anglican hymn. Again, in keeping with the day or the musician's mood, it may be a Beethoven sonata, "Robin Adair," or even "The Girl I Left Behind Me."

Owls, wolves, and waterfalls made music for Champlain, who, in 1613, led the first white expedition to this region; and nearly 200 years passed before it was colonized. A Moses from Woburn, Massachusetts, named Philemon Wright, led the first settlers. In 1800 he ventured up the Hudson, across Lake Champlain, down the

Photograph by Pringle and Booth, Ltd.

LIKE A LONG LINE OF LEAPING FROGS, CONTESTANTS JUMP OFF IN A SWIMMING RACE AT THE CANADIAN NATIONAL EXHIBITION (SEE, ALSO, ILLUSTRATION, PAGE 137)

Two hundred swimmers from many countries, each covered with a heavy coating of grease, hopped off at Toronto for a 15-mile water marathon, where cash prizes aggregated $25,000.

Photograph by Lyman B. Jaches

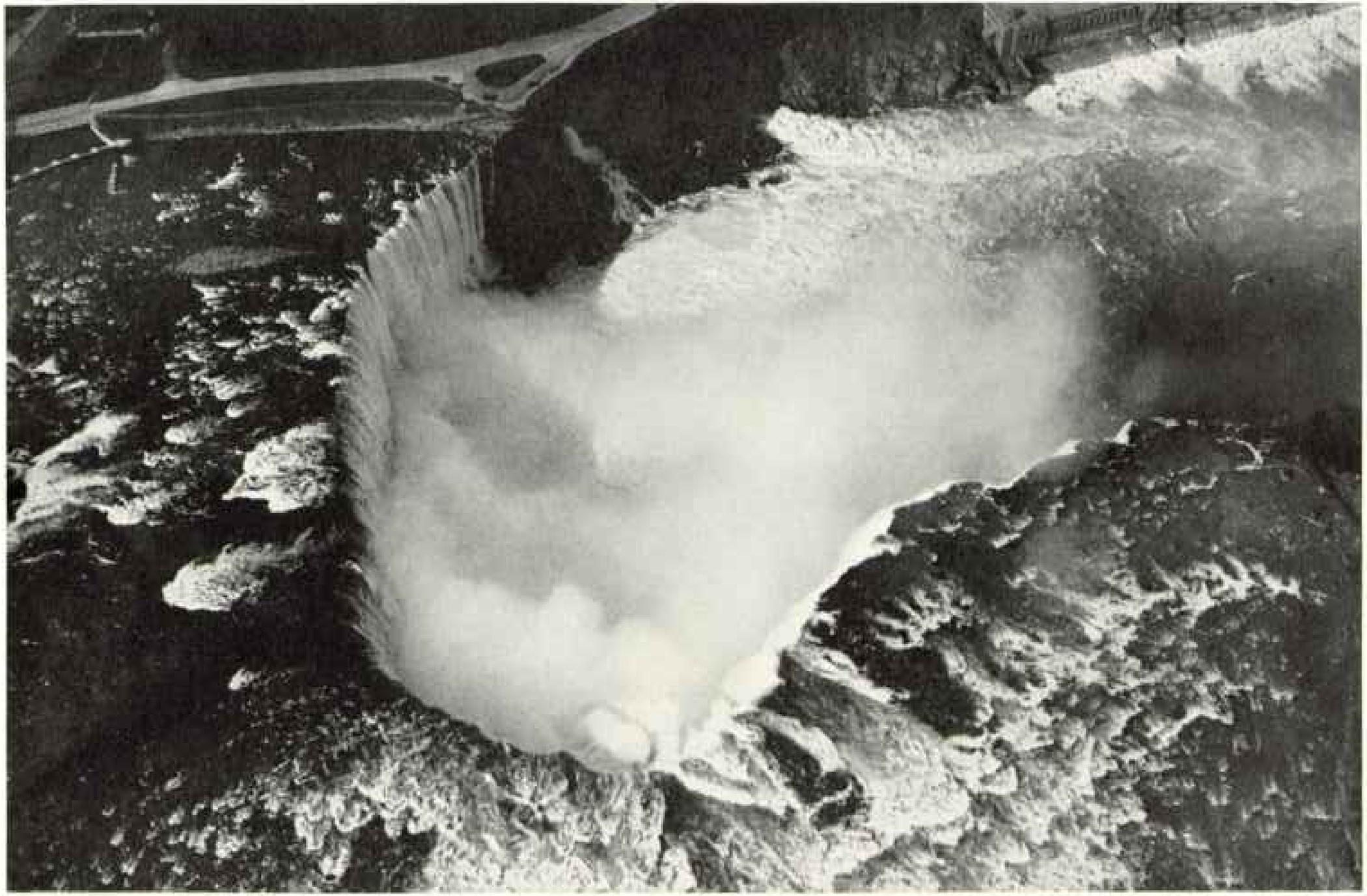
ONTARIO'S PRIME MINISTER, HIS CABINET, AND OTHER PROVINCIAL OFFICIALS OCCUPY THESE PARLIAMENT BUILDINGS IN QUEEN'S PARK, TORONTO

Toronto, as the capital of Ontario, is headquarters for the many legislative and executive members of the Provincial Government. The light-colored edifice at the right, recently erected, is known as the East Block and houses many Government bureaus. In Toronto also resides the Lieutenant Governor, local representative of the Governor General of Canada and, through him, of the King.

Photograph by William A. Konrad.

WHERE THE NEW WELLAND CANAL ENTERS LAKE ONTARIO AT PORT WELLER

Two artificial embankments extend nearly one and a half miles out into Lake Ontario to form this harbor, whose entrance is 400 feet wide. The harbor is more than a mile long. Photographed at an elevation of 1,000 feet.



Official photograph, U. S. Army Air Corps

THE HORSESHOE FALLS OF NIAGARA ARE RECEDING ABOUT SIX FEET A YEAR FROM THE WEAR OF THE GREAT TORRENT ON THE RIM

Goat Island separates Niagara Falls into two parts. The Horseshoe, or Canadian Falls, on the Ontario side, are about 10 feet lower than the American Falls, but more than twice as long.

A NEW SPORT STARTS IN ONTARIO—THE TORONTO HUNT CLUB AT LADY EATON FARM

THE UNIVERSITY OF TORONTO, FIRST KNOWN AS KING'S COLLEGE, WAS CHARTERED BY GEORGE IV IN 1827

Here is the largest enrollment of any seat of learning in the British dominions. It sent 5,300 men to the World War, of whom 600 fell. Right center, Hart House; upper center, University College; domed edifice in upper left, Convocation Hall; at extreme right, Wycliffe College; the library, with tower and dormer windows, at left center (see, also, text, page 176).

DOWNTOWN TORONTO, WITH ITS RECLAIMED CENTRAL HARBOR ZONE

Nearly all the area in the foreground was under water a few years ago. Like many other Canadian cities, Toronto began as a fort and fur trading post. In 1749 the French founded it, as Fort Rouille. By 1793 it was a village of 800, when the English succeeded to it. Col. John Graves Simcoe, first Governor of Upper Canada, named it Our Royal Town of York, in honor of the Duke of York. In 1834, with 9,000 inhabitants, it became Toronto, the old Indian name for its site.

Photograph by Pringle and Booth, Ltd.

PRIZE-WINNING HORSES PARADE AT A TORONTO LIVESTOCK SHOW

Riders and horses from Germany, Austria, Sweden, Ireland, the United States, and elsewhere give the Royal Agricultural Winter Fair an international character. The amphitheater of the Royal Coliseum, with its buildings for cattle, sheep, and swine, covers 20 acres.

Photograph by Pringle and Booth, Ltd.

ON THE TOBOGGAN SLIDES IN A TORONTO PARK

Richelieu to the St. Lawrence, and then up the Ottawa River. He liked the country and settled at what is now Hull. A New England friend of his, Nicholas Sparks, broke the sod to farm where Ottawa now stands, and one of its busy streets is named for him. These pioneers, rafting logs down to Quebec, started the great Ottawa River lumber trade which was to supply so much ship timber and so many masts for the Thames and Clyde.

Your train, as you reach Ottawa, halts almost in the lobby of a vast, châteaulike hotel. Only a few paces, by subway, and you step unexpectedly into crowds of Englishmen smoking pipes, gesticulating French politicians from Quebec, and animated women strolling toward a ballroom where mincing manikins sway to music in new-model coats and gowns.

AMONG WORLD CAPITALS OTTAWA IS VERY YOUNG

When Parliament is in session Ottawa is swept by the same turbulent cross-currents of society and politics that excite the capitals of other great nations; but when the delegates go home it calms down to bureaucratic routine. It runs Canada's home and foreign affairs, mints her money, lives a quiet, orderly life, and listens to the bells.

Ottawa is very young, as cities go. It had but 20,000 people in 1858, when Queen Victoria chose it as the capital of Canada, which then embraced only the two provinces of Quebec and Ontario. Yet you see how swiftly world conditions change, when you look at the shallow Rideau Canal and its tiny locks at Ottawa. At the suggestion of the Duke of Wellington, the Royal Engineers built this canal for military use.

"It seems amusing to us now," says a Canadian writer, "that this waterway was intended to be used as a means of getting British gunboats from the St. Lawrence into Lake Ontario without having to travel the international section of the St. Lawrence, where they could be attacked by guns on the American shore." But in 1826, when this canal was begun, the War of 1812 had not been forgotten.

In the five years it took to build the Rideau Canal, the construction camp and barracks about the farm of Nicholas Sparks grew to a permanent settlement. Ottawa was first known as Bytown, after

THE START OF A DOG-TEAM RACE AT THE OTTAWA WINTER CARNIVAL

Colonel By, of the Royal Engineers. He induced Sir John Franklin, returning from the Arctic, to stop here and lay the cornerstone of the canal locks.

From time-faded pages of early-day newspapers, from museums, in talks with students of pioneer times, you learn how this Province was carved from the wilds, just as Virginia, Missouri, and California were. It went through exactly the same cycles of life, with much the same social, cultural, and economic changes.

Ask any question you will about Canada's history, its people, or the growth of its schools, trade, or industries, and Ottawa can answer. It is packed as thick as Washington with Government offices.

In its archives are dramatic documents which show how closely Canada's career is woven with our own. Here, in original handwriting of early French explorers, are tales of their pioneer exploits on what is now American soil; the annals of French officers who fought along our frontier, and the records of many men born in the States who later helped make Canada.

"The history of our city," people here will tell you, "grew out of the history of the Ottawa River itself; it is to our capital what the Potomac is to Washington or the Seine to Paris. . . . Men used it as a highway long, long before Ottawa the city was dreamed of."

WINGS OVER ONTARIO

With characteristic audacity, Ontario takes to the air.

"Let us zoom my 80-year-old aunt!" shouts your pilot, his voice hollow in the earphones. "She lives in that village down there." Dizzily you see fields swing over to where sky was a second before; your safety belt tugs queerly at your tummy, as the tiny Moth flutters on wing ends. Then down you dip—down, down—whizzing through whistling wind, to wheel and bank and cut quick, giddy circles barely above the shingle roofs of this Ontario village.

"There she is, waving," bawls the pilot's voice again, and you look over the cockpit's tilting edge to see an old lady in a tiny garden, an arm upraised in greeting. Then the youthful pilot "zooms" the town, till it must echo with the motor's roar, bringing people pell-mell into streets and back yards—and you're gone again.

"I've been 32 times across the continent, but never to Niagara Falls," you shout into the tube, at the pilot behind you. "Let's

RACE FANS VIEW THE INTERNATIONAL DOG DERBY AT OTTAWA

From Maine to Alaska mushers are lured by this exciting race. In one derby, when a dog fell and was hurt, its driver put it on his sled and finished the race with his team short one animal. The race is run in laps, over three days. In 1930 the 100-mile course was run in eight hours, 13 minutes, and 23 seconds.

fly over there." You do—over the west end of Lake Ontario—over Hamilton, the Panamalike locks of the new Welland Canal, over historic St. Catharines region, with its memories of Laura Secord and General Brock, and on to incomparable Niagara (see, also, page 143).

PANORAMIC NIAGARA SEEN FROM THE SKY

Calm and placid as a pond the river seems, above the Falls. From a mile overhead, even the tumbling cataract stands fixed and still, as in a photograph. Only the *Maid of the Mist*, staunch old tourist boat, bucking the current with a load of sight-seers, plowing into the vapor clouds below the Falls, thaws the motionless picture and makes it live. Downstream and over the Whirlpool you fly; it, too, seems frozen, like a copy of a real whirlpool cast in glass. From the air, too, you see how erosion affects the rim of the Falls.

Back over Canada and down at Chippawa Field for gas. But the gas house is locked, the man gone. "O. K. We'll gas up at Hamilton," says the pilot. And you fly on to that city, to its astonishingly well-equipped airport, with long cement runways.

Only 19 gallons to fill the tiny tank of the Gypsy Moth. Like a tin-can flivver tourist of the air, you hop from town to

Photograph courtesy Royal Canadian Air Force

ITS TEN UNITS, WITH A CAPACITY OF 550,000 HORSEPOWER, MAKE THE QUEENSTON–CHIPPAWA THE LARGEST SINGLE HYDROELECTRIC POWER DEVELOPMENT ON EARTH

Water comes through a 12½-mile canal from Chippawa, above the Falls, to the top of the lower Niagara River gorge, near Queenston. This plant, which is owned cooperatively by municipalities and operated by the Ontario Hydroelectric Power Commission, popularly known as "the Hydro," supplies current to many centers in south Ontario.

town, stopping for gas. Back over the lake now, then over neat checkerboards of farms and vineyards, over crawling trains and a network of highways that cuts the country into township squares, over sumptuous tile-roofed lakeside homes set in hedged gardens, west of Toronto.

Besides its forest-fire airplane patrol, its well-known army air service, and the wide use of planes in northland surveys and explorations, Ontario's success with nine flying clubs is unusual.

Aided by the Government, such clubs flourish now in 22 Canadian cities. In Ontario you find them using their own planes and leased airports at Ottawa, Toronto, Kingston, Brantford, London, St. Catharines, Kitchener, Windsor, and Fort William.

If a city wants a flying club, it must supply a field, an instructor, an engineer, 10 trained pilots, and at least 30 members willing to be trained. Then the Department of National Defense will provide the young club with two new trainer-type aircraft in the first year; in each subsequent year one additional plane for each one bought by the club itself. This plan is

Architects, Darling & Pearson.

THE CANADIAN BANK OF COMMERCE, AT TORONTO

Officials of the institution which owns the handsome structure proclaim it "the highest building in the British Commonwealth."

unique in North America, and the Dominion Government adopted it to develop public airmindedness, to train private and commercial pilots, and to build up a military reserve corps.

PLANES SPEED UP THE TEMPO OF LIFE

Doctors, lawyers, merchants—men of varied occupations—join these clubs. The youth who flew me to Niagara Falls and "zoomed" his aunt's home town is a motor-car salesman.

But all Ontario doesn't fly just for fun. In 1930 the forest patrol made 11,841 flights and detected 360 fires. The saving of valuable timber by timely discovery of fires probably paid the annual cost of the whole provincial air service.

Planes, plus air photography, have already told Ontario more about parts of its hitherto-unexplored north than it might otherwise have learned in generations.

On Moose River I saw fur trappers with dogs, traps, snowshoes, and food ready for shipment by plane far up the east coast of Hudson Bay. Some newly found mineral deposits are reached only by plane. The little town of Sioux Lookout, in northwest Ontario, has a year-round air freight service, despite the extreme winters. From here hundreds of tons of freight go quickly by air into regions otherwise inaccessible, except by hard, slow canoe or dog-sled transport.

Here, too, the photographic section of the Royal Canadian Air Force is carrying out mapping projects never equaled elsewhere in extent. From a Hudson Bay post I flew with Captain Emery, engaged in making air maps of a vast country, much of which has been till now unknown to white men. These planes lay out the land to be mapped, and then fly back and forth like a man plowing long furrows.

AROUND THE BYWAYS OF ONTARIO

"My country cousin trapped 47 wolves last winter," says your taximan at North Bay. "The bounty on each pelt was $15; and, besides that, he sold the skins at a good price. He made more money trapping than farming."

From Burleigh Falls our winding dirt road ran north to Algonquin Park through frosted autumn woods ablaze with colors. From a hilltop one stretch of gold and crimson unfolded like the pattern of a ten-mile Paisley shawl.

THE CANOE IN SUMMER AND THE DOG SLED IN WINTER ARE THE CHIEF FORMS OF TRANSPORT IN THE WILDER PARTS OF ONTARIO

Even where back-country highways exist, as around Kirkland Lake, Timmins, and Cochrane, people store their motor cars because of snow and take to snowshoes and dog sleds from autumn till late in spring. Dog teams meet a Canadian National train at Gogama, in the Sudbury District.

BAY STREET, IN THE HEART OF TORONTO'S FINANCIAL DISTRICT

In the background, with a high clock tower, is the City Hall, a massive stone structure dating from 1899. It houses the City Council and municipal officers and the Police Court.

"The big event for us every fall is the National Exhibition at Toronto," said a farmer. "The whole countryside goes and takes all the kids. . . . The Fair people have a station fixed up to care for lost children. Nurses are good to them; give them candy and ice cream. Last year the same kid was 'lost' three times in one day."

Beyond Oshawa, on the scenic lakeside ride to Kingston, you pass through miles of fine farms settled by United Empire Loyalists. These were British subjects who migrated here from New England and other American colonies during and after the Revolution. "Tories," we called them then.

Near Peterborough 52 men were plowing one field at the same time; tents were set up, booths, lunch stands, like a county fair. "That's the annual meet of the International Plowing Matches," explains your host. "Yesterday 166 men competed. They come from far and near. Some ship their plows and use local horses; others bring their own teams. There's a time limit in which competitors must finish the piece of sod or stubble allotted them; but their work is judged by uniform proper depth and straightness of furrows."

FRUITS AND FLOWERS FLOURISH IN THE BALMY SUMMERS OF SOUTH ONTARIO

Visions of snowshoes, dog sleds, and blizzards used to rise in mind when we heard the word Canada. Ottawa was amused one day last summer. The thermometer stood at 100 in the shade, when along came a woman in knickers, driving a Middle West flivver with a pair of snowshoes lashed on behind. Yet Lower, or older, Ontario has a milder climate than many regions in the States. Apples, grapes, berries, fruits of many kinds, and flowers grow here as profusely as in the Mississippi Valley. Even orchids! Under glass, it's true. But how many Americans know that at Brampton, Ontario, one may see 70,000 orchids blooming? They are shipped to Halifax, to Vancouver, even to Louisville and New Orleans.

But how, you ask, can so delicate a flower be shipped so far? Though swathed in tissue paper and cotton, the real trick is this: each stem is pushed through a hole in the rubber cap of a test-tube filled with water. Thus the orchid drinks as it rides, and gets there fresh and vital.

AN ONTARIO FOX FARMER

Fox, lynx, beaver, mink, fisher, raccoon, skunk, marten, and muskrat all grow in captivity on Ontario fur farms. More fur of both wild and tame animals is marketed from Ontario than from any other province of Canada. Muskrat leads in all trapped pelts. By law, only Indians may trap otter and beaver.

There are two Ontarios, because the Province runs north through about 1,000 miles of latitude, reaching far up the western shores of Hudson Bay. The climatic contrast strikes you when you leave the balmy region of fruit and flowers and strike north past Georgian Bay and into the wild, wooded Timiskaming country. Up there you begin to see how much of Ontario is a rocky crust with thin dirt on it, and myriad puddles growing to lakes—and billions of trees. From North Bay up to Cochrane, on the transcontinental line of the Canadian National, the Government-owned Temiskaming and Northern Ontario Railway splits this amazing land of lumber, gold, silver, copper, and wild animals.

WHERE A MOOSE MAY GRAZE ON A GOLF COURSE

In an observation car of this "T. and N. O." I fell in with two Canadian geologists returning from research work at Harvard.

"The first time I rode this line," said one of them, "the conductor stopped the train so passengers could watch three wolves chasing a moose across a frozen lake."

But the older geologist was talking now, relating a long story of his adventures in the copper fields of Bolivia. The other, I observed, was twisting in his chair—anxious to say something, but too polite to interrupt his senior. At last the Bolivian saga was finished and I turned to the younger man. "What were you about to say?"

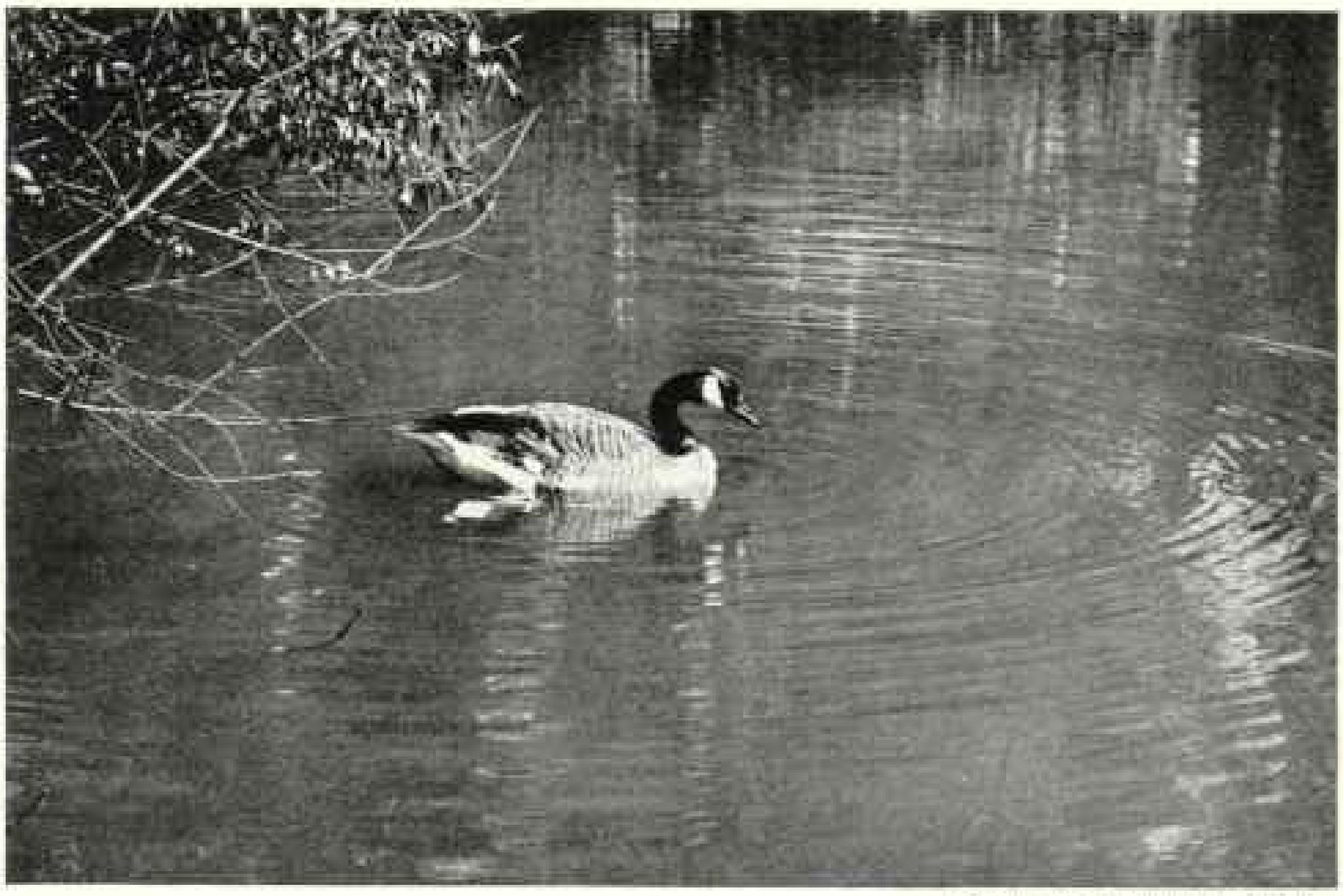
"Nothing now," he murmured. "I *did* want to call your attention to a moose that was swimming that little lake we just passed."

Back in Ottawa, at our legation, I told this tale. "You should have stayed here to see a moose," observed a secretary. "Yesterday one wandered in near our Rivermead Golf Club; . . . then off into the bush along the Ottawa River. And last year many early risers saw deer in the streets of Aylmer, near Ottawa; and one

Photograph by Ernest G. Halt

WILD GEESE RESTING AND FEEDING IN AN ONTARIO PRIVATE SANCTUARY

Years ago Jack Miner, an amateur naturalist, placed a few decoy geese on a small pond formed by an old brickyard excavation near Kingsville. For the first four years, no passing wild geese halted to visit the decoys; then 11 came. The following spring the 11 returned with 32 more; these migrated, returning the next season with about 250. Now, after 28 years, the ceaseless flights of wild geese calling at the sanctuary can no longer be counted (see, also, page 175).



Photograph by Lyman B. Jackes

THE CANADA GOOSE IS ONE OF OUR LARGEST WATERFOWL

The "honker" nests chiefly in the unfrequented territory of the far north, where its only enemies are the wild beast and the roving Indian; it spends its winters in the Gulf Coast States, in central Mexico, and Baja California.

actually grazing in the grounds of the Aylmer convent. This year bears got so hungry, even near the busy city of Hull, just across the river in Quebec, that farmers had to get up nights and go shooting, to save their pigs and sheep."

Brilliant aurora borealis set the northern skies afire one unforgettable October night. Giant bright streaks, infinite leagues long, formed into an almost perfect horseshoe. All along the polar horizon rose black shadows, as serrated as the slopes of midnight Alps, and playing over these peaks were the long rays like a sunrise, shooting searchlights athwart the sky. They moved like the burning spokes of a colossal wheel.

THE LAST OF THE REDSKINS

On a fishing trip we saved all the pie and cake for the Indian guides. My canoeman spurned fish, his age-old diet, but wolfed a whole raisin pie and six hard-boiled eggs. "At farm, factory, or road work, these noble redmen are a total loss," said a mounted policeman. "They fish and trap a little and paddle the summer tourists around; that's all." But in early days it took more than raisin pie to calm the Indians. Life was one long melodrama then, enshrined now in Ontario song and story.

Out near Brampton you may still find traces of that once warlike group, the Six Nations, or Iroquois Confederacy. They were the Senecas, Oneidas, Cayugas, Onondagas, Mohawks, and Tuscaroras. Here, on Grand River, the British gave them land. Their Mohawk church, built in 1787, still stands. And here is still kept part of the communion service given the Indians by Queen Anne.

Written big in local history is the name of Joseph Brant, or Thayendanegea, a Mohawk chief. He went to London and met the King, the ministers, and nobles, and was the friend of Boswell, biographer of Dr. Johnson. He fought with the Loyalists in the American Revolution, it will be remembered, and helped translate the New Testament into Mohawk.

HUNDREDS OF AMERICANS HAVE BUILT THEIR FACTORIES HERE

Peer out of your berth the morning your train reaches Toronto or Hamilton. Look at the familiar names on factory signboards. There seems hardly any well-known United States product that is not also made in Canada under the same trade-name. Scattered over all southern Ontario you see factories making farm and other machines, motor cars and parts, chemicals, electrical goods, foods, items of rubber and glass. Familiar advertisements run in the papers; window displays are the same as one might see in Pittsburgh or Minneapolis.

The reasons for this migration of American industries are plain: proximity, common language, similar tastes and living standards, and particularly the import tariff; also, many American firms too small to finance a factory in far-away Europe or the Orient have here only to move across the line.

"What share of all the things you sell is made in Canada?" I asked at a sporting-goods shop.

"About 80 per cent now," said the clerk; "and it's growing each year. All these bicycles, sweaters, fishing tackle, hats and balls, boots and socks—they are all Canada-made."

Fifty years ago, as in our own rural areas, the manufactory in Ontario was the small workshop or the farm home. The crossroads smithy did the metal work for the farmer, the country home loom supplied clothing; families made their rough furniture, while one-man tanneries prepared leather for the country cobbler. By 1885, however, new railways began opening the western provinces of Manitoba, Saskatchewan, and Alberta to settlement. In time the amazing growth of prairie farms created such a demand for tools and machines that the small workshops of Ontario rapidly grew to big, busy factories. To-day they make half, by value, of all products manufactured in the Dominion.

ONTARIO IS A STOREHOUSE OF MINERAL TREASURES

You think of Bret Harte's "Roaring Camp" when you see Kirkland Lake's gold camp on Saturday night. In crowded, crooked streets a dozen men to every woman; stores open till midnight—even the hardware and furniture stores. Some human sacrifice to Bacchus, but very few idle men. Finns and Chinese wearing 20-dollar gold pieces as watch charms; a crowded movie showing "Ten Nights in a Barroom"; brawny Russian miners

Photograph by Capt. E. S. Covell

POLING A CANOE UP THE BRANCH RAPIDS OF THE MOOSE RIVER

These men are going south to civilization from Moose Factory, a Hudson's Bay Company post which for 261 years has depended on canoes for transportation. Now a railway stretches north, the first into the James Bay region (see, also, text, page 160).

sprawled in barber chairs, getting an over-Sunday polish; the smell of fresh-cut pine and the noise of saws and hammers, as bohunks work by flood-light on a new "hotel"; young engineers in caps, sweaters, and high-laced boots socially playing cards in a crowded lobby, snapping the cards down noisily.

You get off the bus from Swastika at a rambling wooden hotel to find a room. "I have two heavy bags out on the porch," you say to the landlady who tosses you a key. "Bring 'em in," she suggests, turning back to watch the card players. And you hustle your own baggage up two flights of stairs and hunt the room yourself.

Outside a kilted bagpipe band goes whining by, on its way to a Legion party; motor cars file past, bringing a shift of miners, tin lunch boxes in hand, from a mine which that day yielded one hundred and twenty-two thousand dollars' worth of gold.

For, be it known, 78 per cent of Canada's gold is found in the 30-odd fields of Ontario. And this boom town of Kirkland Lake—with its Teck-Hughes, its Lake Shore, Kirkland and Wright-Hargreaves Mines, where men bore holes 4,000 feet deep—is one of the greatest gold centers.

HOW THE WORLD'S GREATEST NICKEL DEPOSITS WERE FOUND

Go to Sudbury, home of the great International Nickel Company and of the Frood Mine, and the rush and roar is the same. Here still more Finns, a "Finnlandia" café, and Finns buying talking-machine records of Finnish songs, and Finns squatting about shoe shops and cigar stands, playing more Finnish tunes on mandolins and singing boisterous Finnish songs in a "beverage bar."

How dramatic the story of Ontario nickel, first found by accident! Some old-looking "red mud" drew the attention of a worker, in building the Canadian Pacific Railway, during 1883. The red mud was nickel ore. Then the world used only 200 or 300 tons a year. However, a Glasgow engineer, James Riley, in 1889, found how to harden steel with nickel. Soon the United States Navy began to use nickel-

Photograph by D. Y. Solandt

RAGING FOREST FIRE ENDANGERS A MINING SETTLEMENT IN THE RED LAKE AREA

Lightning started this fire. By the time it spread within reach of fire-fighting equipment it was a mile-wide field of flames, swept through the tree tops by a roaring gale. The top of the smoke column is more than 5,000 feet high. In the right foreground is a gold-mine settlement, with its newly constructed mill. The camp was saved by its own clearing and a vagary of the wind.

steel in armor plates, and other navies quickly followed. The World War kept Canada digging nickel day and night.

After peace, when the Washington Disarmament Conference reduced battleship building and cut the demand for nickel, the International and the Mond Nickel companies, now consolidated, acted with courage and resourcefulness. "By technical research they found new uses for nickel," says Thomas W. Gibson, Deputy Minister of Mines. "Now it is shown to be as useful in the arts of peace as in the shock of war, and the mines of Sudbury supply 85 to 90 per cent of the world's consumption."

GOLD OUTPUT INCREASES MANY FOLD

In 1911 Ontario mined only about forty-two thousand dollars' worth of gold.

In 1931 more than forty-three million dollars' worth was recovered. From only about $2,500,000 in 1900, Ontario's output of all metals has increased enormously. In 1931 it was nearly $73,000,000.

Before 1900 the inaccessible region between Lake Nipissing and James Bay was but little known, except to a few Indians and scattered fur posts of the Hudson's Bay Company. Now and then a survey party crossed the area, but travel was confined to canoe routes over streams, lakes, and portages. The trackless spruce and jack-pine forests lay undisturbed.

Just as Canadian Pacific Railway builders by chance uncovered the world's greatest nickel body at Sudbury, so men grading for the new Temiskaming and Northern Ontario line found the famous cobalt-silver deposits in 1903. Then, in 1909, came the great gold finds at Porcupine, where the Hollinger Mine became one of the world's leading producers, and the gold rush to Kirkland Lake in 1912.

The excited quest for gold and silver, following these rich strikes, begot a new group of prospectors, trained in the lore of northern woods. In time they explored the hitherto little-known regions along the

LOADING A FRUIT TRAIN AT GRIMSBY

More words and pictures are published abroad about her skis, skates, and dog-sled races than about Ontario's farms; yet her garden spots are among the most productive in North America.

new railway, from North Bay up to Cochrane, on the Canadian National line. In Ontario mining history, it is a curious fact that the first important silver find was made on an islet, only 80 feet across, situated in Lake Superior, off Thunder Cape. Into this tiny speck of rock a hole 1,230 feet deep was dug, from which $3,500,000 in silver was taken.

RAILS NOW INTO A NEW NORTH

From Cochrane north we rode the "Polar Bear," T. and N. O. triweekly accommodation train, reminiscent of our pioneer Union Pacific in early travel across the plains. "We call it the triweekly," said one wag, "because it goes up one week and tries to get back the next."

Miners, cooks, hunters, guides, Indians, missionaries, trappers—but no tourists as yet—wander freely from baggage car back to caboose. You see men bound for the northern wilds loading their canoes, tents, dogs, sleds, snowshoes, traps, guns, and camp supplies—and engineers with surveying instruments.

Farm homes are few and soon disappear altogether, as the train pushes northward. After a few hours the track begins to wind downhill, into the vast marshy muskeg country which lies south of James Bay, the southernmost arm of Hudson Bay.

The Government builds the line to tap speculatively this empty country. One long stretch of rail crosses the Onakawana lignite field, being explored by the Department of Mines, and estimated to hold many millions of tons. High-grade refractory clays are found associated with the lignite.

"Our new North is what your early West was," explains an engineer, "except we shoot moose instead of buffalo, use planes instead of oxcarts, and our scalps are safe from Indians."

Partridges fly up as the slow train rocks along, and you look out on flat, open areas of blueberry and Labrador tea bushes. "Lots of prairie chickens out there," says a game warden. "I coaxed some up with corn during a deep snow and photographed them."

HERE MAN AND HIS WORKS ARE SCARCE

The two women passengers go back into the caboose and obligingly cook lunch there

AN EXPERIMENTAL TOBACCO FARM IN ONTARIO

Although the industry centers in Quebec, Ontario has 24 factories. Cigarette output of the Dominion is valued at nearly $50,000,000 annually. More than half the raw leaf used in Canadian tobacco factories is homegrown.

for the train crew. At a midday stop hungry men leap from the day coach of the mixed train and race to a shack whose signboard reads, "Raw furs bought." At a little counter they gorge bologna, canned peaches, biscuit, and hot tea.

In one corner of the tiny store is a spinning wheel. "An heirloom?" you ask of the Englishwoman behind the counter. "No. I spin yarn and knit the family socks."

Back to the whistling train you dash—miners, trappers, traders, and Indians. Already it is moving, off now for Coral Rapids. Friendly hands pull a panting fat man aboard, barking his shins on the car steps.

From a wayside swamp a flock of geese takes wing, and word comes back that the engineer has seen a moose.

"Yes, an old bull, likely," says a guide. "This is the calling season. . . . Tough eating, the old bulls. We've a saying up here that the only way to cook bull moose is to boil it with a few rocks in the pot. When the rocks get soft, you can bite the meat."

In the smoke-filled coach, rocking through autumn rain, tall tales of the northland multiply. You hear yarns of trappers bitten by otters, the skill of beavers, and of husky dogs that can open a tin of butter with their sharp teeth.

TALES FOR TENDERFEET

"I painted up my decoys last week," asserted an old Timiskaming hunter. "But I overdid it; when I put 'em out and hid in the blind, a hawk pounced down and tried to kill one of them wooden ducks!" In silent reproof, his listeners arose and moved a few seats from him.

At dark we came to Coral Rapids; at that time trains ran no farther. Track was laid beyond, but to the end of steel one had to go by motor speeder or gravel train. Before the rails were laid, all travel was by canoe, on the Moose River.

I saw no women at Coral Rapids—only men in log huts or box cars. On one low-roofed log shack is a sign, "Bank of Nova Scotia." Once a week the "banker" comes to cash checks or sell drafts to workers who wish to send money home.

Photograph by Lyman B. Jackes

THE GIANT MAPLE "WISHING TREE" NEAR PICTON, PRINCE EDWARD COUNTY

Estimated to be more than 700 years old, with a circumference of 18 feet at its base, this tree was believed by the Indians to have the power to grant wishes. It was an Indian custom to hold a bit of birch bark in the hand while making a wish, and then tuck the bark in a crevice of the wishing tree. Some years ago the maple was damaged by lightning.

Dogs are everywhere and still more pipe-smokers in laced boots and big coats.

From our train, tons of beef, potatoes, flour, onions, beans, coffee, and canned fruit were transferred to trucks that ran on the newly laid rails. All this was for workers farther north, where a great steel bridge was creeping across the Moose River.

Noisy debate in French, Finnish, Russian, and Indian filled the darkening air, as men battled for a dry place to sleep.

Here is raw country in the making. By the time these words are printed, sleepers will be running to rail's end, near the mouth of Moose River. Near by is the fur post of Revillon Frères; and, on an island reached by canoe, historic Moose Factory, set up by the Hudson's Bay Company in 1671.

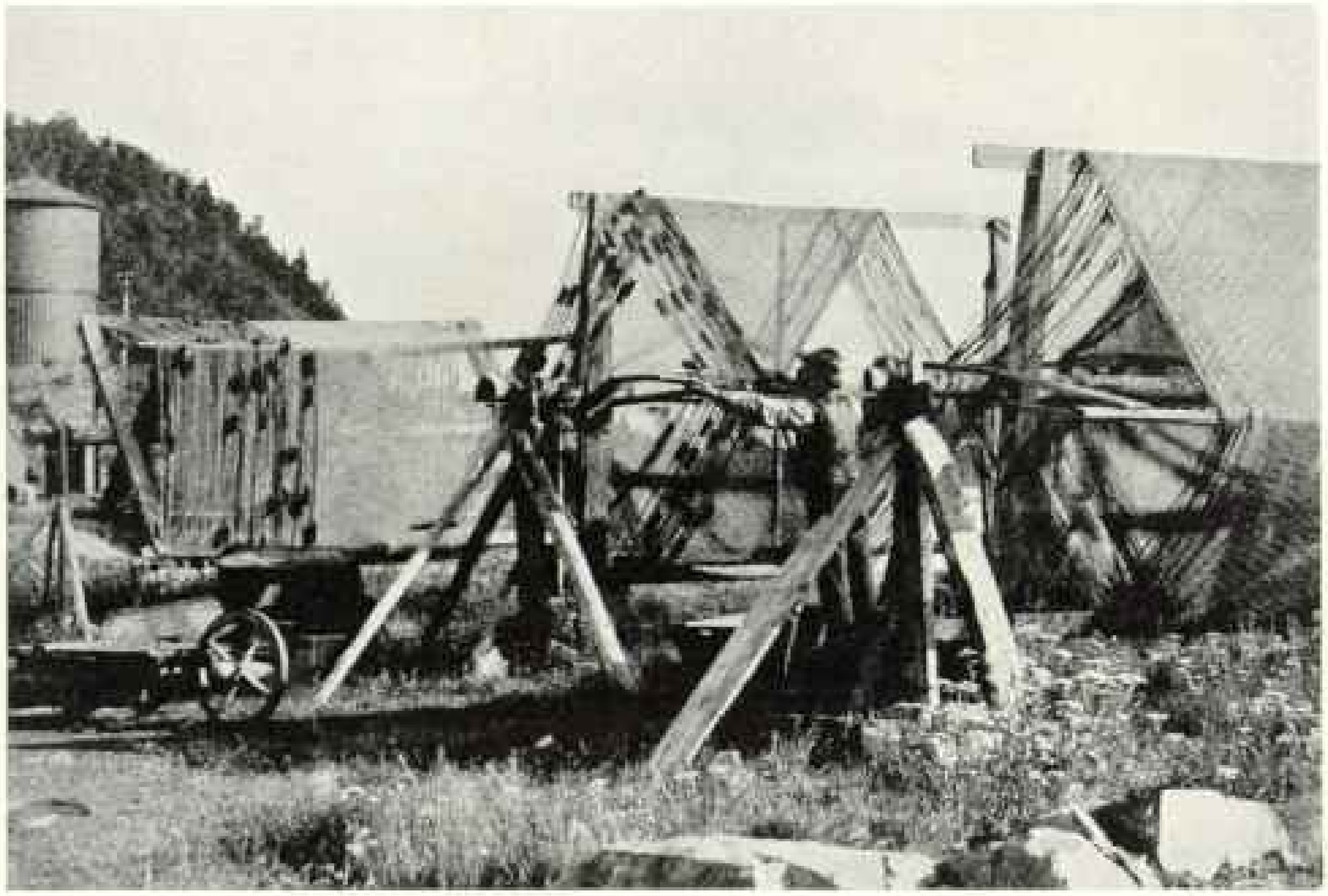
A VISIT WITH THE ANCIENT AND HONORABLE HUDSON'S BAY COMPANY

How Hendrik Hudson, 322 years ago, found the great bay that bears his name—only to be cruelly cast adrift in its icy waters by a mutinous crew—is one of the many historic tragedies of this grim and silent land.

Into the long and exciting annals of the Hudson's Bay Company is packed the utmost essence of romance and high adventure. Like the East India Company, it was formed at a time when groups of rich merchants had the power of governments and Europe knew little of continents overseas.

Formed in 1668 as the "Governor and Company of Adventurers of England," this early commercial enterprise boasted such royal stockholders as Charles II, his cousin, Prince Rupert, and the Duke of York, later James II. Fascinating, almost incredible, as many events are in its long, dramatic career, only a few high lights can be sketched in this story of modern Ontario.

Remember, first, that fur, in those days, was Canada's great and only exploited wealth, and all Europe bid for it. Kings, queens, and their nobility clamored for ermine, for sable (see, also, text, page 134).



DRYING NETS ON LAKE SUPERIOR

Although the "good old days" are gone, when salmon were so plentiful that pioneer women seined them in their petticoats, Ontario lakes and the Great Lakes still yield their share of whitefish, lake trout, and herring.

Remember, too, that the French were already in Quebec, and their *voyageurs* and *coureurs de bois* were trading far up the St. Lawrence, and they already knew at least the southern waters of Hudson Bay. The prize was enormous, with a new world the stake.

You see, then, why the bold British traders built forts on this bay when most of Virginia was still a wilderness; why the French came to sack them, and the ancient northern silence awakened to cannon fire, as rude gunboats, ably manned, fought battles over fur.

French and Indian wars, Wolfe, Montcalm, the Plains of Abraham, Bunker Hill, Valley Forge, Cornwallis's yielding at Yorktown, and the passage of time—all had effects on Ontario's changing fortunes.

But, through time, war, and vicissitudes, the great Hudson's Bay Company survived and came to own and rule over the major portion of what is now the vast Dominion of Canada.

For generations much of its traffic between Britain and this northland was not up the St. Lawrence Valley, but directly through Hudson Strait, and thence to posts about the bay. Even now, the only contact some of its far-flung posts have with civilization is the annual visit of a supply boat coming via the strait from the outer world.

This explains why Moose Factory, for example, for more than two centuries has had so little contact with civilized parts of Ontario.

SOON THE RAILS WILL BRING THE TOURIST

To-day its isolation has departed. As I write, for the first time in its 261 years of life, Moose Factory is sending a shipment of fur south over the new railway, and thence to Montreal.

Via the railway, it awakes to see its first locomotives, steam shovels, electric lights, and telephones. I watched some half-breed Indians who for the first time beheld a railway train, and gone was all the tradition that redmen show no emotions! There was a white boy of 14, born far up in the northern wastes and brought down to Moose Factory, where the missionaries have a horse.

Photograph by Lyman H. Jackes

BATHING AT WASAGA BEACH, IN THE GEORGIAN BAY DISTRICT

The extreme southern tip of Georgian Bay is noted for its sweeping beaches of fine white sand.

"It's a horse!" he cried proudly. "I know it by its pictures!"

I talked to children in the Anglican Church School at Moose Factory. A few were Scotch, most of them Indians, and here and there a shade of Eskimo blood. They were cutting pictures from old issues of THE GEOGRAPHIC and tacking them on the wooden walls. And there was a photograph, too, showing ice piled 20 feet high before the mission, which may happen in flood time, when ice comes down the Moose.

"See these big corks in our floor?" said the English teacher. "Well, several times floods moved our church away, and it took much work to move it back in place. Now, in floods, we pull these big corks, let the water up, and then it runs out the windows, and the house doesn't float away. It's easier to clean and dry the floors than to keep moving our church back."

INDIANS TURN FROM PADDLES TO OUTBOARD MOTORS

Under mossy tombstones near by sleep the fur traders of long ago—hardy men of Aberdeen, London, Liverpool—who found life good in these beautiful wilds. The present blacksmith has been here 62 years and still likes it. His shop is Ontario's oldest building. Its primitive forge, bellows, and big anvils are still in use. Locks, hinges, ship's irons—all have been wrought here.

I admired a ponderous handmade key, used long ago to lock the furhouse; the factor gave it to me, to be placed in the National Geographic Society's museum at Washington, and with it some "beaver money," brass tokens bearing the Company's arms. One "beaver" coin, in trade, stands for one beaver skin, the old-time standard of value. There are also fractional tokens, as half, quarter, and eighth beaver. These tokens are, of course, no longer in use.

"Since the World War," observed the factor, "conditions around James Bay have changed more than in the preceding century. Many Indians, for example, now use outboard motors on their canoes. Airplanes have suddenly come into the picture, wiping out distance. We even use tractors around Rupert House for pulling freight sleds. . . . which doesn't mean,

Photograph by H. Armstrong Roberts

UNHOOKING A SPECKLED TROUT CAUGHT IN HAMILTON POOL, ON THE NIPIGON RIVER
The canoe is being handled in treacherous water by two Indians. The rivers and lakes of Canada, their extent and diversity, comprise a geographic marvel of that vast country.

of course, that the Company has given up dogs. In fact, dogs are still used for inspection and mail trips.

"And in remote posts we still follow many old customs. To Indians there, we still advance food, clothing, and traps on their expectant catch. They make their own shoes.

"Our oldest trade item is the 'point' blanket. Stroud cloth, heavy, closely woven flannel, has also been in use for generations.

"Flintlock guns are gone. But the Company still sells muzzle-loaders with caps, ramrods, shot, powder, etc. In the old days the Indian made his own wood traps. Indians may come from a distance of 200 miles on foot and by canoe to bring fur to Moose Factory. The chief articles they now trade for show an increasing dependence on white man's food. They want flour, salt pork, sugar, tea, tobacco, and matches. They think they are poor when they are without these. Not so much demand any more for cheap jewelry and beads.

"Most vital to us is the fact that wild life is slowly diminishing; also, it tends to retreat farther north, before mining, lumbering, and the steady march of railways. Water animals, like beaver, otter, and mink, diminish definitely. On the other hand, land animals, like the fox and lynx, come and go in cycles. They show periods of scarcity, then abundance."

Fur farms, of course, tend to compensate for the retreat of free wild animals. Canada operates many thousands.

BIRD LANES OVER ONTARIO

In migrating time, bird flocks dot the skies across the bottle-neck region of "Old Ontario" and the wild lake country to the north. Bird names here sound like the vocabulary of an interior decorator: ruby-throated humming bird; purple and gold finches; scarlet tanager; magnolia warbler; rose-breasted grosbeak; the yellow-bellied sapsucker; the red-headed woodpecker; the great blue heron and the black-crowned night heron, all familiar names to our bird lovers, of course.

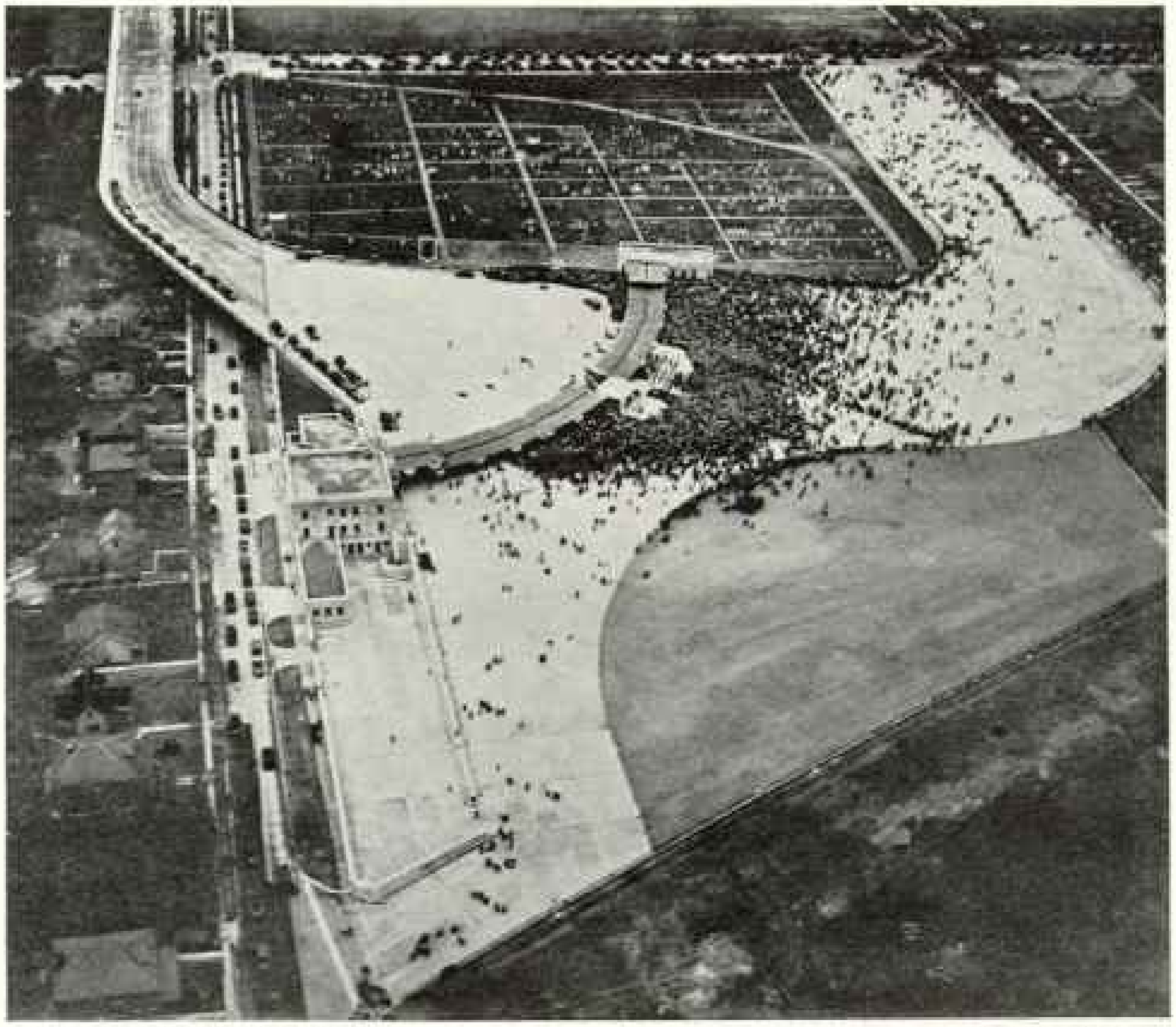
"Certain species, like the catbird, seem to follow human settlements," said an official of Algonquin Park. "We learn more

PUPILS ON SNOWSHOES ARRIVE FOR THE DAY'S CLASSWORK IN A CAR SCHOOL

Population is sparse, towns few and far between in parts of northwest Ontario; so these rolling schoolrooms, moved on schedule, visit points along the line most convenient to children (p. 175).

A TEACHER FACES HIS CLASS IN A RAILWAY COACH

These schools bring the rudiments of education to isolated regions. To children of Finns and other foreign settlers, such peregrinating rooms afford a chance to learn English.



Photograph by William A. Koenzel. © The Detroit News

THE ONTARIO ENTRANCE TO THE AMBASSADOR BRIDGE, SPANNING THE DETROIT RIVER BETWEEN DETROIT AND THE CANADIAN BORDER CITIES

The arc of flat-roofed sheds around the rim of the fan-shaped entrance shelters the customs and immigration officers and the toll-takers. A similar force is posted on the Michigan end of the bridge. The crowds here were guests at the bridge dedication, November 11, 1929. Windsor, Sandwich, and the Ontario industrial regions adjacent are known collectively as "Border Cities" (see, also, page 168).

about bird migratory habits as Canadian towns multiply northward. Here, in the park, I have seen warblers that were not supposed to come to Canada, or even to cross the Mason-Dixon Line. I have also discovered here a few rare instances of water birds known previously only along the Atlantic coast.

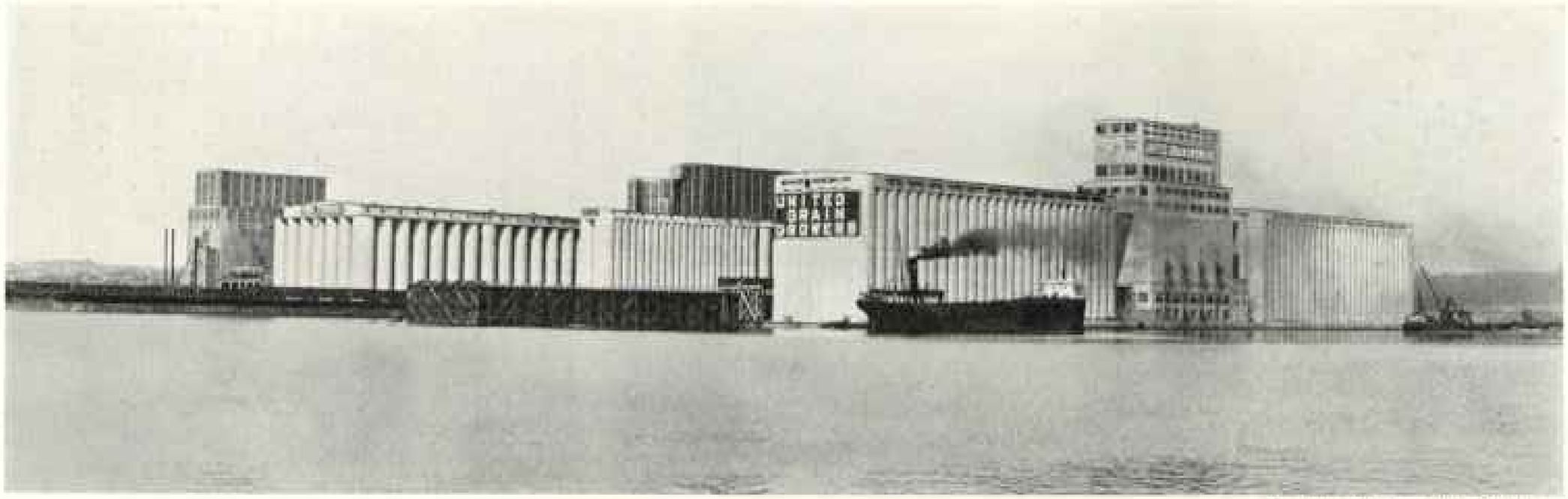
"Male humming birds quit their families and fly south early in July, leaving the young and the females to follow when the first frost comes. The great northern loons, unlike the Canada geese, will have no leaders. They travel singly; mates often depart separately, days apart.

"It's a pity we have so few pairs of eagles. The deadly repeating gun is wiping them out, as it is the American sparrow hawk, pigeon hawk, and others. Poison set for wolves has also been a factor in the destruction of hawks. In 1914 a big bush fire in the park scattered our colony of black-crowned night herons. Since then we have not seen one."

Migrating swans, resting on Niagara River, are sometimes swept over the falls to their death, not realizing the danger till it is too late. Many hundreds were so drowned in the spring of 1932.

Canada geese fly over the west end of Lake Erie. The course is hardly a mile wide. "Over Lake Ontario, so high you can't see them from the ground without binoculars, also goes a migrating stream

THE MAGNIFICENT AMBASSADOR BRIDGE, 7,400 FEET LONG, LINKS WINDSOR, ONTARIO, WITH DETROIT (SEE, ALSO, PAGE 167)



Photograph by Lovelady Studios

PART OF THE VAST ELEVATOR SYSTEM AT PORT ARTHUR

By specially designed machines, grain is cleaned, dried, weighed, and stored in bins or poured into waiting ships (see, also, page 138).

FORMERLY MOVED BY MANY SMALL SAILS, TUGBOATS NOW GUIDE TIMBER RAFTS DOWN THE OTTAWA RIVER

In the past century Ontario has exported vast cargoes of square timber. The Crown still owns large areas of forest, protected by a force of foresters, who use their fleet of seaplanes for fire detection, surveys, and photography. Workmen's huts are built on the raft.

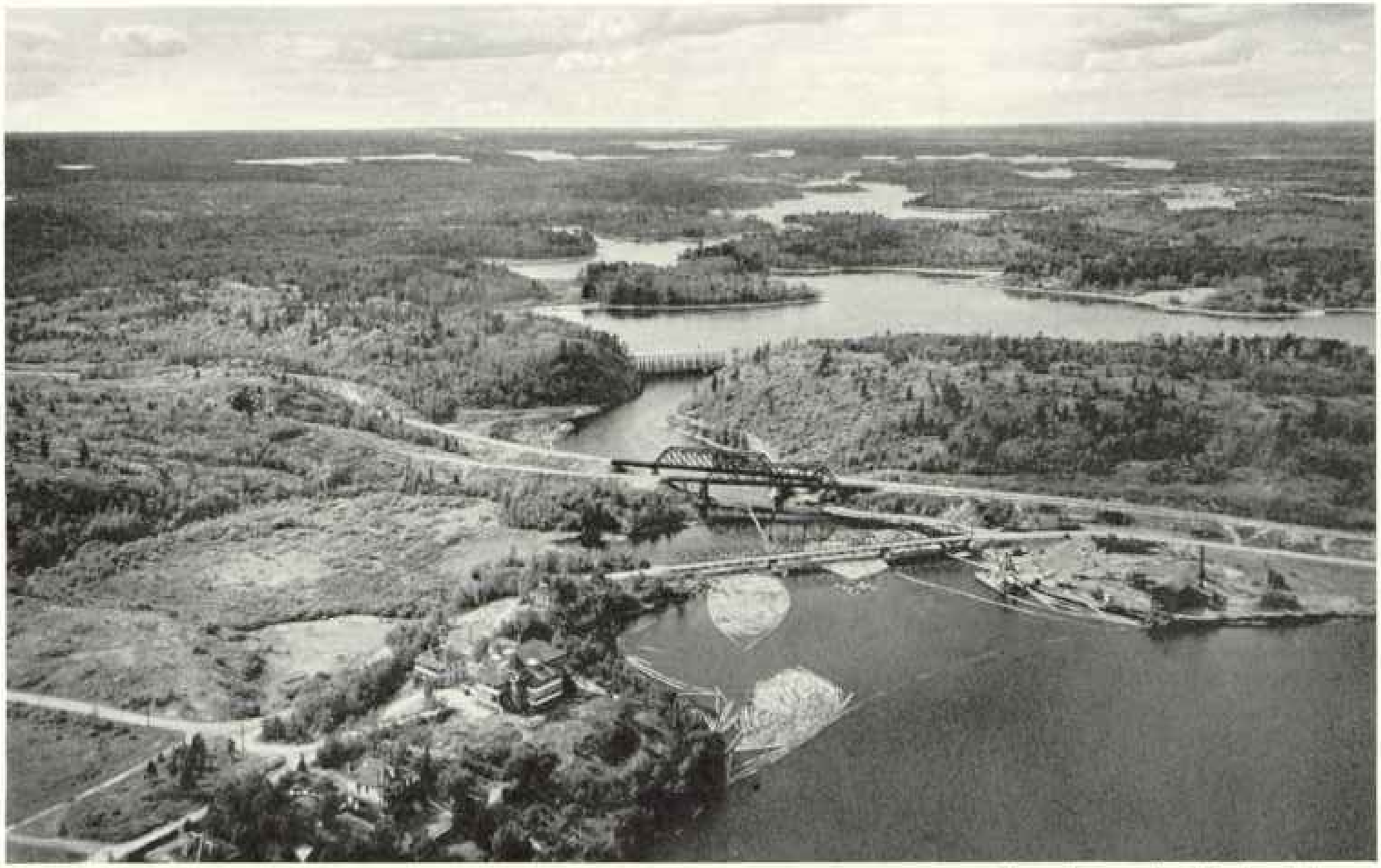
WHEAT TRAINS AGGREGATING HUNDREDS OF MILES OF CARS UNLOAD AT PORT ARTHUR EACH SEASON

Midway between Atlantic and Pacific, Port Arthur and its twin city, Fort William, have developed where great railway systems connect with the world's busiest inland waterways. These ports not only move mountains of freight, but have an elevator storage capacity of 95,000,000 bushels of wheat.

Photograph courtesy Ontario Air Service

FORT WILLIAM AS SEEN FROM ABOVE ITS TWIN CITY, PORT ARTHUR

The improved and sheltered harbor frontage of the two cities totals 29 miles. Both of the Dominion's great transcontinental railways touch Lake Superior here and transship freight to lake fleets. The amount of wheat handled here is almost incredible. So many grain trains arrive that within the harbor area 282 miles of track are needed to handle them, while just west of Fort William is a yard for the sorting of cars which has 47 miles of track.



Photograph courtesy Royal Canadian Air Force

KENORA, ON THE LAKE OF THE WOODS, IS A POWER AND PULP MANUFACTURING CENTER OF NORTHWESTERN ONTARIO

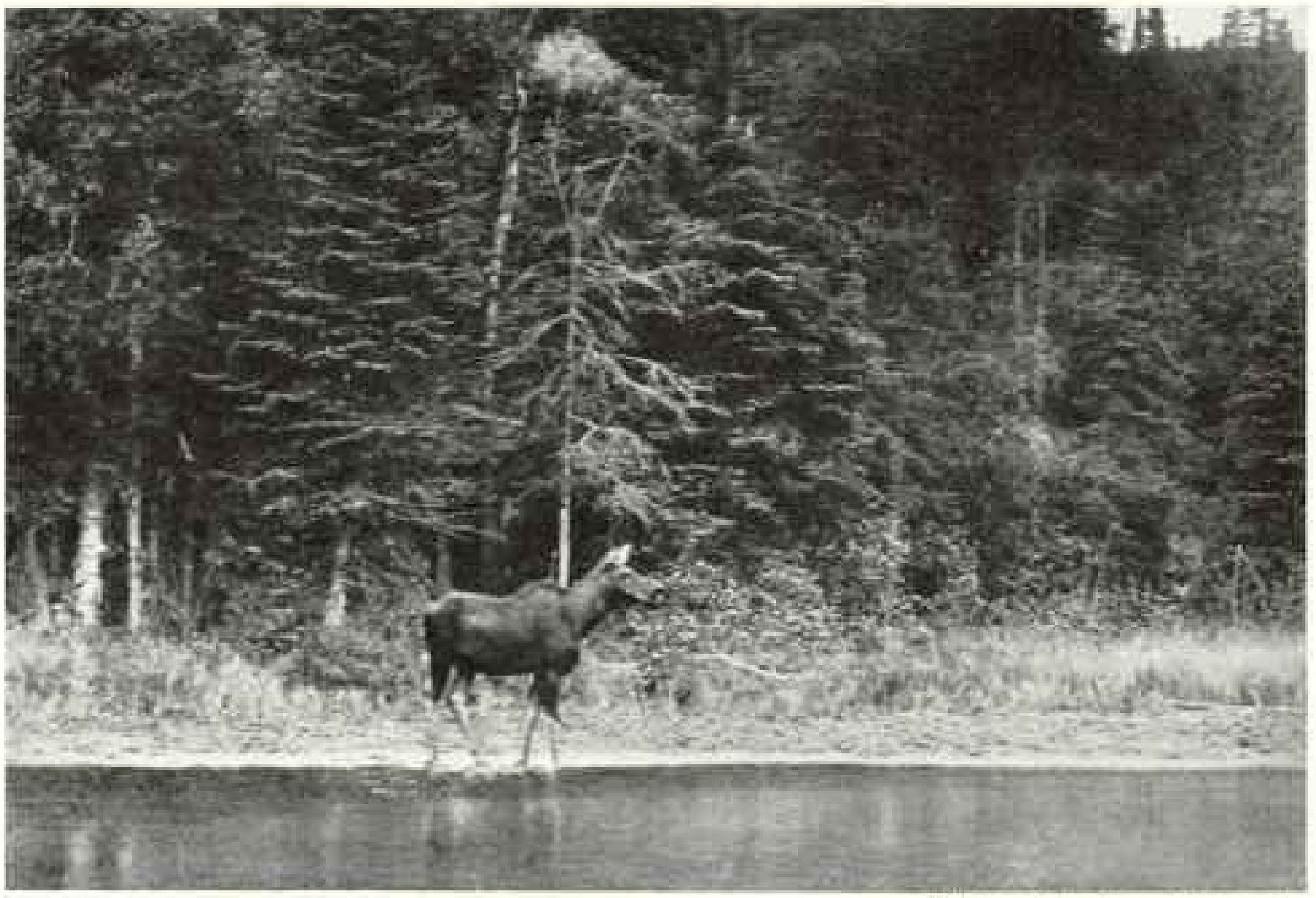
With its adjacent forests, the Lake of the Woods covers more than 2,000 square miles. It is estimated that 16,000 islands are formed by the chain of lakes in this vicinity.

IN ONTARIO'S FOREST AREAS MANY RIVERS SERVE AS HIGHWAYS FOR FLOATING LOGS TO MILLS

The pulp and paper trade is Canada's largest manufacturing industry. Her forest products are second in importance only to agriculture in value of production and exports. The United States takes all of Canada's pulpwood exports and more than 87 per cent of her pulp and paper shipments (see, also, illustration, page 169).

TROUT FISHERMEN AT LUNCH NEAR OPEONGO LAKE, ALGONQUIN PARK

The clear, cold, unpolluted lakes and streams of this park yield game fish of various species.



Photograph by George Shiras, 3d

CANADA INSISTS THE MOOSE SHALL NOT PERISH

More than 150 moose were counted here on St. Ignace Island by the photographer in one week in summer. This island, in northern Lake Superior just off the mouth of Canada's famous trout stream, the Nipigon, is a natural paradise for the moose, which are attracted by salt licks and abundance of aquatic plants found in its many lakes.

Photograph by Dr. R. D. Sloane

BANDED WILD GEESE BEING RELEASED AT THE MINER SANCTUARY

Bands from the legs of geese tagged near Kingsville (see also, illustration, page 150) have been returned from nearly every State east of the Mississippi and from as far north as Baffin Island.

of ducks, often many thousands in one long flock," said an aviator.

HERE FLOWS AN AMAZONIAN STREAM OF WHEAT

Out in northwest Ontario, at the head of Lake Superior, stand the twin cities of Fort William and Port Arthur. Their harbors form one unit. They send wheat for Europe in a stream so colossal that you can think of it only in terms of trainloads. Often grain boats are so thick on the lake lanes they look like a giant battle fleet in formation (pp. 138, 168, 170, 171, 178).

In old days men used wheelbarrows to load grain on sailing ships. Now you see grain elevators of such size that one can unload a car in five minutes. In one season they unloaded more than fifteen hundred miles of solid wheat trains!

From the water side of the elevators hang huge spouts. They pour the wheat into ships so fast that in five hours one ship took on 550,000 bushels, or the total crop of more than 150 average-sized Middle West farms; or, even more astonishing, on one busy day there moved out from here the crop from 2,000 farms of 160 acres each at about 20 bushels per acre!

All this grain for the Atlantic seaboard goes through the canals at Sault Ste. Marie. You can imagine that freight stream of grain, coal, and iron ore only by comparison. In one year it was 66,000,000 tons, or nearly four times that year's tonnage through the Suez and more than five times that of the Panama Canal!

YOUTH IS CAREFULLY TRAINED FOR GOOD CITIZENSHIP

"Do you go to school?" I asked an Ojibway boy who was skinning a muskrat beside a lake.

"My lessons come by mail," he said. "There ain't enough kids around here to have a schoolhouse."

Some schoolhouses are on wheels. With a teacher on board, and equipped with desks, blackboards, books, and maps, these "car schools" are hauled up and down the railway, "stopping here to-day and back next Tuesday," so that children scattered through thinly peopled regions are not neglected (see page 166).

Photograph from Martin L. Kenney

THE EYE OF THIS YOUNG SEAL FLASHES AN ALMOST HUMAN EXPRESSION

The Indian is one of the colony settled about the Hudson's Bay Company post at Moose Factory.

In populous districts, of course, schools are excellent. Near Peterborough we photographed a group of country youngsters whose teacher was putting them through setting-up exercises out in the yard. One girl ran away because she wasn't "dressed up for a picture"!

AT TORONTO IS THE LARGEST UNIVERSITY IN THE BRITISH DOMINIONS

"Our educational system," said Dr. W. T. Jackman, who heads the Department of Economics at Toronto University, "has been the object of study by other countries of the world, some from without the British Empire. In older parts of the Province, country schools, high schools, and collegiate institutes maintain standards which are unsurpassed.

"Teachers are trained in normal schools and the Ontario College of Education. University education is acquired at five institutions. McMaster University, now located at Hamilton, is under Baptist control. The University of Western Ontario, at London, is a local institution chiefly, although it secures some aid from the Province. Queen's University, at Kingston, formerly Presbyterian, but now nonsectarian, also receives some such aid.

"The University of Ottawa is supported by the Roman Catholic Church. The University of Toronto is the provincial university. Its funds come from the Government and from private benefactors. Five years ago it celebrated its centennial. With it are affiliated, as integral parts, Trinity University, Victoria University, Wycliffe College (Anglican), Knox College (Presbyterian), Emanuel College (United Church), St. Michael's College (Roman Catholic), St. Joseph's College (Roman Catholic), and the Ontario Agricultural College. It is the largest university in the British Dominions, with some 6,000 students.

"It has faculties of arts, science, engineering, medicine, agriculture, forestry, architecture, dentistry, education, household science, public health, pharmacy, social service, music, occupational therapy, and commerce. Its School of Graduate Studies has more than five hundred men and women preparing for advanced degrees and coming from all countries of the world. Research in all important lines plays a prominent part in the work of the

POURING GOLD BARS AT THE HOLLINGER MINE, TIMMINS

The total value of the five bars, still hot from the refinery, is $112,000. Ontario's gold output has increased enormously recently.

university, and its close connection with the Ontario Research Foundation and the National Research Council furnishes additional impetus along these lines.

"From the University of Toronto there was given to the world a few years ago one of the most important discoveries, namely, insulin, for the treatment of diabetes. Its discoverer, Dr. F. G. Banting, and his coworker, Dr. Best, are honored in all countries where medical science has its recognized place in the treatment of disease."

ONTARIO IS ACTIVE IN MANY FIELDS OF SCIENCE

In a daring experiment, young Dr. Lloyd, of the University of Western Ontario, stopped his own heartbeats by the injection of a certain drug in order to prove that calcium chloride would start the heart to working again.

There was Dr. Klotz, from the University of Toronto, whose experiments with the dangerous sleeping sickness in Africa have meant so much to the medical world; and Sir William Osler, who, we remember, helped to found the Johns Hopkins School and Hospital in Baltimore and who brought here his own system of bedside clinical teaching.

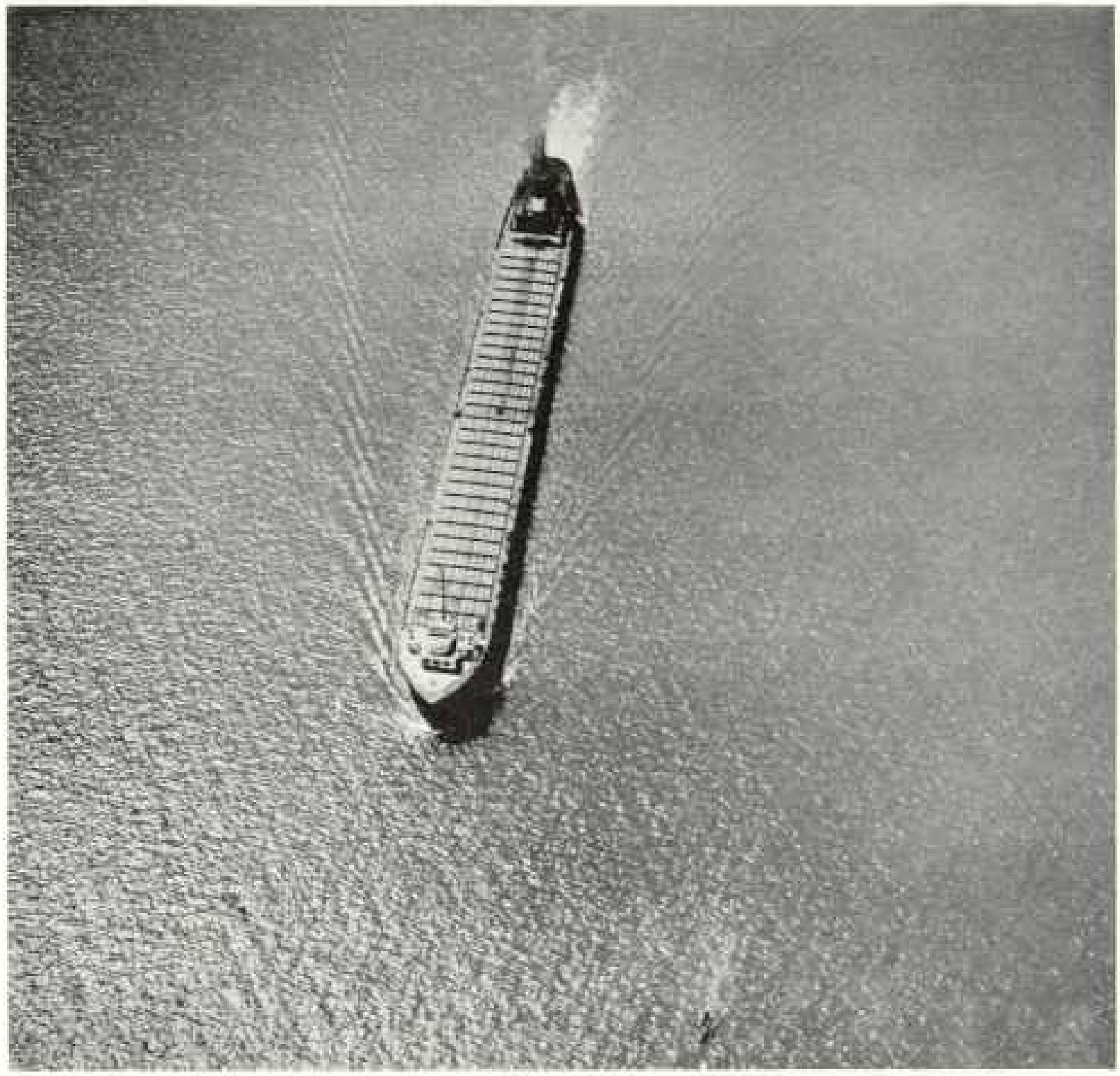
Hundreds of scalded and burned children owe their lives to the late Dr. L. B. Robertson, of the Toronto Children's Hospital; he conceived the idea, from experience in the World War, that practically complete substitution of healthy blood could be made for toxic blood.

At the University of Toronto, also, is Dr. Best's giant artificial lung, by means of which one doomed man breathed for 22 days.

By "Gallie's operation," so named for a surgeon at the University of Toronto, it is now possible to move live tissue from one part of the body to another.

Moloney's antidiphtheria toxoid, an improvement over the old toxin-antitoxin, was so successful when first used on 7,000 children in Ontario that it is now widely accepted.

And from the laboratories of the Toronto Children's Hospital came the Tisdall biscuits, with their captured sunshine of Vitamin D to fight rickets—the result of untiring research by Dr. F. F. Tisdall.



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A GRAIN FREIGHTER ON ITS WAY FROM FORT WILLIAM TO THE "SOO" CANALS

All grain shipped from the head of Lake Superior and destined for the Atlantic seaboard must pass through the Sault Ste. Marie canals to reach Lake Huron. What with grain, coal, and iron ore, annual tonnage at times has been several times that carried through either the Panama or Suez canals. In one record year, 1928, more than 424 million bushels of wheat arrived at Fort William and Port Arthur for lake shipment. The task of moving such stupendous bulk of freight through existing canals and locks leads the governments of Canada and the United States to consider a treaty for improving the St. Lawrence waterways.

Toronto sounds and smells like Chicago. Fly along its glittering blue lake front, past its sky-scratching towers, and it looks like Chicago.

Climb a mile overhead, just at dusk; see Yonge Street stretching straight as an arrow for miles inland, and see factory districts merge into college campus, country clubs, and model suburbs, and see evening lights flash against shifting patterns of fog and clouds, and it's more than ever like Chicago.

Here is the symbol of a new nation's power and culture. But you cannot gauge it by mere figures. You may set down that greater Toronto has 850,000 people; 2,350 factories, producing each year more than six hundred and fifty-four million dollars' worth of goods; or that it has ten miles of water front, welcomes hundreds of conventions a year, besides 2,000,000 paid visitors at its Canadian National Exhibition (see illustrations, pages 137 and 140); the greatest hotel, the highest building, and the

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TWIN LOCKS NEAR ST. CATHARINES, IN THE 25-MILE WELLAND CANAL

This canal is one of the chief links in the great navigation system stretching from the Strait of Belle Isle up the St. Lawrence River and through the Great Lakes to Duluth, at the west end of Lake Superior, a distance of 2,339 miles. Vessels 820 feet in length can use the locks. The width of the canal at the water line is 310 feet and its minimum depth is 25 feet. One of the great locks can be filled in eight minutes, and a ship may pass from one lake to the other in less than eight hours. The level of Lake Ontario is 326½ feet below Lake Erie.

largest department stores under the Union Jack.

But Toronto is more than that. It is, to a singular degree, the focal point of much of all fresh thinking and industrial planning that goes on in the Dominion.

WRITING AND PUBLISHING IN TORONTO

You walk in amazement through its busy publishing center, from whose roaring presses come more books and magazines than are printed in all the rest of Canada. Periodicals printed here circulate from Halifax to Vancouver. "Goldwin Smith came here in 1870," said W. S. Wallace, Librarian of Toronto University, "and lent much support to journalism. He was largely instrumental in founding the *Canadian Monthly* and later the *Week*. By 1900 the primacy of Toronto as a publishing center was established; about that time English companies, such as the Oxford Press and the Macmillan Company, set up branches here. . . . Since 1921 the circulation of books among our undergraduates has multiplied nearly four times."

GRAPES FLOURISH IN LOWER ONTARIO; A WELL-TRIMMED VINEYARD NEAR STONY CREEK

Packed in baskets, fresh grapes are shipped by the carload (see page 160). The bottling of unfermented grape juice is an important industry. About a third of the crop is made into wines, some 275,000 gallons annually.

NO HUNTER'S RIFLE CRACK OR SHOTGUN ROAR ECHOES IN ALGONQUIN PARK; HENCE THE CALM OF THIS LOITERING BEAR

Set aside in perpetuity as a wild-life sanctuary and national playground, this enormous area of forests, lakes, and streams lies on the west slope of the Laurentian Range, in the Ontario highlands.

Photograph by Pringle and Booth, Ltd.

"THAT'S WHAT I WANT TO BE WHEN I GROW UP!"

In rapt admiration the Toronto youngster looks up to an officer of the famous 48th Highlanders, one of Canada's crack regiments.

That Ontario is an old English settlement, with one-third of all Canada's population, may explain Toronto's leading position as the market place for cultural output.

Art is old and Canada is young; yet, busy as she has been carving a nation from the wilds, already distinction has come to her for works in art and literature.

One rare old book in the Toronto Library's vault is "The Nun of Canada," by Julia Beckworth. So far as known, this is Ontario's first novel. It was printed at Kingston in 1824, and the next year "A Day at the Falls of Niagara" was written by J. L. Alexander, said to be Canada's first published poem. A copy of it is also preserved in the Toronto Library.

In early days a favorite author was "Sam Slick," or Thomas Chandler Haliburton, long known as the "Father of American Humor." Born in Nova Scotia, his works were also known in the United States, where he influenced the writings of Mark Twain, Artemus Ward, and Bill Nye.

The Glengarry tales of "Ralph Connor" enjoyed wide popularity all over America. "And that part of Ontario is still so Scotch," said an Ottawa editor, "that now and then a sermon is preached in Gaelic."

"THE NEWS" SAYS ONTARIO "KNOWS NO FRONTIER"

From a towering news temple in Toronto comes the daily paper of largest circulation in Canada. It is symbolic of the great city's high place in Dominion life, for on publication date its weekly is on sale from Vancouver to Halifax, a span of nearly 3,000 miles.

Forty high-speed trucks deliver it over the city and central Ontario. At Iroquois Falls its delivery men operate what is claimed to be "the only dog-team news route on earth." Farther north, in winter, newsboys on snowshoes carry it.

Local interest in world affairs is keen. Of the 200,000 words received daily over its wires, 120,000 are from foreign lands; but Chicago and Detroit news is just as "hot" in Toronto as that from London or Tokyo.

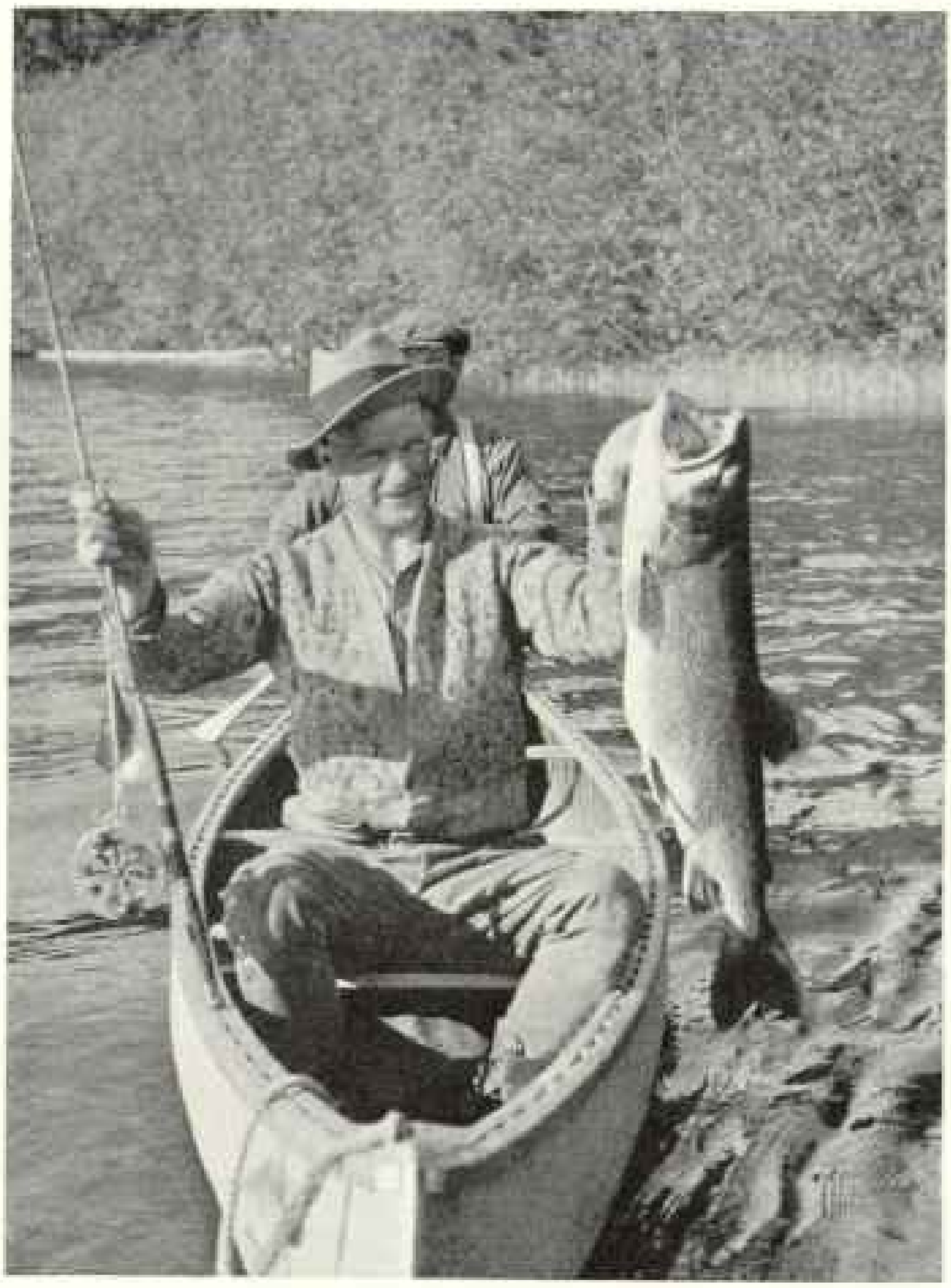
An American World Series ball-game story carries a seven-column headline.

"Is sports news from far-off St. Louis so interesting up here?" you ask an editor.

"Look at the street crowds listening to radio returns," he replies. "The news knows no frontier."

Our own newspapers pay high tribute to Canadian mills. In fact, the making of paper is Canada's chief trade, measured in money value. In 1930 she produced 2,926,787 tons — mostly newsprint; and we buy 85 per cent of all the newsprint she exports. The top year for mills was 1929, when, at the peak of newspaper advertising, Sunday papers often ran 100 pages or more. Two great American papers operate their own mills in Canada.

Toronto gets fat on the new North. Its Stock Exchange is noisy with dealers in mining shares. Many palatial suburban homes were built with money made in northland copper, gold, nickel, and timber.



"NOW WILL YOU BELIEVE ME?"

Fly-casting and "plugging" among the rocks, snags, and grassy margins of Ontario lakes call for skill.

You marvel at the magnitude and splendor of its department stores. They sell goods by mail to customers as far away as the West Indies and New Zealand. One operates its own factories.

"Our catalogue, printed in colors, goes to more than 800,000 addresses every 60 days," says one store manager. Yet on his desk is seen nothing but a brass bird.

Some shops draw their curtains on Sunday; theaters close and all Toronto goes to church. People say "Sir" to policemen. Yet it's a democratic place, and any day, at Bowles' Quick Lunch, you may see knights, or maybe even a baronet, munching doughnuts beside taximen.

Unfaltering Ontario—the heart of Canada, robust member in the British family of nations! A vibrant land, versatile and indomitable! Walk, ride, or fly around it and talk with its people. Nothing thwarts or baffles them. Their motto might be "Ontario can do it." That is your last thought, as you ride through the under-river tunnel dug from Canada to Detroit.

THE "HORO" REMAINS THE BULGARIAN NATIONAL DANCE

On Sunday afternoons the villagers meet on the green, and bright costumes whirl in the old round dance. A Bulgarian proverb is, "Grandma gave a dime to get into the dance, and now she'd give a dollar to get out of it." But one is never too old to dance the *horo*.

Photographs by Wilhelm Tobien

FEET FLY TO THE MUSIC OF A GYPSY BAND

To Novoselci, east of Sofia, residents of the capital ride out to watch or join in dancing the horo, animated by zigany music. "If you visit the village, you must join the dance," says a proverb.

BULGARIA, FARM LAND WITHOUT A FARMHOUSE

A Nation of Villagers Faces the Challenge of Modern Machinery and Urban Life

By Maynard Owen Williams, Litt. D.

Author of "Turkey Goes to School," "New Greece, the Centenarian, Forges Ahead," "The Citroën-Haardt Trans-Asiatic Expedition Reaches Kashgar," etc., in the National Geographic Magazine

BETWEEN the Danube and the Macedonian mountains, I have seen hardly a single farmhouse; yet "Bulgar" means a man with a plow, and four of every five Bulgarians are farmers. Sofia, founded by Trajan, just missed becoming Constantinople, since Constantine seriously considered it as his capital. Still a small town in 1880, it is now a flourishing city of a quarter of a million inhabitants, the progressive capital of a land of villages.

Although, since hoary antiquity, tidal waves of humanity have swept south through the Balkan passes or east and west along the route to Byzantium, this crossroads country is still, as far as we are concerned, far from the beaten path.

Yet the Orient Express passes through Sofia every day, and on the Orient Arrow it is a day's flight from Paris, whose styles it has begun to copy. Before daylight you don the seventy-league boots awaiting you at Le Bourget, airport of Paris; touch earth at Strasbourg, Nürnberg, Prague, Vienna, Budapest and Belgrade, and end the day in your sixth European capital.

An Agricultural Land of Conservatism

The evening of my arrival a political convention had crowded the Bulgarian metropolis, where, notwithstanding the efforts of many leading women, heavy pleated skirts, swelled by un-Parisian petticoats, and sleeves thickly encrusted with gold or silver embroidery, are giving way to less distinctive dress.

Despite these milling city-dwellers, seeking to buy amusement in the open market, scanning movie posters and photographs of sleek cabaret girls, Bulgaria is an agricultural land, with peasant conservatism and thrift.

Among the more or less formal Thanksgiving proclamations of recent times, surely one of the most arresting was Bulgaria's "Our poverty is our riches." A land of homespun may be proof, not only against spiritual, but also economic depression.

Were one to seek a symbol for economic and spiritual stability, the Bulgarian woman, plying her distaff as she leads meek-eyed oxen through bucolic scenes worthy of a Rosa Bonheur, might well serve as model. But even the Bulgarian Maud Muller has "glanced to the far-off town."

A Parade for Every Occasion

Bulgarians, more earnest than frivolous, nevertheless love parades. One day it is cabbies celebrating the saint of horseflesh. Doubtless the chauffeurs parade in honor of St. Christopher, guardian of autos, though I doubt if they walk. The day of Saints Cyril and Methodius is the occasion for huge student processions, and the city is full of white, green, and red paper flags bearing pictures of the sainted fathers of the Slavic alphabet. Tsar Boris III, Bulgaria's king, has been seen in a students' snake dance and soldiers and scholars are frequently encouraged to turn a route march into a parade by singing.

On the bright Sunday morning after my arrival, there were *two* parades.

One was composed of political delegates and their wives, in bright sashes and head shawls, homespun costumes, and rawhide sandals. Some, carrying hammers, were elated; others, trudging loyally along, were being dutiful.

Near at hand moved another world. In the shady park were imitation silk, imitation pearls, synthetic complexions, and impermanent waves, among which natty young officers, handsome with red caps and gilt-handled swords, were making peacetime conquests.

Out in the warm sun marched the endless procession of stolid peasants. Filtering across their serried ranks appeared a burnt-orange blouse, a green velvet jacket, a chic

sports dress, a fresh kid glove looped through a saber handle—urbanite leaven amid a dull-brown human tide.

Thus, a millennium ago, did the warlike and more spirited Bulgars filter in among the dreamy Slavs who had preceded them into the Balkans. The Bulgars contributed a more practical spirit before being so completely assimilated that little but their name remained to distinguish this branch of the great Slavic peoples.

AMERICA HAS AIDED WITH SCHOOLS

The rural Bulgarians, whose riches are poverty, are awaking to new desires.

Bulgarians have long fostered schools, literature, music, and the drama. But "progress" now means something different—not a lifting up, but a speeding up. City styles and pleasures are stealing the spotlight.

An old Bulgarian proverb says, "Easier to start the piper than to stop him," and Bulgaria has begun to tread a faster measure than ox-team or buffalo have set or can follow.

A charming young Bulgarian of cosmopolitan training, whom I had known in Istanbul, greeted me warmly. Behind her, on the grand piano, was a picture of her sister feeding the pigeons of St. Mark's. A Winged Victory and some water colors of Alpine scenes further widened the walls of this Bulgarian home.

"How does it seem to be back?" I asked. As secretary to a man whose name and business stand for roses and as a member of the younger set, her contacts are wide and her viewpoint interesting.

"Splendid," she replied; "but this is a confusing time. The old folks seem pessimistic. Perhaps because they are ill at ease. Light living engulfs them, ostentation violates their traditions. The young city folks are living beyond their means. We have long sought progress. Now we can't escape it. But I have great faith in my country. We are honest, industrious, and eager. In most matters we are tolerant. We have vast reserves of courage and character."

She is a graduate of Constantinople Woman's College, and her family has had American friends for generations. When the Bulgarians were still under the Sultans, they inspired American cooperation. Not only have some of their most prominent men been educated in Robert College, in Istanbul, but there are several excellent American schools in Bulgaria itself.

American educators have approached the problems of Bulgaria with sympathetic understanding. The boys' and girls' schools of Samokov have been united to form a coeducational American college; but, in deference to Bulgarian conservatism, an imaginary line, cutting the campus in two, still separates the sexes.

In Pordim there is a more unusual school with a one-year course designed for dirt farmers, who there learn to do by doing. Future mothers practice on real babies before having babies of their own. Even in a land where veterinary schools and hospitals rival those for human beings, there is no other institution quite like the American Farm School, which gains prestige from its American patronage.

The principal of the Girls' School at Lovech was justifiably proud of the fine buildings dominating the river-cleft town, but I had climbed the cliff to see the scholars. If their library seemed effeminate, their basket-ball did not. But our motor circuit was to cover most of Bulgaria and we had to push on.

TIRNOVO, BULGARIA'S CAPITAL OF THE MIDDLE AGES

Tirnovo, former capital at a time when defense was more than trade routes, straddles a neck of land tunneled by the railway and rises above wild midcity gorges as does Luxembourg (see page 214).

On the Mount of Eagles stands the city of to-day, linked by a narrow isthmus with the Hill of the Tsars, walled region of the former royal palaces. A colony of monasteries occupied another hilltop and the aristocrats a fourth.

Baldwin I—not the first king of Jerusalem, but the first emperor of Rumania—was imprisoned in a tower at the point of one peninsula, and across the gorge is the Preobrajenski Monastery, its church decorated on the outer walls as well as within (see Color Plate X).

Numerous mortuary chapels with delicate ornamentation attest to the good taste and spirit of their day. When the Turks swept on toward Vienna in 1529, the Bulgarians were submerged under a Moslem tide, eddies of which still remain. Not till 1877 were the tables turned and modern Bulgaria freed from a domination which delayed the progress of its people. To-day

POTTERY DEALERS DISPLAY THEIR WARES ON THE SIDEWALKS OF THE CAPITAL

The Bulgar at the right, inspecting a pitcher, is from the country near Sofia and wears a home-spun costume under his sheepskin coat. At the left is an Albanian vender of boza, a sweet, soft drink that finds much favor with Bulgarians.

 Natural Color Photographs by Wilhelm Tobien

SPONSORS OF A MOVEMENT TO REVIVE HOME ARTS AND INDUSTRIES

To prevent modern styles and machine methods from displacing entirely the beautiful and distinctive national costumes and handicrafts, an influential element of Bulgarian society has set about preserving this heritage of the nation's skill and artistry. The interior of a home in Sofia decorated in national style.

Natural Color Photograph by Wilhelm Tobien

MUCH OF THE NATION'S OFFICIAL LIFE CENTERS ABOUT THE SQUARE OF THE TSAR LIBERATOR IN SOFIA

Alexander II of Russia was largely responsible for freeing Bulgaria from Turkish domination and his memory is perpetuated in the capital by this handsome monument. In the background is the Cathedral of Alexander Nevsky, of the Bulgarian National Church. Bulgaria has only one legislative body, a chamber of deputies, elected every four years by universal manhood suffrage. The representatives meet in the Sobranyé, or Parliament Building (right). The Ministry of Foreign Affairs occupies the building opposite.

Natural Color Photograph by Wilhelm Tobien

THE DELICATE FRAGRANCE OF MILLIONS OF BLOSSOMS PERVADES THE VALLEY OF ROSES

Bulgaria devotes more than 12,000 acres to rose culture, and the industry centers about this famous valley on the sunny southern slope of the Balkan Mountains. In the 18th century a Turkish merchant familiar with the rose gardens of Asia recognized the possibilities offered by the abundance and fragrance of the wild roses growing here. He induced a few of the inhabitants to cultivate the roses and start a small distillery. Results were favorable at the very start, and the little valley has given the world most of its rose oil for many years.

WEIGHING ROSES AT A SMALL DISTILLERY

 Natural Color Photographs by Wilhelm Tobien

GIRLS GATHER BLOSSOMS IN THE EARLY MORNING HOURS

Rose fields are small and the bushes are planted about three feet apart. The flowers, pinkish white and unpretentious in appearance, are picked before fully open and with the dew still on them, since exposure to the full strength of the sun results in an inferior quality of oil.

LADIES OF BANYA GOSSIP OVER A MINIATURE MOUNTAIN OF ROSES

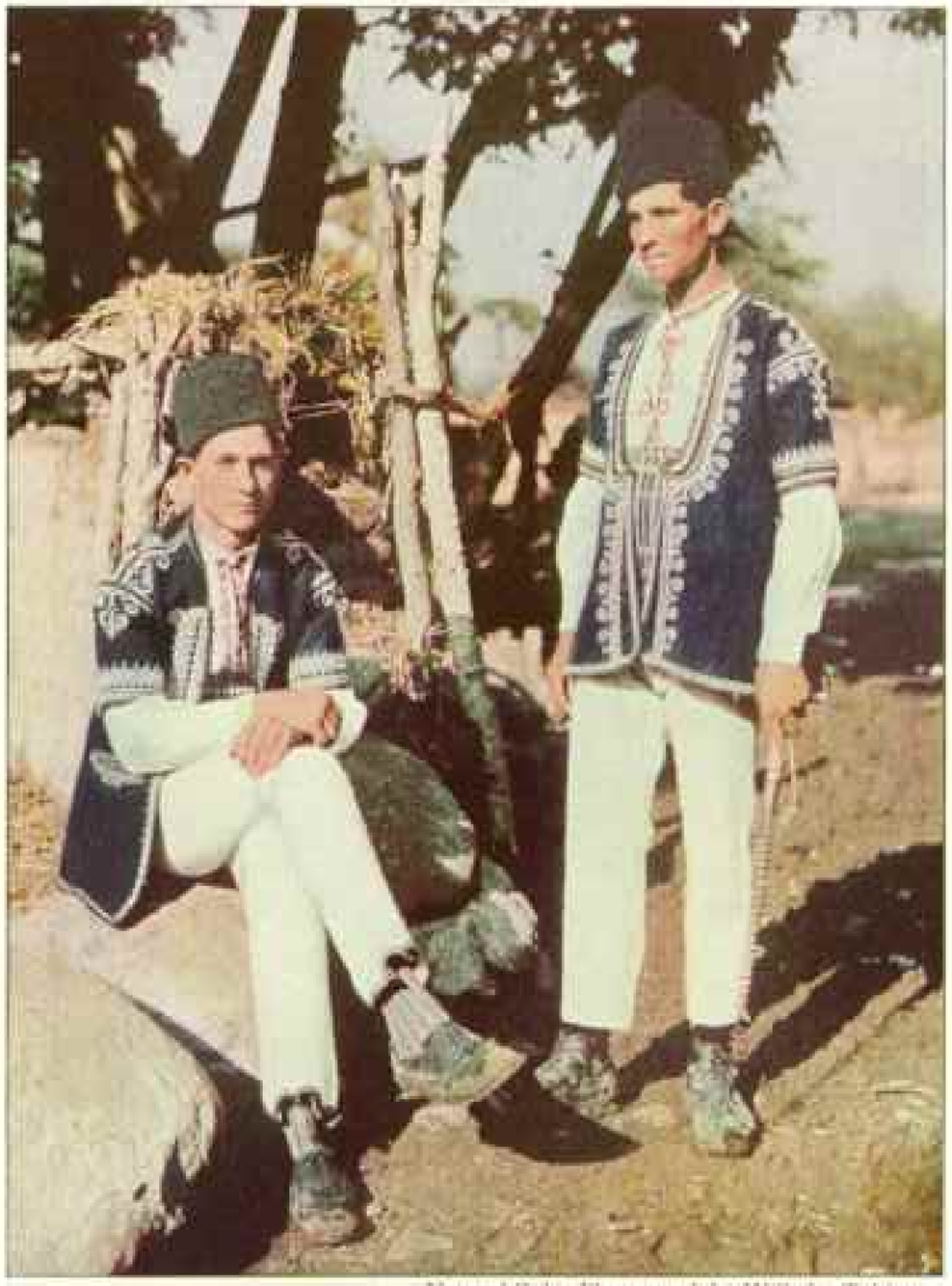
 Natural Color Photographs by Wilhelm Tobien

A LOAD OF FRAGRANCE ARRIVES FROM THE FIELDS

The rose harvest begins in May. After the blossoms are picked, they are loaded into sacks and taken to the distilleries on the backs of horses or in oxcarts. The wood stacked up at the right supplies fuel for distilling the rose oil.

Natural Color Photograph by Georg Gr. Paskoff

FROM SUCH DISTILLERIES COMES PRECIOUS ATTAR OF ROSES



Natural Color Photograph by Wilhelm Tobien

PEASANT YOUTHS FROM THE COUNTRY NEAR SOFIA

Natural Color Photograph by Wilhelm Tobien

A TON OF ROSE BLOSSOMS YIELDS LESS THAN A POUND OF PURE OIL

Rows of large, closed kettles set above a fire are filled with water and roses. When the mass boils, the steam passes through the heads of the kettles into long pipes which lie in cool, running water. During this process of distillation drops of yellowish oil appear on the surface and are drained off. Much of the rose water is thrown away, but some is used to flavor puddings. Rose oil, or attar, although not highly volatile, is kept tightly sealed, and its fragrance persists for years. It sometimes commands a greater price than pure gold.

MIHÉL MISCHOFF BAKES FOR THE PEOPLE OF TCHEPELARE

The loaves he prepares are mostly whole wheat, for Bulgarians in general are not fond of bread made from white flour. The baking business attracts an unusual number of Macedonians to its ranks.

© National Geographic Society Natural Color Photographs by Wilhelm Tobien

MACEDONIAN WOMEN CELEBRATE THEIR RETURN TO BULGARIA

Postwar boundary settlements divided Macedonia among three nations. However, some of Bulgarian nationality refused to live outside Bulgaria and moved across the new borders to re-establish themselves in their old homeland. Their costumes are among the most beautiful in Europe.

progressive Bulgaria is the resort of Turks who find the new Turkey too rapidly changing to meet their tastes.

FEZZES, VEILS, AND MOSQUES STILL FOUND IN BULGARIA

Bulgaria, with half a million Turks within its borders, still has its fezzes, veils, and mosques, the finest of which is in Shumen. Beside it is a megalithic stadium, scene of wrestling bouts for centuries. Rain discouraged sight-seeing, and the first three Shumenites from whom we asked the way had never heard of the mosque in the shadow of whose minaret they pass their lives. My chauffeur, doubting its very existence, thought I had my towns mixed; but I wanted to see Bulgaria also through a few Turkish eyes, and the Shumen mosque had appealed from afar as a favorable setting.

Strangely enough, the old-style Moslems in faded fezzes look upon Christian Bulgaria as a welcome haven from the "godlessness" of New Turkey, and Bulgaria's Turkish population is slightly increasing. Those of Shumen seemed so pleased at my rainy-day visit that they quickly opened the mosque.

The blind custodian, blissfully ignorant of the tawdriness he thus revealed, graciously switched on the yellow electric lights.

We drove on to Varna, whose beautiful park looks out over the Black Sea. Varna used to be a grain port, but when the boundary-makers gave the rich granary of the Dobruja to Rumania the city lost its commercial importance. When wheat failed, little drops of water and little grains of sand did their bit. On the splendid sea front, commodious bathhouses and seaside villas were built, and summer visitors now flock in from all over Central Europe to revel in sea and sun.

For a time the authorities tried to reserve the central section for married folks; but they persisted in forgetting to bring their marriage licenses, and mixed bathing is now firmly established. On the wings are screened sections where men and women are isolated and can dispense with suits, lie in the hot sand, and let Old Sol shoot health into them through every pore. The seashore at Varna is one of the gayest spots in the kingdom.

Deprived of Dobruja's bread, Varna decided to eat cake; and vacationers in increasing numbers share and provide the fun. Hotels claim to offer Bulgarian, Hungarian, Bohemian, and German cooking, but French habits are not yet understood. After explaining in three languages that I wanted chocolate at 7, I was waked by a waiter asking how many pieces I wanted. Thus I learned that in Bulgaria one eats chocolate but drinks cocoa.

South of Varna is Mesemvriya, where Byzantine emperors used to disport themselves in the Euxine. From the sands, many antique treasures have been rescued, and there still exist imposing ruins of Byzantine churches.

Military service is not obligatory in Bulgaria, though it is expedient; but, in addition to the few days of temporary labor which male subjects are supposed to render to their country, every eighteen-year-old does eight months of obligatory labor under what resembles military discipline.

Lands are reclaimed, roads and bridges built, railways repaired, eroding mountain sides reforested, rampant rivers tamed, relief shelters constructed, and good citizenship learned by these organized laborers, or *trudovaks*. Their badge reads, "Work for Bulgaria," and to me this labor corps is the most distinctive feature of modern Bulgarian life.

Stambolisky went to prison because he tried to keep Tsar Ferdinand from joining with Germany and Turkey in the World War. Later he forced the abdication of his former ruler and became not only so powerful, but so obnoxious, that a bourgeois *coup d'état* finished his career. But his labor corps lives on.

Tsar Boris III, in spite of several attempts against his life, has refused to develop an Abdul-Hamid complex. The king mingles freely with his people, and numerous are the tales of how he dons overalls, drives locomotives, or plays Good Samaritan to stranded motorists.

BULGARIA'S NEW MONUMENT TO A WORLD WAR ENEMY

Bulgarian heroes have been revolutionists, and, although the Turk no longer oppresses, the habit of challenging authority remains. Yet in what post-war country can one find a new monument to a nation numbered among its enemies during the World War?

Above Shipka Pass, looking both ways from a crest of the Balkans, is a new monument, not to Bulgaria's recent allies, but to

Photograph by Georg Gr. Paskoff

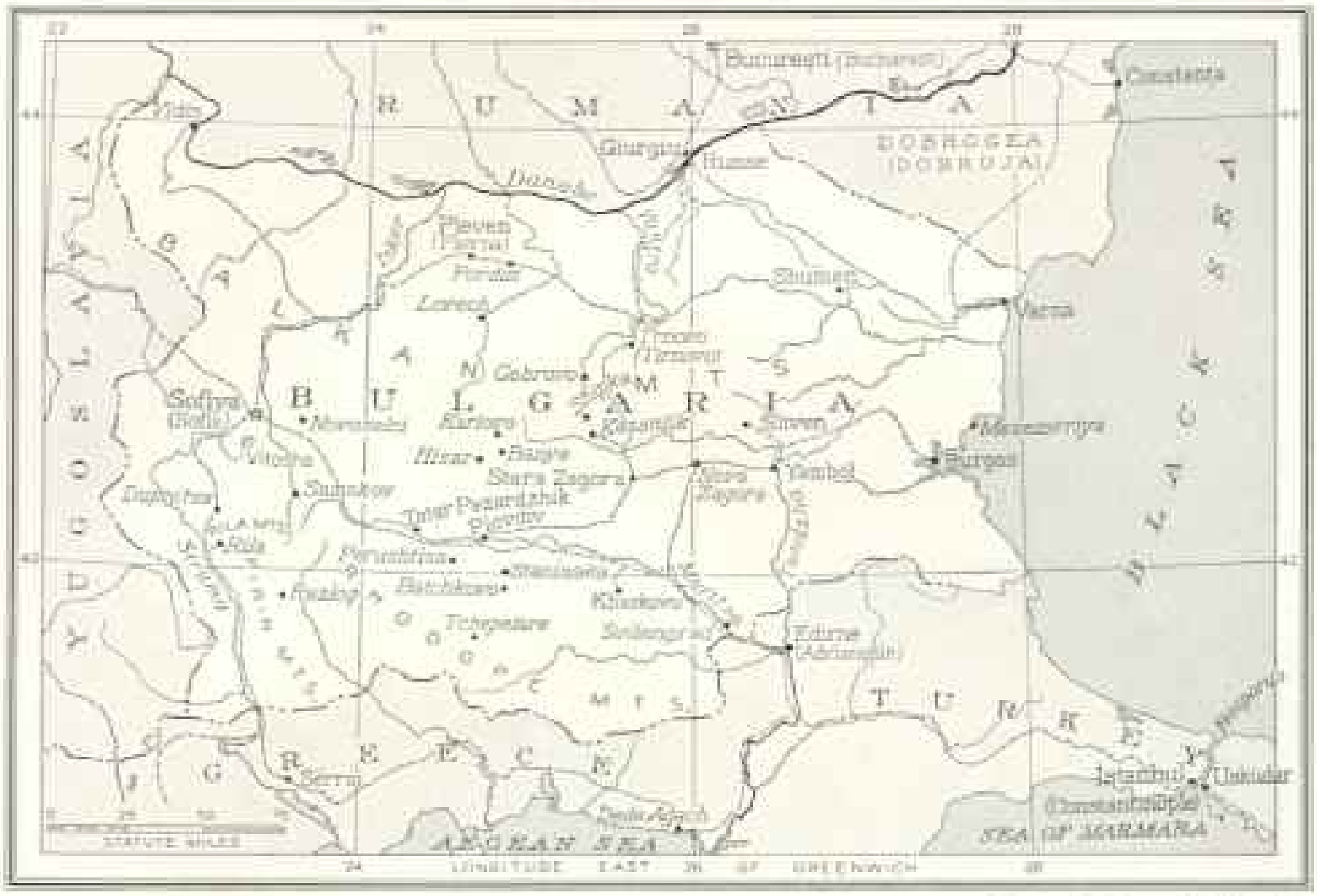
AT HARVEST TIME THE VILLAGERS MOVE INTO THE FIELDS

Because a man's land is divided into many plots, modern machinery is little used (see text, page 216); but the cooperative movement is strong and the land is being reapportioned.

Photograph by Maynard Owen Williams

RAW MATERIAL FOR HOMESPUN COSTUMES

Bulgaria has ample material for heavy suits and dresses. Lighter machinemade fabrics are now worn not only by the city dwellers, but by the peasants. However, if money is lacking, a farm woman can always take wool from her sheep's back and turn it into clothing for her own.



Drawn by James M. Darley

BULGARIA IS A CONSTITUTIONAL MONARCHY RULED BY A TSAR

Almost as large and as thickly populated as Ohio, Bulgaria combines a constitution and a parliament with a hereditary dynasty. The Sobranyé, or National Assembly, may be dissolved by the Tsar, who must profess the Orthodox faith.

Russo-Bulgarian victory over the Turk in 1877. Although the original Bulgarians were blood brothers of the Turks and Magyars, the nation is Slav to-day.

In Sofia the finest monument is not to a Bulgarian, but to a Russian, Alexander the Liberator (see Color Plate II). The Russian church at Shipka and the great Alexander Nevsky Cathedral in Sofia were exchange gifts of gratitude. During Germanophile days the cathedral's name was altered to that of the alphabet saints, Cyril and Methodius, whose portraits are so prominent among the paintings on its walls; but Slavic unity was so proved during the ousting of the Turk in 1877-8 that Alexander's statue was unmolested during the recent war and the cathedral erected in his honor again bears his name.

GABROVO IS THE TEXTILE CENTER OF THE NATION

"Shipka" is a magic word in Slavic unity, for Bulgarian and Russian fought shoulder to shoulder in the famous pass. Vereshchagin long foreshadowed the irony of the phrase "All Quiet on the Western Front" in his famous painting, "All Quiet at Shipka" (see, also, Color Plate XI).

North of the historic pass, down a magnificent mountain road repaired by the trudovaks, we came to Gabrovo, a shoestring town on both banks of a mountain stream, but known as "the Manchester of Bulgaria." When every Balkan pocket was outlined with scrolls of black braid, Gabrovo made that, and its woolens have long been celebrated.

Modern mills and buildings are sandwiched in among the picturesque old houses overhanging the Yantra, but the bucolic spirit of springtime remains. Almost every bright-eyed mill operative wore a sprig of lily of the valley, which they call "Maiden's Tears."

The people of Gabrovo have a reputation for thrift so calculating that legend says they cut off the tails of their cats, so that in passing through the door in winter they won't let in so much cold!

Behind the woolen mills of Gabrovo are millions of sheep, for Bulgaria has two

Photograph by Maynard Owen Williams

A WOMAN WITH A DISTAFF LEADS THE WAY

Farm work in the rolling countryside is a family affair in Bulgaria. The wife guides the oxen, the man guides the plow, the children play or help, and the baby has his nap in a shaded crib beside the furrows. The wooden plow is holding its own against more efficient machinery because it is cheap and light (see text, page 216).

sheep or goats for each of its 6,000,000 people. Although handicrafts are still widely practiced and most peasants are to some degree manufacturers, organized industry is making rapid strides.

THREE-FOURTHS OF THE WORLD'S ATTAR OF ROSES FROM BULGARIA

Protective tariff walls always *look* lower from the inside, and in Bulgaria, as elsewhere, a heightened nationalism jealously guards its infant industries. To its fine woolens the country has already added sugar, cotton cloth, silks, flour, baby carriages, bicycles, hides, paper, cigarettes, rubber shoes, and even automobile tires.

Although cereals, tobacco, eggs, and chickens are among the principal exports, Bulgaria's most distinctive product is attar of roses, of which it produces three-fourths of the world's supply. From flourishing Gabrovo we recrossed the Balkans to the world-famous valley where *Rosa damascena* rules.

Jahangir, the Mogul emperor, amused Nur Jahan by piping rose water through her garden at Delhi, and upon its surface she first discovered the bright pearls of attar. Later an old Turk, seeing the wild roses that gave their name to "Shipka," induced his compatriots to start the industry which won for the plain between the Bal-

Photograph from L. G. Popoff

FOCUS OF A THOUSAND BULGARIAN PARADES

In the center is Zocchia's fine statue of Alexander II of Russia, whom the Bulgarians call the Liberator. At the left of the large Sobranyé, or National Assembly, is the Ministry of Foreign Affairs (see Color Plate II). At the upper right is a bit of the Alexander Nevsky Cathedral. A flagstaff rises above the American Legation in the curved row at the bottom and the crowded Ethnographic Museum is farther to the right.

kans and the Middle Mountain the name of "The Rose Valley."

The rose, as symbol of beauty, innocence, and modesty, has inspired countless legends and songs ever since it was born with Aphrodite from the sea foam or sprang from Rosalie's wound, inflicted by the chaste but intolerant Diana.

But one doesn't use perfume to prove innocence, and a rose smells even sweeter under many strange names. Attar of roses is used as a base and fixative rather than for its scent alone, and the skilled perfumer determines whether this product of peasants shall suggest floppy-brimmed hats and flowered chiffon or sleek silks and exotic earrings.

Brightly dressed peasant women spend hours before and after dawn picking dew-drenched rosebuds, and peasant men ride from garden to distillery bolstered up between more rose petals than Cleopatra spread for the reluctant but wayward feet of Antony. But they're now poor, for all that.

With roses selling at two cents a pound instead of six and attar down to $10 an ounce instead of $30 or more (pure gold is worth $20.67), other crops are invading the acres devoted to fragrance.

Photograph by Wilhelm Tobien

TSAR BORIS III GREETS A VISITOR TO THE KING'S PARADE IN SOFIA ON ST. GEORGE'S DAY

Bulgaria's ruler leads an unostentatious life and has a reputation of being an excellent mechanic and a hard worker.

Photograph by Georg Gr. Paskoff

HOMEMADE MUSIC AND HOMESPUN CLOTHES GO TOGETHER IN BULGARIAN VILLAGE LIFE

The lure of urban pastimes is offset by the pleasure the villagers take in dancing to the strains of accordion or violin.

Photographs by Maynard Owen Williams

COLD LACE AND LUXURY SPREAD THEIR TRAP IN THE BULGARIAN CAPITAL

Sofia has a score of motion-picture theaters, many of them equipped for sound. Thus English, French, Italian, German, Russian, and Spanish enter the country on strips of celluloid. The name of the American actor, John Barrymore, is seen at the right.

A MODERNISTIC CANDELABRUM IN AN ELEVENTH-CENTURY MONASTERY

Before the iconostases, in the church at Batchkovo (see Color Plate X), is this ultra-modern candlestick (center), made of an airplane propeller and parts of a modern motor. A complete propeller is also a museum piece at Rila Monastery (see Color Plates IX, XI, and XII).

When a perfumer's best, if boorish, advertisement was that his product was the most expensive on earth, the whole Vale of Roses blushed pink. But Bacchus now promises better wages, and the charming wife of one distiller is to-day making a wine which is replacing those of France on the legation tables in Sofia.

These unspoiled Bulgarian peasants, who never knew luxury, depend on it for their daily bread, and although they know no political economy, it affects both their economies and their politics. Because of the competition between private and cooperative distillers, rose oil has come to involve bankers and politicians as well as gardeners.

The old firms are not only finding a decreased sale, but are also facing the competition of cooperative distilleries opened under Government protection and boom conditions.

Even the most elaborate tests cannot easily detect adulteration in rose essence, and the business has long been one of confidence. Private producers, who have staked their names on the purity of their product, now gamble their fortunes as well.

If they offer too little for petals, the growers will neither grow nor sell. A distillery works only four weeks in a year, and rose oil is sold through personal visits to France and America. If the price is too high, perfume-makers will find and use a cheaper base for their fancy-named blends. Rose Valley can't profit until the world again buys luxuries.

The attar of roses produced by the cooperatives is deposited as collateral in the Agricultural Bank, which, although already holding a thousand pounds or so of attar, must still advance funds on the new crop.

THE MAKING OF ATTAR

Rose petals, mixed with water, are sealed into great copper retorts heated by wood fires. During the first distillation concentrated rose water trickles out through cool coils and a green oil rises like cream in the receptacles through which the liquid flows to storage tanks.

A single retort may hold half a ton of petals. Such a retort can be refilled five or six times between dawn and afternoon, when the second distillation begins; yet a battery of 12 retorts, working 24 hours a day during a 25-day season, produces only 200 pounds of attar.

If the dewy petals are held too long, they ferment and the oil is ruined. By 4 o'clock in the afternoon the last mixture of petals and water is drained off into a convenient brook and the distilled rose water, from which the floating oil has already been removed, is distilled again. From this second process a yellowish oil is obtained.

If there is no burning, fermentation, or adulteration, a blend of these two oils forms the finest base for the world's best perfumes. Attar of roses has a most persistent but not strong odor, does not readily evaporate or deteriorate, and is shipped in triple-sealed copper flasks shaped like flat-sided canteens.

GEOGRAPHIC ROMANCE IN A BOTTLE OF PERFUME

By the time attar of roses reaches the perfume-user it has been not only diluted with alcohol to enable the scent to stimulate the nostrils more readily, but is also pretty well mixed with castor from Russian beavers, civet from Abyssinian cats, ambergris from sperm whales, musk from Tibetan musk deer, benzoin from Siamese forests, and storax from the Taurus Mountains.

To collect the raw materials for a bottle of perfume, a young gallant would have to explore mountain and sea, and his tribute would include not only trees and flowers from the far corners of the earth, but a goodly menagerie as well. A bottle of perfume is a distillate of adventure, commerce, chemistry, and geography, whose story would fill a book.

Were rose essence itself a perfume, the petals needed to make an ounce of it would weigh 200 pounds, and where is the Romeo who ever brought such a floral tribute to his Juliet? A reigning beauty would probably have better taste than to use the considerable quantity of perfume, powder, bath salts, toilet water, and rouge in which a single drop of attar is employed; but if she wore the equivalent in small Damascus rosebuds, she would be even more indelicate.

At $10 an ounce, a drop of perfume costs the same as a pound of rose petals in Kazanlik or Banya, but it might take twenty such drops to contain a single drop

© National Geographic Society Natural Color Photograph by Wilhelm Tobien

PRIESTS OF RILA MONASTERY

The Bulgarian National Church is a separate branch of the Greek Orthodox. Its services are conducted in the ancient Bulgarian language, but its doctrines and ceremonials are practically identical with those of the parent church (see also Color Plates XI and XII).

BATCHKOVO MONASTERY HAS HAD A LONG AND EVENTFUL EXISTENCE

Crusaders, Byzantines, and Turks, as well as Bulgarians, have occupied it. Batchkovo is heavily endowed and now ranks as the second largest monastery in the kingdom.

 Natural Color Photographs by Wilhelm Tobien

PREOBRAJENSKI COUNTS MANY FINE MURALS AMONG ITS TREASURES

The exterior of the church of this monastery is decorated with allegorical paintings. It is attractively located on the wooded banks of the Yantra River, near Tirnovo.

RILA RESEMBLES THE MONASTERIES OF MOUNT ATHOS

It is an immensely wealthy and powerful institution and during the long years of Turkish occupation was one of the centers in which Bulgarian culture and national spirit were kept alive.

 Natural Color Photographs by Wilhelm Tobien

SHIPKA'S GILDED CUPOLAS COMMEMORATE BULGARIA'S WAR OF LIBERATION

The monastery stands at the entrance to Shipka Pass, where during the War for Liberty in 1877-78, Bulgarian volunteers held out against a great Turkish army until their Russian allies arrived.

FORESTED MOUNTAINS LOOM HIGH ABOVE RILA'S MONASTIC WALLS (SEE COLOR PLATE IX)

From without, the famous shrine appears as a fortress, but its interior is richly adorned with numerous works of lay and ecclesiastic art.

Natural Color Photographs by Wilhelm Tobien

A MINARET REMINDS THAT THE SULTANS ONCE RULED AT KARLOVO

Many Turks still live here after half a century of Bulgarian occupation. The reforms which have come to New Turkey have not affected them.

Natural Color Photographs by Wilhelm Tobien

BULGARIAN PEASANT WOMEN

The spinning girls at the left, standing near a shelf of conical beehives, are Pomaks (see also Color Plate XVI). The house at the right belongs to a well-to-do villager. Like most of the older peasant homes, it is built up off the ground to provide storage and stable space beneath.

Natural Color Photograph by Georg Gr. Paskoff

STORING UP HEAT FOR WINTER USE

The spicy pepper-pods are strung together and hung in the sun to dry. When cold weather comes they will season many a savory stew.

Natural Color Photograph by Wilhelm Tobien

A MACEDONIAN COMITADJI AND HIS WIFE

They belong to a group which continues to strive for the reunion of Bulgarian Macedonia with the motherland.

Natural Color Photograph by Wilhelm Tobien

LIKE LAIRS OF MYTHICAL GIANTS, GREAT LIMESTONE CRAGS OVERHANG THE MOUNTAIN ROADS OF NORTHWESTERN BULGARIA

The long range of the Balkan Mountains extends across the country in a general east-west direction, dividing it into two nearly equal parts. Almost all of the mountain regions are heavily covered with forests, the products of which constitute an important item of national wealth.

BULGARIA NUMBERS MORE THAN HALF A MILLION MOHAMMEDANS AMONG HER PEOPLE

Most of them are Turks, but there are also about 88,000 Mohammedanized Bulgarians known as Pomaks (see also Color Plate XIII), a hardy, primitive people who live in the wildest parts of the Rhodope Mountains and who accepted Islam long ago. A group of Pomak men.

 Natural Color Photographs by Wilhelm Tobien

A ROADSIDE MEAT SHOP IN RATCHKOVO

Bulgarians are fond of lamb and mutton and there are from eight to ten million sheep to be found in the country. The carcasses hanging in the butcher shop are those of young lambs.

of pure attar. Twenty pounds of roses would make a débutante look like a carnival car at Cannes.

There are choice years in rose oil as there are in wine and tobacco, and for the same reasons—the balance of sun and rain. But scent-lovers are not as discriminating as wine-tasters, and both the fragrant weed and the fragrant oil are blended. Since the distilleries work day and night, a shorter blooming season means less and poorer oil. A damp season with much rain is best, for if the sun shines too warmly the roses bloom faster than the pickers and stills can care for them. If the Rose Valley continued to have the same weather I found there in what would normally have been the height of the season, this should be a banner year.

We slopped southward through Hisar, so rich in mineral and thermal waters that they have been employed since the days of the Thracians, but in that downpour even the "Maiden's Bath," recommended for tired nerves, didn't appeal.

WHERE THE BULGARIAN THEATER WAS BORN

By the time we reached Plovdiv (Philippopolis), old-time haunt of Orpheus, that lyric magician would have had a hard time charming me. At the end of a dark court, I entered a stuffy little theater, ready for any diversion and, if possible, some sidelights on Bulgarian drama in the town where the Bulgarian theater was born.

I arrived late, but it wasn't difficult to recognize the play. Only Molière could have conceived that matchless comedy between a solicitous hypochondriac and a sensible, though undisciplined, servant girl.

Between the acts I said to my seat mate, "The man who plays Argan is a genius. Who is he?"

"A genius? Of course. That's Saraffoff!" It was as if an American had said, "That's Joe Jefferson," or an Englishman, "That's Sir Henry Irving."

I doubt if the martyred Molière, during any of his four performances, ever played it better than did this dean of Bulgarian actors. Fantasy was emphasized, and the false noses worn by the doctors would have hidden a Cyrano; but in the one-time name-city of Philip of Macedon, that production of "Le Malade Imaginaire" was the finest I ever attended.

Plovdiv's first theatrical troupe migrated to Sofia and for a while performed in the mat shed of a Japanese acrobat. Those were the days of melodrama, and the company bore the suggestive title of "Tears and Laughter." But out of such beginnings the Bulgarian National Theater was born. No small nation has a better.

On two occasions the director took me behind the scenes of the new playhouse in Sofia. There was no between-the-acts confusion. New scenery slid in from one side, dropped from the 150-foot roof, or came up from 50 feet below; but the perfection of mechanical devices does not dwarf the play itself.

Theater and opera alternate under the same roof, and there are sometimes 20 performances a week, one free show a day being given for charity. The best seat at the opera costs only 75 cents.

When one learns how low are the salaries, he feels that applause must be very dear to the artists. They certainly get it. If classical comedy was made to be laughed at, Molière is still a grand success in Bulgaria.

"Knyas Otchelnik," the one native grand opera I saw, was a bit too grand for me. Recitative singing formed a harmonious accompaniment for elaborate orchestration in the Wagnerian manner, but not a single simple melody leaked out.

Even in lesser details this cultural center is admirable. Ticket-scalping is forbidden, the doors are locked just before the curtain goes up, and there is a place in the cloakrooms corresponding to every seat, so that the unlucky last man doesn't have to grope his way out in the dark.

BULGARIA'S OUTDOOR PLAYGROUND

The Rhodope, Rila, and Pirin Mountains constitute the outdoor playground of Bulgaria. Where revolutionists used to hide from the Turks, city folks now escape from their cares. Evergreen forests, clear mountain lakes, and dangerous precipices all have their devotees.

We rode south from Plovdiv to Tchepelare, with a stop at the old Batchkovo Monastery (see Color Plate X). It was Sunday, when Bulgarians should rest and dance, but we passed scores of oxcarts bringing down lumber, and the *horo*, or village round dance (see page 184), was postponed because of rain.

Photograph by Georg Gr. Paskoff

AN ARBOR OF DRYING TOBACCO IN PERUSHTITSA

Of all the strange bazaar coverings, ranging from corrugated iron and torn gunnysacks to grapevines loaded with fruit, probably none is more unusual than these poles, on which tobacco leaves, tightly strung together, are hung.

Photograph by Georg Gr. Pashoff

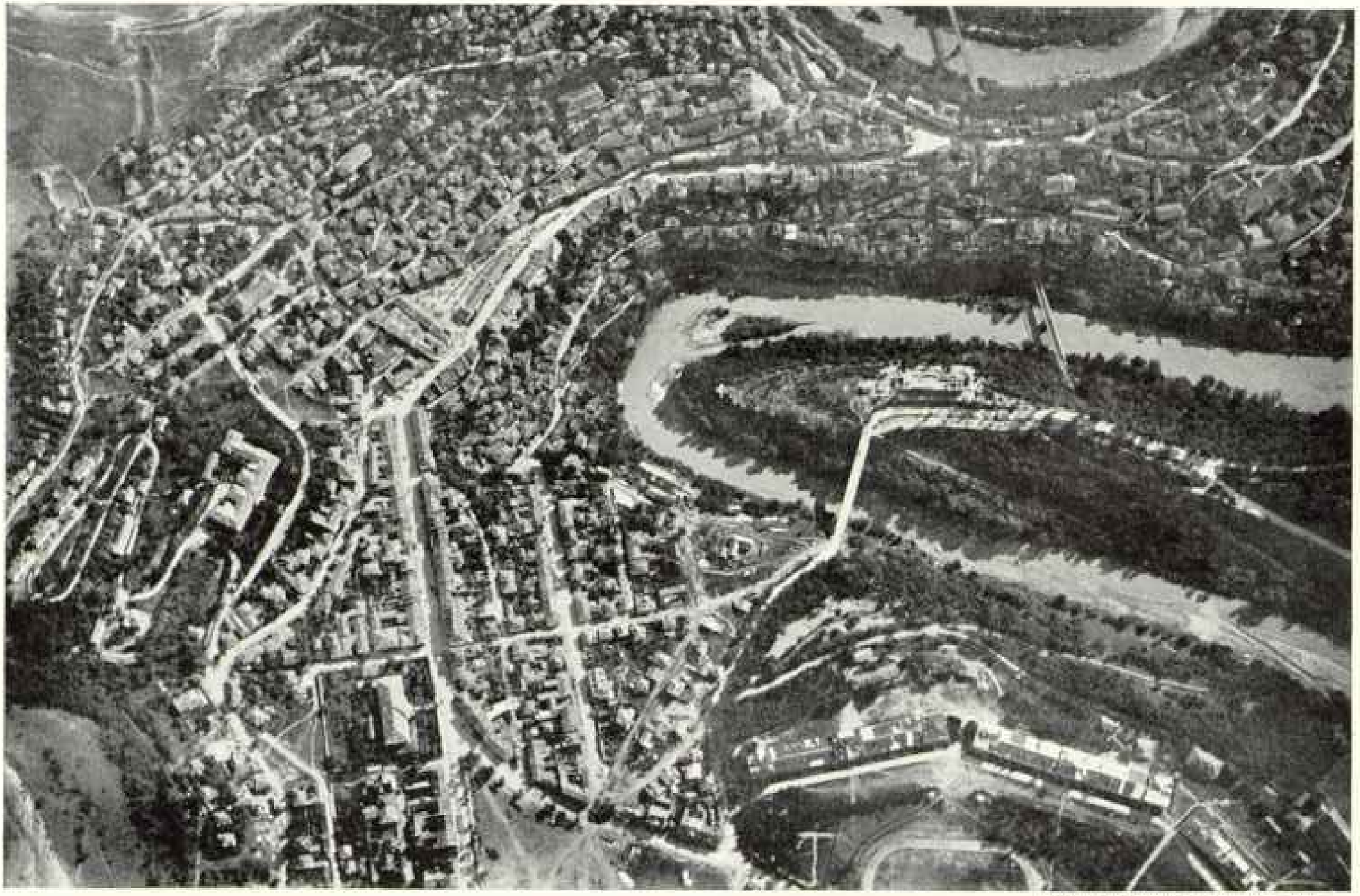
A SOUTH BULGARIA TOBACCO FIELD

Tobacco is one of Bulgaria's chief products, its value sometimes representing two-fifths of the total value of the country's exports. Each variety bears the name of a locality from which it comes, but it is later grouped with tobacco from Greece and Anatolia as "Oriental" or "Turkish."

Photograph by Maynard Owen Williams

A SUCKLING PIG FOR SALE IN A SOFIA STREET

On market day peasants invade the capital, where modern Western dress is the rule. But Sofia and other Bulgarian towns have large covered markets. Such homemade rawhide footwear is being supplanted by rubber sandals made by machinery in Bulgaria.



Photograph from J. R. Jasny Arctander

LOOKING DOWN ON TIRNOVO, BULGARIA'S MEDIEVAL CAPITAL

This river-cut town was long the chief cultural center of the Balkans. Royal palaces, monasteries, and aristocratic residential quarters occupied different ridges from 300 to 400 feet above the serpentine course carved by the Yantra (see text, page 186).

Photographs by *Georg Gr. Paskoff*

DRYING MOUNDS OF LIGHT COCOONS

A NESTING PLACE FOR BULGARIAN SILKWORMS

The worms hatched from an ounce of eggs consume a ton of mulberry leaves before spinning their cocoons, an operation which requires three or four days. If the chrysalis were not killed by steam, a moth would eat its way through the cocoon a week later. Cocoons are dried in light, airy warehouses before being shipped abroad. Bulgaria exports nearly a third of its silk in the form of cocoons.

Photograph by Georg Gr. Pashuff

A MOSLEM PICNIC IN CHRISTIAN BULGARIA

They dress, live, and worship in the pre-war manner. They have the vote and are accorded full cultural and religious freedom. The Moslem population is slightly increasing.

Perhaps the drivers of the ox-teams were not breaking the Sabbath, for many are Pomaks—Bulgarians who accepted Islam and still hold to it with fanaticism. All the way back to Plovdiv we were delayed by their long wagons, beyond which lumber projected, so that when they turned aside to let us pass they blocked the road from one side to the other (Plates XIII, XVI).

Lamartine once stopped at Plovdiv, and a memorial tablet decorates the old Turkish-style house fortunate enough to offer him hospitality. A bit of wall is attributed to Marcus Aurelius.

Near Plovdiv are some of Bulgaria's finest tobacco lands. Farther east sericulture is proving profitable, and in the wide Maritsa Valley some modern agricultural machinery has been introduced, resulting in such an overproduction of grain that even coöperative organizations able to use tractors, gang-plows, or reapers to advantage are thinking twice before committing themselves further to a "progress" which may prove premature.

AVERAGE FARMER CULTIVATES 15 ACRES

Although the Bulgarian village owed its beginnings to the need for defense, peace and security have not brought any considerable change, and even World War refugees have either settled in Sofia, thus swelling the influence and the challenge of the city, or are gathered into compact colonies instead of living on isolated farms.

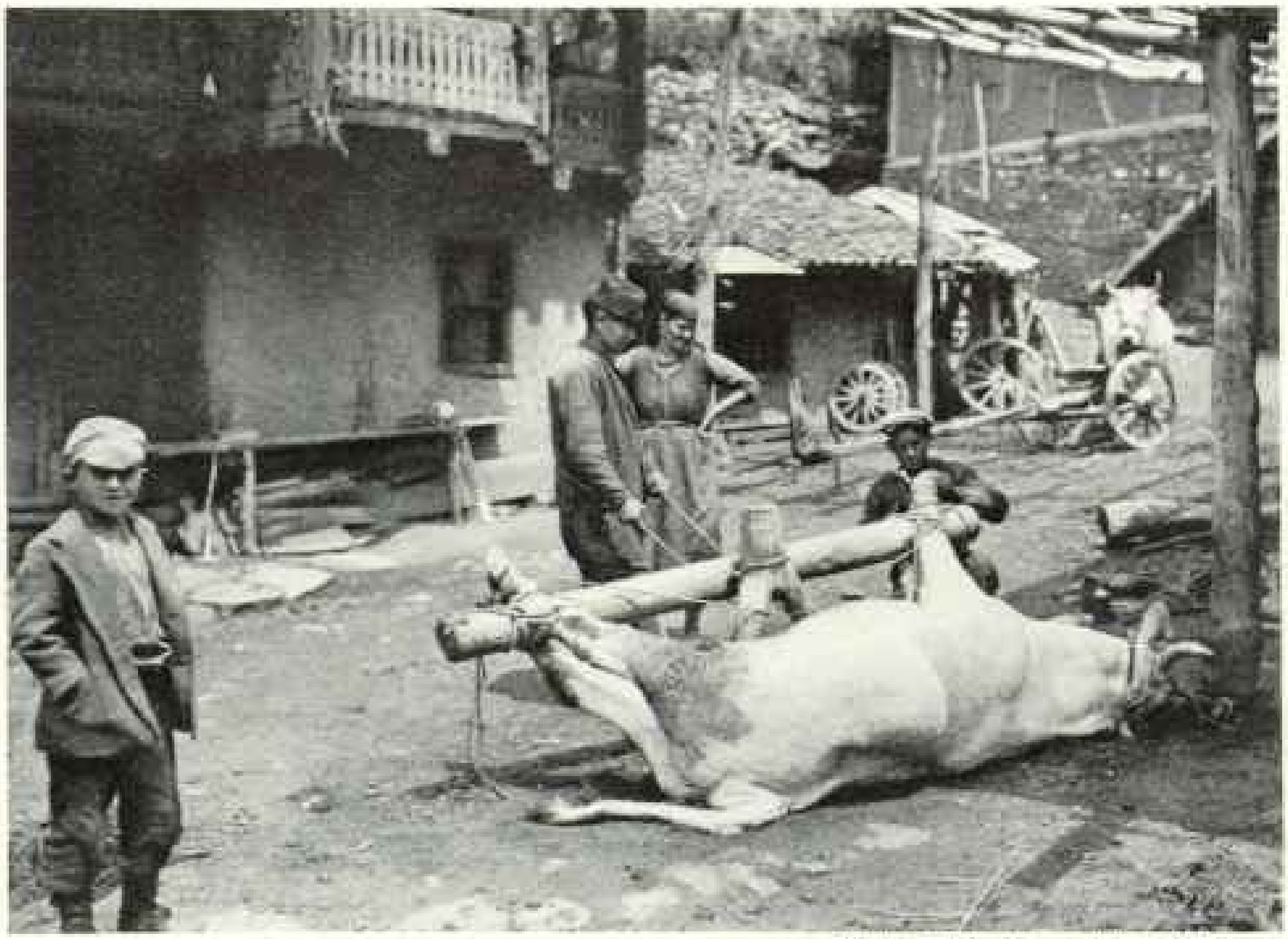
One reason not only for village homes, but also for the backwardness of agricultural machinery, has been the small size of the individual holdings.

Not only is 15 acres the average farm, but it may be separated into 15 small fields, so that portability is an advantage in agricultural implements. Wooden plows are still common.

Several villages have already redistributed their lands and many more have voted to do so in an effort to bring the lands of each farmer together. Differences in fertility and drainage complicate the problem.

Great advances in village housing have been made; but, once a farm becomes a compact unit and better farm machinery is thus possible, the need for larger barns or sheds will induce some peasants to move out of the crowded villages and build farmhouses on their own land.

Between rich fields in which scores of gaily dressed families, with baby cradles



Photograph by Maynard Owen Williams

THE BULGARIAN SMITH TAKES NO CHANCES

Near the bottom of the valley leading up to Rila Monastery, the author found this ox securely trussed up and patiently awaiting the end of the shoeing.

parked beside the long furrows, were making a picnic of spring plowing, we drove toward Mount Rila, twenty of whose peaks are 9,000 feet high, and less famous but locally popular Pirin.

The base for excursions in the Pirin is a tiny village which would appeal to anyone in search of a rest—and to very few others; yet I there found a full-fledged American citizen who is content to remain.

"America is the best country in the world. They certainly treated me fine. Believe me, mister, I'm going to see that my passport don't expire. But I'm not going back yet.

"I lived in America 15 years. I made money. I had a fine chance to work. But everyone knew by my talk that I was not born in America.

"Then came hard times, and many men were out of work. I had planned to come back to Bulgaria for a visit anyway, but when I saw that I decided to stay longer.

"In America I didn't really belong; but here I am the man who has been to America and who can read English. Maybe you think this is a hick town, but here everybody knows me and likes me. So, until things get better, I'm going to wait here. This town doesn't know what money is. I'll bet I couldn't spend twenty cents here in one day to save my life. All times are hard times in a village, but it is a good life just the same."

A VISIT TO RILA MONASTERY

We drove on to Razlog, where the chief subject around the café tables was the Lindbergh baby, and in the morning continued to Rila Monastery, situated in a beautiful site far up a sheltered valley—such peace and beauty as one finds on Mount Athos, in Greece (see Color Plates IX, XI, and XII).

None of the antifeminism of Mount Athos exists at Rila. Not only is a special suite reserved for King Boris and Queen Ioanna, but in summer women and children fill the courtyard and live in the monastery itself.

Photograph by George Ge. Paskoff

GOING TO THE THRESHING FIELD

Highway and furrow are livened by splendid white oxen or slow, black water buffaloes. Bulgaria moves to the tempo of animal-drawn carts and plows.

The whistle of a logging train echoes along the steep slopes denuded by lumbering operations. The torrent roars on its way to the conduits and reservoirs of the hydroelectric plants farther down the valley. From a high mountain lake pure water is piped over hill and dale to supply refugee-swollen Sofia. But nothing disturbs the peace of Rila.

On a tiny plateau, under the wide and starry sky, is a simple gravestone bearing the name of James David Bourchier.* As Balkan correspondent of *The Times*, he won an enviable reputation and lasting gratitude. It touches the heart of a globe-trotter to find that another of his craft is remembered by people who once were strangers.

MARKET DAY IN SOFIA

After 1,100 miles of rural travel, Sofia seemed more urban than ever; but it was market day and the streets swarmed with rural visitors. Dragoman Boulevard was blocked with everything from side-show mermaids to suckling pigs, raw wool, and strong-scented soap and cheese. Mingling with the skirted Bulgarian women were swarthy Gypsy women in bright trousers.

Beside the Banya Bashi Mosque a real airplane had been parked as a background for movie posters announcing a new American aërial film.

In the crowded Ethnographic Museum I stepped once more into the beauty of Bulgarian handicrafts. School children were being ushered through in companies. It suddenly occurred to me that these peasant costumes, utensils, and household furnishings seemed stranger to Bulgarian school children than they did to me, and I was happy to have seen this lovely land before it had lost its distinctive charm.

Before many years Tobien's and Paskoff's photographs will be ethnographic curiosities, like those fading pictures of village dances, nuptial headdresses, and embroidery-stiff costumes that already cover the museum walls.

Yet this colorful Bulgaria is only a day's glad flight from Paris or Berlin along a ribbon of changing beauty linking two civilizations.

* See "The Rise of Bulgaria," by James D. Bourchier, in the NATIONAL GEOGRAPHIC MAGAZINE for November, 1912.

EDINBURGH, ATHENS OF THE NORTH

Romantic History of Cramped Medieval City Vies With Austere Beauty of Newer Wide Streets and Stately Squares

By J. R. Hildebrand

Author of "Royal Copenhagen," "The Columbus of the Pacific," "The Secrets of Washington's Charm," etc., etc., in the National Geographic Magazine

EDINBURGH is singularly, if austerely, beautiful.

The "Athens of Scotland" is a honeycomb of massive stone buildings, rising to heights that made this city the Manhattan of the Middle Ages, some of the walls so thick that long afterwards elevators could be installed without protruding into the rooms. At first sight the city seems not merely built of rock, but carved out of rock—a Scottish Rock City of Petra.

Three days out of New York harbor the harried teacher was still checking meager vacation funds against the confusing riches of a British Isles guidebook.

"Should I go to Edinburgh? There are so many places to be seen," she murmured.

"Should you go to Edinburgh?" flashed back our lean, tweed-clad table companion, with the military mustache. "Listen, lassie: there's Midlothian and Scott and Hume; Boswell, Argyll, John Knox, and Dunfermline; Jeanie Deans's cottage, gay Queen Mary, and tragic Lady Jane Douglas; Robert Bruce, Waverley, St. Giles. Should you go to Edinburgh?"

And the Scotsman relapsed into silence, a very companionable silence, for the rest of the voyage. The best tourist inducement to visit Edinburgh would be a list of names—nothing more—of the places and houses and people; for the mere names will click in the memory of every American visitor. Sometimes a monogram would suffice; such as the immortal initials, "R. L. S."

WHERE DR. JEKYLL AND MR. HYDE OPERATED

By all the precedents and guidebooks, the Edinburgh visitor should head straight for Castle Hill. But to me the first "thriller" I ever read ("Dr. Jekyll and Mr. Hyde") still is the most vivid, barring not even Sherlock Holmes, Dracula, or Baldpate. So I hunted out Brodie's Close, dank and dark to this day, though not so evil-smelling as when its dual denizen, Deacon Brodie, was a Dr. Jekyll by day and a Mr. Hyde by night.

Pause before entering the close—we would call it an alley—and the mind's eye converges into a swift news reel of events along the history-encrusted Royal Mile, into which it opens.

Grand Dame Eleanor, Countess of Stair, leaps from yonder window (still in full view) to escape a tantrum of her violent, if blue-blooded, husband. Down a "wynd" whispers one hag to another gossip from opposite seventh stories, the ancient walls leaning like two Pisas as if to avert eavesdropping. Dainty Miss Eglintoune, later Lady Wallace, skips across the way to fill a kettle from the community well. Hoydenish Duchess of Gordon rides a sow she had captured under a neighbor's "forestairs," while her more dignified sister belabors the animal with a stick.

SEDAN CHAIRS SERVED AS TAXIS

Only the backbone street was wide enough for carriages in those days; ladies and gallants were borne in sedan chairs by stout Highlanders into the side arteries for teas and calls. Burghers' wives, in silks or Scotland's fine wool, shopped for jewels in basement cubbyholes, or bought velvets and laces at tiny booths under roofs of the balconies reached by the peculiar forestairs of nearly every tenement. They were jostled by countrywomen in green and crimson homespun, and by sailors from ships that brought over cattle and tallow from the Low Countries.

Brodie's Close opens now, as then, into the Lawnmarket sector of The Mile, where Scotland's parliament once ordained "all cotton claith, white and grey; all lynning claith is to be sold there and in no uther place." Open stalls and canvas-topped booths, displaying bolts of cotton and webs of linen, were besieged as are bargain counters to-day.

Photograph by William Reid

A VIEW THAT ENCOMPASSES TWO THOUSAND YEARS

Standing in Princes Street Gardens, the Central Park of Edinburgh, the eye ranges from the tunnel entrance, beneath the National Gallery, past the Gothic Scott Monument and the railway station (with the clock tower) to the uncompleted reproduction of the Parthenon of ancient Athens on the crest of Calton Hill. It commemorates the heroes of the Peninsular and Waterloo campaigns.

About you remain the "lands" or tenements of the days when a city wall pressed families to an altitude and compactness like the lower East Side in New York.

Of course, your memory can disregard time and bring events of centuries into instant focus.

Toddling aristocrats play with racing ragamuffins. They scurry at the approach of a party of Knights of France in glittering armor, their pennants flying, on their way to a tournament to compete for the coveted King's prize, a golden lance.

Florid David Hume waddles along, his pendulous jaws keeping time with his heavy steps; frail Adam Smith, father of economics, harried by his personal budget, seeks an accountant's help.

One day Mary, Queen of Scots, spirited in spite of her ill-omened reception at Leith, rides by on a white palfrey, a tiny pearl crown nestling on her high-dressed hair. Twelve courtiers, in black and crimson, carry a canopy for her. At Netherbow she halts to receive the keys of the city; she extends her little hand for the provost to kiss. The sun suddenly emerges and glistens in her white satin gown.

Quick-witted, she utters an impulsive greeting, "The sun comes out with me, Master Provost." The city is hers; from mouth to mouth passes the cry, "God bless her bonnie face."

THE SERVANT SLEPT IN CHEST DRAWER

Nightfall and shops are closed; merchants go to their favorite taverns for "tripe, rizzared haddies, minced collops," and their claret or ale. Physicians await their patients there.

This practice arose both from conviviality and crowding. Nobility and the gentry, even, lived in cramped quarters. One eminent attorney received his famous clients—the Duke of Argyll among them—in his bedroom, while his wife used the only other room for sewing, getting dinner, and setting the table adjoining the stove.

Even the wealthy had no room for more than one maid-of-all-work. In one home the servant slept under a dresser in the kitchen; in another the drawer of a chest

Photograph by William Reid

ABBOTSFORD-ON-TWEED IS SCOTLAND'S STRATFORD

This gracious estate, cloven by the river about which Scott wove a halo of romance, is the shrine for thousands of literary pilgrims during this year's centenary of the novelist's death. The beautiful interior rooms are maintained as the master left them, and there have been added many Scott relics. His countrymen revere Sir Walter for his integrity as well as for his writing. When bankruptcy involved him, along with his publishers, he left Abbotsford and his handsome town home to live in one room of a boarding house, and heroically wrote to pay the debts.

was pulled out for her by night and closed by day.

Up and down the dark "turnpike" stairways, lighted by irregular slits, climbed gentle ladies in spreading hoopskirts, greengrocers, belles with provocative masks and tartan scarves, fishmongers, lawyers, merchants, servants with pails of water they had to carry up many flights.

Ten o'clock: the taverns and clubs disgorge their crowds. Everybody rushes for home. Up and down the street rings out the world's most effective curfew—the cry, "Gardy-loo, gardy-loo" (*gardez l'eau*). Down pour trash and garbage from hundreds of tenement windows. It is a luckless citizen who has not reached shelter.

Little wonder the fussy Boswell, trying to put his town's best foot forward for captious Johnson, complained, "I could not prevent his being assailed by the evening effluvia of Edinburgh." The residents of fashionable St. James Court were thought very aloof and squeamish when they engaged a private scavenger to remove their refuse.

To-day all of Edinburgh is equipped with a modern sewage-disposal system, and even its narrowest streets are kept immaculate.

"MR. HYDE" PAYS FOR HIS SINS WITH HIS LIFE

From Brodie's Close steals a stealthy, sinister figure, all wrapped round in a black coat. Beneath its folds he clutches a pistol and a ring of keys. Furtively he enters this shop and that.

Earlier in the evening—any evening for several years—a most respectable town councilor, who also was a deacon of the Guild of Wryghts and Masons, attired in immaculate tail coat and breeches, might have been seen leaning against a door post where some merchant had trustfully hung his keys while he was at his tavern. Concealed in the palm of his hand was a clay mold. From an impression it was easy to make a key.

Photograph by Burton Holmes from Galloway

MANY "CLOSES" AND "WYNDS" FRAME EDINBURGH VIEWS

So designated are the narrow outlets from the Royal Mile, medieval Main Street of the Old Town. This view spans the Gardens to modern Princes Street.

Robberies became so frequent that the Town Council called a meeting. Deacon Brodie gravely counseled about ways of stopping the depredations. He thoughtfully advised tradesmen about the kinds of bolts to put on their doors. So zealous was he that he even went about while merchants were at dinner to make sure their doors were locked.

One night a particularly heinous robbery took place and two culprits were caught. A third escaped. Strangely, the highly respectable Deacon Brodie also disappeared. Stories went around. Certain cronies whispered how the good deacon gambled with them for high stakes. Two of his mistresses complained that the kind gentleman had gone away and made no provision for them.

Deacon Brodie was apprehended in Amsterdam, lodged in the grim Tolbooth (see page 240), and executed October 1, 1788. His skeleton keys now hang in the Museum of Antiquities. His "strange case" was immortalized by Stevenson. The fact that he could operate on such a cramped stage, scarcely a twenty-minute walk in any direction from his happy family fireside, emphasizes the tremendous crowding of the Old Town.

The Royal Mile, from Castle Hill, through Lawnmarket, High Street, and Canongate, is clean to-day, but its tenements are just as crowded, and they justify the modern implication of the term, for wealth and fashion have migrated to the broad streets and stately squares of the New Town.

There remain the molded doorways, armorial bearings, crests and texts, the peak gables, the intricately carved finials, the mammoth locks and door handles, and the exterior forestairs, leading up one flight to the interior "turnpike" stairs to the floors above.

Tourists do not invade the tenements, but when a visitor does climb to one of the ancient apartments he finds a welcome from the tenants, poor but hospitable, and is invited to examine the marvelous carvings of old windows, of ancient fireplaces, of sturdy panels. Some were half cut away for firewood before the municipality took steps to prevent impecunious householders from desecrating their historic domiciles.

One architectural feature is puzzling. In some houses there appears a slit much narrower than other windows. Inspection

Photograph by Burton Holmes from Galloway

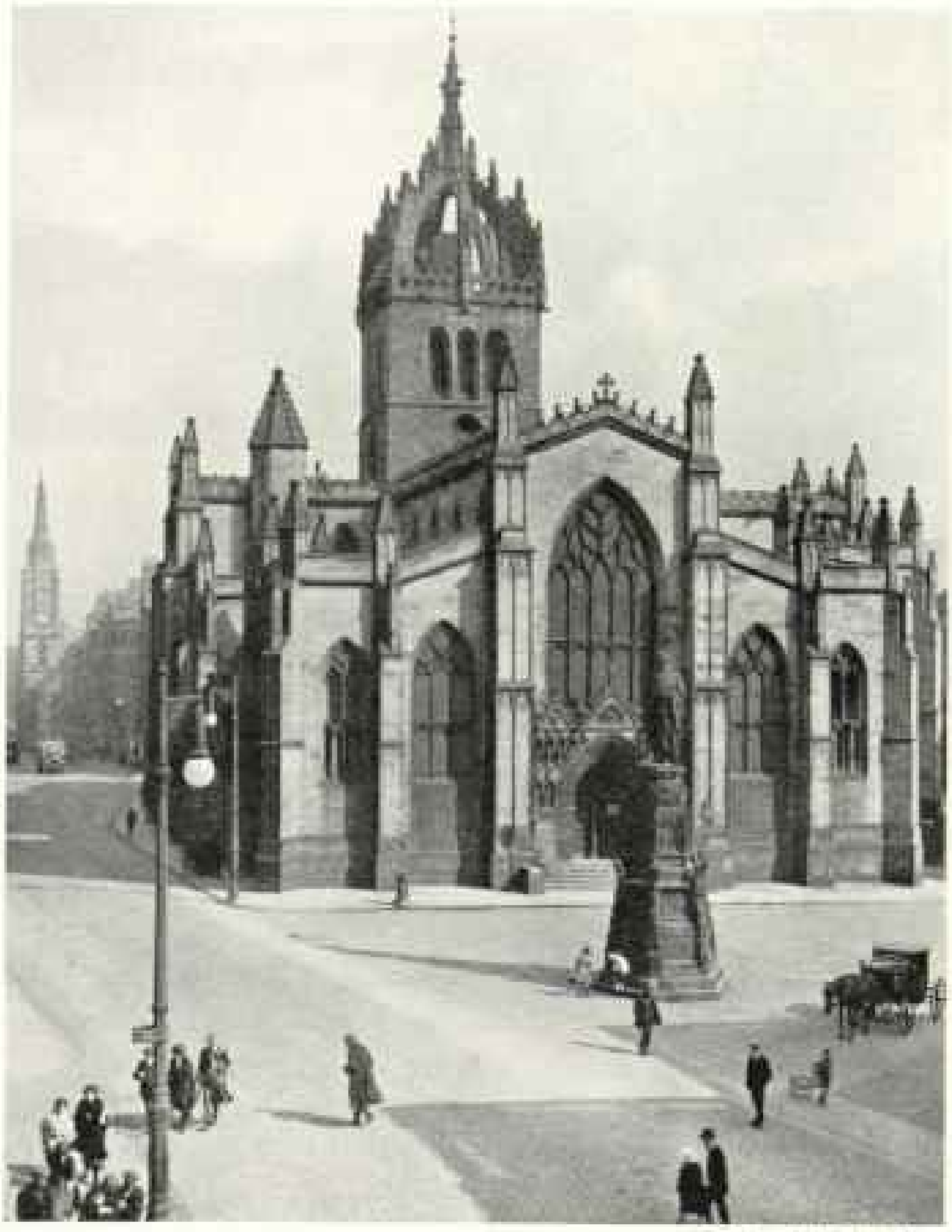
MONUMENTS TO A HISTORIAN AND A MAKER OF HISTORY

Edinburgh's Lincoln Memorial was erected in memory of the Scottish-American soldiers who fell in America's War Between the States. It adjoins the templelike tomb of David Hume, philosopher and pioneer in humanizing the writing of history.

Photograph by William Reid

AMERICAN MEMORIAL TO SCOTTISH SOLDIERS WHO FELL IN THE WORLD WAR

Opposite this vivid figure and its bas-relief, sculptured by R. Tait Mackenzie, of Philadelphia, stands a soldier of the King's Own Scottish Borderers.



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ST. GILES ONCE WAS THE CENTER OF CITY LIFE (SEE PAGE 243)

The graceful crowned tower dates from 1387. Once the cathedral also was center market for the Old Town; around it clustered booths of tradesmen. Adjoining it still stands the Hammermen's Chapel, where craftsmen dedicated the "Blue Blanket," famous insignia of the city's trades. The statue to the fifth Duke of Buccleuch, by Boehm, bears bas-relief carvings of incidents in the Border Wars. In the distance is the steeple of Tron Church, where the "kail wives," or vegetable women, gathered, because there was the "salt iron," or weighing beam. On New Year's Eve the Tron is the scene of a tumultuous celebration.

discloses that these apertures light tiny closets opening off the dining rooms. They were retreats for the head of the house, where he might perform his devotions. Apparently the deeply religious obeyed literally the injunction found in St. Matthew, "Thou, when thou prayest, enter into thy closet."

EDINBURGH BORN OF A ROYAL ROMANCE

From Lawnmarket it is only a short walk to Castle Rock, whence Edinburgh was hewn, which anchored the Old Town, which uplifts the Castle whose history spans half the world.

A storm at sea more than eight centuries ago planted the Castle there—a storm at sea and a beautiful woman.

Edgar Atheling, Saxon heir to the English throne, sailed for sanctuary in Hungary with his two sisters. An easterly gale drove his ship into the broad Firth of Forth. He sought shelter at Dunfermline, seat of Malcolm Canmore—the Malcolm of "Macbeth"—and that rude, unlettered monarch was captivated by one of the sisters, the fair Margaret. He married her and took his Saxon bride to live among the Saxon Lothians rather than remain with her among the wilder pagan Celts north of the Forth.

Malcolm's beautiful queen was very devout. Ancient chronicles relate that she fed hundreds of beggars day after day, serving them herself, even washing their feet in imitation of Christ's humility. Her devoted husband built her a crude rock chapel. It still stands, on Castle Rock, the oldest church in Scotland, the smallest in Britain. Its interior is only 17 feet long and 11 feet wide.

Step across the cobbled courtyard and five centuries of history and one comes upon the apartments of another queen, Mary of Scots, also loyal to her religion, greatly beloved, but scarcely devout. Three times a day grim John Knox would thunder forth at St. Giles against her church

and the frivolity of her court.

Here, and also at Holyrood, the girlish Mary indulged in these "frivolities." She danced gayly with her lords and ladies, she went hawking and hunting, she played chess. Nor was that all. She loved music and "play acting," she embroidered tapestries, she was suspected of reading Livy and even the Latin poets!

To the modern eye the apartments seem like cells; the queen's bedroom, overlooking the beehive in stone of the Old Town, is a mere closet. Gone are the brocaded tapestries, the rich hangings of cloth of gold, the carved chairs with gold-embossed leather. But in that cramped space was born Mary's son, later James the Sixth of Scotland and First of England, whose reign united the crowns, if not the two kingdoms, whose name is affixed to a version of the Bible carried into every corner of the world where Protestants have penetrated.

Photograph by J. R. Hildebrand

A MONUMENT TO CANINE DEVOTION

On Candlemakers' Row is the famous Greyfriars Bobby, a granite memorial surmounted by a bronze statue of a terrier who is reputed to have visited his master's grave for 14 years. "Bobby" is buried in grim Greyfriars Cemetery, where the National Covenant was signed with blood of patriots (see text, page 245), and over the faithful dog's grave Americans placed a tombstone.

One hopes that not many of the royal child's attendants sought to crowd in upon him at one time—6 nurses, 5 noble ladies who were honorary "rockers of the cradle," a "furnisher of coals," a master cook and pantry servants, 5 "violers," or musicians. Also, what was a "court confectioner" supposed to do for the infant?

THE ADVENTURES OF AN ANCIENT CANNON

Outside peaceful St. Margaret's Chapel is a relic more in keeping with Scotland's turbulent history—weather-beaten Mons Meg (see page 233). "The gun," the guide likes to tell you, "was cast before Columbus discovered America." In fact, it is generally accounted the oldest cannon in Europe, except one in Portugal.

Perhaps its inscription is correct and it was prosaically cast at Mons in 1486; but the other story is better, the story of how an earlier James (James II) was harassed by the Douglas clan in Galloway, and his armies could not batter down the enemy walls. Then came "Brawny Kim," veteran blacksmith, and his seven blacksmith sons, offering to forge a cannon that would smash the fortress. Two shots from mighty Meg tore such a gap in the walls

that Douglas surrendered. And the great gun was christened "Meg" in honor of the smith's wife.

Whatever her origin, "Roaring Meg" has traveled in her time and has seen life. She shot her granite projectiles—specimens now lie at her base—at Dumbarton, she guarded Dunnottar, she roared salutes here and there, she was dragged from war to war, she grew restive in the alien Tower of London, and she came home in a blaze of glory, hauled through Edinburgh by ten horses, escorted by cavalry, after Sir Walter Scott persuaded King George IV to restore her to the Castle.

For more than a thousand years Scottish history has swirled about Castle Rock; to it clings the driftwood of momentous events, the barnacles of glamorous and strange memories, until it seems that every stone has a story.

The broad Esplanade once was designated an integral part of Nova Scotia, so that baronets might be enfeoffed there before going overseas under commission of the Earl of Stirling, who, at one stroke of the first King Charles's pen, was casually endowed with history's vastest gift to a subject, "Canada, including Nova Scotia and Newfoundland." Guides delight to tell how you are standing on a tiny patch of the New World, since the decree switching the Esplanade to another continent's sovereignty has never been annulled.

What tales the slit windows of the grim old State Prison, perched on the arch of the tunnel-like portcullis, could tell! For example, the tale of the night Lady Lindsay entered there with a lackey, to bid farewell to the Earl of Argyll, who awaited execution.

As she came out, the sentry started to flash a light in the face of Her Ladyship's escort; he dropped her train; she slapped her "servant" in the face and berated him for a clumsy fool. The sentry laughed and opened the gate. Next morning the lackey alone occupied the cell; the Earl was gone.

On another night the Duke of Albany invited the captain of the guard and three of his men to his prison room to sample wine from cases brought him that day. The Duke plied all four of his guests with wine until they were in a stupor. Single-handed he stabbed them one by one; then broke open one of the gift casks and wrapped about him the coil of rope it contained. He escaped down the steep side of the cliff, but not until he savagely tossed all four of the bodies into the blazing log fire, where "in their armor they broiled and sweltered like tortoises in iron shells."

CASTLE RECAPTURED BY BOLD STRATEGY

More stirring still was the night when the Scots by bold strategy recaptured their castle from a garrison left there after Edward III crossed the border.

A seaman in British uniform pounded on the Castle gates one April morning and gained audience with the English governor. That very day, said the sailor, his vessel had put in at Leith with a cargo of wine, beer, and biscuits. The governor, weary of Scotland's plain winter fare, ordered him to deliver his goods.

Early next day a line of mules, laden with barrels and boxes, driven by ten men in sailor clothes and peaked caps, twined up the steep hill. The drawbridge was let down, the portcullis thrown open.

With a shout the men snatched the hoods from their helmets, threw down the barrels to prevent the closing of the mighty gate, and there poured forth scores of armed men who had concealed themselves in the houses around Castle Hill the night before. The amazed guards were quickly routed.

The most impressive interior on Castle Rock is the great open-timbered hall where Scotland's parliaments convened, where state banquets were held when the Castle was a palace, where to-day repose a conglomerate array of weapons, armor, and regimental colors. Its stained-glass windows are emblazoned with arms of Scottish kings and nobles.

In this hall was served the famous "Black Dinner," during which a black bull's head, traditional token of death, was placed before the two young Douglases, who, in spite of the tears and entreaties of the 10-year-old king, James II, were removed to the courtyard and executed.

Almost hidden by armor, behind a fireplace, is a grating, much like that of a ventilator. That was the "lug," the listening post, and behind it was a secret staircase from the palace, down which more than one emissary stole to eavesdrop on the prattle of men who talked, not wisely, but too much, after wine had been served.

Photograph by Capt. Alfred G. Buckham

CASTLE ROCK (FOREGROUND) IS CAPITOL HILL OF EDINBURGH

Beyond the pall of drifting smoke—citizens affectionately call their city "Auld Reekie"—rise Salisbury Crags and Arthur's Seat, in majestic King's Park, a wonderland of igneous rocks. In the left middle ground is Holyrood, former abbey and debtors' prison, still a royal residence. When the King of England sojourns in his northern realm he lives there, not as a visiting monarch, but as King of Scotland. Along the ridge from Holyrood to the Castle is the twisting, history-encrusted Royal Mile, and from it rises the graceful spire of St. Giles's Church.

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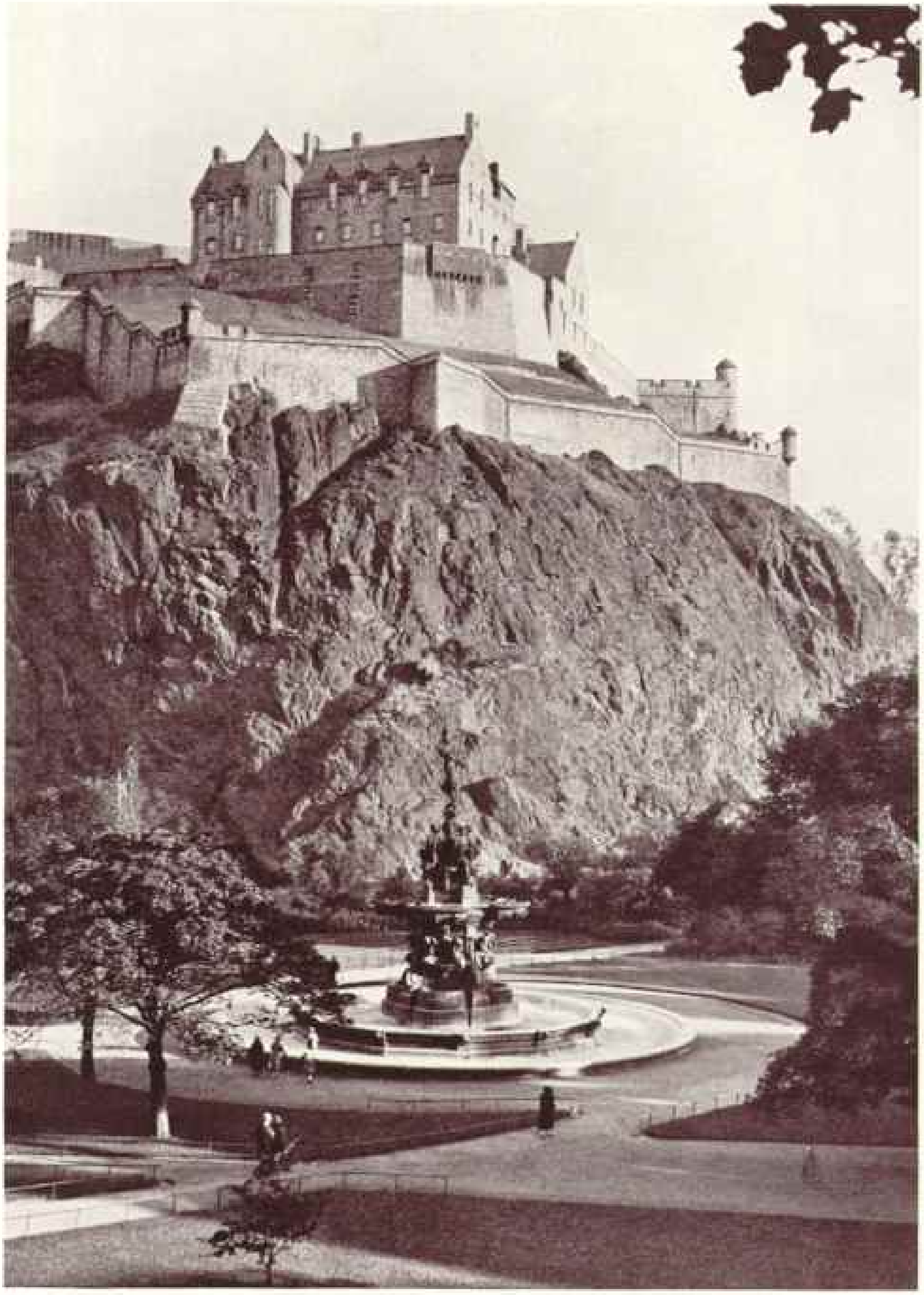
HERE THE EYE SCANS EIGHT EVENTFUL CENTURIES

Sir Walter Scott, the centenary of whose death is commemorated all over Scotland this year, called Princes Street (to the right) the most magnificent terrace of Europe. To-day it is lined with fine shops, clubs, and tea rooms, and in the afternoons is a fashionable promenade. From its broad expanse the beholder can look past the soaring Gothic Monument to Scott, over the spacious Princes Street Gardens, reclaimed from marsh lands, toward the ancient Castle and the compact cluster of stone houses of the Old Town. To the far end of the Gardens is the National Art Gallery.

© Donald McLeish

THE FLORAL CLOCK IN PRINCES STREET GARDENS

The hands are moved by a mechanism under the ground, and the numerals of the large dial, ten feet in diameter, are formed by growing flowers of many colors. Luxuriant flowers in the spacious parks, some of which are veritable museums of Scottish botany, and the vast expanses of green on the numerous golf courses of the New Town afford a marked contrast to the austere beauty of the tall stone "lands," or apartments, of the Old Town, where it often seems as if entire blocks had been carved from solid rock.



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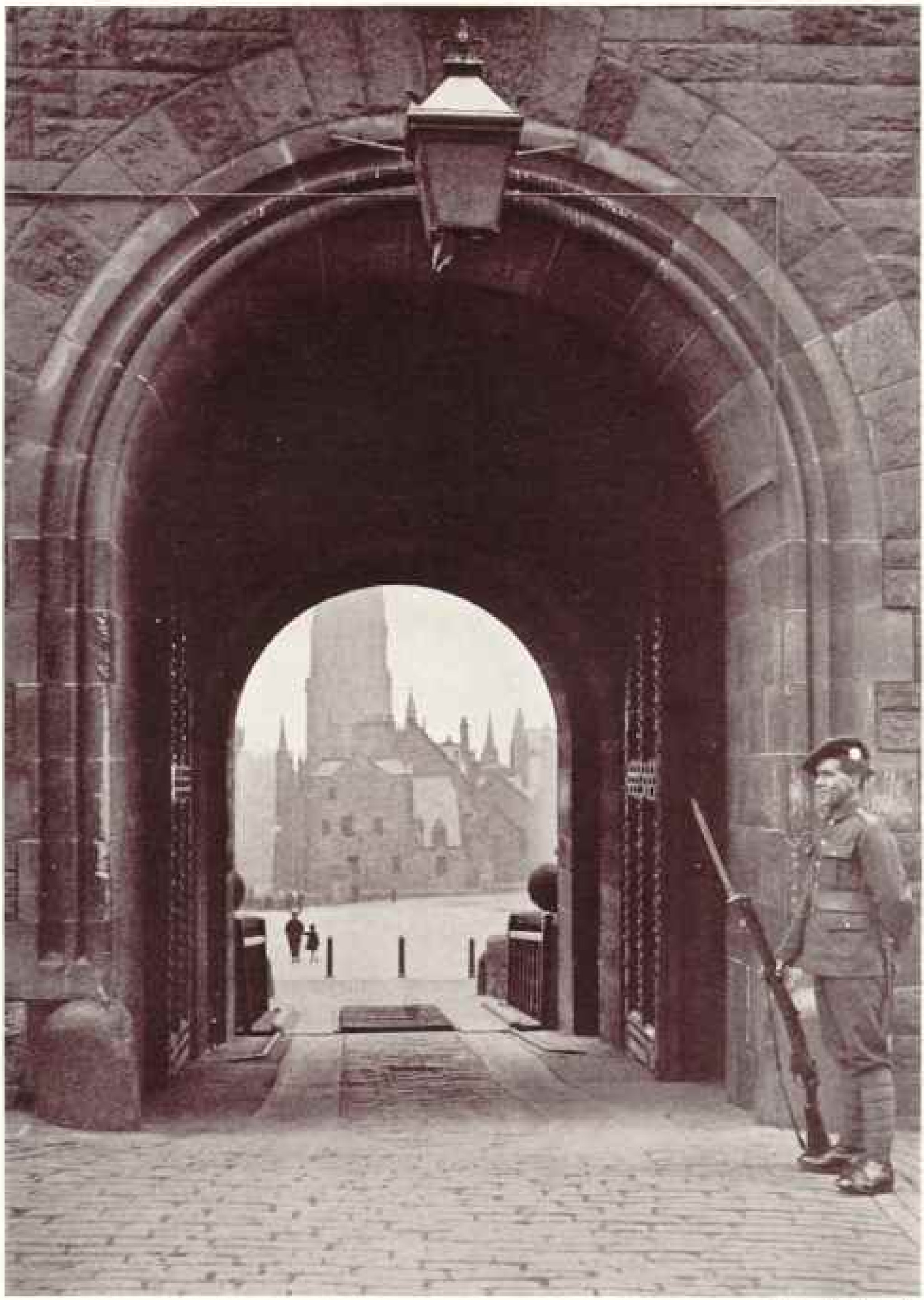
THE ROCK WHENCE EDINBURGH WAS HEWN

Nature thrust up to more than 500 feet the precipitous crag which made Edinburgh the inevitable stronghold of early warring tribes of Scotland. Tradition says, but historians deny, that the infant James, son of Mary Queen of Scots, was lowered in a basket down these sheer rocks and sheltered at Stirling. The walls are from 10 to 15 feet thick, and as they climb and dip, curvet, and creep around their rocky base, they suggest a miniature Wall of China.



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THE GATE OF THE CASTLE'S MASSIVE WALLS

The tunnel-like entrance, with its iron-studded doors, is guarded by a sentry of the Highland Light Infantry. Beyond the drawbridge is the Esplanade, which once was decreed a part of Nova Scotia, so that New World baronets might be enfeoffed there before going overseas (see text, page 226). Above the gate was the ancient State Prison, where many political prisoners were held pending their execution for adherence to the cause of the Covenanters.

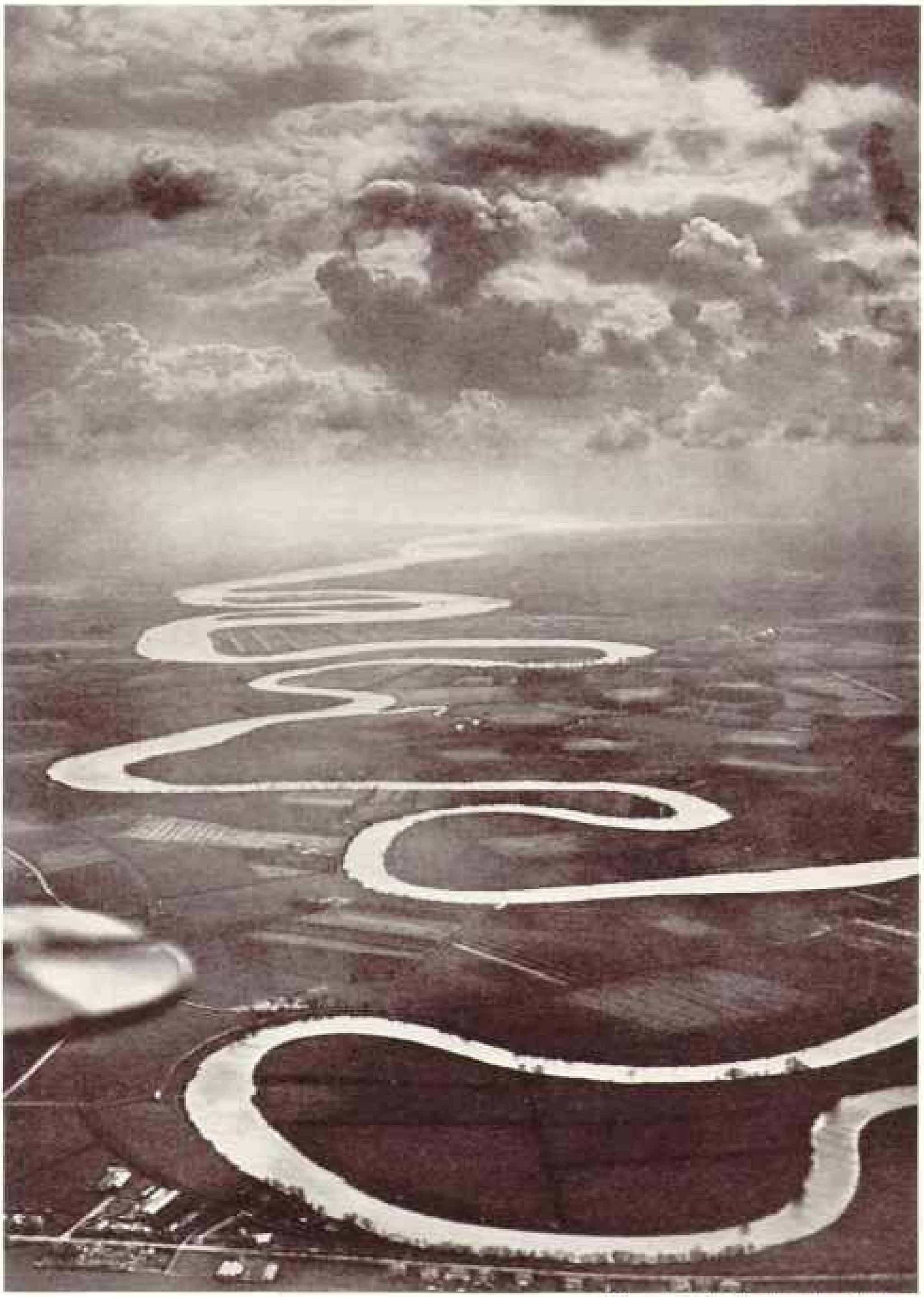
© Donald McLeish

THE EDINBURGH VIEW THAT STEVENSON LOVED

Calton Hill rises like a giant observation tower in the heart of the city. Many monuments, an incomplete Parthenon, and a jail fleck its slopes. The memorial in the foreground honors the precocious philosopher, Dugald Stewart, who at nineteen years taught abstruse mathematics at the historic University of Edinburgh. To the right of the hotel with the clock tower, which is etched against the dominating Castle, is the Scott Monument (see, also, text, page 237).

THE WORLD'S MOST BELOVED CANNON

"Mons Meg" was cast before Columbus found America, and shot granite projectiles at the strongholds of the rebellious Douglas clan back in the time of Scotland's second James. She roved from war to war, was dragged about to fire salutes, and "grew restive in the alien Tower of London" until Scott helped arrange for her ceremonious home-coming to the Castle of Edinburgh (see text, page 225).



Photograph by Capt. Alfred G. Buckham

SCOTLAND'S ROMANTIC RIVER FORTH MEANDERS TO THE SEA

Waters from Loch Ard and the Duchray mingle near Aberfoyle—names immortalized by Scott in "Rob Roy"—to form the river that unfurls like a wind-blown ribbon above historic Stirling, whose castle crowns a bold headland that was washed by the sea in geologic ages past. All around are battlefields, including Bannockburn, sire of so many battles and golf clubs.

The sanctuary of the Castle, the shrine of Scotland, is an obscure room up a narrow stairway near Queen Mary's apartments, where rest the "Honours of Scotland"—among them the jeweled crown, first used, it is said, to crown Robert Bruce; the silver scepter, pearl mounted, made at the behest of James V; the mace of Scotland's Royal Treasurer.

Once it was feared Charles I would remove all the regalia to London; later, that Cromwell would destroy the revered objects. During the stormy Commonwealth era they were removed to Dunnottar Castle, but when that seaside stronghold was besieged, the wife of a parish minister buried them in her garden.

They met other adventures before they were restored to the Castle, but there they were sealed in a black chest, on view to-day, and the doors and windows of the Crown Room were barred and locked for more than a hundred years, lest the sight of them arouse Scotland to rebellion.

SIR WALTER SCOTT TAKES PART IN DRAMATIC CEREMONY

In 1817 Sir Walter Scott obtained permission to open the chest. A distinguished committee, Sir Walter among them, assembled. Crowds outside awaited the news, for there was a general belief they had been lost in their wanderings. The dust and cobwebs of a century were brushed away, the lid was lifted; there they lay, intact. A shout went up from the multitude.

A jaunty citizen grasped the crown and sought to place it on the head of a young woman.

"By God, no!" shouted the courteous, chivalrous Scott. Blushing to the roots of his hair, the indiscreet young man apologized; Scott apologized for his outburst, but all the way home, relates Lockhart, he said not a word, and his daughter felt his arm tremble, so intense was his emotion at the incident.

Leaving the Castle on a summer evening at 6 o'clock and crossing over to the New Town—"new" because it did not grow until the decade our Declaration of Independence was signed—one comes upon a human scene different from the homebound crowds of an American city at that hour.

It is tea time for the shoppers along Princes Street and even busier George Street, and golfing time for the thousands of workers emerging from the great banks, insurance offices, printing establishments, and fine stores and drapers' shops. There is one grocery which, with its Corinthian columns, has all the impressiveness of an American Greco-columned bank.

For the most part, Edinburgh is a "white-collar city," and, besides insurance and banking, its chief functions are printing and publishing, law and medicine, and its "foremost industry" is education. It sells its famous wool raw, by the piece, and in manufactured garments to the United States, as high as two million dollars' worth in a good year, and it makes beer, malt, and ale for itself and Britain.

In the Canongate sector of the Royal Mile there are more than a score of breweries, so located that they may tap a seam of water that lends distinctive flavor to the Edinburgh ale. Naturally that vicinity abounds in alehouses, and I have seen families—men, women, and children—emerge from prayer meetings in Scotch Presbyterian churches on Thursdays and make for taverns, just as they must have done in the days of Burns, Coleridge, and Allan Ramsay, prosperous poet, printer, and wigmaker.

You rub your eyes at the golfers, just going out for nine holes; then recall that Edinburgh is in the latitude of Labrador, and it does not get dark in midsummer until an hour or so before midnight. Indeed, if you go to the theater, you emerge from the evening performance to find golfers trailing home from the multitudinous courses in and about the world's golfing capital.

One concludes that the Scots should be excellent golfers; the declination of the sun and the warm moisture from the Gulf Stream that waters their incomparable greens help make them so; also, they have been at it a long time. The game must have been popular when Sir Francis Drake was harrying the sea power of Spain; for in 1592 the city fathers passed an ordinance prohibiting Sunday play. The game is almost as democratic as the American "movie." For a fee, the visitor may play almost any course, though some of the clubs, to avoid crowding, are "by permit only."

It requires a devout golfer to keep his eye on the ball on the vast courses that

Photograph by J. R. Hildebrand

CONTROVERSY STILL WAGES AROUND "KNOX HOUSE"

Whether this Old Town residence was the manse of the Reformer is disputed, but the tradition that he resided there served to preserve one of the finest medieval homes of Edinburgh. It now has an interesting collection of Knox relics.

have climbed up and over both slopes of Braid Hills, for below is spread a magnificent panorama of the city, with Ben Lomond in the distance, and one becomes self-conscious at losing balls "where fairies danced around Elf Loch," or making long drives from beside Buck Stane.

SCONES, CHEESES, AND DIGNIFIED TOBACCONISTS

Dinner is late in Edinburgh, for even if one resists the light luncheon served in the name of "tea," there always are the flaky, griddle-baked scones, which no outlander chef ever quite achieves. Moreover, dinner, even at hotels, is a ceremony, a matter of courses, concluding with not one but the choice of many cheeses, and followed by coffee and liqueurs in the coffee-room, which adjoins, but is quite distinct from, the "reception room," which we would call a lobby.

Resisting the thoughtless tourist clamor for ice water, in a city where the drinking water is crystal clear and cool, the hotels have capitulated in the matter of private baths. At least two hostelries have achieved this by converting every other guestroom into a bath, which, to the nonengineering mind, quickly becomes an adventure.

The bather faces an array of needle baths, shower baths, tub baths, spray baths, regulated by a variety of faucets as intricate as the control board of an airplane.

Amid the quarried freestone dignity of Princes Street an American "5 and 10" store does a "3-pence and 6" business almost under the eaves of that architectural gem, the General Register House, mecca for students of Adam's designing genius and repository of deeds, mortgages, records of births, deaths, and marriages back to days when the city was a cluster of thatched houses under Castle Rock.

However, chain tobacco stores have not banished the courtly tobacconist, kindly adviser of pipe blends and cigar aromas, who still dispenses snuff, but rather disdains, or merely tolerates, cigarettes, principally vended by slot machines. If you wish matches, you buy them.

A Scotch-American, runs a favorite Edinburgh story, went to half a dozen tobacconists, made a purchase of each, asking each time for matches, in an effort to sift down what he thought was a libel on the city of his ancestors. At each place he was gravely told, in one way or another, that giving away matches had no possible connection with selling tobacco.

"And what did you do?" inquired his friend.

"Why, I had to walk all the way back to my hotel to get a light; otherwise I would have had to pay for it."

© Donald McLeish

THE DEAN OF FISHWIVES: NEWHAVEN

For 55 years this vender has been selling fish from door to door, and at 75 years still makes her daily rounds in company with her daughters and grandchildren. Voluminous skirts and numerous petticoats are marks of the Newhaven women by which they are easily identified when they go shopping in Leith or Edinburgh.

HISTORIC HILL HAS A LINCOLN MEMORIAL

Standing guard over the opposite end of Princes Street from Castle Rock is Calton Hill, affording a view that reaches out to Fife and the Ochils. Calton is dotted with an amazing collection of monumental and architectural curiosities which, somehow, seem to achieve harmony (see page 232).

Beside the incomplete Parthenon of Craigleith columns, there is a Nelson Monument that shelters a museum; homely Bobbie Burns is awarded a copy of the choragic temple of Lysicrates; a high school reproduces the Temple of Theseus at Athens; there also are an observatory, a burying ground, the tombs of Hume and of Stevenson's parents, and a jail!

For 800 years the Royal High School, beginning when education was wholly in the hands of monks, has graduated distinguished men. Three of its most famous pupils were King Edward VII, Sir Walter Scott, and Alexander Graham Bell, inventor of the telephone (see, also, page 240).

In the Calton burial ground is a graceful statue of Abraham Lincoln, in memory of Scottish-American soldiers who fell in our Civil War (see page 223).

Looking across the city toward the Castle, one realizes how the chasm of Nor' Loch helped keep the Old Town rigidly in bounds. Not until 1770 did adventurous spirits break ground for a house or two in the New Town. A certain James Boyd would cross over evenings to see how the buildings progressed, and he laid down

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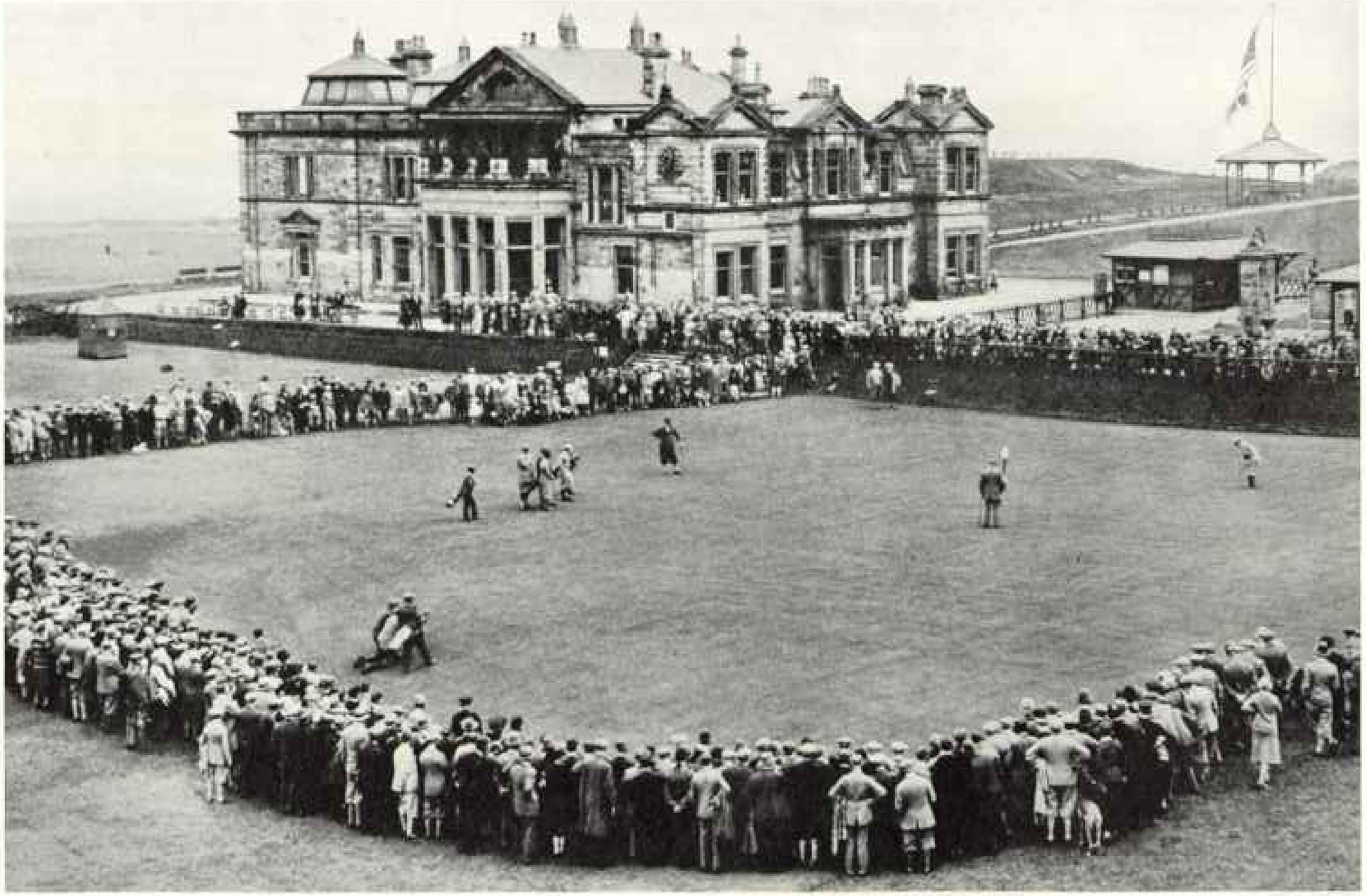
HOW ENGINEERS CONQUERED THE FORTH

The Forth Bridge is built on a principle the architects call "stable equilibrium"—that is, its own weight helps fix the mighty structure more firmly in position. Its towers loom as high as our Capitol dome above the waters; its length is approximately one and a half miles.



Photograph from Ewing Galloway

BOBBY JONES PUTTING AT ST. ANDREWS

The course that makes golf rulings for the world overlooks the North Sea from a rocky promontory of the historic city which also is the seat of Scotland's oldest University. The American champion is playing the eighteenth green in the Walker Cup Tournament.

© Donald McLeish

THE TOLBOOTH (JAIL AND COURTHOUSE) OF CANONGATE

Up the outside stair many prisoners, mean and noble, climbed to judgment, and herein was executed the infamous Deacon Brodie, prototype of Stevenson's "Dr. Jekyll and Mr. Hyde" (see text, page 221). Note that the projecting clock has no figures on the dial.

Photograph by Burton Holmes from Galloway

FISHER FOLK LIVE IN HOMES LIKE TURRETS

These humbler dwellers of Newhaven, of Scandinavian origin, occupy massive dwellings built by rich traders of the Middle Ages. In those prepolice days every man's home was his castle and he prepared to defend it himself. Thick walls, tiny windows, winding stairs contributed to that end.

© Donald McLeish

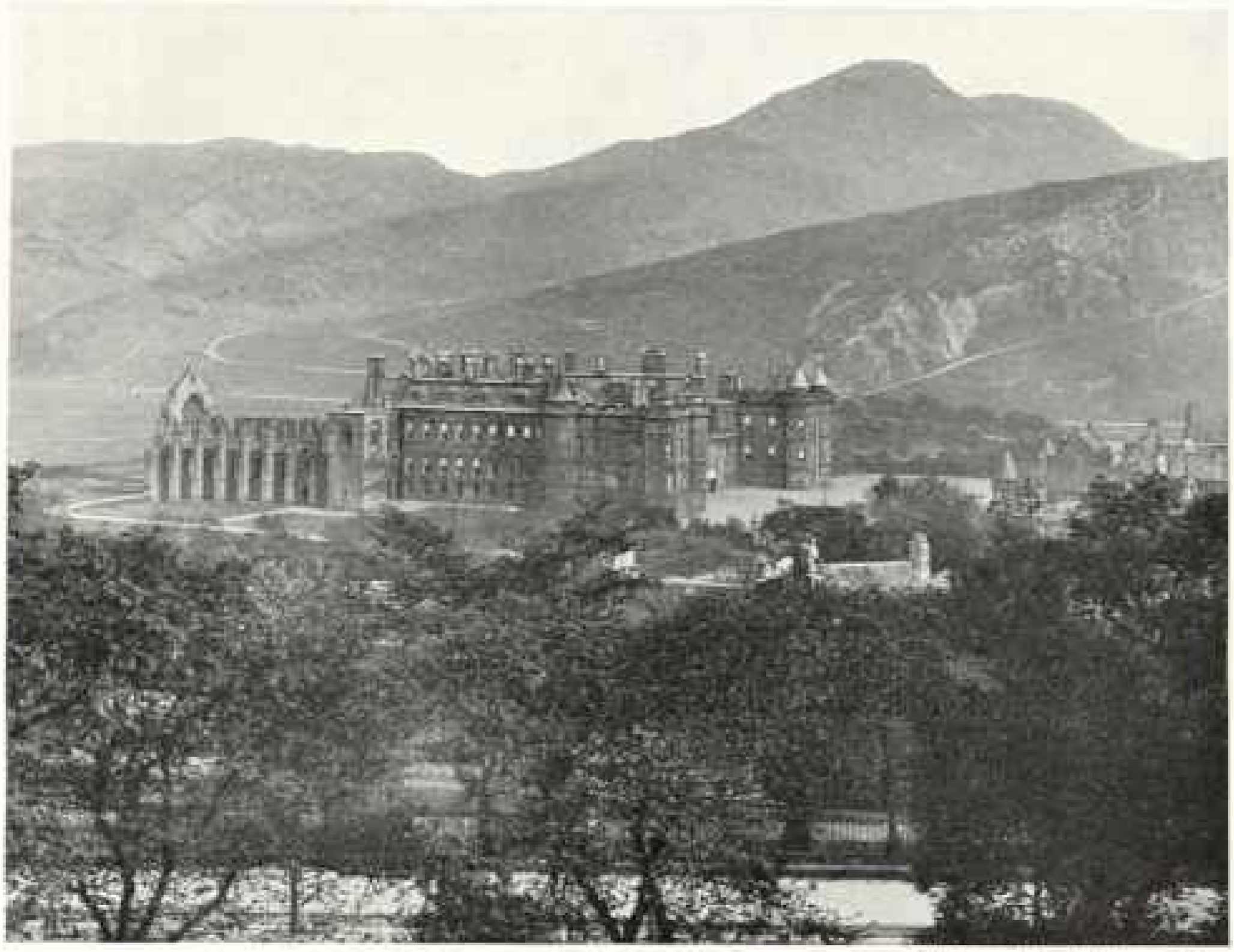
ANCIENT CARVED STONES ADORN THE WALLS OF LEITH

Almost as old as Edinburgh itself is the port which saw many invaders land to march on the Castle. The lower panel bears the heraldic arms of the Mariners of the Port, a memento of its commercial ascendancy some 250 years ago. The upper panel is older still and is inscribed with the year of the defeat of the Spanish Armada. Beneath is a 16th-century ship.

Photograph by Inglis, Edinburgh

THE CHARM OF QUEEN MARY CLINGS TO HOLYROOD

This is Queen Mary's workbox, which she used to make the "frivolous embroidery" of which John Knox complained (see text, page 224). Beside it is Lord Darnley's glove, her father's hat, which he wore when he went disguised as a beggar among the people, and the bottle in which the gay and tragic queen was reputed to collect her tears when she wept.



Photograph by William Reid

HISTORIC HOLYROOD NESTLES UNDER TWO MIGHTY CRAGS

Majestic King's Park, a "wonderland of igneous rocks," five miles in circuit, incloses King Arthur's Seat and Salisbury Hill. Holyrood, at various times an abbey, debtors' sanctuary, and royal residence, is at one end of the Royal Mile, which winds and twists along a ridge to the Castle (see, also, page 227).

planks and stones on the muddy bottom of Nor' Loch to facilitate his crossing. His trail became known as "Geordie Boyd's Mud Brig" and, as more and more houses went up, earth from the excavations was dumped along his route. In the fifty succeeding years more than two million cartloads of dirt were dumped there, and thus arose the Mound, landmade Brooklyn Bridge of the Old and New Towns.

HOLYROOD THE OCCASIONAL "WHITE HOUSE" OF EDINBURGH

On top the Mound are the red sandstone National Gallery, rising above the mouth of Waverley Station Tunnel (see page 220), and the impressive Royal Institution, in the Doric style. On the broad pavements of these institutions' sidewalks artists contrive marvelous color chalk sketches of the Castle and other landmarks, and of the pedestrian, if he will disgorge a few pence for their pains.

Gazing in another direction from Calton Hill, the eye catches lonely Holyrood, aloof from the city, crouching under the mighty shadows of Salisbury Crags. It almost strains the mind's eye to imagine the busy streets between as the place where King David went hunting, one autumn day of 1128, with dogs and bugles to scare out the beasts in the dense woods, and was attacked by a vicious stag. He saw a vision, was saved by a miraculous cross, and he built an abbey.

The abbey became a monastery, later a palace, and its grounds were sanctuary for debtors until 1881, when imprisonment for debt was abolished. In its various capacities it has entertained kings, cardinals, and penniless Thomas De Quincey. Recently King George stopped there, not as a visiting King of England, but as King of Scotland.

Photograph by Inglis, Edinburgh

QUEEN MARY'S BEDROOM AT HOLYROOD

From this room Mary went forth one morning at sunrise to marry Darnley, at a dismal and hurried ceremony; here she retreated for several days, prostrate with grief, at the subsequent murder of her ill-starred husband. The faded tapestries and the paneled walls and ceiling bear emblems of Scottish kings.

Eclipsing the glamorous days of the festive court of James IV, the residence of Prince Charles, the vandalism of Cromwell's troops, the strange scene of houses of refuge for as many as 500 debtors, is the gleam of Queen Mary's personality. At Holyrood, as at the Castle, her apartments are a focus of interest (see above). Even the quaint little structure outside has been named Queen Mary's Bath because, tradition has it, the tragic queen bathed there, in white wine, to enhance her beauty.

Her audience chamber recalls her stormy interviews with John Knox. The small supper room conjures the dramatic night when she was at dinner with Rizzio and her ladies-in-waiting, and suddenly Darnley and a group of nobles burst in, snatched Rizzio from the table, and murdered him.

The guide is very certain that he was stabbed 56 times, and, pointing to a spot on the staircase, assures you the bloodstain was not removed.

The Holyrood picture gallery is an object of curiosity, if not of high artistic interest; for there hang 110 paintings of Scottish kings, back to mythical monarchs of 300 B. C. These Charles II commissioned a Canongate artist to paint, the painter to do the portraits in two years, for a payment of £120 a year.

A touch of Marco Polo geography clings to the visit there, in 1435, of a prelate who later was Pius II. He was amazed to see the poor, begging at church doors, turn away joyfully when presented with a handful of stones. He was told how the ancient forests had been depleted, and now rocks, by reason of their sulphurous or "other fatty matter," were burned instead of wood. Europe was not yet widely acquainted with coal, and the churchman returned to Rome to tell of these strange people who gave stones for alms.

While the Castle and Holyrood unfold the colorful annals of Scotland's nobility and chivalry, there is one shrine even closer to the heart of the average Scotsman—St. Giles's; for that ancient church and its adjacent Parliament House and Square, Market Cross, the library where Hume

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CURING FISH AT NEWHAVEN

In the fishing port of Edinburgh sprats and bristlings are being converted into the anchovies of commerce by being cured in a preparation of salt, sugar, and various spices. They are shipped to all parts of the world and will keep in this preservative for four years.

presided, and law courts which Scott frequented, the sidewalk symbol of the "Heart of Midlothian," have touched the intimate daily life of Edinburgh for centuries past (see page 224).

Formerly wooden booths clustered about the church itself—booths reserved for booksellers, watchmakers, jewelers, and those scarlet-coated aristocrats, the goldsmiths.

Here was the shop of "Jingling Geordie," recorded in "The Fortunes of Nigel"—George Heriot, jeweler and creditor of kings, who is memorialized to-day in the Heriot School he endowed, as noteworthy for its architecture as for its curriculum.

It was Heriot who visited Holyrood and found James VI sitting by a luxurious fire of perfumed wood.

"Sire, if you will come to my shop I will show you an even more costly flame," said the jeweler.

When the King arrived he found an ordinary fire. "But wait," counseled the jeweler, and he tossed into the blaze a note for 2,000 pounds owing to him by his sovereign, inquiring archly, "Now is Your Majesty's fire or mine the more expensive?"

The shop of this Nordic Rothschild was only seven feet square!

WHERE JOHN KNOX PREACHED THREE TIMES A DAY

Much more motley were the booths of the lusty market women about Mercat (Market) Cross, clamoring their "pietricks, plivers, capones, chekins, and other wild foulis, and tame."

The church has been shorn of its commercial lean-tos and stands in the clear, small but graceful, with its fine central tower and Gothic crown that mark so many views of Edinburgh to-day.

The dim, mysterious interior of St. Giles, streaked with tinted lights from the mellow stained-glass windows, hung with tattered flags of scores of wars, has heard masses, Presbyterian sermons, prayer meetings, and Episcopal services. There John Knox preached to large congregations two and three times a day, seven days a week, in the days when theology and litigation seemed the chief preoccupations of

the residents. And there Jenny Geddes, vegetable vender of High Street, is reputed to have flung a footstool square at the head of the Bishop of Edinburgh when he started to read Laud's liturgy.

A shrine of all English-reading visitors is the beautiful bronze relief of Stevenson by Saint Gaudens.

Near by is Greyfriars' Churchyard, with the flat gravestones where the historic Covenant of 1638 was signed, many using their own blood for ink; also, where Scott, one Sunday morning, met his first lady love, who later married another, by offering her an umbrella protection from a "mist," which is Scotch for rain.

By the entrance to Greyfriars is Edinburgh's quaint monument to a dog, the graceful fountain surmounted by a Skye terrier so faithful that he hovered about the grave of his master for 14 years (see page 225).

Scotland's sons always have borne strong stamps of individuality, and at this focus of city life when Edinburgh was yet only a mile long and half a mile wide, characters of history march by as well as "characters" of local memory.

There was the jurist of Canongate who always would send his wig home in a sedan chair, while he walked in the rain; the countess who tamed rats to prove they were more faithful than human friends; and the whimsical Hugo Arnot, who, when a neighboring lady complained of his ringing a bell to call his servants, took to shooting off a pistol instead.

Less annoying was Charles Alexander Sharpe, the Edinburgh Pepys of his day, who had printed on his calling card the musical symbol for "C sharp."

Lady Stair Close is named for the fine lady who had a black servant, greatly coveted, since he was then the only negro in the city, and Morocco Close recalls the Horatio Alger story of Andrew Gray, who fled from a death sentence to become a trusted servant of the King of Morocco, and sailed home in oriental magnificence to be a benefactor of his city.

Of a later day was the talented Lord Monboddo, whose passion for the classic led him to eccentric lengths in imitating the Greeks. He strewed flowers over his dinner table; he decorated his wine bottles with garlands of roses before serving his guests; he insisted on taking air baths by an open window. Never, he proclaimed, would he be "dragged about behind a horse's tail"; so he always rode horseback, even on his annual trips to London.

MERCAT CROSS, WHERE CADDIES WERE BORN

Around the aforementioned Mercat Cross, in those times, always clustered a group of unkempt, shrewd lads, who petitioned strangers to be permitted to act as their messengers, porters, or even valets. They were called cawdies, or caddies, and their name is perpetuated to-day on golf courses of the world.

In contrast to those turbulent times is the serene, stately setting of Edinburgh's history of the last century, which centered about Charlotte Square.

At the west end of broad George Street, lined with substantial banks and insurance offices, rise the fine old trees of Charlotte Square, and amid them the great dome of St. George's Church.

Parallel to George Street, on the south, is the incomparable Princes Street. To the north is Queen Street, with its rows of square stone houses, retaining the fanlights, the neat railings of wreath and urn pattern, the distinctive attic windows of a century or so ago.

In one of those houses, late one night, his wife found the eminent Sir James Young Simpson, along with two of his servants, sprawled in a stupor over his laboratory table. There was no scandal; they had just discovered chloroform!

All around Charlotte Square are the solid freestone houses, the masterpieces of Robert Adam's time, which won Ruskin's praise as being the finest Georgian models in Britain.

From Queen Street to Princes Street, on one side of the square, runs Hope Street; on the other side runs Charlotte Street.

At No. 13, on Hope Street, Alexander Graham Bell was born; at No. 13, on the parallel Charles Street, across the square, he spent his youth. His nursery window looks out upon St. George's Church. In the Charlotte Street house is the room where a wise father permitted his sons to carry on their juvenile experiments in dis-

© Donald McLeish

CRAMOND, WHERE A MONARCH MUST WASH HIS HANDS

This village on the Almond was the scene of an adventure of King James V, who, while disguised as a farmer, was attacked by peasants and rescued by a country lad. The grateful ruler presented the youth with the lands of Braehead on condition that he always offer his monarch a basin and towel should he pass over Cramond Brig. This ceremony was observed when King George IV and Queen Victoria visited the hamlet.

section and arrange their botanical collections in their own way.*

It was one of the benches in Charlotte Square that the youths named "Chocolate Seat," because, when they had saved their pennies to buy chocolates, they would adjourn there to eat them.

Only one block away, on Castle Street, is the home of Scott, with its spacious dining room and its famous study, described with fidelity by Lockhart.

And around the corner, on George Street, is the home where a third immortal, Audubon, devoted years to portraying "The Birds of America."

Probably no other quarter square mile in Europe has yielded men who have exerted such a profound effect upon the scientific, literary, and everyday life of the English-speaking world as this "Beacon Hill of Edinburgh."

* See, also, in the NATIONAL GEOGRAPHIC MAGAZINE, March, 1922, "Prehistoric Telephone Days," by Alexander Graham Bell.

Notice of change of address of your NATIONAL GEOGRAPHIC MAGAZINE *should be received in the offices of the National Geographic Society by the first of the month to affect the following month's issue. For instance, if you desire the address changed for your October number, The Society should be notified of your new address not later than September first.*

PHOTOGRAPHING THE NEST LIFE OF THE OSPREY

By Capt. C. W. R. Knight

With Illustrations from Photographs by the Author

BECAUSE of the depredations of the egg-collecting community of Great Britain, the osprey, or fish hawk (*Pandion haliactus*), has not appeared on the list of British nesting birds for the last twenty years.

At one time this unique bird nested annually in certain of the wilder parts of Scotland, but was ultimately doomed to extinction by the systematic and persistent robbing of the nests.

Recently I stood on the shore of a beautiful lake in Inverness-shire and looked across the rippling waters at the tiny island on which the last pair of British ospreys strove pathetically, year after year, to rear their young.

How the collectors could have managed, as they did, to get away with the eggs is almost inconceivable; for, in the first place, they must have run a considerable risk of being seen as they crossed the water to reach the island, and to do so in darkness would have been well-nigh impossible; then barbed wire was entwined around the trunk of the tree, which would not tend to simplify operations; and, lastly, the taking of the eggs must have been accompanied by a considerable degree of danger, for the huge nest was built at the top of an apparently dead branch that stood out from the top of the tree, and it is difficult to imagine how any one could have reached over it.

Nevertheless, the eggs *were* taken, and in spite of barbed wire, padlocked boats, and a watcher who was specially employed to guard the nest. It is recorded that on one occasion the robbery took place at dawn, in a snowstorm, and the enthusiast, who undressed on the shore of the lake, swam across to the island, and got away with the one egg that the nest contained, must at least have been, if unscrupulous, a man of some determination.

The Most Famous Osprey Colony

Two summers ago I had the good fortune to spend some weeks on Gardiners Island, off the eastern end of Long Island, where, because of the interest and consideration of Mr. Lion Gardiner, who owns it, and Mr. Clarence Mackay, who leases it, the most famous colony of ospreys in the world enjoys a primeval freedom.

The birds that return each year to the island for the purpose of rearing their young probably exceed 300 pairs, and, because they have never been disturbed, they construct their nests in every conceivable situation. One sees the huge piles of sticks, branches, and rubbish at the tops of inaccessible trees, on bushes, buildings, walls, the roots of upturned trees, seashore wreckage, even on the seashore itself.

Intimate Studies of Nesting Birds

My object was to try for some really intimate studies of the home life of the osprey, and from such a vast collection of nests, many of them in satisfactory photographic positions, I had difficulty in deciding which would be the best for my purpose. In the end I selected one that seemed to possess several promising features: it had a dark background, to my mind a most important asset; its owners seemed to be of a less distrustful disposition than most of the others; there were three well-incubated eggs in the nest—a desirable stage at which to commence operations; and, lastly, there was what we regarded as a mascot on the nest in the shape of rag doll's head!

Ospreys are much addicted to the habit of bringing to their nests various decorative oddments, such as the dried carcasses of birds, crab shells, pieces of board, derelict shoes, bits of clothing, and so on. Such treasures, generally washed up by the tide, are picked up in the osprey's feet as it swings by, and so conveyed to the nest (see illustration, page 249).

One of the most interesting curios that I discovered on an osprey's nest was a book called "Lucille, Bringer of Joy." (We at once christened the parent osprey "Lucille," in the hope that she would be a bringer of joy by allowing us to get some nice pictures.) Among the pages of this

THE MALE OSPREY HOVERS OVER HIS NEST WITH FOOD FOR THE FAMILY

The fish hawk bears a good character in the avian world. He is harmless to most other birds, and so well do they know it that smaller species often build their nests in the interstices of his bulky home. Although courageous in defense of his nest and young, the osprey is seldom an aggressor.

ODDS AND ENDS FIND THEIR WAY TO THE OSPREY'S NEST

This bit of carved wood weighed nearly a pound. It was found in one of the nests on Gardiners Island (see text, page 247).

EGGS OF THE FISH HAWK VARY IN SIZE, SHAPE, AND MARKING

As a rule, the female lays from two to four eggs, rarely five. They are of a light buff base color, blotched with shades of claret and brown. The eggs measure from 2¼ to 2¾ inches in length and from 1½ to 2 inches in diameter.

A PAIR OF FISH HAWKS, EMIGRANTS FROM THE UNITED STATES, REACH SCOTLAND

The author with two of the ospreys which he brought back from Gardiners Island, off Montauk Point, New York, and liberated in their ancestral haunts of Inverness-shire (see text, page 260, and illustration, opposite page).

THE SPOT IN INVERNESS-SHIRE, SCOTLAND, WHERE THE OSPREYS FROM GARDINERS ISLAND WERE LIBERATED IN JULY, 1929

COASTING IN FOR A PERFECT LANDING

The female is approaching a nest built in the sand dunes. Once a nesting place is chosen, the birds are most persistent. An instance is recorded of a pair of ospreys which selected a telephone pole as a home site, and in spite of the fact that the nest was torn down several times by harassed linemen, the birds continued to rebuild. Finally a new pole was set up to one side and the wires moved to it, leaving the birds in triumphant possession of their favored spot.

BRINGING A MEAL HOME FOR THE FAMILY

The osprey will not carry a fish tail-first, presumably because a head-first hold affords better control of the jerking, twisting prey.

FISH HAWKS PREFER TO NEST IN HIGH, EXPOSED POSITIONS
Large, isolated trees without too much foliage are their first choice. To the osprey, like the eagle, almost anything serves as building material.

PREPARING FOR HIS INITIAL TAKE-OFF
Soon after the young ospreys learn to fly they begin to practice catching fish. Many failures and the resultant duckings dampen their feathers but not their enthusiasm.

FARMERS LIKE TO HAVE OSPREYS BUILD IN THEIR TREES

The presence of these birds of prey serves to protect poultry, for they never touch domestic fowl themselves and they will not tolerate the presence of other hawks near their nests. Along some parts of the Atlantic seaboard, farmers place old wagon wheels atop tall posts in the hope of attracting ospreys to nest there.

THE PARENTS SHARE THE RESPONSIBILITY OF RAISING THE FAMILY

The osprey displays deep affection for its young, and one of the parents is almost always within call of the nest, ready to defend the chicks. When fish are brought to the nest, the mother tears them into small pieces for her offspring.

FEATHERED LIGHTNING IN SLOW MOTION

The two lower pictures illustrate the position, feet in front of beak, which the bird assumes before striking the water (see text, page 259).

book I discovered the motor license of its one-time owner.

A HIDING PLACE OF WRECKAGE IS BUILT

Intimate photographs of such a keen-eyed, watchful bird as the osprey cannot be obtained without a deal of prolonged preparation, careful reasoning, and hard work. We (two of the Scotsmen who live on the island and myself) commenced operations by building up, a few feet away from the selected nest, a great pile of wreckage—crates, boxes, and heaps of seaweed—the rough semblance of the actual hiding place, from which I hoped that I could one day obtain the longed-for photographs.

In my experience this preliminary, the building of the hiding place and the way in which it is carried out, is of the utmost importance where the photography of shy birds is concerned. My rule is, "Work with a definite object in view and never be about the place too long." A bird kept from her nest for any length of time is liable to become apprehensive, suspicious; and, if that once happens, woe betide the photographer and his hopes of those intimate, home-life pictures!

Work on the hiding place proceeded gradually, and the heap of wreckage grew as the time passed. Each day more boxes and seaweed were added; each day we breathed a sigh of relief, as we saw from a distance that the old osprey was in no way perturbed by the appearance of the growing pile. At last, one day, with the utmost expediency, the great heap of wreckage was transformed into an actual, habitable blind—a blind roomy and dark within and camouflaged on the outside with the familiar wreckage, branches, and seaweed.

The stage was set; the great moment had arrived. When my companion and I had fixed the camera in position and made everything ready for photography, we retired to a distance to watch developments. We were, of course, rather skeptical as to whether our subject would accept the changes we had made in the appearance of the hide and breathed a silent prayer of thankfulness when we saw her glide toward the nest, alight, and settle down to brood her eggs.

The next day I attempted close-up photographs. My companion accompanied me to the hide, and, when everything was arranged, walked away as obviously as possible, hoping thereby to divert the attention

of the birds from the fact that I still remained behind.

To my relief, everything proceeded according to plan and I obtained the first of my records.

THE YOUNG OSPREY RESEMBLES A PHEASANT

In due time the young ospreys hatched—little fellows covered with prettily marked, brownish down, rather like young pheasants.

While the female brooded them, the snowy-breasted male perched and remained on the stick at the back of the nest, as if to complete the family group. Presently he flew away, to return later on with a fish probably weighing three or four pounds. This the female took from him and, holding it in her foot, tore off tiny pieces with her beak and distributed them among the family. Her extreme tenderness as she did so can only be compared with that of an eagle as she feeds her young.

Such a fierce-looking, wild-eyed creature, and yet so extraordinarily gentle! During the whole of this meal the male osprey remained on the nest as if deeply interested in the proceedings, and only made his exit when the female, having distributed all the food, prepared once more to brood the family (see page 255).

The whole attitude of the family—father, mother, and little ones—was one of complete harmony, and I consequently was amazed when, a few days later, two of the youngsters commenced to fight with such determination that I feared for the life of one of them.

While filming golden eagles in Scotland I obtained some extraordinary pictures, which show two young eagles fighting so desperately that in the end one of them killed the other. For a while I feared that I was going to be a witness to a similar tragedy on this osprey's nest, for one of the little ones seized the other by the scruff of his neck, biting and shaking him unmercifully and in spite of his squeals of protest. In the end, however, the less pugnacious became the aggressor and attacked his opponent with such vigor as to vanquish him completely.

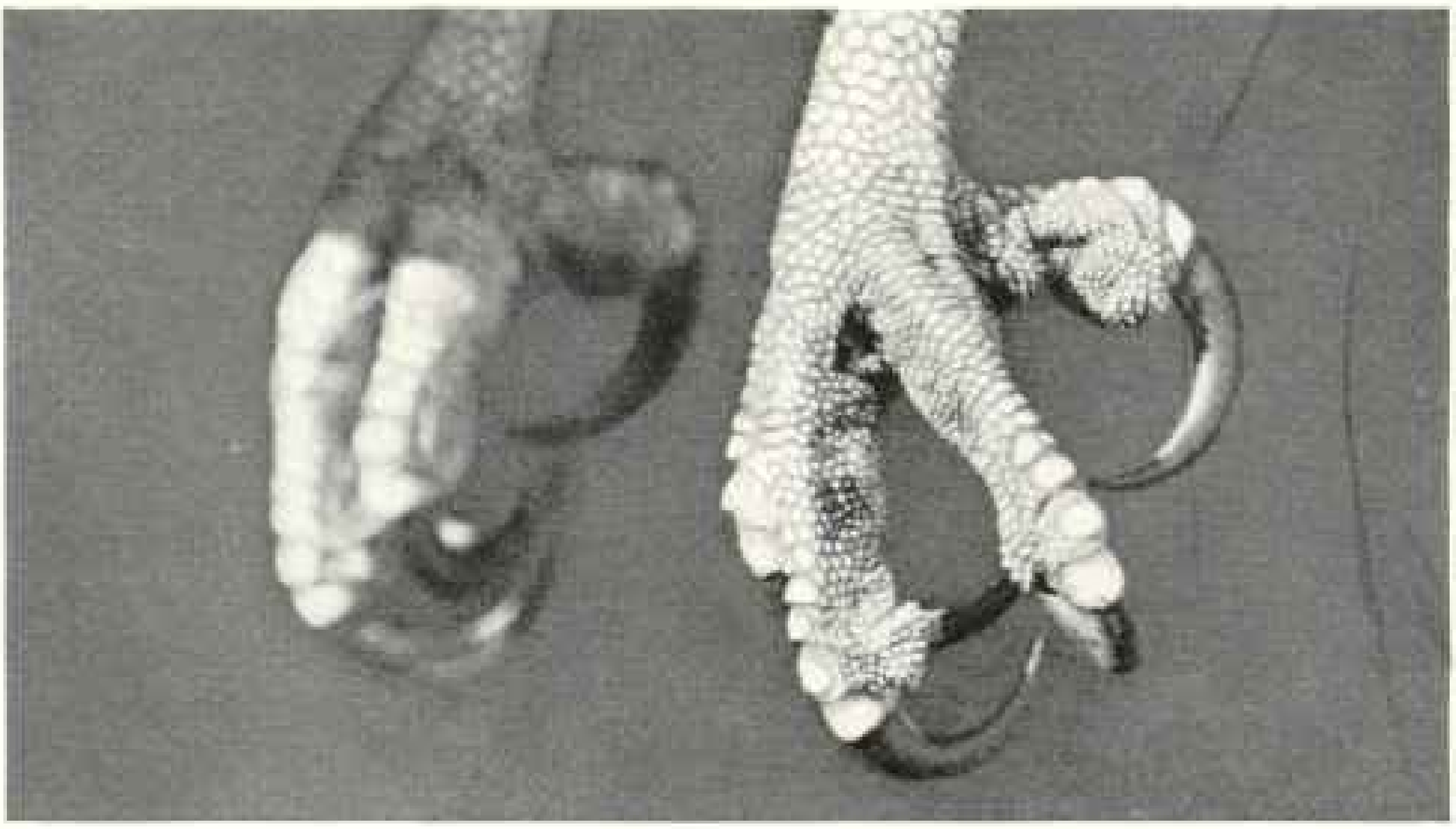
During the whole of this battle the mother osprey stood looking on, as if half inclined to interfere and yet deeming it advisable to refrain from so doing. In the

A STUDY OF AN OSPREY ALIGHTING

Few birds fly with more grace or drop from the sky to seize their prey with greater speed than the fish hawk.

ENJOYING A FREE LUNCH IN HIS NEW HOME

The author took two pairs of the Gardiners Island ospreys back to Scotland and liberated them in the hope of reëstablishing the birds as residents. Fish were put out for them each day until they became so much at home that they caught their own.



FEET THAT MAKE IDEAL FISH TRAPS

The osprey's talons are long, sharp, and powerful. The outer toe may be used reversibly.

ABOUT READY TO START OUT ON THEIR OWN

The young birds, nearly full grown, are about to leave the nest and give their wings a try. The parents continue to supply them with food for some time after this initial venture into the outside world. Nests are not commonly built on the ground like this one, except in localities where years of protection have made the birds confident of their security.

end she let them fight it out, and the family settled down once more to a peaceful life.

The arrival of the male bird with a fish was invariably heralded by the shrill "tew-tew-tew" of the female, and sometimes by the shriller, long-drawn "teew-teew-teew" of the male, as he hovered, high in the air, with a fish in his talons.

In spite of accounts describing the attacks of ospreys on ducks, cats, and even children (!), the bird seems to subsist entirely on fish, and one of my fondest hopes was to obtain pictures of the great bird as it crashed into the water and emerged with a fish in its talons. I thought of trying for records of the bird picking up a fish that had been thrown out of the nets by the fishermen (a thing they often did), but decided that that was not exactly what I wanted, for in taking a floating fish the osprey merely swings by and picks it up by "striking" as it passes.

THE PLUNGE OF THE FISHING OSPREY

What I wanted was a record of the headlong plunge, the total immersion of the bird, and the manner in which it would emerge with the fish grasped in its talons. In the end I accomplished my purpose with the help of a special lens and by waiting for several days on a part of the shore whence I had sometimes seen ospreys fish-

ONE OF THE HANDSOMEST OF THE HAWKS

The osprey acknowledges only the great bald eagle as his master.

ing. These motion-picture records show the feet-first plunge, the period of entire submersion, and the subsequent "shake," or "rouse," as falconers say, to get rid of the water drops.

It surprised me to find what a number of birds made their homes within a few feet of an osprey's eerie—piping plover, spotted sandpiper, tern grackle, and night heron. The last named was particularly interesting in view of the fact that the osprey dislikes the night heron intensely (possibly because herons will swallow young or small birds) and loses no time in letting the herons know it. To see an osprey "stoop" at a heron was a familiar sight, and we also heard the rush of wings and the squawk of the heron as it tried to shift from the stoop.

On two occasions while I was on the island, herons were struck by ospreys; once the blow proved fatal. According to one authority, Richard Blome, the osprey was used in bygone days as a trained falcon for taking "fish and teal." Judging by its prowess where the herons were concerned, there is no reason why it should not have been, and one can only marvel at the manner in which the herons persisted in nesting in trees already occupied by ospreys' nests. When the young ospreys, having continuously and thoroughly tested the weight-carrying capacity of their wings, decided to take to the air, they proved to be accomplished flyers. On its first flight, one of them disappeared over the hill behind the nest, flying beautifully. For some time they would return to the nest periodically for the food which the parents would bring to them, but eventually, able to fend for themselves, they deserted it altogether.

AN ATTEMPT TO REINTRODUCE THE OSPREY INTO SCOTLAND

In the hope of reintroducing the osprey into Scotland, and having obtained the necessary permission from Mr. Gardiner and Mr. Mackay, I took home with me two pairs of the birds, all strong on the wing and all from different nests. They were liberated on that little island in the Scottish lake where the last British ospreys nested twenty years ago (see page 250).

The surrounding country is owned by Colonel Cameron, of Lochiel, who will afford the birds every protection possible. It is to be hoped that they will one day nest there again.

NATIONAL GEOGRAPHIC SOCIETY

GEOGRAPHIC ADMINISTRATION BUILDINGS

SIXTEENTH AND M STREETS NORTHWEST, WASHINGTON, D. C.

ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

TO carry out the purposes for which it was founded forty-four years ago the National Geographic Society publishes this Magazine monthly. All receipts are invested in the Magazine itself or expended directly to promote geographic knowledge.

ARTICLES and photographs are desired. For material which the Magazine can use, generous remuneration is made. Contributions should be accompanied by addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resulting given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the expedition of Admiral Peary, who discovered the North Pole, and contributed $35,000 to Admiral Byrd's Antarctic Expedition.

NOT long ago The Society granted $25,000, and in addition $75,000 was given by individual members to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people.

THE Society's notable expeditions to New Mexico have pushed back the historic horizons of the Southwestern United States to a period nearly eight centuries before Columbus crossed the Atlantic. By dating the ruins of the vast communal dwellings in that region The Society's researches have solved secrets that have puzzled historians for three hundred years. The Society is sponsoring an ornithological survey of Venezuela.

TO further the study of solar radiation in relation to long range weather forecastings, The Society has appropriated $65,000 to enable the Smithsonian Institution to establish a station for six years on Mt. Brukkaros, in South West Africa.

At NICE Filmo got an all night bath

...but was fit and ready to film the carnival!

Filmo Personal Movie Cameras not only take wonderful movies of the children but fascinate them with the wonder of the working parts. Example: At Nice, the day before the Carnival, Donald Harper, Jr., cleaned his Filmo. Four-year-old Evelyne Harper watched him absorbedly. In the morning, he looked for the camera and it was gone. Evelyne announced that she was giving it a bath. She led him to a pool in the garden and proudly pointed to it immersed in water! "Believe it or not," writes Mr. Harper from 134 Avenue de Malakoff, Paris, "the overnight bath did not prevent my Filmo from getting beautiful pictures of the Carnival."

Against mishaps that would put an ordinary camera out of action and against operating mistakes that mean the ruination of film, Filmo is well-nigh fool-proof. Subjected to the most trying tests, *no Filmo has ever worn out.*

Filmo's precision, range, and simplicity have made it the preference of experienced and novices alike . . . the camera that all who love fine things take along for personal movies of professional quality. For Filmo is made by Bell & Howell, for 25 years makers of cameras used in professional studios.

Mail the coupon for the booklet: "What You See, You Get." Ask the nearby Filmo dealer for a demonstration.

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The Filmo 70-D. Three lens turret head. Seven speeds. Variable viewfinder. In beautiful Saxony-tucked Mayfair case, priced at $245 and up. Other Filmos as low as $92. Filmo Projectors, $150 and up.

Filmo cameras use Eastman Safety Film (16 mm.) in the yellow box, obtainable everywhere. Filmo Cameras and Projectors may be equipped (under license of the Eastman Kodak Company) for Kodacolor movies in full color.

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Please send me your book on personal movie making and equipment: "What You See, You Get."

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57

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REX—Largest Vessel Built Since the World War. 54,000 gross tons. Maiden Trip from Genoa Sept. 27; from N. Y. Oct. 8.

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Barbasol

HENRY HAS THE LITTLE WOMAN GUESSING

The Old Singin' Master and his singers—mellow old hymns and ballads the way you like them. Tune in every Sunday night at 10:15, Eastern Daylight Saving Time on the N. B. C. (WJZ) Blue Network, coast to coast.

Ray Perkins, Barbasoloist with Peter Van Steeden's Barbasolians, WEAF—N.B.C. Red Network, Tuesdays and Thursdays, 7:30 P. M. Eastern Daylight Saving Time.

SHAVE WITHOUT LATHER! And do it with Barbasol, the coolest, smoothest shaving cream on the market. Because it's a cream, not a soap, Barbasol holds the whiskers firmly upright, gives the razor proper resistance so it glides along without a pull or a scrape. Try it today. And use it *right:* **1.** Wash your face and leave it wet. **2.** Smooth on Barbasol (no need to rub it in). **3.** Wet your razor and SHAVE. That's all there is to it for the cleanest, coolest, quickest shave you've ever had. Generous tubes at all druggists', 35¢ and 65¢, or large jar, 75¢.

The Barbasol Company, Indianapolis, Indiana

Barbasol recommends TEFRA TOOTHPASTE

In every 30¢ tube there is a free Tefra toothbrush refill, to fit a lifetime Tefra refillable toothbrush handle. For information, tune in Barbasol programs.

Singin' Sam, the Barbasol Man, in songs you can't forget. Every Monday, Wednesday and Friday evening at 6:15, Eastern Daylight Saving Time, over an extensive Columbia (WABC) Broadcasting hook-up.

Consult radio page of your local newspaper for stations

Exploring the Mysteries of Plant Life

HOW PLANTS WORK

ALL the factories, all the railroads, all the mines, all the automobiles, all the activities of man of whatsoever nature that require power, do not utilize as much energy as is developed by the plant world.

Out of intangible sunshine, insubstantial air, and clear water, coupled with a modicum of mineral matter from the soil, plants must manufacture all the food that keeps alive the innumerable hosts of animals of the earth, store up all the heat that keeps humanity warm and cooks its food, furnish most of the power that drives its industries, and provide the raw material for all the clothes mankind wears and many of the products of which his factories, his houses, his furniture, and his books are made.

Would you know how much of a plant is fabricated of sunshine, air, and water; and how little of solids from the earth? Then burn that plant and notice the thin layer of ash remaining. All else has been made up from subtle sunbeams, thin air, and plain water.

Every plant, from a simple moss to a giant tree, is in reality a vast household of individual entities working together, in fine cooperation and close harmony, to a common purpose. One group, etc.

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THE BOOK OF WILD FLOWERS

A fascinating Geographic publication with color illustrations of 250 flowers and grasses and 114 family "biographies." The chapters on Plant Life by Dr. William J. Showalter and State Flowers by Dr. Gilbert Grosvenor are notable features of this entertaining and educational book.

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NATIONAL GEOGRAPHIC SOCIETY
WASHINGTON, D. C.

Most of the 5000 people who died last year from one particular form of cancer could have been saved if they had been warned in time of their impending danger — *and had acted without delay*

LAST year in the United States alone there were more than 5,000 deaths caused by rectal cancer. Had these cancers been discovered in their early stages, a large majority could have been operated upon successfully. Almost all of them could have been found by competent physicians making *thorough* physical examinations.

Either false modesty on the part of a patient who should be utterly frank and truthful with his physician, or disinclination on the part of a doctor to urge his patient to have only the most complete and searching examination possible — one or the other—may cause suffering and tragedy.

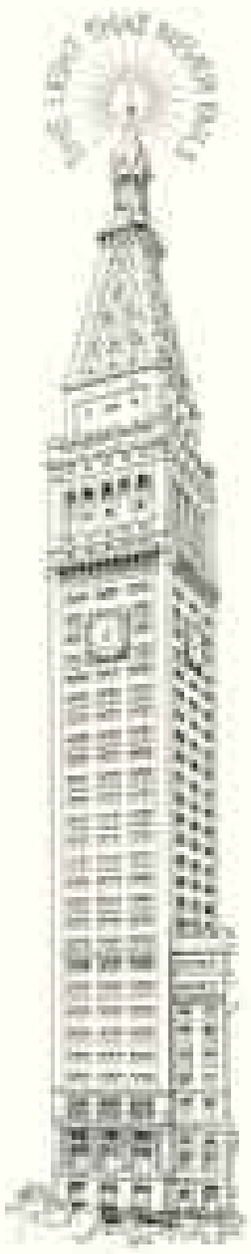
There are thousands of cases of unsuspected rectal cancer. In the beginning, they are usually painless. The first slight symptoms are often disregarded. They may be so similar to those of other ailments that only by a conscientious local examination can any doctor determine whether or not a cancer is present.

Irregular or abnormal conditions should be reported to and investigated by your doctor without delay. The discovery of rectal cancer in its early stages should not cause undue alarm. In most cases such a cancer can be removed with entire success.

The United States Army and Navy Medical Divisions, leading newspapers, magazines, the foremost doctors and health officials all over the country urge complete, periodic physical check-ups. It would be impossible to estimate correctly the amount of suffering such examinations prevent and the years of life they add.

A partial examination is valuable as far as it goes. But it is, after all, a compromise not to be tolerated if you wish to guard yourself in every way possible from needless loss of health due to unremoved growths or uncorrected impairments.

Everybody should have a health examination at least once a year—and it should be *complete*. Get the protection which medical and surgical science can provide.



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It IS better!

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PHILCO is the first radio scientifically designed as a musical instrument, and therefore has many unique points of superiority, among which are:

1. The PHILCO Inclined Sounding Board which throws all sound up into field of listener, making all high notes heard for the first time. 2. Large area of sounding board which insures full reproduction of low notes. 3. Echo Absorbing Screen at the back which prevents echo and blur, the first radio to deliver sound only from front of speaker. 4. Open Sounding Board instead of sound Chamber which affords clear unboxed tone.

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Inclined Sounding Board
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Illuminated Grille
Cabinets of world's finest and most expensive furniture woods
Every Cabinet hand-rubbed

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The NEW PHILCO HIGH EFFICIENCY TUBES are more compact, more efficient, and consume less current than any AC tubes ever before used. Every PHILCO is equipped with tubes specifically designed by PHILCO, to fit circuits designed by PHILCO, resulting in a harmony of operation not otherwise possible.

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A musical instrument of quality

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Campbell's Chicken Soup is not merely a broth—it is the real chicken soup with rice, for which *all* of the meat of each plump, fine chicken is used, cut in tender morsels for the garnish. Light fluffy rice, snow-white celery, fresh parsley, herbs and seasonings are blended in this popular soup with all the genius for delicious flavor which has made Campbell's chefs so famous. Yet it costs no more than the other Campbell's Soups at your grocer's.

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21 kinds to choose from . . .

Asparagus
Bean
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Mutton
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Pea
Pepper Pot
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Tomato
Tomato-Okra
Vegetable
Vegetable-Beef
Vermicelli-Tomato

LOOK FOR THE RED-AND-WHITE LABEL

Chicken Soup
by Campbell's famous chefs

A Message to the Members of the National Geographic Society about the Growth of Their Magazine

THE members of The Society will be pleased to know that their Magazine is being received in more than a million homes each month during 1932. Furthermore, many individuals who have joined The Society this year are now reading The National Geographic Magazine for the first time.

Last year alone more than 100,000 persons nominated by present members joined The Society and so secured The Geographic for themselves and their families. This never-ending enthusiastic desire to share the benefits of The Society and the Magazine with like-minded friends has produced a natural, steady growth during the past forty-four years.

The unique member-ownership goodwill enjoyed by The National Geographic Magazine is not only the source of all past growth, but is also our common assurance for increasingly larger usefulness in the future.

Sincerely yours,

O. P. Austin

Secretary

HE MAY be downtown at the office or a hundred miles away . . . yet that happy, eager voice wings across the wires, straight into his heart.

It summons up a sudden, tender warmth. It sweeps away cares and worries. It brings sure, comforting knowledge that all is well at home.

Only a small voice, speaking into a telephone. But it can create a moment that colors the whole day.

If you stop to reflect, you will realize how immeasurably the telephone contributes to your family's happiness and welfare. It is a fleet courier . . . bearing messages of love, of friendship. A priceless helper . . . ready to aid in the task of running a household. A vigilant guardian . . . always at hand when emergencies arise.

Security, convenience, contact with all the world—these things the telephone brings to your home. You cannot measure their value in money. You cannot determine the ultimate worth of telephone service.

But consider, for a moment, that your telephone is one of a country-wide system of nineteen million others—a system of many million miles of wire served by hundreds of thousands of employees. Yet you pay only a few cents a day for residential use. And you enjoy the most nearly limitless service the world affords.

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IN THE

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The Membership Fee, Which is for the Calendar Year, Includes Subscription to the National Geographic Magazine

PLEASE DETACH AND FILL IN BLANK BELOW AND SEND TO THE SECRETARY

.....*193*

To the Secretary, National Geographic Society,
Sixteenth and M Streets Northwest, Washington, D. C.:

I nominate .....

Occupation .....
(This information is important for the records)

Address .....

.....*for membership in the Society.*

.....

8-32

.....
Name and Address of Nominating Member

A softer cleansing and polishing material than any in ordinary use, yet one that excels in film-removing power. It is contained exclusively in Pepsodent and in no other toothpaste on the market.

Many toothpastes sought it . . . Pepsodent found it!

This winter you read the announcement of a notable new discovery — a revolutionary cleansing and polishing material contained in Pepsodent toothpaste. What made it utterly different from all others was: (1) that it was more effective in removing film; (2) that it was twice as soft as that in common use.

Fight film on teeth

It was to remove film or bacterial plaque that Pepsodent toothpaste was specially developed. Its first claim to distinction is that it does remove film more effectively than by any other ordinary method.

Film forms on teeth in gelatin-like coats. In this filmy coating are germs producing powerful acids. These acids dissolve tooth enamel, destroy the part beneath and finally reach the nerve.

Film makes teeth unattractive by absorbing ugly stains from food and smoking. It clings stubbornly to teeth and defies all ordinary ways of brushing.

A notable discovery

Pepsodent's new cleansing and polishing material removes film far more thoroughly. No other toothpaste contains it—hence no other can give the same results. As it removes film it polishes enamel to higher brilliance . . . gives an entirely new effect . . . a sparkling *glaze*. And this unique power combined with *super-safety* makes Pepsodent America's outstanding dentifrice.

Amos 'n' Andy brought to you by Pepsodent every night except Sunday over N. B. C. network

1. Remove film—

use Pepsodent tooth paste every morning and every night.

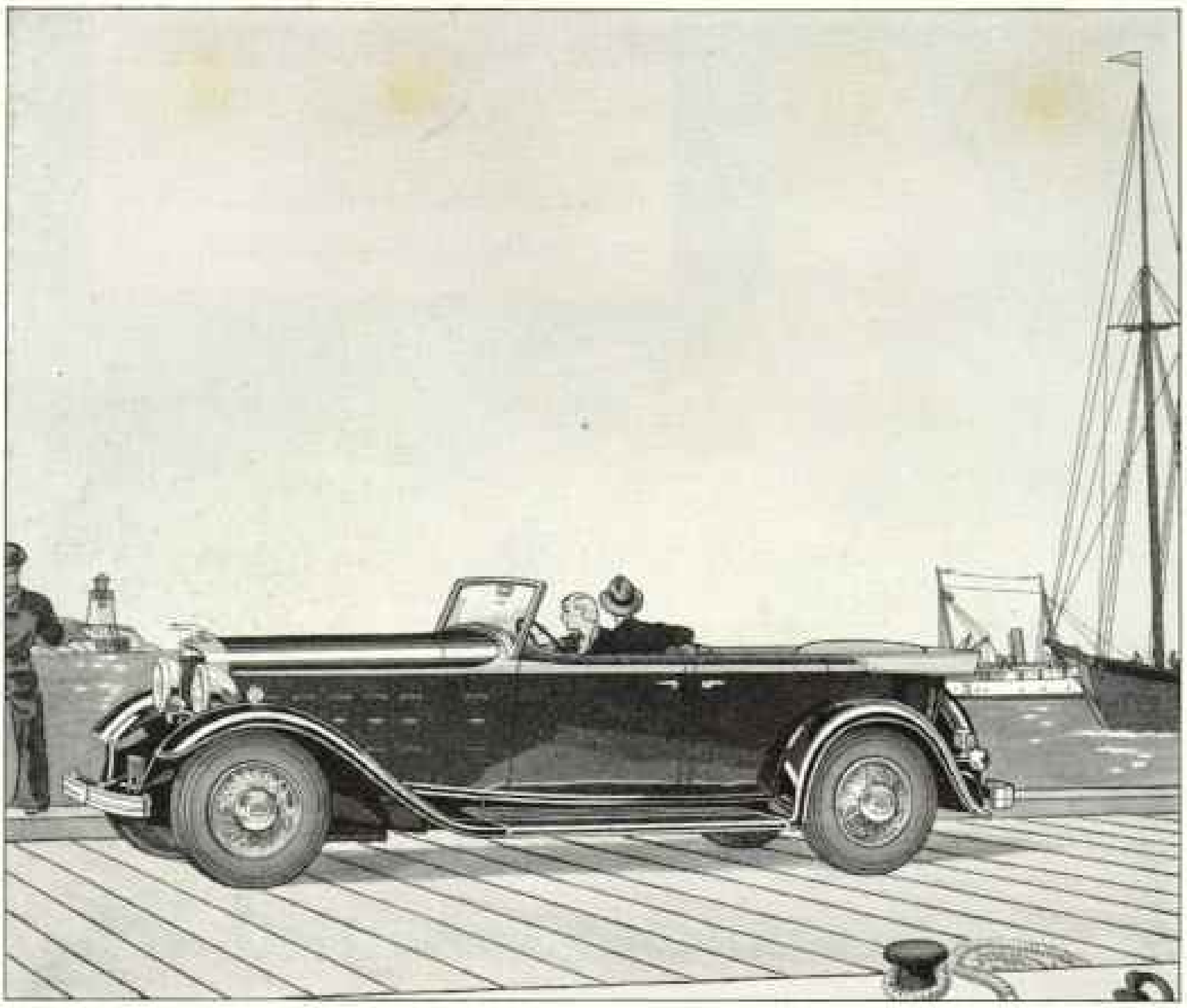
2. Eat these foods—

One or two eggs, raw fruit, fresh vegetables, lettuce, cabbage or celery, ½ lemon with orange juice. One quart of milk and other food to suit the taste.

3. See your Dentist—

Adults at least twice a year—children every 3 months and at the slightest suspicion of trouble.

USE PEPSODENT TWICE A DAY — SEE YOUR DENTIST AT LEAST TWICE A YEAR



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With new and sweeping air-flow lines, with the latest mechanical advances, the Lincolns of today are providing pleasures even more complete than in the past. And more people are enjoying these pleasures —because the Lincoln V-8 cylinder, with full equipment, may now be purchased at Detroit for as little as $2900.

The beauty of this motor car may be seen at a glance. An inspection reveals its luxury. Surpassing performance and ridding comforts are demonstrated by one brief ride. But only with familiarity can its hidden values be appreciated—those values, which, responding unwaveringly year after year, truly distinguish the Lincoln.

The Lincoln V-8, *fully equipped, is now priced at Detroit from* $2900 *to* $3350.

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