ARAMCO WORLD
505 PARK AVENUE, NEW YORK 22, N. Y.

LEND AN EAR TO THE SEA

underwater calls. Not only fish, but whales and porpoises as well, may use sound as bats do — listening for the echoes of their own chirps and learning of their surroundings by echolocation.

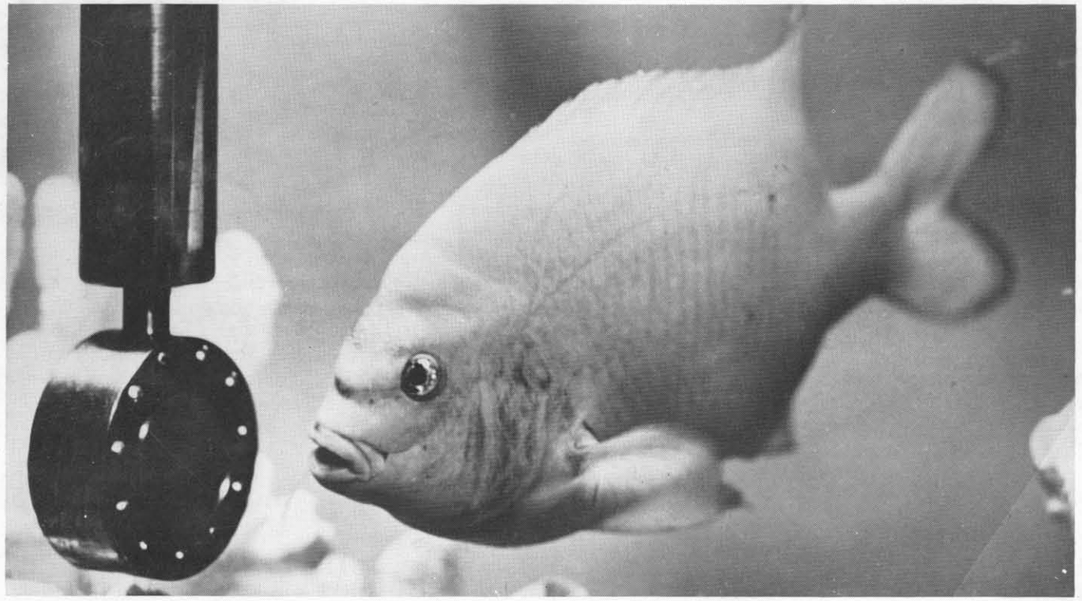
Calls which seem to have this significance were picked up by scientists aboard the oceanographic research ship *Atlantis* about 170 miles north of Puerto Rico, over a bottom nearly 17,000 feet below. The hydrophone was suspended at a depth of only 33 feet, but the chirps came through clearly. Each call lasted between two and three-tenths of a second, and was pitched about an octave above middle C. Regularly after each call a distinct echo came from the bottom. A simple calculation gave the position of the unknown animal at a depth of 12,000 feet. This distance between the ship and the bottom was right to produce the recorded delay between the arrival of the call directly to the hydrophone and of an echo of the call reflected from the sea floor.

Dr. Donald Griffin of Harvard University measured the sensitivity of hearing in a sea robin and concluded that if the unknown creature in the deep sea had been able to detect faint sounds as well as the surface swimmer did, it could easily hear the echo of its own call and use this in bat-fashion to estimate the distance to the bottom. Echolocation could well be the means whereby abyssal fishes use high-pitched sounds to maintain their level in the ocean. It might be helpful to them also in finding food or in avoiding enemies and obstacles.

Other high-pitched chirps and whistles in the Gulf of St. Lawrence proved to come from the beluga or white whale, a monster which whaling captains many years ago nicknamed the "sea canary." A different kind of whale near the Solomon Islands in the South Pacific sounds like a loose bearing in a reciprocating engine.

All over the world oceanographers are intent on exploring the spectrum of marine animal noises, relying on the same ability man has shown in recognizing birds and land animals by their calls. Perhaps when underwater listening is as old as birdwatching, the unknowns will have been narrowed to a few by sea-naturalists turned eavesdropper. Until then, men will continue listening in on the not-so-silent depths of the ocean. ■

Sensitive hydrophones can pick up fish chatter at a great distance, although some fish gladly cooperate in the job of recording.



ARAMCO WORLD

APRIL 1961

SCOUTING—WITH A DIFFERENCE

Aramco World

APRIL 1961 VOLUME 12 NO. 4

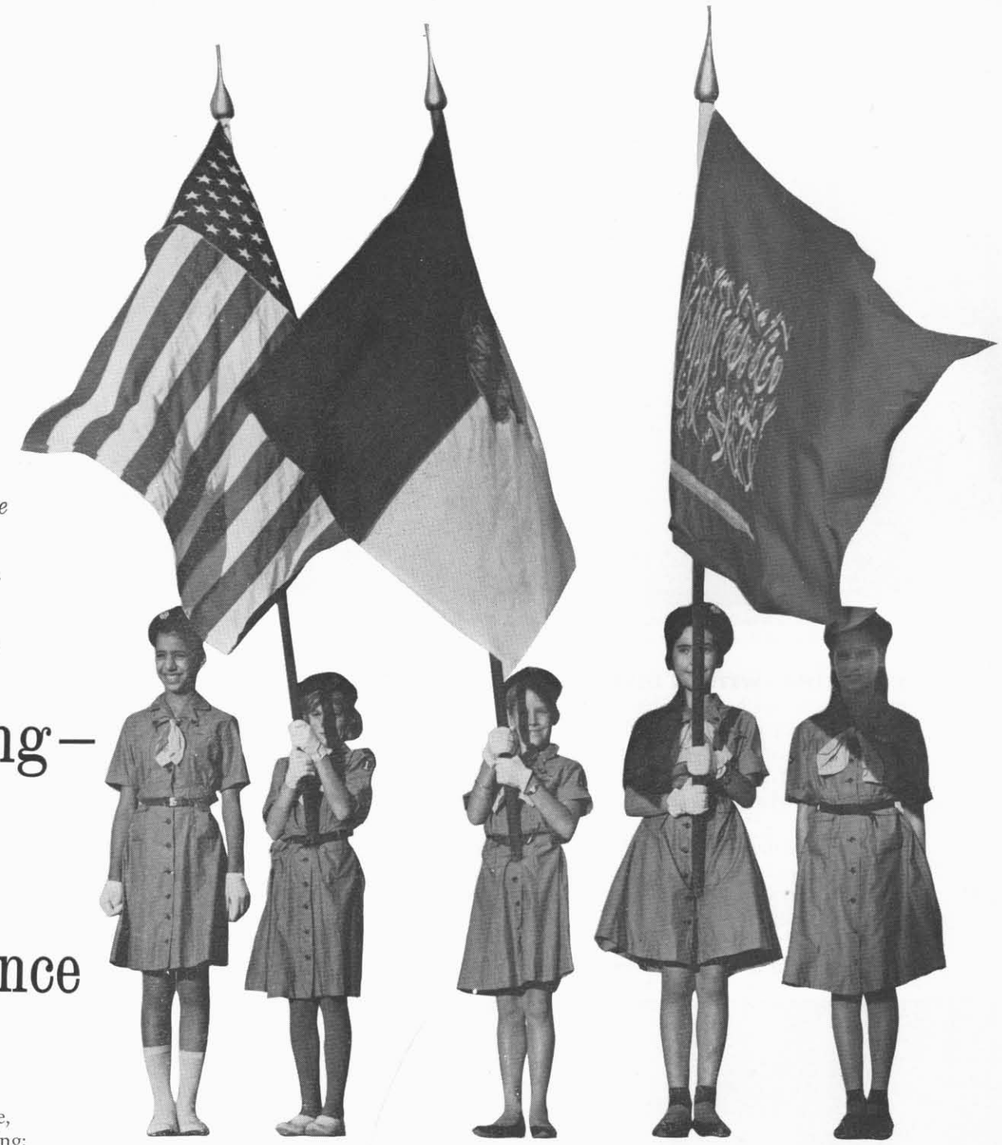
FRONT COVER: When it comes to camping on the sun-baked terrain of Saudi Arabia, Girl Scouts Joan Uhl (left) and Karen Ferguson (right), daughters of Aramco oilmen, find a few pointers from an expert helpful. The expert is guide Saad ibn Fahd Qahtani, who knows the desert like the palm of his hand.

PICTURE CREDITS: Front cover, pages 3 4, 5 (top), 6—Aramco photos by V. K. Antony. Page 5 (bottom left and right)—Aramco photos by Khalil Nasr. Page 7—Ewing Galloway. Page 8 (left)—E. I. Dupont de Nemours & Co., Inc. Pages 8 (right), 18 (top)—Culver Pictures, Inc. Page 9—Philip Gendreau. Pages 10 (top and bottom), 24—A. Devaney, Inc. Page 10 (center)—National Audubon Society. Page 12—French Government Tourist Office. Page 13—Standard Oil Co. of New Jersey. Pages 14 (bottom center), 15 (top, bottom center)—The Bettmann Archive. Pages 14 (bottom left and right), 15 (bottom left and right), 22, 23—New York Public Library. Page 16—Carl Von Hoffman. Pages 17, 18 (bottom right), 19—Wide World Photos. Page 18 (bottom left)—Monkmeyer Press Photo Service. Pages 20, 21—Swiss National Tourist Office.

A publication of the Arabian American Oil Company—A Corporation—505 Park Avenue, New York 22, N. Y.
T. C. Barger, President; J. H. McDonald, Vice President and Secretary; E. G. Voss, Treasurer
Issued by the Public Relations Department, T. O. Phillips, Manager

There's a unique challenge to Girl Scouting in the desert areas of eastern Saudi Arabia

Scouting—with a difference



Proud flag bearers are (left to right) Scouts Khatoon Awami, Janice Cyr, Linda Ozment, Fadia Basrawi and Linda Hanschin.

"Rise up old flame,
By thy light glowing;
Show us thy beauty,
Vision and joy . . ."

THE SONG ROSE in the night silence and trailed along the wind blowing through the camp from the Gulf of Bahrain. The girls were happy. Their voices rang and they gazed into the campfire. Some leaned toward the flickering light; some rested back in the cooling Saudi Arabian sands. The stars winked brilliantly in the clear air. The song ended.

"Now?" one of the girls called out.

"Yeah. Time for the marshmallows," another yelled.

One by one they jumped up – twenty-one Girl Scouts with a single (hungry) thought. They gathered in a cluster. Their long shadows stretched off into darkness toward the dunes. Most of the girls had roasting sticks ready.

A counselor, the mother of one of the girls, came toward them from the white wall-tents that stood in a ghostly, moonlight quadrangle opened at one end. She had a large round tin in her hand, and she tugged at the lid. It looked like an oversized cake tin.

She came forward to the light of the campfire and pulled the lid away from the tin. A strange, musty odor arose. She tipped the tin toward the fire so that she could get a good look at the precious marshmallows.

"Oh, they're awful!" one of the girls moaned.

The marshmallows were covered with mold, and were, of course, inedible.

"And let me tell you," the mother recalled recently in her home in Dhahran, "you have never seen such disappointed kids in your life. They were crushed. The marsh-

Water conservation, essential in desert scouting, is practiced by (left to right) Beverly Boston, Susan Sweet, Joan Uhl and Karen Ferguson.

SCOUTING—WITH A DIFFERENCE

mallow roast had been the big topic for weeks before our camp-out. And by sheer luck I had found the tin in al-Khobar. Incidentally, the merchant was just as disappointed as we were. You see, the marshmallows had to come by boat from England, and they had spoiled on the long trip out here."

Another mother, leader of a Girl Scout group in Dhahran, shook her head over the story and added, laughingly: "Well, at least we don't have to worry about poison ivy and snakes out here."

And those are the two sides of the story of the Girl Scouts – about three hundred of them – in Saudi Arabia where their fathers work for Aramco – the Arabian American Oil Company.

Bedouin tracker Saad ibn Fahd al-Qahtani teaches Karen and Joan the secrets of examining the ground for tracking clues.

High hopes come a-cropper. Long-range planning teeters on the tight-rope of short-range frustrations. Disappointments are offset by exotic surprises.

It's scouting with a difference.

For instance, to a Girl Scout in Ohio an *Amir* exists only in the world of story books. But out at the edge of the camp where the marshmallows had gone bad, there stood a tent where a rather special soldier was headquartered. He was there on duty through the courtesy of the Amir Saud ibn Jiluwi, the Governor (*Amir*) of the Eastern Province of Saudi Arabia. The soldier was from the *Amir's* own *khawiya* (guard).

And during the afternoon the girls had had a first-hand glimpse into ancient history when they had gone for a sail in a Saudi Arabian coastal *dhow*. The handsome, slanted lanteen rig and the high rise of the stern and bow of this traditional vessel have been little modified in the past two thousand years. It was the sturdy *dhow* that once made Arab ports the crossroads of world trade. As the girls sailed across Half Moon Bay, they moved before the wind and above the fitted timbers of the past.

Of course, scouting with a difference can lead to some un-anticipated grey hairs – for the parents of the girls who participate.

"Look," one housewife-scout leader remarked, "I used to walk to the corner dime store at home and buy a hundred things that you can't even find out here. I mean the simple odds and ends that you take for granted in planning parties and scouting projects. Thumb tacks, Crepe paper. Construction paper. Leather. And just try to get water-color or poster paper. Or textile paints," she added.

But, times change, and the bustling city of al-Khobar which serves the three big oil communities in Saudi Arabia – Dhahran, Ras Tanura and Abqaiq – has become a relative shoppers' paradise.

"It's not nearly as bad as it was when we started fourteen years ago. But still, we have to do an awful lot of improvising on cook-outs. We have been pretty good scroungers. The heavy wire trays from a lot of refrigerators and stoves did double duty over our outdoor fires."

Several thousand girls have gone through scouting in Saudi Arabia despite the fact that . . .

"It's terribly difficult to try to carry out a nature study program in a country where you can go for hundreds of miles, I guess, and not even see any of the ordinary vegetation you stumble over in Illinois," another Girl Scout leader observed.

The Wild Life Badge?

"Well, now there's a problem. Many of the plants out here aren't even identified," she added. "The Gardening Badge is hard to get, but a lot of girls have done it."

The Foot Traveller Badge?

The leader laughed. "You have to walk a total of one hundred miles in cities, parks and forests. A lot of our girls have only seen forests in picture books."

But in a world where the "rock hound" (geologist) is an important man, and where a lot of the fathers are geologists, the girls manage to build up quite a few points for the Rock and Mineral Badge. And they have found many exotic shells in their Salt Water Badge programs which make impressive additions to their collections.

"If we could only identify all of them," another mother remarked. "I remember a few years ago one of the leaders took a peculiar shell with her on a trip to London in order to get it identified at the British Museum."

Again, the girls, by scouting in an exotic and fabled land, are at the threshold of the long, long story of man. For fresh-water shells have been found in the inner gravel and sand wastes of the magnificent Rub' al-Khali ("The Empty Quarter") that indicate the ancient flow of forgotten rivers in this now arid nation.

Khatoon Awami examines merit badges won by Marcia Miller, owner of Curved Bar (equivalent of boys' Eagle Scout rating).

On short hikes, cook-outs and field trips the Girl Scouts have been tantalized by finding animal tracks in dunes and along sandy plateaus that they just can't quite figure out. But they have *seen* gazelle, oryx and foxes running like the wind.

And, how many Girl Scouts in West Virginia have ridden a camel?

The comments that the mothers make about the strange problems of scouting thousands of miles from the nearest dime store have a curious sound. One cocks an ear for the

Preparing meals outdoors tests cooking skills of Scouts. At left, Gail Rines and Nancy Grimler try their hand at cake baking. At right (left to right), Marcia Miller, Kathleen Reilly and Carol Park overcome desert wind by making their fire in a pit.

sound of complaint. But it isn't there. Instead there is a tone of pride — the day-by-day, long-haul triumph of the pragmatist. It has taken great ingenuity and persistence "to keep the show on the road," as one mother put it.

The pay-off?

That's something that can't quite be measured. "Maybe I'm prejudiced," one of the pioneer leaders said, "but I think our girls have an unusual sense of responsibility."

A young housewife not many years out of college let out a whoop.

"Listen, I'm not too much older than some of these kids myself, and let me tell you that I didn't have anything like what they've got at their age. They're terrific."

Maybe that's measure enough. But in addition, there are four or five Curved Bars (the equivalent of the Boy Scout's Eagle Scout award) given to girls in Saudi Arabia each year. Patience and enthusiasm *do* pay off.

The big moment, in scouting anywhere are the camp-outs. In California or Georgia, in Minnesota or South Carolina, they're equally exciting. In Saudi Arabia they're not only exciting — they're *singular*. For only *one* can be held each year in each of the three communities where the girls live. A camp-out in Saudi Arabia is an extremely complicated undertaking that involves many of the 150 fathers and mothers who are active in scouting.

The mothers start the concrete planning right after Christmas for the April vacation camp-out. The phrase "April vacation" would puzzle a scout from Texas. But the American schools in Saudi Arabia are on the trimester plan: three months of classes, one month's vacation (April, August and December are the vacation months).

The fathers help hoist the wall-tents at the camp-site and drive out the firewood and water. Incidentally, the girls practice very careful "water discipline." They know the perils of the desert sun, and they know how to save every drop of water. A mother who is a registered nurse with camp experience oversees their medical care.

The girls plan their own menus ahead of time and buy their own food. The mothers have been slightly startled by the good sense and balance of the menus.

A few years ago the girls were turned loose to buy whatever camp equipment they could find in al-Khobar, a city where the merchants are inured to the Middle East's love of bargaining.

"You never saw anything like it," a leader commented. "These kids went in with a smattering of Arabic plus their English, and they scoured the town for the best prices. They really had the merchants wondering what was going on as they trooped from store to store."

Their Arabic is a collection of useful words they pick up from Saudi schoolmates and friends. Some of it, of course, is slang.

When the Dhahran girls rendezvous the morning they leave for camp, they urge the bus drivers to *hommy, hommy* (hurry, hurry). They have a *zain* (good) time at the camp at Half Moon Bay because there is *wajid* (a lot of) swimming. After three days when it is time to break camp, they urge the counselors to *shway, shway* (take it easy, don't be in a rush). The older girls, with junior high nonchalance, aren't always impressed by the camping achievements of the younger scouts. *Kulla wahid* (all is one or, so what?) Hadn't they done as much when they were kids?

A familiar splotch of color at the camp-out is the Aramco green and white flight bag. Aramco families are great travelers. Some of the Girl Scouts tour Europe and the Far East as casually as their sister scouts in Pennsylvania go to New York or Washington. They have *seen* the "one world" of modern man; they don't have to learn from a book that it exists.

And their scouting gives them first-hand experience in world citizenship. Like Girl Scouts everywhere they obey ten laws, one of which says, "A Girl Scout is a friend to all and a Sister to every other Girl Scout." Their sisters in scouting include some of their Saudi Arab school chums. During community ceremonies the Girl Scout color guard bears aloft the Saudi Arabian, the American, and the Girl Scout flags. This year Saudi Arab girls will have advanced far enough in scouting to carry the flag of their country (green and white with beautiful calligraphy) when the colors are arrayed.

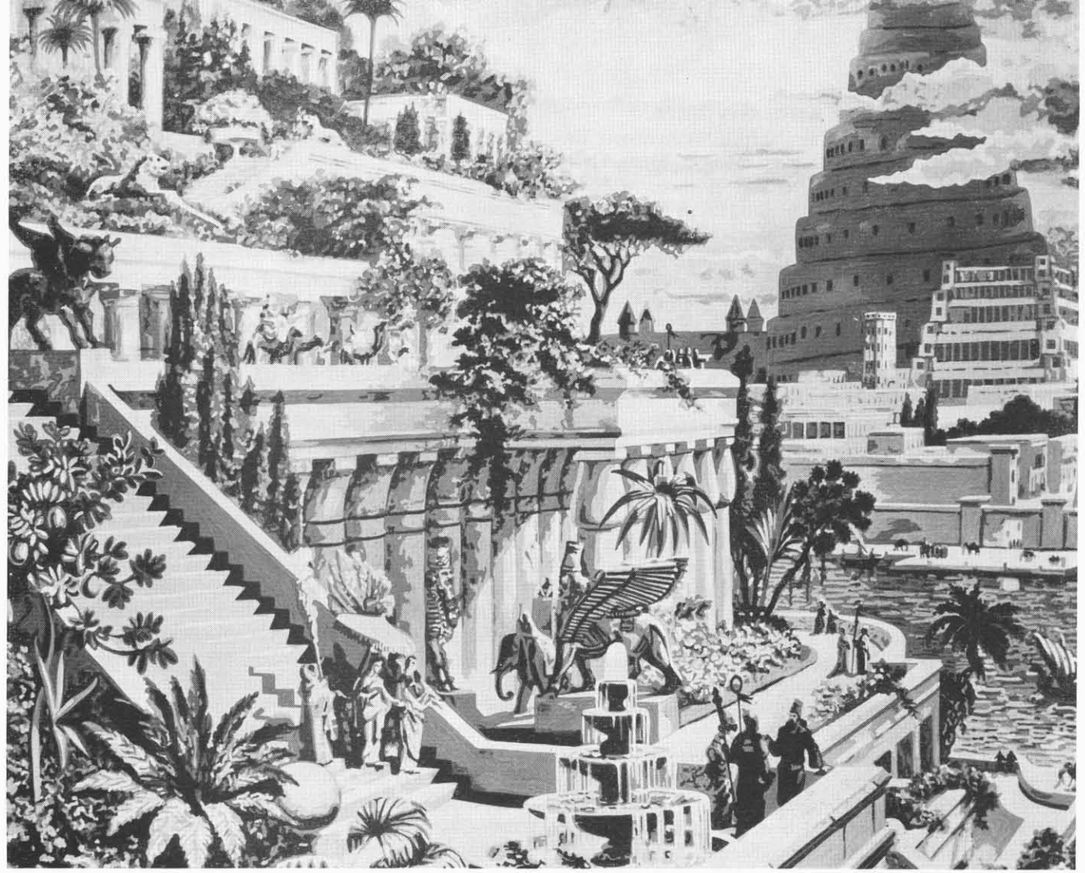
As guests and friends of their Saudi Arab sisters, the American girls have found an ideal outlet for their community service ambitions. Several years ago they "adopted" the Dar-El-Tifl refugee Arab orphanage in Palestine. The various Girl Scout groups raise money (they collected $700 one year), round up toys, and gather and ship clothing for the refugee orphans.

Each year one of the fathers drives the radio security car to the camp-out. He then turns it over to a trained counselor, who can get in touch instantly with the Senior Staff Camp at Dhahran in case of emergency. (The famous scouting "buddy system" used everywhere for swimming is also applied by the Scouts in Saudi Arabia to scavenger hunts that take the girls onto desert and dunes.)

"We've only used radio contact once," a leader said recently. "And then, thank goodness, it turned out to be sort of funny. We were on a cook-out and a huge cloud of gnats closed in. We radioed for insect spray. But we must have sounded frantic. They arrived with fifty cans of spray. But wouldn't you know, by that time the gnats were gone."

Scouting with a difference — *wajid* difference. ■

The inspiring words "There is no god but God; Muhammad is the messenger of God" — a portion of Islam's testament of faith — appear on the green and white Saudi Arab flag.



On arid land, Nebuchadnezzar built a wondrous mountain—the terraced Hanging Gardens, with Tower of Babel in distance.

PROUD MASTER OF ANCIENT ASIA

Many a conqueror cast envious eyes on Babylon, whose lofty walls encompassed a hundred square miles of gold and grandeur

THE things Murashu the merchant saw as his caravan moved northward toward Babylon, early in the year 480 B.C., made him glad he'd left his loved ones safely behind in a strange land. Thin lines of ragged refugees plodded wearily along the trail, going nowhere at all. The earth was barren; food was scarce and expensive. Small bands of grim-faced men occasionally appeared on the slopes of the distant hills — bandits, waiting to pounce on the smaller and less-guarded caravans. This was a trip Murashu had made many times before — the return from a year of trading in the cities that bordered on the Southern Mediterranean and in Egypt. Except that when he had left Babylon almost a year before, he had somehow felt strongly inclined to take along his family.

It was a wise move. Shortly after his departure, Xerxes, leading a Persian army, had laid seige to the city, and rumors had it that Babylon was destroyed.

In the past he had always experienced a feeling of enchantment as the ancient walled city rose before him like a wonderful mirage on the banks of the River Euphrates: the golden temple of Baal, glistening in the sun; the many-storied tower of Babel, a sacred edifice built to symbolize Baal's mountain. This massive construction spread wherever the eye fell. Abundant supplies of clay and the absence of stone made brick evident everywhere.

In the background rose the grandeur of King Nebuchadnezzar's palace, built centuries before, and the tropical hanging gardens that stood in striking contrast to the bleak monotony of the surrounding plains. Nebuchadnezzar had erected these four acres of cultivated jungle terraces, rising 250 feet above the level plain, to please his favorite wife, Amuhia, homesick for the wooded mountains of her Median land. Animals roamed freely and tamely among the flowing fountains. In this delightful setting, successive Babylonian queens had wandered with their handmaidens, collecting fragrance and enjoying their flowered mountain.

PROUD MASTER OF ANCIENT ASIA

From a distance the trees and shrubs towered over the city walls—walls so immense that the Greek historian Herodotus described the roadway on top of them as broad enough to permit a four-horse chariot to turn around with ease. Murashu never ceased to wonder at the sight of Babylon. He had seen most of the civilized world, and like the well-traveled historian, he firmly believed about Babylon that: "In magnificence there is no other city that even approaches it."

But on this trip it was different. Terrible damage was visible. The temple and the tower were battered. The gardens were brown and dead. The walls were crumbling. Mighty brass gates hung askew on a number of towers. The golden city no longer glowed — 24 tons of the precious metal had been stripped from the temple alone.

The interior of the city, whose area has been estimated at about 100 square miles, was devastated. Merchants, shoppers and peddlers still went about their business, but their mood was somber — barely half alive. The magnificent Procession Street, leading from the Main Gate to the temple and paved with stone, was littered with crushed masonry. The 60 mosaic lions which lined the walls on both sides of the street were badly damaged. Murashu had watched the King's artisans painstakingly create them from hundreds of thousands of tiny red, yellow and white enameled tiles. They would never be repaired.

The merchant wandered about the city in silence, observing the feeble remains of a civilization that had been the mightiest of nations in his world. More than two thousand years before it had been born by chance when the waters of the Euphrates had changed course and transferred prosperity from the ancient city of Kish to Babylon.

Over the ages the place called Babylon, which meant "the gate of the god," was the site of many cities, the capital of many half-remembered kingdoms. Its earliest inhabitants were the Sumerians and the Akkadians who built the first walls and held them for centuries before both men and their monuments surrendered to time and passed away.

In 2057 B.C., the Amorite king, Sumu-Abum, established a new city, and his fifth successor, Hammurabi, brought it to a peak of glory it would not see again for a thousand years. In the period following the decline of the Amorites, the city rose and fell numerous times as various races struggled back and forth for domination of the Kingdom of Babylonia. A Hittite raid destroyed the city about 1530 B.C. It was rebuilt and occupied at various times by Kassites, Chaldeans, and Aramaens until the Assyrians leveled the city again in 689 B.C.

Esarhaddon, the Assyrian, restored the city, but civil war destroyed it once more in 648 B.C. Following the collapse of the Assyrian Empire about 626 B.C., a Chaldean prince, Nabopalassar, ascended the throne of Babylonia. He and his son, Nebuchadnezzar, created the neo-Babylonian Empire and raised Babylon to its final heights of glory.

In 539 B.C. the city fell without a struggle to the Persian, Cyrus the Great. It later revolted against his kinsman, Darius the Great. Refusal to accept the Persian overlords led to its final humiliation at the hands of his son, Xerxes.

Violent as its history had been, each race and each ruler, in turn, had made a contribution to the progress of mankind: cuneiform writing; the birth of the alphabet; a system of irrigation canals which had made fertile fields of desert wastes; the Code of Hammurabi, the first great body of law, not only a remarkable outline of human rights, but a precise set of rules for the conduct of family, government, commerce and art. Murashu recalled the many times he had appealed to the justice of the Code in his business dealings. Who would enforce it now?

Architecture, mathematics and astrology had had their beginnings in Babylon. The Chaldeans had divided the circle into 360 degrees, the hour into 60 minutes; and they knew at least five of the planets.

And now it was no more.

The holy city of Asia was dying. Murashu wondered at the divine wrath that must have embittered the patron god Marduk against his favorite city, anger great enough to sweep away the mercy and kindness with which the chief god was ordinarily connected. Perhaps even the sun-god Shamash with his justice and Ea, protector of mankind, were themselves killed in the holocaust, thought Murashu.

In his wanderings Murashu saw few familiar faces. Strangers were reluctant to engage in conversation. At last he came upon an old acquaintance, an ex-officer of the palace guard, who washed away the rumors and told in cautious tones the story of how the city fell.

Early in the siege the mighty defenses of Babylon withstood the fierce attacks of the Persians with ease. The defenders were confident that they could outlast the attackers. Then one day the guards on the wall spotted a lone rider urging his lathered horse at breakneck speed across the plain below. Guessing that he was a deserter from the camp of Xerxes, they opened the gates and let him in. The man was horribly mutilated. His head was shorn to the skull; His ears and nose were missing.

Brought before the Council, the stranger identified himself as Zopyrus, a Persian prince and a general in Xerxes' army. He claimed that he had been tortured for suggesting that the siege would not succeed. All he wanted was revenge. And it was understandable enough; the man's wounds proved his sincerity. The Babylonians, eager for an ally, placed a contingent of troops at his command.

Ten days later Zopyrus' force defeated 1,000 Persians at the Semiramis Gate. He was given a larger command by the delighted Babylonians and quickly won two more battles. Confidence in him became unbounded; in a short time he was put at the head of the entire Babylonian army.

In the meantime, the Persians had moved up outside the city walls in preparation for an all-out attack. The battle began with a massive assault and raged furiously, but the walls held firm. It looked as though the Persians would be beaten back. Suddenly, the streets were overrun with them. Xerxes' men were everywhere. Stunned, the Babylonians gave ground. Their lines broke, and the city fell.

No one could understand how it had happened. They were further bewildered when they saw cheering hordes of Persians surround the disfigured Zopyrus, lift him to their shoulders and carry him off in triumph. It was awhile before they realized that they had been tricked and betrayed. Their own leader had let the Persians in.

Murashu listened to the story with amazement. "But his wounds . . . his victories over the Persians . . .!"

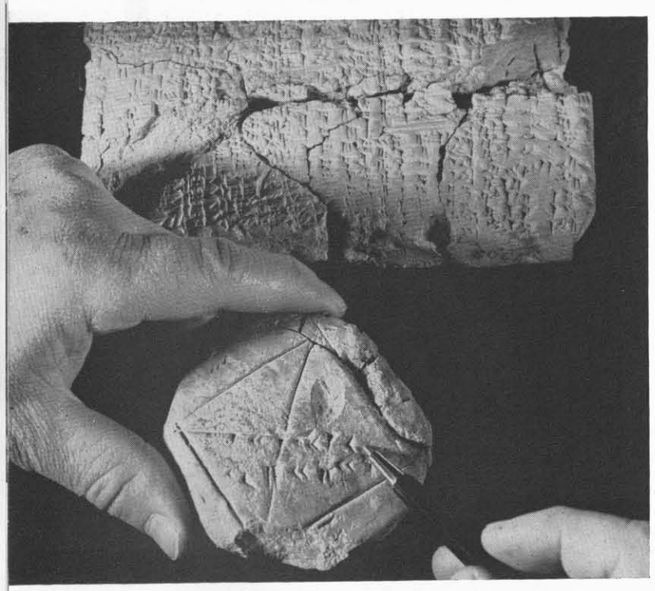
"The wounds were self-inflicted," said his officer friend. The Persians he defeated were ill-equipped, second-rate soldiers sacrificed by Xerxes to give Zopyrus his mock victories. Zopyrus is now governor of Babylon, and when we talk of him we whisper."

"And the city . . .?"

"Oh, we are allowed to go our ways. We still trade, live our lives, pretend that things will once again be what they were. But the Persians are looting the city. The walls will never be rebuilt. Many do not realize it, but like the gardens without water, Babylon is dead."

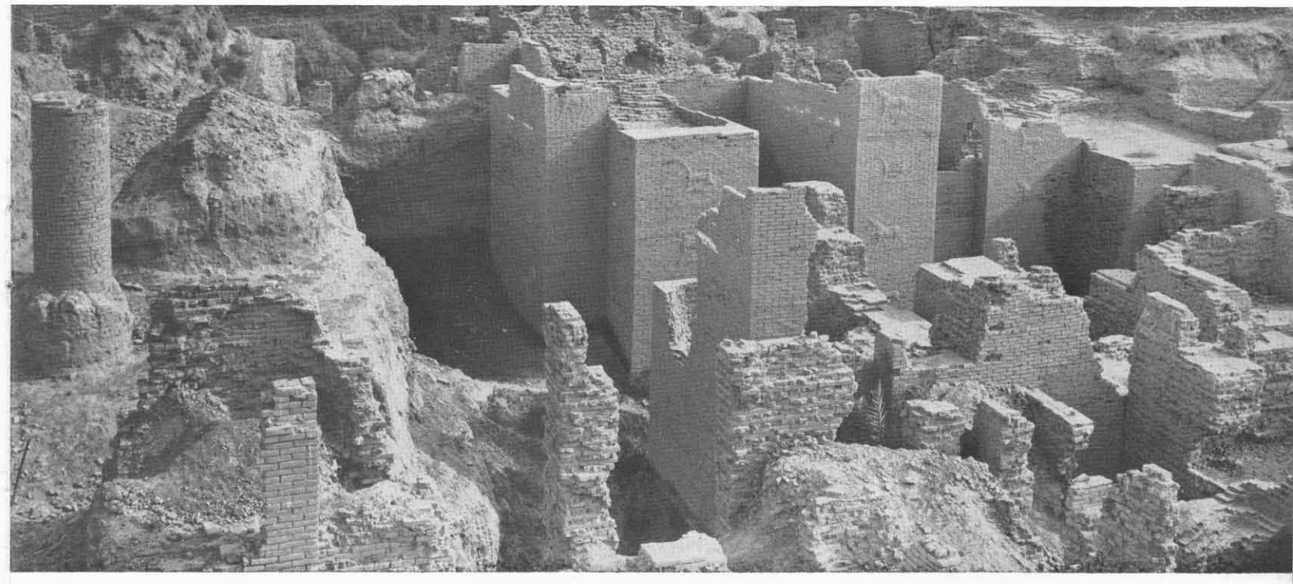
Babylon was dead. In later years Alexander the Great made it his capital and attempted to rebuild the temple and the great walls, but he merely succeeded in postponing its inevitable fate. The laws pertaining to the upkeep of the canals were not enforced, and the cultivated land shrank. Well-to-do families moved away to Seleucia, Antioch and Susa. Merchants followed, for there was no more profit to be had in Babylon.

By the fifth century A.D. neighboring Parthian kings were using the area with the ruined walls as a game preserve. And as the years passed great mounds of sand, blown in from the desert wastes, buried all traces of its past magnificence. Unseen and almost forgotten, the city slept away the centuries until 1899 when Babylon was uncovered by a team of European archeologists and returned in ruins to the world it had helped to make. ■

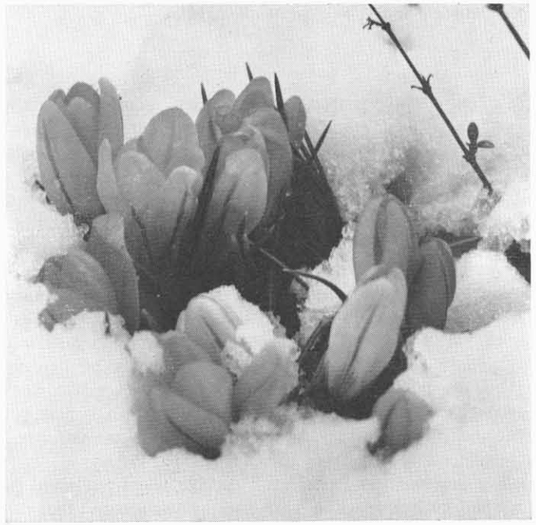


Wedge-shaped symbols of Babylonian writing, called cuneiform, were made by pressing a reed stylus into wet clay.

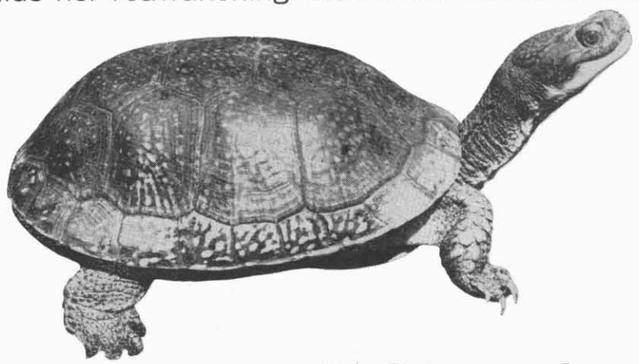
The sale of a field is recorded on this tablet from 1,100 B.C., during the reign of the Babylonian king Merodach-nadin-akhi.



Excavated ruins of Babylon clearly indicate the massive, brick structures that made the city the pride of ancient Asia.



When the cold grip of winter is finally broken, nature heralds her reawakening with some unmistakable . . .



Signs of Spring

SPRING is here! Signs of its arrival are popping up every day, even though newspapers aren't reporting them. In New York, for example, people on subways began smiling again a few days ago. In a small town in Iowa, the milkman stopped wearing his rubbers. And even in Southern California, where seasonal changes are very subtle, strollers inhaled deeply and noted a freshening in the air. Signs of spring, sure enough! And the strange thing is that although they happen *every* year, the signs never lose their power to quicken our hearts.

Because Old Man Winter's grip on the land finally has been broken.

Because the last gray traces of snow have vanished.

Because those buds and birds, that fresh wind and the return of color to nature add up to a wonderful, sometimes mysterious transformation.

All those young men, for example, who find that in spring their fancies "lightly turn to thoughts of love," might regard the arrival of spring as mysterious. On the other hand, the scientifically-minded find nothing mysterious; they were expecting it right along – expecting it, in fact, at precisely 3:32 P.M. on March 20. At that moment the sun balanced itself on the celestial equator, that imaginary line passing through the heavens above the earth's belt. Its warmth was equally divided north and south, and in all parts of the world, night and day were of equal length. That instant in March is called the vernal equinox, and an instant later the sun swung into the Northern skies. Spring came to the Northern Hemisphere. It gained momentum during the closing days of March and by April it was busting out all over.

Spring has made this entrance for the past 7 million years, ever since the reign of the seasons and the birth of the Ice Age drove perpetual summer from the earth. It takes up one-fourth of our calendar and traditionally symbolizes rebirth, reawakening, a new beginning.

But in all places the precise time and meaning of spring's advent are less important than the signs of change it brings with it. As Henry Van Dyke, the American author, expressed it: "The first day of spring is one thing, and the first spring day is another."

Spring moves. Allowing for altitude, large bodies of water, and the location of cities and countryside, it travels at an average rate of 15 miles a day. In the North Temperate Zone experts can predict exactly how far and fast by examining certain trees, usually the hackberry or red or silver maple. Red maple is the most often used milestone because it is one of the few trees that grows all the way from Miami to Quebec and because it is one of the first to put forth its spring flowers.

The movement begins in the Torrid Zone, flowing into the Southern Hemisphere in September, into the Northern Hemisphere in March. It ends three months later at the beginning of summer when the sun pauses for an instant over the North or South Pole, then swings once again toward the equator.

Amidst the constant warmth and brilliant coloration of the Torrid Zone, the signs of spring are barely noticeable. Foliage becomes a little more lush, migratory birds depart, rain falls heavily and often. Spring is there, but its familiar touch is missing. It cannot restore what winter never took away.

At the Poles spring makes no mark at all. Although on the final day of spring the sun pours down one-fifth more heat on the pivot points of the globe than on the equator, its rays never reach whatever lies beneath the ice and snow.

But in the tundra of the lower arctic the signs of spring, while few, are truly dramatic. The soil of these level, treeless plains is prepared in early spring by lichens – low, primitive plants that grow, flat and rootless, on the bare rocks that jut above the melting snow. Acid-producing fungus in the lichens gradually disintegrates the rock, and rain washes the powdery particles into crevices where it becomes pockets of soil, ready for a stray seed. Because the sub-soil of the tundra is frozen year round, its plants have widespreading, shallow roots. Leaves are thick, small and often hairy. All vegetation grows close to the ground where temperature is constant and the wind is not so fierce.

The inhabitants of this brutal climate probably appreciate the signs of spring more than any other people on this earth. They witness spring in violent contrast: patches of grass in a sea of snow, a herd of grazing reindeer, a warm breeze, a growth of arctic heather, a splash of golden saxifrage – rare flowers in a wasteland.

The true signs of spring belong to the Temperate Zones, where degrees of temperature have the widest range. It bursts on the North American continent somewhere south of Lake Okeechobee in the Florida Everglades long before the calendar announces its official arrival. From here it advances northward like a ragged wave, flooding the valleys, then creeping up the mountainsides.

In February spiky cactus north of the Mexican border comes into tender bloom. In early March the alkaline wastes around Palm Springs, California change into fields of purple sand verbene, and in the Santa Monica Hills over Hollywood the crags are softened by wild lilac and dainty milkmaid.

In the valley lands between Portland and Salem in Oregon, prune orchards begin to blossom, fields of daffodils magically appear, and willows along the Molalla and Willamette Rivers show new leaves. In the shade of second growth fir and alder, native wildflowers spread down from the hills to the banks of shady streams – the lavender colored queen-of-spring, larkspur, Johnny-jump-ups, lupine, violets, camas. Light pink blossoms grace the manzanita bushes amidst petals of trillium and adders tongue.

By June the flower called ocean spray flows through the woods of the Northwest. By July, when spring has officially passed, lilies grow ankle deep at the fringe of the snow in the mountains of Washington.

In the lowlands of the South over 800 varieties of azaleas, growing wild and in cultivated parks and gardens, announce the certain arrival of spring. In the Great Smoky Mountains white sandbushes and an array of wildflowers more varied than anywhere else in the region blanket the slopes and gorges. The Great Glacier that covered the northern part of the continent left this area untouched, and some of its flora represents the sole survivors of a long-lost age.

In Washington, D.C., cherry blossoms are the first un-

Even though there's still a nip in the air that calls for warm clothing, Parisians delight in greeting spring by gathering in sidewalk cafés along the Champs Elysées.

Rising temperatures mean that children, free at last from the confines of winter, head for parks and playgrounds to stretch young muscles.

SIGNS OF SPRING

mistakable sign of spring. The banks and lawns beneath the flowered trees are thronged with office workers, officials, tourists and housewives, all enjoying the promise of spring.

And, at the same time, in far away Japan the traditional Cherry Blossom Dances have begun. The Japanese are more observant of spring's arrival than are most other people. Vernal Equinox Day is an official holiday in Japan. A week centering around this day is known as *Higan,* a time when Buddhist temples throughout the country hold special services and people pray for all the souls of their departed relatives.

New England has a late spring. While dandelions, violets and fiddlehead ferns brave the chilly air of the just-green maple forests, skiers still wend their way to the snow covered slopes of Tuckerman's Ravine in New Hampshire which remains cold, crisp, and hard-packed well into June.

The trees, plants and flowers that come magically back to life at the touch of warmth are stationary signs of the season. Other signs move *with* the tide of spring, from place to place.

The most spectacular of these are the migratory birds, a dramatic example of *horizontal* movement. As spring moves northward early in the year, birds return behind its advancing front to the place where they were born. Those with the shortest distance to go leave first. The farther south their breeding grounds, the earlier they come home. Since conditions are right for the return of migrant songbirds in Virginia weeks before they are in Vermont, the late-leavers leapfrog those that left early.

About the third week of April a great wave of warblers pours over the Appalachians, their fluttering wings carrying them from islands of the Caribbean, from Central or South America, from Mexico. The average progress of migrants ascending the Mississippi flyway is 23 miles per day. Blackpoll warblers, one of the last to come north, exceed this rate by a dozen miles a day. Those that nest in western Alaska increase their speed when they reach Minnesota, following the Mackenzie Valley at speeds up to 200 miles per day.

Canada geese follow an average daily temperature of 35 degrees Fahrenheit. The "honkers" apparently consider this the front line of spring, for it melts the ice on the lakes they love. When the temperature hits a steady 35 degrees in Washington, D.C., the geese can be found on nearby Chesapeake Bay. By March 30th, when the water at Portsmouth, New Hampshire has cleared, the geese are winging across Quebec, headed for Hudson Bay, where it is never spring without them.

The arrival of certain birds is an annual spring event in many places. In Saudi Arabia the new season is heralded by the coming of the swallow, much like our barn swallow, and the appearance of the long-tailed, green parakeet and the sweet-singing bulbul. Throughout much of the United States the sighting of the first robin is exciting news. At the old mission of San Juan in Capistrano, the return of the swallows is so certain and so significant that hundreds of tourists gather there with picnic baskets on March 19th to welcome them home. Popular legend has it that they always return on St. Joseph's Day – and the birds rarely disappoint those patient enough to wait.

Horizontal migration is not limited to the air, however. Ocean tides reach their peak in the spring, and life begins to stir in the deep. Many fish begin adding new and wider rings to their scales, a sign of the number of springs they have seen, a sign as sure as the growth rings of a tree.

While the Chinook salmon of the Northwest fights its way up turbulent streams to spawn in fresh inland waters, adult eels reverse the procedure and head for sea. Their journey is to the deepest abyss of the Atlantic Ocean, a point about equidistant from Bermuda and the Leeward Isles, where the water is four miles deep. As they swim, they pass by their children, little threads of life spawned in the deep two years before and just now reaching the end of a year-and-a-half journey to the fresh water haunts of their parents.

The *vertical* migrants are a hardy lot. They move up and down in the same vicinity to make the best of local temperature, but they remain for the winter season. Birds like the Carolina junco, the pipit, the rosy finch and the pine grosbeak move into the lowlands in winter and return to higher altitudes at the first warming sign of spring.

The earthworm, the turtle, the toad and the frog are also vertical migrants, as are a variety of fish. In the fall they burrow deep into the earth, below the frostline, where they spend their long, chilly winter sleep. Certain types of beetles creep into the ridges and valleys of bark low on forest trees and spend the winter beneath a blanket of moss. The vertical migrant may travel only a matter of inches, yet his reappearance is a true sign of the season.

The most remarkable signs of spring occur in man. For, aside from the natural turn a young man's fancy takes, man shows an ability to invent his own response to the change in his environment.

Gentle spring winds may carry the scent of apple blossoms.

Like the trees, the plants, and many animals and birds, he seems inclined to put on his most colorful apparel. Up north the fashion parade takes place on Easter; in Chile, in the Southern Hemisphere where the seasons are reversed, the pretty dresses and gaily bedecked hats appear on the 18th of September. Argentina heralds spring with its parade on September 21.

The English begin their social season in early spring with an announcement that Her Majesty will shortly hold presentation parties at Buckingham Palace. A festive competitiveness permeates the air. Oxford and Cambridge race each other in boats; gardeners match their flowers at Chelsea; gypsies, tinkers, tipsters and touts, high society and Mum and the kids attend the wonderful Derby to watch the horses race.

In Paris chestnut trees shed their blossoms on pretty spring chapeaux. The tables and chairs of the sidewalk cafes are quickly dusted off. The gendarmes swing their capes with an added flourish. And every Parisian who can manage it makes plans to migrate to the country and avoid the summer tourists.

As a brief and fleeting spring settles on the Austrian Tyrol, some of the menfolk don their traditional costumes and walk through the streets ringing cowbells, as if to chase away the last unwelcome trace of winter. Ram butting contests and wrestling matches are held on the village greens, expressions of the renewed vigor that has come upon the land.

So it is in varying ways and at various times in all parts of the world. So it has been from the days when the spring choir of frogs was first heard along the Nile, when a Chinese artist first sketched white plum blossoms against a bright blue sky, when an ancient scribe recorded that the time of the singing of birds had come and the voice of the turtle was heard once again in his land – once again, a promise of tomorrow. ■

Pioneer salesmen paved their rugged road with a gift of gab and a flair for the unusual

THE SALESMAN

MENTION the word "salesman" to most people and chances are they think of a department store clerk, the Fuller Brush man or the bedraggled Willy Loman portrayed in "Death of a Salesman." To comedian Fred Allen, the salesman was anyone who could sell something to Jack Benny and still make a profit. Others remember the salesman as a pitchman at the turn of the century – the "medicine man" who hawked snake oils to the accompaniment of banjo music or the fast-talking, back-slapping slicker colorfully characterized in Broadway's recent hit "The Music Man." No matter how the salesman's image has been projected or how it has changed from generation to generation, this much is certain: he has easily been one of the most-talked-about figures in history.

Peddlers and chapmen, as traveling salesmen were first called, have flourished since the beginning of recorded civilization. In 2,500 B.C. they traveled across deserts and seas in caravans, bringing spices, silver, ointments and slaves from Mesopotamia to the other chief cities of Asia.

Phoenician salesmen in 1,200-1,000 B.C. sailed the Red Sea and Persian Gulf in search of buyers for their metalwork, jewelry and glass; land expeditions roamed Europe and Africa. An oaken box found on a Prussian moor was fitted with leather straps for slinging over the shoulder and contained specimens of a dagger blade, a needle and a sickle. Experts think it may have been the sample case of a traveling metalware salesman in the dawn age.

Salesmen of that era and in the centuries that followed had to be a fearless and adventuresome lot, for while they peddled their wares they faced dangers unknown to the collar-and-tie salesmen of today. Sea pirates lay in wait for merchant vessels. On untamed byroads salesmen risked attack by wild animals and primitive robber barons intent on collecting tribute.

In self-defense, English merchant guilds of the thirteenth and fourteenth centuries forced their members to carry armor, a bow and a dozen arrows. Salesmen banded together in groups to discourage attack. When visiting a town together, members of the party would wait until everyone had finished his business before traveling on. If one of the group was imprisoned or robbed on the road, his associates paid the entire ransom or staked the unfortunate salesman to new merchandise.

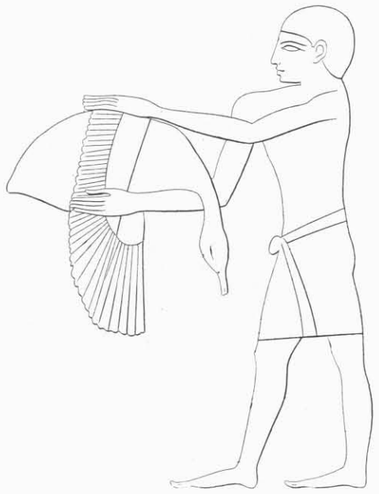
In the United States, the early salesman had to be just as fearless as his counterparts around the world. He emerges from the pages of history as one of the many authentic heroes of pioneer America. He traveled incredible distances over rugged mountain trails, along dangerous and difficult river routes. A pack on his back and a knife in his belt, the salesman would often plunge alone into the wilderness to barter for furs with remote Indian tribes. Later, he jousted with road agents and thugs.

If he could afford a horse, the pioneer salesman carried his wares in a saddlebag. Eli Terry of New Haven, Connecticut, founder of the modern clock industry, used this method of travel to good advantage. He would ride up to an isolated farmhouse, complain that his load was too heavy and leave a clock with the family for a few weeks. By the time he returned to pick it up, the farmer and his wife found they couldn't get along without it and Terry had a sale.

As Yankee ingenuity began to assert itself in shops and mills and forges, the salesman went out to find markets for new products as far west as California. From the Missouri River, they traveled by covered wagon across plains and mountains to Oregon country, bringing bits of civilization and culture to lonely pioneers at their outposts. As one settlement after another grew into towns and villages, it was the salesman who helped pioneer merchants learn what to buy and how to sell.

Not all salesmen, of course, were dedicated and honorable businessmen. Buyers occasionally found sand in the sugar, chicory in the coffee or dust in the pepper.

But many graduates of the selling profession made sizeable contributions to American history. John Jacob Astor earned his reputation and fortune as a fur salesman and trader in the late 1700's and early 1800's. Naturalist-artist John Audubon sold knives, beads, gunpowder and snuff at Louisville along the Ohio River around 1810. Patriot Paul Revere sold his silver and copper utensils in a Bos-



On the wall of an Egyptian tomb is one of the earliest pictures of a salesman — a goose merchant.

European salesman of Middle Ages carried a variety of merchandise strapped to a frame on his back.

The chapman, an itinerant peddler in eighteenth-century England, carried wares in a showcase.

In France a saleslady of the 1700's was likely to stock everything from wooden trumpets to checkerboards.

At the turn of the century Russian hardware vendors used heads to increase carrying power.

A patent medicine salesman in 1880 extols the virtues of "Perry Peck's Iron-clad Repulser."

Today, TV actresses like Simon McQueen use salesmanship and showmanship to sell their products to mass audiences.

THE SALESMAN

ton shop. Hires peddled his root beer in Philadelphia; in Pittsburgh, Heinz trundled a wheelbarrow loaded with horse-radish; Wrigley, in Chicago, sold chewing gum from a basket. Showman P. T. Barnum, as a boy in Connecticut, learned how to sell behind his father's store counter. Abe Lincoln was a sales clerk in Illinois.

By 1830, large wagon caravans bulging with dry goods, hats, boots, firearms, hardware and even furniture were a common sight on country roads. Where the roads were poor, arks or flatboats navigated the Ohio, Tennessee and Mississippi as floating stores and trading boats.

Although "drummers" first appeared in the South around 1790, they made their greatest impact on the American scene during the financial panic of 1837, when wholesalers sent them out to visit storekeepers to speed up payment of overdue bills and to drum up new business. Historians portray him as an affable man-of-the-world with a big, black cigar and a dangling watch chain. He called on customers in a hired rig and swapped stories with other drummers and town wits after supper at the local hotel.

By 1850, salesmen were almost completely on wheels, often traveling from town to town in wagons resembling a circus chariot and drawn by four fast horses. Inside, carefully arranged on shelves, hooks and in drawers, was merchandise designed to set hearts yearning and purse strings loosening. No matter what his line of goods, however, the pioneer salesman was only as good as his gift of gab and his flair for the spectacular.

"Diamond Jim" Brady became an amazingly successful railway equipment salesman by doing the unusual. He would scratch his name on a prospect's office window with the giant stone in his ring to convince him his many jewels were real. Few customers forgot the colorful Brady. Fewer still would buy from his less imaginative competitors.

Colonel W. H. Bradley, salesman for a Kentucky wholesale dry goods house in the mid-1800's, always carried a Mexican jumping bean with him. A group would gather to watch the little bean bounce around the counter, and Bradley would be assured of an attentive audience for his sales pitch.

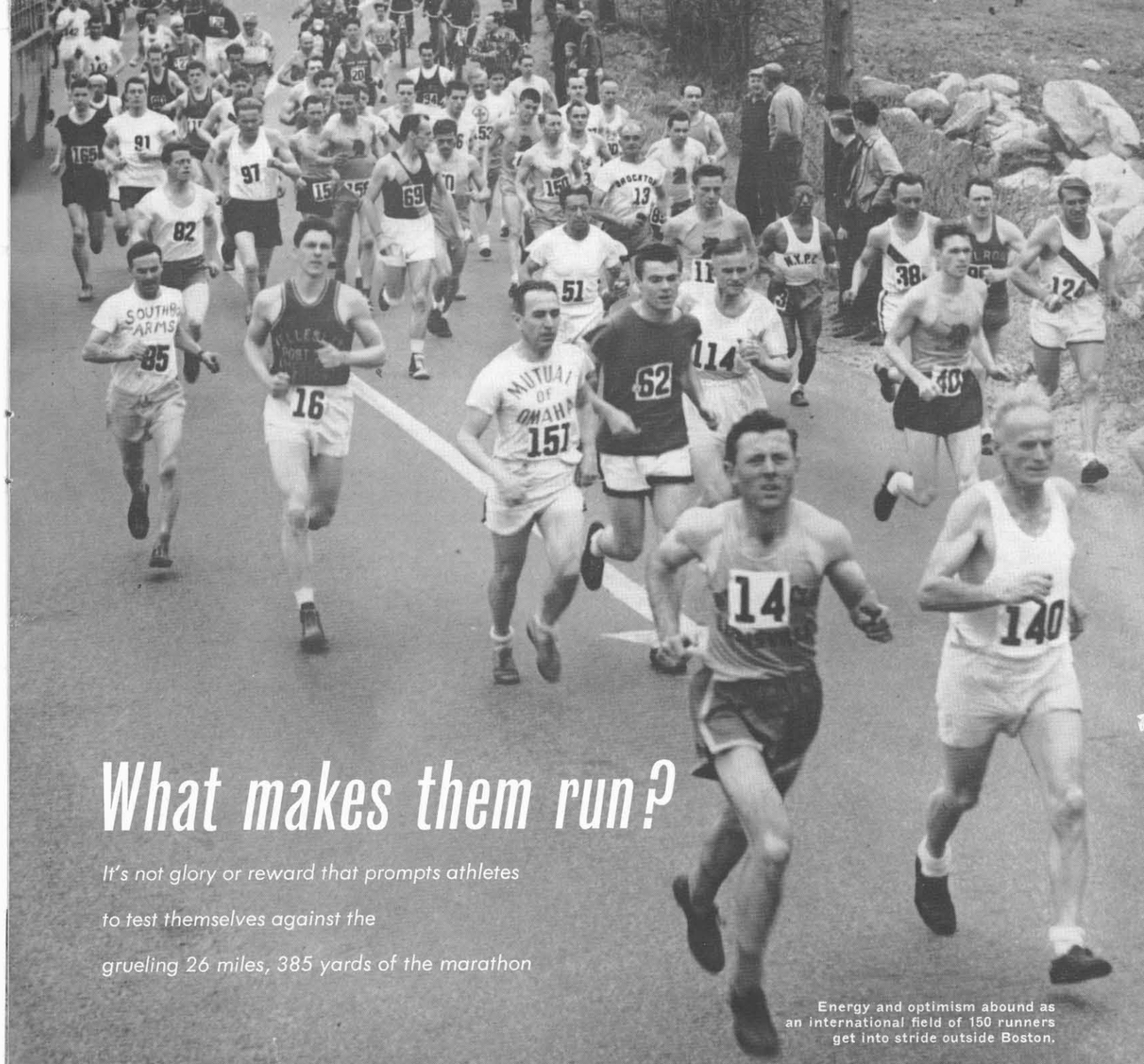
Often the traveling salesman wooed rural customers by providing entertainment. Robert S. Brookings, whose fortune created Washington University and the Brookings Institute, always carried a fiddle with him when he was selling furniture and hardware throughout the West in the 1870's. At night he would amuse storekeepers' families with music and card tricks. For many families living off the beaten track, the mere pleasure of a salesman's company was entertainment enough. Nothing seemed quite as exciting to them as having the salesman open his packs and cases before the fireplace. It was like bringing an entire store into the living room.

All the while, salesmen around the world were improving their selling techniques, relying for the most part on experience. One of the first guidebooks for salesmen, published in France about 1675, urged them to represent their goods with honesty, employ all adroitness and reason to persuade but not to fly into a rage or to scold if the prospect left without buying. Half a century later in England, Daniel Defoe, better known for *Robinson Crusoe,* contributed the *Compleat English Tradesman.*

Much of the credit for molding the modern salesman in America must go to John H. Patterson, founder of a large cash register company. In the late 1800's he published instruction manuals, held schools for salesmen, instituted bonus plans and sales quotas. His salesmen became models studied by hundreds of other companies, and the profession became even more popular. While there were only 7,000 salesmen in 1870, the government census found four times that number ten years later, 93,000 by the turn of the century and 223,000 by 1930. They now number well over a million, and more than four million Americans make their living in some form of selling.

Today's salesman-on-the-move in America bears little resemblance to his predecessors here or elsewhere in the world. Often, he is a person who chooses sales as a career after extensive training – including college. Companies no longer hire and then send the man out on the road. Instead, they spend months training him to meet intense competition. The salesman, once he is "on the road," keeps abreast of competition and new developments by attending conventions, listening to pep talks, and studying charts and films. His profession, in short, has become as specialized as many other professions.

Gone are the dangers that once beset the salesman's path; gone also are the lonely wastelands that he once crossed to get to his customers. But the principle that set the first salesman on the road in the dim past still remains: It's not always possible for a potential buyer to come to the market, so the market's representative – the salesman – goes to him. ■



What makes them run?

It's not glory or reward that prompts athletes to test themselves against the grueling 26 miles, 385 yards of the marathon

Energy and optimism abound as an international field of 150 runners get into stride outside Boston.

ON a dusty day in 490 B.C., a Greek courier named Pheidippides set a dangerous precedent. Joyous at an Athenian victory over the invading Persian army, he ran 22 miles and 1,500 yards from the plains of Marathon into Athens with the news. "Rejoice, we conquer," he gasped and immediately fell dead.

His sacrifice didn't go unnoticed, although its recognition was delayed 2,300 years. In 1896, when Baron Pierre de Coubertin helped revive the Olympic Games, he included a "marathon race" of about 25 miles to commemorate Pheidippides's run. This proved fortunate for the Greeks. In that Olympiad the Americans had annexed most of the first places without the host country earning a single victory. Then on the last day of the Games, a Greek shepherd named Spiridon Loues wandered down out of the hills and ran in the marathon without previous running experience. He won the gold medal for Greece.

Since that time the marathon has become a standard fixture on the Olympic Games calendar, as well as in connection with other festivals, holidays and celebrations. Occasionally the marathon becomes an artistic as well as an athletic endeavor. Last summer Olympic marathoners began their twilight race in front of Rome's massive Victor Emmanuel Monument, ran past the Foro Romano and Colosseum and finished along the ancient Appian Way, their path lit by soldiers standing every fifty feet holding torches. The first to cross the finish line under the Arch of Constantine was Ethiopian Abebe Bekila, a private in Haile Selassie's palace guard, who ran the entire 26 miles, 385 yards barefooted. He was promoted to corporal.

To tell of victory over Persians, Greek courier Pheidippides ran 22 miles from plains of Marathon to Athens, then died.

WHAT MAKES THEM RUN?

In America about a half dozen full-distance marathons are held each year, including the Culver City Marathon, which winds around one of California's larger motion picture studios, and the Pike's Peak Marathon, which climbs to the top of that 14,110 foot mountain and back down. But perhaps the best known marathon in America, if not in the world, is the historic Boston Marathon. Bostonians are as proud of their marathon as they once were about their tea party, and each April 19, rain or shine, sleet or snow, several hundred thousand of them dress in their best clothes and journey to Commonwealth Avenue to watch the runners pass.

The Boston race owes its existence to the 1896 Olympic Marathon, which was witnessed by Boston Athletic Association team manager John Graham. He decided to import the event to this country. Fifteen starters lined up for the first Boston Marathon the first year it was held in 1897. Now more than ten times that number compete.

Most of these runners compete for little honor and even less reward — a lot less, at least, than Spiridon Loues received when he won that first Olympic marathon. As Loues jogged into the stadium in Athens, dog-tired but still game, his countrymen arose en masse to cheer him on. Women flung their jewelry at his feet, and a young boy pressed out of the crowd with a promise to shine Loues' shoes for the rest of the runner's life. A restaurant owner offered him one free meal every day for a year. The winner of the Boston marathon receives a diamond-studded gold medal. The next ten finishers get trophies and 25 more obtain medals, but most of the large field of entrants get nothing more than a bowl of stew served to them after they finish.

Why do they do it? "Because it's a challenge," says Dr. Warren Guild of Boston's Peter Bent Brigham Hospital. "Anybody, no matter how hopelessly out of shape, can go out and run a mile. With a little training he may even run it fast and not prove much. But anyone who has ever competed in a marathon knows that merely to finish a 26-mile race — no matter how fast — is a tremendous accomplishment." Dr. Guild finished the Boston Marathon last year almost a full hour behind the winner, Paavo Kotila of Finland, and was tickled pink.

While some people might think a person would have to be either an idiot or a raving maniac to want to submit his body to such punishment, the marathon attracts its share of "eggheads." John J. Kelley, America's best marathon runner, is a high school English teacher in Groton, Connecticut. Scott Hamilton, a marathoner-architect of some note from Little Rock, Arkansas, has spent the last year studying in Finland and Paris where he had a one-man show of mobiles he had designed. While a student at Oxford, he went mountain-climbing with a British expedition in Tibet. "Right now," says Hamilton, "the marathon race is my own particular Everest."

Each April 19 several hundred athletes, coaches and fans assemble at a high school gymnasium in Hopkinton, Massachusetts, the starting point for the Boston Marathon. A crew of doctors examines all the entrants for any physical defects that might prohibit them from finishing the race. But most are in superb condition.

One of America's marathon greats, Clarence De Mar, was in 1911 warned by an examining doctor that he had a heart murmur and probably shouldn't run. "Drop out if you get tired," advised the doctor, which was tantamount to telling a channel swimmer to come out of the water if he gets wet. De Mar went on to win that Boston race and six others, the last in 1930 when he was 40 years old. He didn't retire from marathon running until a few years before his death at the age of 71. The 50 to 100 miles of training necessary for good marathon performances strengthens rather than damages the heart.

The Boston Marathon begins at high noon in the Hopkinton town square. Until 1957 it used to begin at Marathon Rock further up the road, but in that year the sponsors, with some prodding from doubters in other countries, remeasured their course. They found it an embarrassing half mile short and had to shift the starting point, thus invalidating all previous record times.

This action was not without precedent. Most early marathons were 25 miles long but when London hosted the 1908 Olympics, in deference to royalty, officials moved the starting point back to where it could be viewed from the balcony of Windsor Castle. The 26 miles, 385 yards run that day has since been adhered to as the official marathon distance. "Every time I get to the 25-mile point, I cuss out the British," says one marathoner. "Without their meddling I could stop."

When the starting pistol fires, the runners rush off in the wake of a flatbed truck reserved for the press and two buses filled with officials. The police have cleared the road of all traffic. From Hopkinton the marathon course slopes downhill past the Ashland reservoir and into Framingham to the first check point at five miles. There, in 1907, Tom Longboat, an Onondaga Indian from Ontario, surprised the other competitors by breaking into a sprint. He crossed the railroad tracks just before a long freight train held up his opponents long enough to assure him of victory.

Eddie Southern of Texas, NCAA 440 yard champion and silver medalist in the 1956 Olympic 400 meter hurdles, used to complain of getting bored during his races. "I never know what to think about on that back straightaway," he used to say. Marathon runners, with one hundred times as far to run, seldom get bored during their race — or if they do they don't admit it. The runners in the rear jog along enjoying the scenery, occasionally exchanging chat, and accepting readily the offers of water and oranges provided at refreshment points. The runners in front are too intent on their competition to worry about boredom. "The first half of the race is almost pleasant," says John J. Kelley. "You're among friends, and at first the pace does not seem too punishing. The last half dozen miles provide a burning bath of pain, but by then it's too late to turn back."

The Boston Marathon has always been popular with foreign athletes, and, in fact, Kelley has been the only American to win the race (in 1957) in the last 15 years.

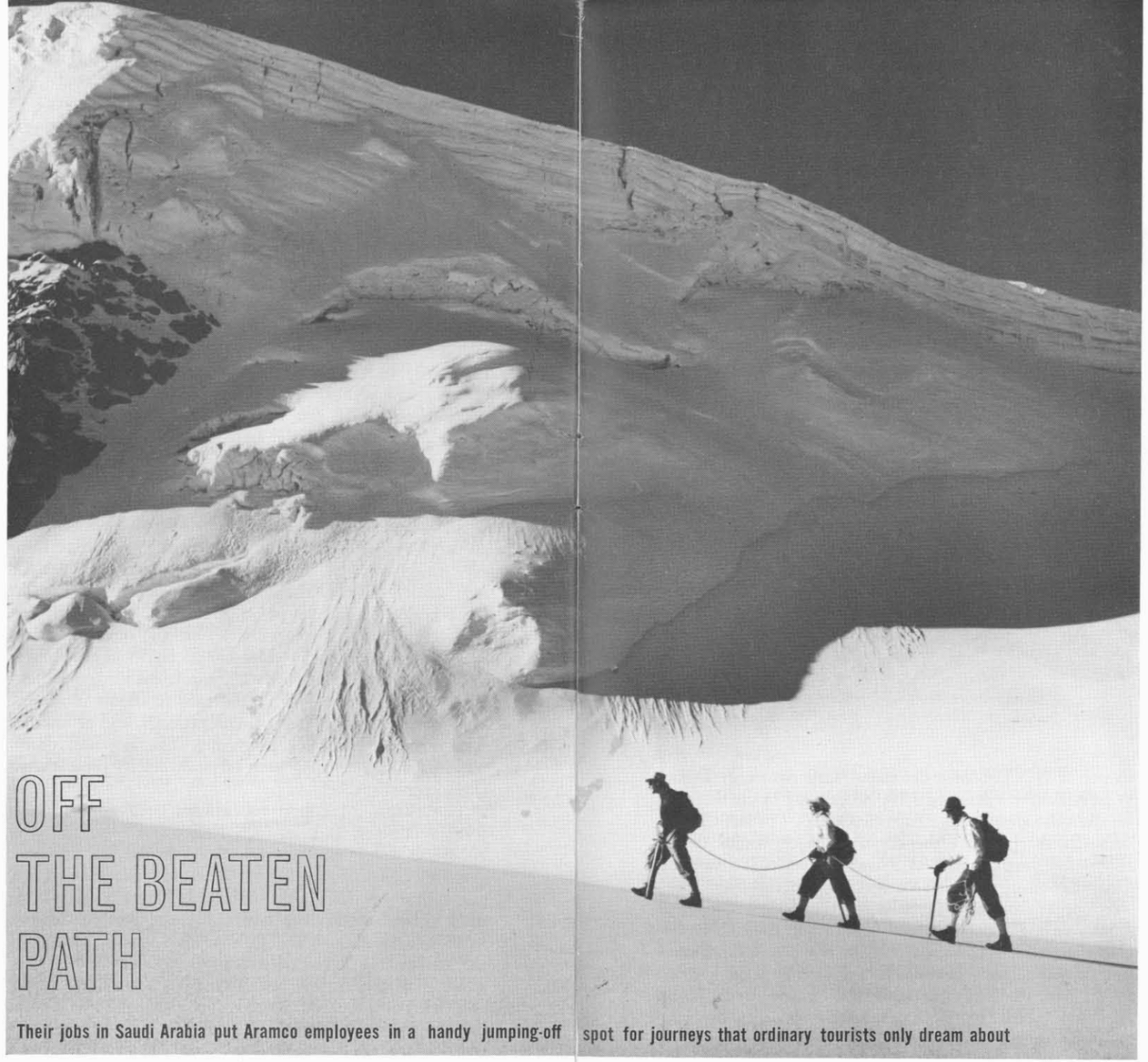
While describing the Boston Marathon several years ago, one author mentioned that students at Harvard and M.I.T. used to like to enter the race and sprint into the lead at Wellesley to impress the girls at that school. Obviously the author had never tried it himself since Wellesley is almost half-way in the race. Two years ago a hooded student tried to jump into the race at the ten-mile check point in Natick only to be tackled by B.A.A. trainer Jock Semple. "I can't stand exhibitionists," said Jock in a burly Scottish accent. To him, marathon runners aren't exhibitionists, they are artists.

Shortly after reaching the 15-mile check point the runners who by then are stretched out in a two or three-mile-long line encounter the Newton hills — four hills which seem quite gentle from a seat in a high-powered automobile. But for men who have been running for one hour and a half, they present quite an obstacle. The last of these hills is Heartbreak Hill, so named because many runners have reached it only to find they could go no further. Many others have seen their opposition sprint away from them at this point. Boston College lies past the top of the hill and the rest of the way to the Exeter Street finish line has been described in most accounts as "downhill all the way," but as one marathon runner has commented: "Anyone who calls the last five miles 'downhill' has never tried to run them." ■

Spiridon Loues receives gratitude of his Greek countrymen after winning first modern Olympic Games marathon in 1896.

At age of 40, Clarence De Mar was first across the finish line in 1930 Boston Marathon; it was his seventh victory.

Five times national champion, John J. Kelley expresses a mixture of fatigue and exultation as he breaks tape more than 26 miles from the starting line.



OFF THE BEATEN PATH

Their jobs in Saudi Arabia put Aramco employees in a handy jumping-off spot for journeys that ordinary tourists only dream about

A mountainside at Zermatt, Switzerland is typical of the unusual spots where Aramco families spend their vacations.

"TRAVEL, in the younger sort, is a part of education; in the elder, a part of experience," wrote Sir Francis Bacon some 350 years ago. If his maxim is true, then Aramco employees living in Saudi Arabia must be some of the world's most experienced people. And their kids must be some of the smartest. From the North Pole to the South Seas, from Istanbul to Buenos Aires, vacationing Aramco families are proving to be no wall-flowers when it comes to putting on seven-league boots. Name any form of transportation, and chances are that an Aramco employee has used it to visit spots that most tourists see only on travel brochures. Liners and limousines, buses and cablecars, airplanes, camels and rickshaws, not to mention shoe leather, have carried these travelers into many corners of the world.

The three-months home leave, given every two years, is a special incentive to depart from the beaten track. Families with wanderlust have plenty of time to make side trips while traveling between Saudi Arabia and the United States. And since Saudi Arabia is some 7,000 miles from the United States by air, it doesn't make much difference whether travelers choose a route leading east or west. So numerous are the possible routes, in fact, that one Aramco family completed five around-the-world trips in fifteen years and never went the same way twice. Others, on short vacation, have discovered that not too far from Saudi Arabia are many out-of-the-way spots to intrigue even the most veteran of travelers.

Outside of the fact that they simply enjoy traveling and the opportunity to see new places and people, some of these modern Gullivers have special reason to visit special places, and the photographs and souvenirs they bring back to show to admiring friends are tempting enough to make anyone dust off his passport.

TRAVELING IN STYLE . . . There are many ways to get from Dhahran, Saudi Arabia to Los Angeles, California, but Frank and Yvonne Mefford chose one that was not on the travel agency list. They drove in a 1937 Rolls Royce, covering some 12,000 miles, two continents and nine countries. After Frank covered the 800 miles across northern Arabia, where Bedouins gaped wide-mouthed at the sight of a Rolls crossing the vast emptiness, the Meffords, accompanied by their two sons, drove through Europe. While their Rolls crossed the Atlantic by ship, the Aramco family flew from London to New York, where they once again hit the road. All across Texas, they were stopped by Texas Rangers who, like the Bedouins, did a double-take at the sight of a 1937 Rolls bearing Saudi Arabian license plates. Arriving in Los Angeles, the Meffords put up at a motel run by a man who was born in the Middle East 40 years ago. He admitted that he never expected to see a car bearing Saudi Arab plates pull up to his establishment. Having reached his destination, Frank conceded that it was a hard drive. Maybe that's why the Mefford family flew back to Dhahran. The Rolls went by ship.

THE WAY OTHER PEOPLE LIVE . . . Carlos Arroyo, of Ras Tanura, had been employed for several years in South America before he joined Aramco in Saudi Arabia. He and his wife Estelle know the value of living among other people and learning their ways. They want their children to know it too. To that end, the Arroyo family spent a month in Japan (during their last home leave). Avoiding the conventional tourist hotels, they lived with a Japanese family on the outskirts of Tokyo before going on to Kyoto, Takamatsu, Nara and Nicco. Carlos was quick to catch onto the idea that in Japan the father is a mighty important member of the family whose word is law, and all the Arroyos had no trouble adopting the tradition of removing shoes before entering the house.

BUSMAN'S HOLIDAY . . . Curious to see how the Nepalese handled the problem of trade and commerce, Aramco employee Ran Hansen, whose business is transportation, visited that sky-high ancient land. Nestled in the Himalaya Mountains, with Tibet to the north and India to the south, the Kingdom of Nepal is the home of Mount Everest, Annapoorna and Yeti, the Abominable Snowman. Ran drove by jeep from Kathmandu to the village of Thankot at the foot of Chandragiri Pass, original gateway from India. Supplies that once were hand-carried over the rugged mountain passes, with men and animals constantly lost on the windy slopes, are now transported overland by truck to the border city of Mata Tirth. There, as Ran observed, they are offloaded to a cable line which carries the supplies in metal slings over the mountains and down into the customs sheds of Kathmandu.

BIG GAME AT ITS BEST . . . How many hunters in the world would turn green with envy listening to Roy Sanders, Dhahran, telling about his short vacation to India. "Hunting was good," Roy explained. "I got lucky and bagged a nice tiger and leopard. The tiger measured ten feet, two inches . . . and the leopard seven feet, three inches." To get the sights of his high-powered rifle on the dangerous cats, Roy flew from Dhahran to Bombay, traveled 200 miles inland by train, and then 60 miles by jeep to the teakwood and bamboo jungleland of Madhya Pradesh at the foot of the Himalayas. "To hear a tiger roar with rage," thin-haired Roy said, "made me feel like I had a full head of hair — and it was all standing up! What an animal and what power! Make no mistake, they are big and very clever. I saw one in the moonlight at about 15 yards distance that looked bigger than a horse."

FROM HOT TO COLD . . . One way of escaping Saudi Arabia's summer heat is to go to the North Pole, where even in July and August it manages to be cool. George and Silvia Rader of Abqaiq and Frank and "Mike" Jungers of Dhahran decided to test northern Scandinavia's natural air conditioning. Crossing Norway and Finland by auto, they pushed toward the land of the Midnight Sun, until they reached North Cape at 72.10 degrees longitude. The North Pole is at 90 degrees. At North Cape they found that the sun sets between 11 o'clock and midnight in a blazing spectrum. Although the all-night light played havoc with their sleep, the two couples had to admit that it was cool.

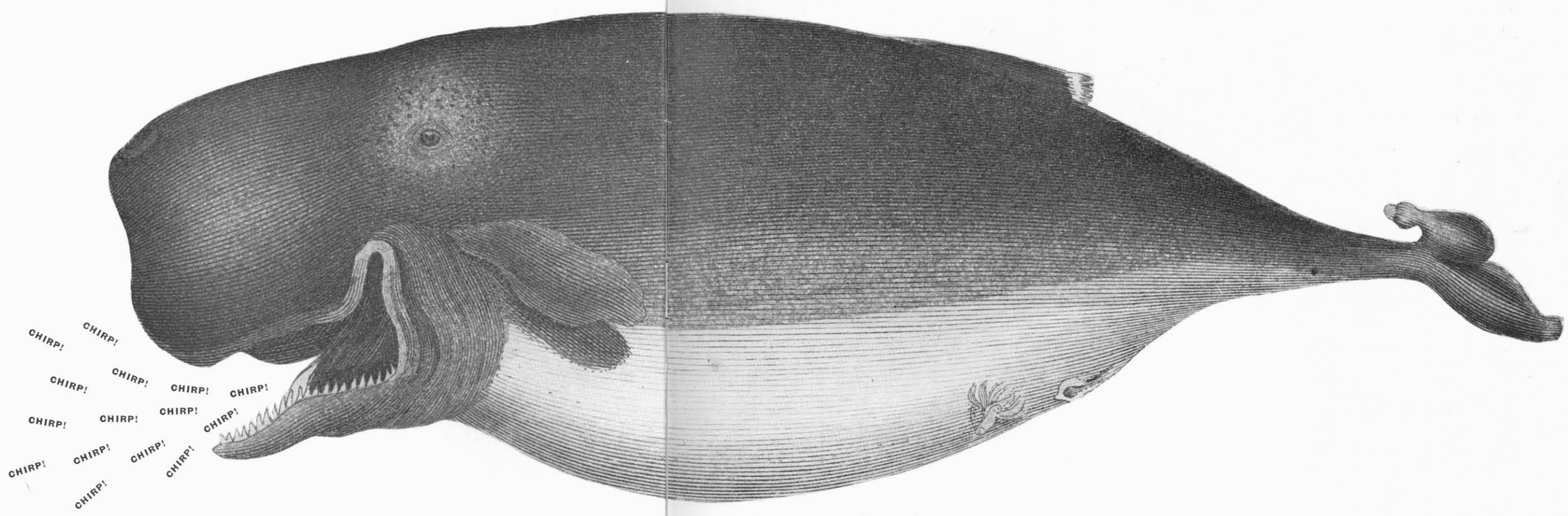
STONES OF HISTORY . . . In the Middle East even five days is enough time to get away from the ordinary. It was done by a group of 20 Aramco employees who flew in a chartered plane from Dhahran to Abqaiq to Jordan, where they clambered over the ruins of Petra, Amman and Jerash, known as Jordan's "classic cities." The remains of Jerash, for example, indicate that when it was built, possibly around 130 to 180 A.D., it was an ideally-planned Greek city with colonnaded main and cross streets and an 82-foot-high triumphal arch. Outside the city walls is the Naumachia, or Sea Circus, a tank 60 by 170 yards where long ago naval battles were fought with miniature warships before 4,000 spectators.

EXOTIC PORTS OF CALL . . . There's not a landlubber alive who would choose the Saudi Arabia — California watery route followed by Marian and Steve Stevenson during their recent home leave. Boarding a Dutch freighter at Dammam, the Stevensons debarked at Wilmington, California more than seven weeks later, their sea legs still firm. During the long voyage, they made many a trip up and down the gangway as the freighter anchored at such exotic-sounding ports as Bombay, and Cochin, India; Trincomalee, Ceylon; Belawan, Sumatra; Penang, and Port Swettenham, Malaya, Singapore; Manila and seven other stops in the Philippine Islands. The Stevensons are still enthusiastically acclaiming the food and fun they had aboard, to say nothing of the opportunity of exploring many out-of-the-way ports that the ordinary tourist only dreams about.

Perhaps even more exotic were the names of the South Seas ports visited by Bill and Mary Nell Gross and their three children. After a brief visit to Hobart, Tasmania and Sydney, Australia, the Gross family flew to Aukland, New Zealand to board a small freighter outbound to the islands of the South Pacific. Using the ship as home base but flying on side-trips to Polynesian outposts, the Aramco family filled their trip log with names that most people see only in adventure novels: Suva, Fiji Islands; Tongatabu, Friendly Islands, Vavau Island; Niue, Cook Islands; Pago Pago; Bori Bori, Society Islands; and Papeete, Tahiti. After five weeks of island-hopping, the Grosses had a full log book. ■

LEND AN EAR TO THE SEA

...and you, along with eavesdropping scientists, will discover that the "silent depths" are filled with chatter



THE sea makes many sounds. There is the long, rumbling roll of breakers hurrying toward the beach and the crash of giant waves whipped on by shrieking hurricane winds. There is even the "sound" of silence across endless, unrippled stretches of the Pacific. These sounds have always belonged to the sea's surface, but a few fathoms below, the sun's light is lost and the water becomes less and less turbulent, until, a few hundred feet down, the black unknown begins. It is the "silent depths" that so many poets and writers have attempted to describe. But they apparently never put a keen ear to the sea.

Others, scientists and researchers, are now doing just that. Covering five-sixths of the earth's face, the seas are finally being given their due in man's affairs. Nations are racing to learn more about the watery territory that long was considered beyond their grasp. One of their many interests are the sounds of the sea, and the keen, mechanical ears they use are rapidly proving that the oceans have no "silent depths." In fact, the depths of the ocean are full of sounds. All manner of living things from shrimps to sharks call back and forth, until the water suggests a party line with every subscriber jabbering at once.

Listening in on all this underwater "conversation" is not difficult. Water transmits sound energy much faster and more efficiently than air, making the job of underwater microphones, or hydrophones, all the easier. A whistling whale, for example, that stuck his snout above the water could be heard in one second at a distance of 1,100 feet. But if the whale whistled underwater, his whistle could be heard at a distance of about 5,000 feet after the passage of the same one-second interval. In one recent experiment, a six-pound TNT bomb, detonated underwater at Dakar, West Africa, was detected 3,100 miles away in the Bahamas — across the width of the Atlantic Ocean — in less than an hour. In short, under the ocean's surface, sound travels almost five times as fast as it does above it. No wonder, then, that gossipy fish have a wide audience.

Scientists became intensely interested in underwater sounds during the spring and summer of 1942. A hydrophone network had been installed in Chesapeake Bay to alert coastal defenses of the approach of enemy submarines. In late May the loudspeakers of the warning system began to emit sounds resembling pneumatic drills breaking through concrete. At first no one could guess the cause, and many feared some new method of jamming was being tested by the enemy in Atlantic waters.

By the time the din had been traced to fish, the Bay held between 300 and 400 million of the noise-makers. They were croakers — a ten-inch fish that produces a roll of rapid grunts by muscular movements vibrating its swim bladder. After July the croakers departed again into the open Atlantic. Their return in later years was scarcely noticed because the hydrophone system had been equipped with croaker-proof filters that allowed the sound of submarine propellers to be heard.

Fish calls include a remarkable repertoire. During mating season the male toadfish roars like a foghorn, repeating at 30-second intervals. Later on, while he is guarding eggs, the sound comes out as a low, rough growl. At the Narragansett Marine Laboratory of the University of Rhode Island, a pet sea robin makes a purring sound when rubbed but emits a burst of unpleasant noise when annoyed. Even when all alone the sea robin often talks to himself.

Some noise-making fish reach the public ear in quite another guise. A popular ballad of a few years ago told of a homesick little Hawaiian who longed to return to his poi and his grass shack in Kelakahua, where the "humahumanukanuka apuaa" went swimming by. A humahumanukanuka apuaa is a triggerfish which grunts in a rasping fashion, both when caught and while swimming. It is similar to the horse mackerel and the ocean sunfish in that its sound comes from special teeth grated together in its throat. Jackfish and grunts converse in the same way, but louder, because of a swim bladder which amplifies their calls.

The porcupine fish lacks teeth altogether but produces a similar sound by fretting one toothless jaw against the other, suggesting the screech of a rusty hinge. A few of the triggerfishes have an air bladder below each pectoral fin, that is covered only by a thin membrane. By beating their fins against this membrane, they send out a rolling tattoo like that of a kettledrummer.

Finding ways to describe underwater sounds is a tax on the imagination. There are buzzings and cacklings and whinings and whistlings. Some sounds suggest coal running down a chute, the dragging of heavy chains, the irregular putt-putt of an outboard motor about to stall, or a power saw cutting through sheet metal.

Many of these sounds await identification, for it is one thing to hear them and quite another to watch the animal in action. Fish often seem intent on remaining incognito, becoming silent as they swim past a boat or through a light beam. By contrast, those in a public aquarium grow loquacious, oblivious of their lack of privacy. Records of sounds from captive fish often match puzzling calls heard in the open sea. Since 1946 a whole library of these sounds has been accumulating under the official title of "The Reference File of Biological Underwater Sounds." A chairside version of the sounds is available on a long-play record for the home phonograph.

The first gossiping fish to receive recognition were described in the 1905 *Proceedings of the United States National Museum*. The report has stood the test of time, although for almost 50 years few scientists would accept it as a true story. Theodore Gill had been studying the life history of sea horses. He had a male fish in one aquarium, a female in another. They could see each other through the glass, and their antics suggested recognition. One afternoon Gill noticed that the male was making a series of sharp, clicking sounds, each click loud enough to be heard through the room. Before long the other fish was responding, clicking in reply whenever the male called.

A biological significance can be seen also in the fact that in many drumfishes only the males have a voice. Their voiceless mates provide in the sea a close parallel to the silence of female cicadas, crickets and grasshoppers on land.

Fresh-water catfish are believed to depend on sound in order to find one another in the muddy waters of shallow lakes and rivers. Catfish have drumming muscles connected with their swim bladders and seem able to combine purring or rolling sounds from this mechanism with harsh scrapings produced by movements of the vertebrae in the backbone. In the dark depths of the sea, sounds may be even more helpful in bringing mates together.

A quite different importance is now suspected for some