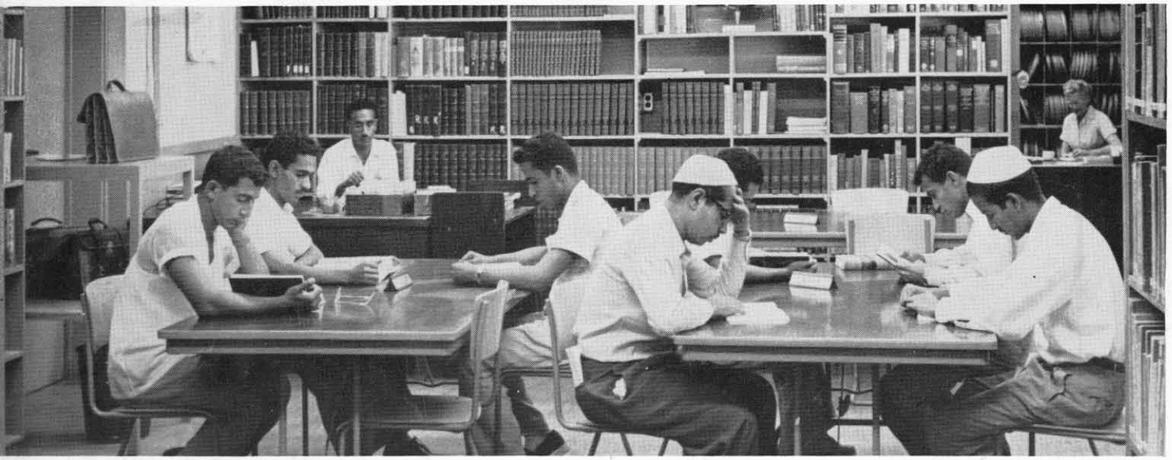
Aramco World
505 PARK AVENUE, NEW YORK 22, N. Y.

Deward Doub
312 E. Donmoyer Ave.
South Bend 14, Ind.

SWA



Students supplement their classroom courses with study periods at the Industrial Training Center library in Dhahran.

JOB PROGRESS IN SAUDI ARABIA

opportunity to qualify for a responsible job in the Engineering Department.

So, let's look back: 15 years ago, he was a boy in a remote village — entirely agricultural — with hardly a day's training or education in the things required for advancement in industry. He came into a modern corporation; became sufficiently bi-lingual to earn his degree from a fine engineering college; and can now look to the future with opportunity fully equal to that of his young American fellow-engineers.

Obviously, Mr. Saad had far-above-average potential, but many young Saudi Arabs like him are coming along. Those whom Aramco has been training are now learning engineering, geology, chemistry, physics, public health, pharmacy, business administration — professions required in Aramco's operations.

The thirst for knowledge is manifested all over the nation. You'll understand the attitude of the youngsters from the comment of one official:

"School attendance is not compulsory in Saudi Arabia — it doesn't have to be."

Aramco has been able to help, within the area of its operations, by building, equipping and paying the operating expenses of elementary schools for 3,300 boys. Eleven have been built and turned over to the Ministry of Education.

These efforts are primarily in the interest of Aramco's employees and their children. The Government's extensive, Kingdom-wide school building program includes — in addition to many similar projects elsewhere — many junior high schools and five senior high schools in the Eastern Province.

Looking over the whole educational panorama, this is what one official observes:

"The Government wants to assure that the nation will continue its rapid industrial and commercial development; and it wants to encourage agriculture, protect the public health, and develop talented youths for careers in public service.

This means an ever-increasing need for college-educated young men, more and more skilled craftsmen in every field, and others trained in the many occupations needed in offices and business establishments.

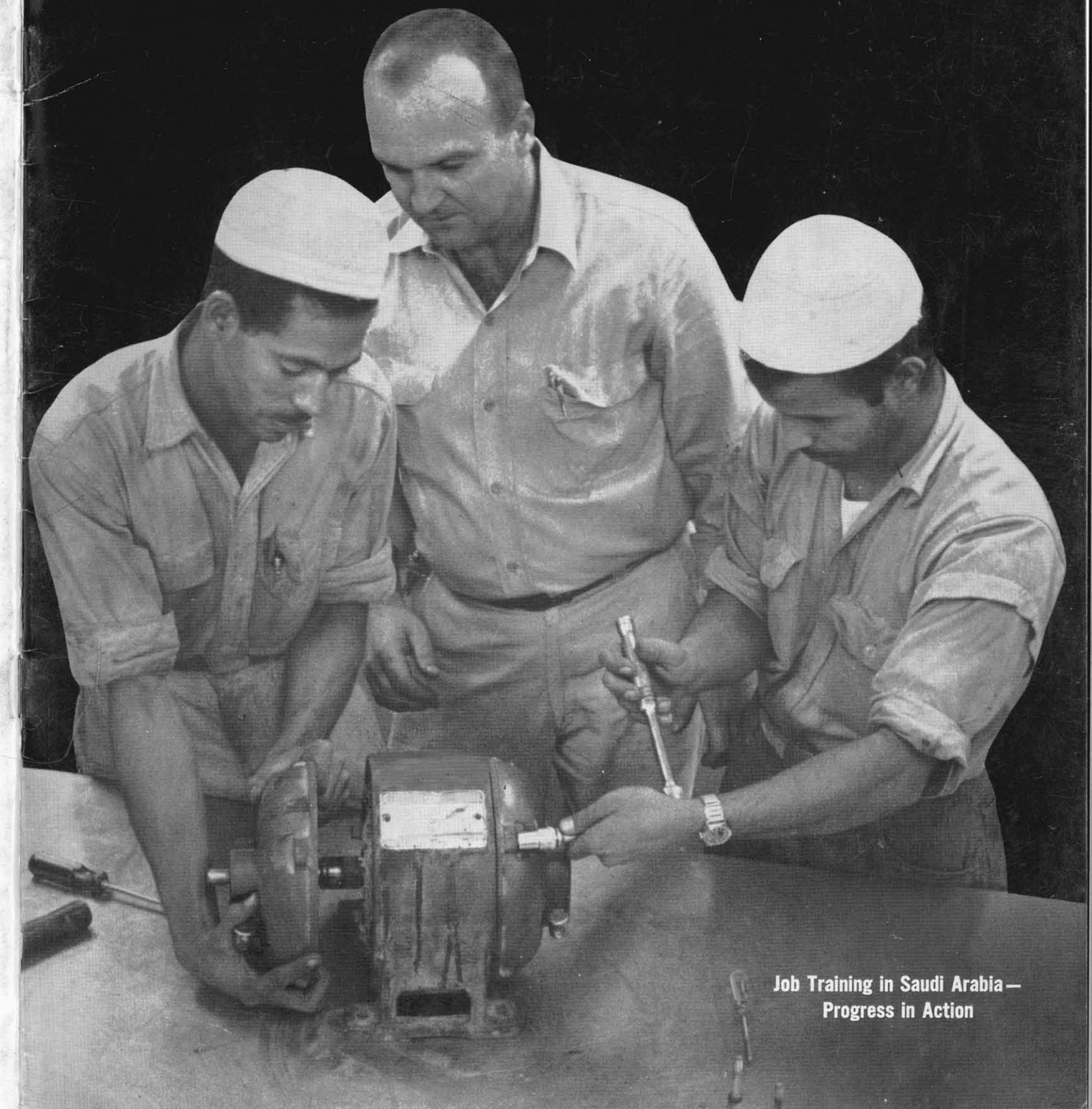
That's why the Government is seeing to it that the new junior high schools have strong courses in the sciences, in commercial subjects, and in manual training. All students will be required to have manual training.

Aramco's experience in cooperating with the Government in providing modern, well-equipped schools has been, in the words of one official "mutually pleasant and rewarding." Of one thing, he's certain:

"You'll see more and more young men like Mustafa Saad coming along — in fact, we're training many boys like him right now."

ARAMCO WORLD

FEBRUARY 1960



Job Training in Saudi Arabia—Progress in Action

Aramco World

FEBRUARY 1960 VOLUME 11 NO. 2

FRONT COVER: Throughout the Kingdom of Saudi Arabia there is constant demand for men who understand the workings of modern industry—like the Saudi Arabs on our cover, who are learning the operation of an electric motor. An article outlining job progress in Saudi Arabia begins on page 21.

SCOUTING IS FUN IN ARABIA 3

Where else could an American Scout on an overnight hike run across a Bedouin tribe, a desert fox, or a camel caravan?

COLD WEATHER COMFORT 6

From forests, fields, and farms comes Nature's most fashionable answer to chill winds —fur.

BABY GETS AROUND 10

In buggies . . . in boots . . . in baskets—Moms and Dads have been amazingly resourceful in solving the problem of totin' the young ones around.

IN THE WAKE OF THE PLOW 14

More than wheels, wrenches, spears, or guns, Man's least honored but most heroic tool made civilization possible.

THE SAUSAGE—A MEAL IN ITSELF 18

Americans spent $60,000,000 in 1959 sampling just one of the 500 varieties of sausage —salami.

JOB PROGRESS 21

A chance to sharpen your natural gifts—to acquire skill and knowledge—that's the heart of Aramco's Training Program in Saudi Arabia.

PICTURE CREDITS: Front Cover, pages 22 (top left) and 23—Aramco photos by E. E. Seal. Page 21—Aramco photo by T. F. Walters. Pages 4, 5, 22 (bottom) and 24—Aramco photos by V. K. Antony. Pages 6, 8 (bottom right), 9 (bottom) and 17 (bottom right)—A. Devaney, Inc. Page 8 (bottom left)—Josef Scalyea from A. Devaney, Inc. Page 16—G & M Heilman from A. Devaney, Inc. Pages 8 (top left), 10 (top left) and 15—Ewing Galloway. Page 8 (top right)—Wide World. Pages 8 (bottom center), 12 and 17 (top left)—Culver Service. Pages 9 (top left) and 13 (lower left)—UPI. Pages 10 (bottom left), 14 and 17 (top right and bottom left inset)—Bettmann Archive. Pages 11 (lower right) and 19—Frederic Lewis. Page 9 (right)—Alpert Woodley Co., N. Y., for the Mutation Mink Breeders Assn. Page 10 (bottom center)—Deane Dickason from Ewing Galloway. Page 10 (bottom right)—Infanseat Company. Page 11 (bottom left)—E. G. Dohnert. Page 13 (bottom right)—Emme Andriesse from Netherlands Information Service.

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
Publications Editor—Thomas J. Gartland

American Boy Scouts in the Desert Kingdom may not have forests and streams or any great varieties of wildlife to observe, but still—

SCOUTING IS FUN in ARABIA

THE way the lady sounded over the phone, she wasn't too happy; and what she wanted to know from Scoutmaster William H. Fairlie was:

"Did *you* see what my son brought home? And, *what* are we supposed to do with it?"

Her problem: a 14-inch lizard.

Boy Scouts in Saudi Arabia may not have forests and streams and a few other things, but they *do* have — well, let's see. . . .

There was that time when they were camped at the base of a remote radio tower, and Fairlie showed them the bulletin:

"Uncle Joe is lost."

Fact is, "Uncle Joe" is *always* getting lost. He is an inflated rubber mattress, with a small balloon tied to one end, to simulate a lost person. To earn advancement in tracking, the Scouts must try to rescue him.

This time, though, they looked and looked; followed the usual signs that people leave: three rocks here, an arrow there, some pieces of wood farther along — but Uncle Joe was nowhere in sight.

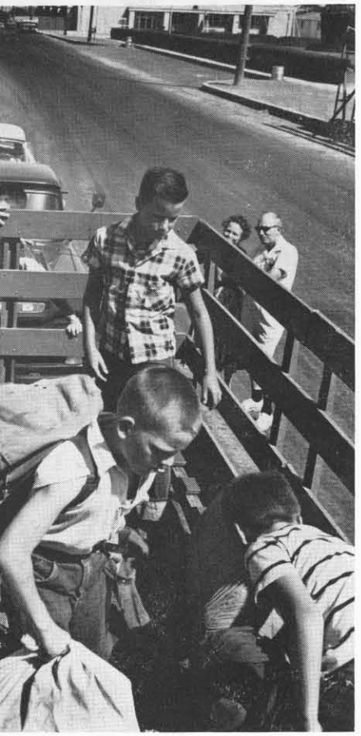
At length, they came upon a group of Bedouins. Some of their youngsters had found Uncle Joe, and carried him to their elders to find out *what* he was.

Once a month, the Scouts go on these overnight hikes into the desert: to places like the Shedgum plateau, with its series of underground ravines . . . to 'Ain Dar, with its natural caves and wells . . . to "Camp Cobra" (so-named by the boys because there are snakes in the vicinity) . . . to Jebel Shmal (a *jebel* is a hill, or mountain; *shmal* means north).

Let's follow one of these trips from the beginning, as the boys pile their gear and themselves into sturdy trucks that ride on fat sand tires. There's no natural firewood where they're going, and no potable water, so they're taking plenty of both. A few have tents; most of them, only sleeping bags.

Now, they're off — up the road, and out across the open sand . . . and, in a couple of hours, here's the camp site. It's a jebel area, so they find a place between a couple of these hills as a shelter against wind and blowing sand.

Camp is set up Indian style—the boys in a circle, Fairlie



The troop prepares for an overnight hike. All aboard for Camp Cobra!

There are no hot-dog stands on the desert. Scouts who want to eat must learn to cook.

Vast stretches of sand in all directions . . . An Aramco Scout must know the ways of the desert.

An Arabian desert lizard. If attacked from the rear, this species can shed its tail and escape.

They've found the tracks of something . . . maybe a fox or a kangaroo rat.

The study of electronics is just one part of the Dhahran Scouts' program. The troop was given some excellent radio equipment.

SCOUTING IS FUN IN ARABIA

in the center, so they'll all be together. Everybody understands that, from now on, the "buddy" system will be in effect:

Any boys leaving the camp area must be in groups of three. They must have canteens full of water, good headgear as sun protection, and something to eat, if it's only a candy bar. It's all part of the training in desert survival.

Before long, there's dinner to cook . . . and eat . . . and kits to clean. As Fairlie can tell you:

"Sand is good for cleaning kits — and saves water."

The sun has barely dipped below the horizon, when — *visitors*? Sure enough. A camel caravan is approaching.

"This isn't unusual — it happens very often," Fairlie assures you. "They'll stop to visit and have coffee with us. We may not understand one another fully, but there's mutual good fellowship. Our visitors seem to enjoy it, and so do we."

This Scout is being tested in semaphore, an ideal means of communication for desert areas.

If no visitors, there's the council fire . . . maybe a "snipe hunt" . . . skits by each patrol . . . group singing . . . a weenie roast. At 10 o'clock, it's "lights out," but they can talk until 11.

The morning bugle sounds at 6:30 or 7:00 . . . more cooking . . . breakfast . . . more kit-cleaning . . . and, now, the morning hike.

It will be eight to ten miles, and this time they're going to work for advancement in compass work. As a starter, Fairlie tells one of the boys:

"Jeff, you're to walk 300 yards north, 200 yards east, and 50 yards south. If you do it right, you'll come to a stake."

Jeff does pretty well: finishes close to where he should. The hike also calls for wild life observation; and, let's face it, there's not too much variety. Just the same, the Scouts are asked to find or show evidence of seven different kinds.

"There are lizards, and every now and then a desert fox," Fairlie lets you know; "and small owl-like birds, and the kangaroo rats — they sit up like kangaroos.

"We see desert spiders four or five times the size of the U.S. species. Because there's so little variety, we accept even ants and beetles as wild life examples during hikes.

"Sometimes, we'll encounter locusts; and, when we see them in large numbers, we carry the word back to the locust-control people so they can go out and destroy them."

Well, how about snakes?

"We see harmless varieties, but I've never seen one that would hurt you. As a precaution against possible rattlers, though, we camp on *sandy* ground. The rattlers like rocky places."

And, so the day goes . . . games, sports, working on Scout problems, and then the final chore: cleaning up the camp area so it's *at least* as tidy as when we arrived. Around noon, we head for home.

At their "home base," the Scouts do much the same as Scouts in the States — within limitations. Considering the subtropical climate:

"We don't," Fairlie mentions, "have takers for snow skiing."

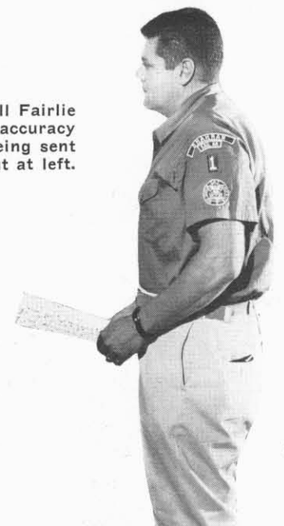
Nevertheless, there are about 85 merit badges that Scouts can earn. There's the Persian Gulf for swimming, life saving and boating; and there are pools in the Aramco communities. First aid, scholarship, citizenship, safety, music, camping, and astronomy top the list of badges earned in Saudi Arabia, just as they do back in the States. But the exotic location of troop activities offers some unique merit-badge opportunities to Aramco's young scouts: geology, weather, and soil and water conservation are tailor-made for the climate and terrain of the country; and world brotherhood is a natural for scouts living in a foreign land.

The boys got a big kick last winter from an unexpected visit by several of His Majesty's young sons who are Scouts. The Dhahran troop entertained them at lunch and played them at basketball.

Like Scoutmasters everywhere, Fairlie gives due emphasis to the serious side: good citizenship, living up to the Scout Oath, and the other character-building phases. But, there's no lack of light moments — like that time at Jebel Shmal.

"It was in the middle of the night, and we were all snoozing peacefully in our sleeping bags, when I suddenly became conscious of something moist against my cheek. Right away, I was awake — looking into a pair of eyes that seemed as big as dinnerplates!

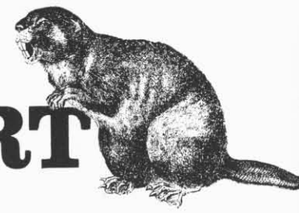
"I bounced up like a springboard — and found it was only a camel: just curious."



Scoutmaster Bill Fairlie checks the accuracy of the signals being sent by the Scout at left.

From the trapper's trail to the tailor's final touch, many skilled hands combine to fashion animal pelts into

COLD WEATHER COMFORT



THE young man from Germany, just 21 years old, stood on a pier in New York with $25 in his pocket and a dream in his heart. The year was 1784. The dream was to venture into the American wilderness, trade with the Indians, and turn the $25 into a fortune. The young man succeeded. When he died in 1848 he left an estate valued at $30-million. His name was John Jacob Astor and the business he founded was known as the American Fur Company.

Astor's success illustrates the fact that furs have always commanded fabulous prices. It also shows that furs, like gold and diamonds, lure men on relentless quests through countless dangers. Astor himself risked the scalping knife. Today men still stalk the leopard in the heat of the jungle and pursue the seal through icebound seas. And, in the frosty forests of near-polar latitudes, trappers huddle in their huts as circling wolves bay to the winds. The dangers men face in obtaining furs are one reason why they are valued so highly.

But there are other reasons. Furs are sought for their own beauty and because they provide the warmest form of clothing. Then too, a courageous heart is not necessarily a prerequisite for fur trapping. Many of the more common fur-bearing animals are snared in relative safety, while the rarer ones are frequently raised on ranches, just like beef stock.

The term "fur" is actually a misnomer since it describes just one part of the animal's covering. The covering is called a pelt and consists of skin, guard hairs and fur fibers. The guard hairs are long and lustrous, and their job is to shed water. The fur fibers are shorter. Soft and silky, they contain the pigments which give the pelt its color.

Under a microscope, each fur fiber resembles a stubby drinking straw. However, the tip is sealed so that air is locked inside the interior canal. The tiny tubes stand erect, like a company of soldiers in parade formation, with only the thread-fine guard hairs sprouting between them. Thus the animal is cloaked in a blanket of air-tight chambers which maintain warmth by preventing the escape of body heat. The same insulating quality is preserved when the pelt becomes a garment.

The pelt of a dead animal is removed in one piece and put through a process called dressing. First, any bits of muscle or fat which might cling to the inside of the pelt are scraped off. Then the pelt is soaked overnight in salt water to stop the growth of bacteria which could eat into the skin and cause flaws. Next, the pelt is drawn across a razor-sharp knife which skims off the areolar tissue, the bottom layer of the skin which contains fat-producing cells. When this step is completed, the pelt is safe from deterioration.

However, there is danger that the skin will dry too quickly and crack. Immediately it must be converted into supple leather. This is achieved by steeping it in a solution called "bite," a simple mixture of acid and ordinary salt. After an overnight soaking the pelt becomes pliable and opaque, the hairs and fibers remaining intact.

At this stage the pelt is placed in an extracting machine like those found in any automatic laundry. Whirling at high speeds, the device uses centrifugal force to draw the droplets of bite out of the pelt, just as rinse water is drawn out of a load of wash. The damp pelt is then hung to dry.

Finally, it is put in the "kicker," a machine whose many plungers trample the outstretched skin and pound in the oils which provide a permanent preservative. Now the pelt is ready for the manufacturer who will cut it and sew it into a garment.

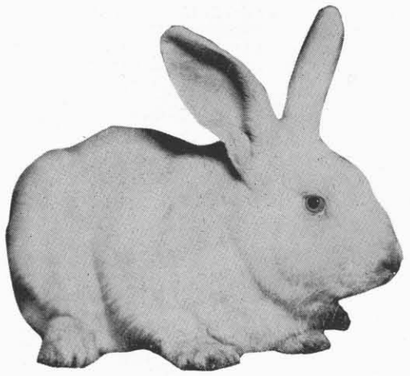
Since man first clothed himself with pelts, the dressing process has followed the same principles. Instead of bite, primitive man used his own fists to beat the skin into pliability. He had no extractor, so he let the pelts dry naturally, hanging for weeks at a time beneath a shady tree. When it came to adding preservative oils, he again used his fists, pummeling the skin until it was permeated. One variation was developed by the Eskimos, who soften and oil their pelts by continual chewing. The practice was adopted for reasons of nutrition. When the Eskimo sinks his teeth into a pelt, that of a walrus for instance, he draws off fatty elements which enable him to better withstand his frigid climate.

Furs have four general uses: clothing, upholstery, rugs and artists' brushes. Primitive peoples use them to build huts or stretch them over wooden frames to make shields.

Fur fibers are mixed with chemical binders and subjected to heat and pressure to yield felt. Legend has it that early camel drivers stuffed camel hair into their sandals to make cushions. Again, heat and pressure formed crude felt. However, true felt is made with fur fibers, not hair.

Most of the animals which produce expensive pelts belong to the *mustelidae* or weasel family. Ermine, one of the rarest and consequently one of the most precious furs, is simply the winter coat of the northern weasel. True carnivores, meaning they feed on other animals, northern weasels are despised by farmers because they continually raid chicken coops. And, when they strike in deep winter, the white mantle affords a natural camouflage which defies detection.

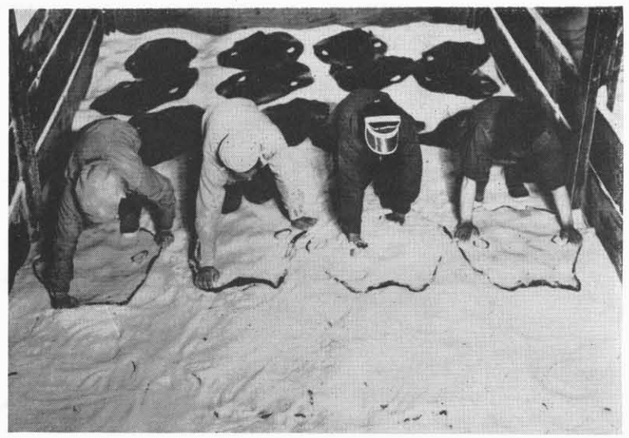
The prized mink, another weasel, is a large, dark brown fish-eater. Expert swimmers and divers, minks colonize the shores of secluded lakes throughout the Northern Hemisphere. Because of its environment, the animal develops a pelt which readily sheds water, and so the wearer of a



One of the nicest ways a girl can keep warm—mink.

Not all fur-bearing animals can be raised on farms. Some, like the beaver, must be trapped.

A Louisiana trapper usually snares some raccoons and, if he's lucky, a few minks while hunting for muskrats.



Fresh Alaskan sealskins are thoroughly salted down to halt the growth of damaging bacteria.

White mink, one of the most beautiful and luxurious of all furs, is a mutation, the result of years of careful breeding.

COLD WEATHER COMFORT

mink cape or jacket need not fear being caught in a thunder storm.

Another of the valued *mustelidae* is the sable, found chiefly in northern Asia. The sable's coloring is black with grey appearing on the nose, orange on the throat, and chestnut brown on the neck. Some sables have white breasts, and one such pelt is reported to have sold for $2,000.

Most fearsome of the family, and not for tooth or claw, is the skunk. Romping only on the North American continent, the skunk is notorious for the two scent glands, beneath its tail, which spray a foul-smelling fluid. The fluid, which billows into a fine yellow mist, is repulsive enough to drive off any attacker, whether animal or human. The skunk is black with two white stripes running down its back, but the blacker the pelt, the better the price it will bring.

Most hated of the clan is the cunning wolverine, which steals the bait from traps and even eats its more valuable relatives who have already been captured. Then there is the ferret of America's western plains. This animal, alone on the prowl, has been known to wipe out an entire colony of prairie dogs. In all, the family boasts over fifty members, including the otter, marten, fisher and badger.

The rodent group is, for the most part, a source of less expensive pelts. The tribe is a motley one, ranging from the highly valued chinchilla, a native of the Andes, to the industrious beaver, to common squirrels, rabbits and rats. The canine, or dog, family contributes its crafty fox, while the feline family offers the very king of beasts: the African lion.

There are many factors governing the quality of pelts. Prime consideration is given to waviness of the hair, length of the curl, and beauty of the curl pattern. With spotted animals, such as the leopard, the criteria are shortness of hair and shape of the markings.

Time of capture is another important element. Most weasel pelts are at their best in deep winter when the fur fibers are fully developed and packed with air. However, the mink and its fellow lake dweller, the rodent beaver, produce their finest pelts in the spring when the mountain streams are coldest.

Since the requirements are so stiff, trapping a perfect pelt is largely a matter of luck. This is why trappers established ranches where animals could be bred and raised under ideal conditions. The first such ranch was founded in 1897 on Prince Edward Island, Canada, by Charles Dalton and Robert Oulton. The partners were so successful that in 1910 they sold 25 silver fox pelts for $33,000, with one of the lot bringing $2,600. Ranching of silver foxes spread feverishly and as a result the price for a single pelt leveled off at about $500.

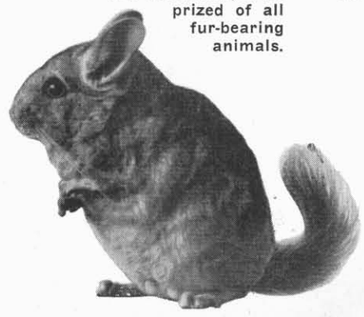
The economic depression which followed World War I caused further drops in silver fox prices, and ranchers turned to breeding the rarer mink. By inbreeding — mating the offspring of the same parents — genetic mutations were achieved so that litters were born with bluish black fur. Remember, in its natural habitat the mink is dark brown. In recent years, garments made from mink mutations have sold for as much as $25,000.

Many of the early ranchers failed miserably. In an attempt to produce the largest pelts possible, they overfed their stock, the result being thick skin, coarse fur fibers, and shaggy guard hairs. Others tried to raise animals which were not suited to captivity, such as the beaver which wastes away when it cannot obey the instinct to build its dams and mud houses. Chinchillas also posed a problem. Content in their cages, they never yielded pelts which equaled those of the wild variety.

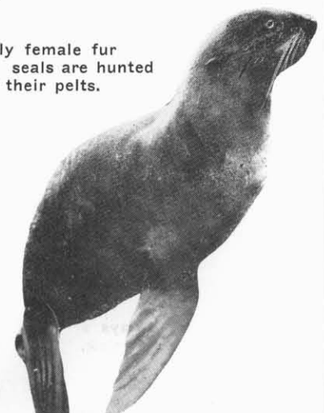
Since ranching has proved practical only with certain species, most fur-bearing animals are still trapped in the forests, and in rural America much of the trapping is done by high school boys who camp out on winter weekends. None are as successful as John Jacob Astor, but many manage to save enough money to pay for their college tuition. All it takes is a state license, a set of traps, and a good warm sleeping bag — preferably fur-lined.

A raccoon takes refuge in a hollow log.

The chinchilla, most prized of all fur-bearing animals.

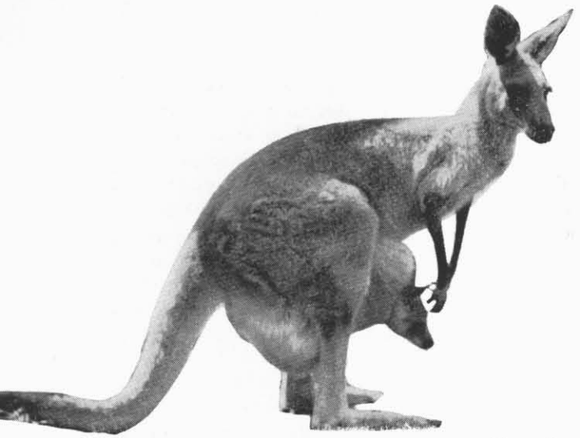


Only female fur seals are hunted for their pelts.



Whether in buggies, boots, or baskets, one way or another—

Baby Gets Around



PERHAPS the earliest transportation problem faced by man — or more specifically by woman — was how to tote baby from place to place in safety with comfort for parent and infant.

Not favored by nature with a marsupial pouch like the kangaroo or opossum, man was forced to contrive artificial conveniences from materials at hand so that his offspring would not too severely limit his inclination to rove.

One of the least known of these was devised centuries ago by Eskimo tribes living on the fringes of the Arctic Ocean. Their babies rode snugly in the sides of their mothers' wide-mouthed seal-skin hip boots. This was long before post-Civil War days when border scamps of the Oklahoma Territory illicitly secreted bottles of rum in the casings of their boots — the stratagem that gave rise to the term "bootlegger."

Other Eskimos also interested in as much freedom of movement as possible, employed the more widespread custom of strapping baby to their bodies under the warm folds of their fur parkas.

Meanwhile, American aborigines in more southern latitudes had developed "tote boards" to which they strapped their young while on the move. The boards were fixed to their mothers' backs. Later, after the Spaniards had introduced horses to the American Continent, plains Indians used the beasts to haul "A" frames to which the tote boards were attached.

At Indian encampments the tote boards of the tribe were lashed to the short sapling fences erected near the focal points of communal activities. And from each board solemn infant eyes curiously observed the progress of the day's work. Thus were Indian babies kept out of mischief and kept amused by the fascinating workaday bustle going on around their perches.

Zeus, the supreme god of the Greeks, however, was not as successful in keeping his son, Hermes, out of trouble. Hermes, according to the story on an Etruscan vase of 600 B.C. in the Louvre, used to recline on a pallet supported on a wooden frame that was pushed about on rollers.

Less fanciful and at least two milleniums older than the vase scene are ancient Egyptian writings that describe the carrying of infants from place to place by wrapping them in scarves draped from the mothers' shoulders. The young ones are carried variously in front of, behind, or at the side of the mothers, depending on circumstances and personal choice — a custom that still prevails in most North African countries and among Arab and Oriental peoples. There is a tote bag now on the market.

From antique records also comes reference to infants being carried in grass sacks, baskets and bark receptacles. During the Greek and Roman days of empire, however, moving beds or seats for babies seem to have been confined to household uses or display. The most ornate of these were Roman chariots in miniature, designed for daytime use of infants within the home — the Roman equivalent of present-day hobby horses and toy fire-engines.

Throughout the Middle Ages, when most people lived their entire lives within a few miles of the place they were born, there is no record of wheeled vehicles for infants, perhaps because there was no need for them.

Illustrations that survive from those days show strong similarities in the manner in which babies were carried from place to place, although the vehicles themselves might vary quite a bit. In the Apinnines baby was likely to ride in a long, slim basket; in the Sabine Hills of Italy he might ride with a brother or two in a round basket; and in Switzerland he might be toted in his cradle — but, in each case, the vehicle was balanced on the mother's head! Usually, however, infants travelled long distances in scarf slings.

The development of roads for the use of carriages and light wagons apparently turned thoughts to wheels for junior. Even then, it was mostly an affectation rather than a serious attempt to make the young more mobile, for it was really much more practical in those days to carry baby in one's arms or on one's shoulder than it was to push his vehicle across the ruts or through the mire of the streets in even the largest cities.

As streets and walks improved, however, ownership of a carriage became a mark of distinction. Indeed, towns would sneer at a neighboring village because its residents could boast only one carriage instead of three. These ancestors of the modern baby carriage were in reality nothing but

An awful lot of machinery to transport such a tiny tot! This turn-of-the century carriage is almost as big as a modern foreign car.

Baby Gets Around

miniature copies of horse-drawn carriages. From there it was only a short step to the forerunner of the "baby buggy" as we know it today.

About the time when baby buggies were coming into use in various parts of the country, a young English immigrant in New York City conceived the idea of manufacturing baby carriages on a commercial basis. He guessed, correctly as it turned out, that the ostentation so prevalent in that day would influence many to purchase the carriages for display of their offspring.

When the first Burton-made carriage was wheeled along the promenade at New York's Battery, it created such a sensation that its success was assured. Burton reasoned, however, that the greater appeal of London would assure even greater sales opportunity. He returned there in a hurry, secured a patent and began baby carriage manufacture.

As luck would have it, Burton's first London-made carriage was sold to the Duke of Leinster. The Duke's prominence occasioned a flood of orders. Even Queen Victoria had three buggies bought for the use of Palace children. From far-off Spain came an order from Queen Isabella II for the use of the infant Alphonse XII. Another order was received from the Pasha of Egypt, so wide had Burton's fame spread.

When New York mothers did their shopping 30 years ago, they parked their carriages on the sidewalks. Today, light compact strollers can be taken anywhere.

But with little of the instinct that assures commercial success in business, Burton floundered. Imitators with cheaper, mostly inferior products flooded the market despite his patent, and sales declined. Eventually, Burton was consigned to the "poure" house, a defeated and broken man.

During this same period, a crude form of baby carriage evolved far away in the southeast corner of Europe. There in the Ural Mountains, the Bashkirs developed a pull-type buggy with a body of bark laced with reeds to a forked stick that served as frame. It rolled on two solid wooden wheels suspended on an axle crossing the upper end of the "Y" formed by the frame.

Nearly all early baby buggies, in fact, were of the pull type. It was only in the later years of carriage development that thought was given more to the comfort of the baby and handler, than to strict imitation of the horse-drawn vehicle.

As refinements were introduced, the baby buggy achieved ever more widespread recognition as a symbol of family stability. In more rural areas, the buggies often were built at home with loving care during the long winter evenings preceding the arrival of the first-born.

City dwellers, for obvious reasons, were more inclined to buy their baby buggies factory-made. As a consequence the industry burgeoned on this side of the Atlantic well into the 20th Century.

Many buggies were so well constructed that they served not only for successive children in a family but were handed down from father to son to serve again for second and third generations.

But just as they evolved as a product of other times, buggies may be fading today. Their sales have declined sharply. Car seats and car beds for infants are making deep inroads on them.

Responsible is the great exodus of Americans from cities to suburbs, that began in the 1920's, together with widespread ownership of automobiles.

When baby leaves home base these days, it is not for a leisurely promenade where he will be admired at length by all passersbys. Rather it is for a short spin in the car seat; a whirl through the busy aisles of a supermarket on a shopping cart perch, then back to the car seat for the dash home. The trip to grandma's follows much the same routine, utilizing a collapsible car bed or a folding stroller.

With so many things to do nowadays, little time is left for dawdling behind the pushbar of a baby carriage. Yet, baby doesn't seem to care. In a world where speed has become increasingly important, he's the only one left who isn't in a hurry.

The ingenuity of the American Indian is fully appreciated by this supermarket shopper today.

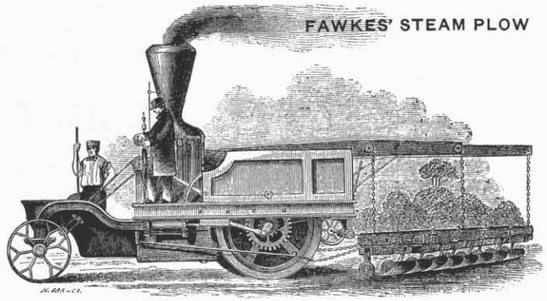
A Zeeland mother in the Netherlands carries her baby in a basket attached to the rear fender of her bike.

Civilization has always followed closely in the wake of

The PLOW

IT weighed eight tons, cost $10,000 and needed a crew of four farmers. It belched soot and steam, and emitted awful sounds. It was the first power-driven plow in history.

Men cracked jokes and drew cartoons about Inventor Joe Fawkes of Lancaster, Pennsylvania, and his monster



FAWKES' STEAM PLOW

steam plow. But a few thoughtful farmers saw in it the dawn of a great hope: could they, some day, be relieved of the backbreaking (and sometimes heartbreaking) job of wrestling hand plows through their fields?

It was almost exactly 100 years ago. On a day late in 1859 the great test came. In those days of ox-drawn plows farmers were accustomed to spending an entire day plowing a single acre. (An acre, in fact, had originally been recognized as the amount of land a farmer could plow in a day.)

On the day of the test a thousand farmers left their oxen at home and gathered in a field near Lancaster to hoot or cheer while Fawkes' great "field locomotive" was fired up. Fawkes sat at the controls, gave two toots of the whistle and opened the throttle. The contraption, which looked like a monster iron smokestack on wheels, began to move. Ridicule turned to awe. Rapidly it gained speed and soon the coal-fired steam plow was racing across the field faster than men could walk. And the farmers saw that it was pulling not one "bottom," as plowmen call their plows, but *eight*.

Farmers couldn't believe their eyes. Fawkes plowed an acre in twelve minutes flat. Even today that's an amazing performance. A farmer pulling three "bottoms" behind a modern tractor allows about 2½ hours for plowing an acre.

Fawkes' wonder was too big, too costly, and too hard to repair. Its great weight packed the fields too tight, and it fell into mudholes. Thus it failed.

But in a way it also succeeded. Fawkes had made the first break away from the hand plow which, from time immemorial, had been both slave and master on the farm. In 1774 an English writer estimated that more than half the people of the world, men, women, and children, had known the tedium of plowing!

Few farmers will think of Joseph W. Fawkes this winter when they begin plowing for spring. But this year some 3,000,000 "moldboard plows" (the kind most farmers use today) will go "busting" through American fields — and most will be tractor-drawn.

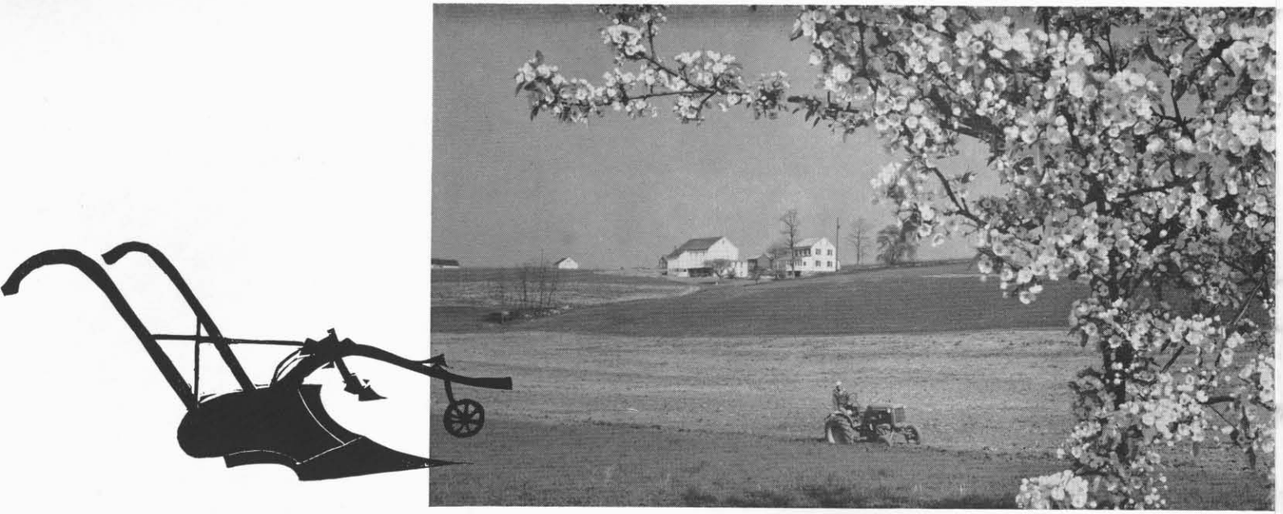
The plow is, perhaps, man's least honored — but most heroic — tool. More than wheels, wrenches, spears or guns, it made our civilization possible. The world's cities did not begin to grow until there were good plows to cultivate the nearby fields and assure a massive food supply. Daniel Webster, himself a plow designer, said in 1840: "When tillage begins, other arts follow. The farmers, therefore, are the founders of human civilization."

And yet today the files of the world-famous Metropolitan Museum in New York contain no records of great monuments ever having been erected to the lowly, forgotten plowman or his plow.

Nor are there celebrations today, as there once were, to mark the beginning of plow season. In England 200 years ago, January was a time for plow festivals. The first Monday after Twelfth Night was "Plow Monday." Roughly two weeks having passed since Christmas, the holidays were over and it was time for farmers to hurry back to their fields.

But first, hiding behind disguises, they hilariously hauled plows from door to door soliciting "plow money" for a feast. A "Queen Bessy" would be elected, a banquet spread, and a noisy festival begun. Next morning all farmers who could would whip up their oxen and get back to the business of plowing for spring.

This business was, and still can be, painful for the man who walked behind the hand plow. Buried rocks, forever working upward in the soil, might smash his plow — a tragedy for his family. Deep roots sometimes flipped the plow — and the farmer, since he was trapped between the



IN THE WAKE OF THE PLOW

long wooden handles. Now and then the plow would nose-over in a somersault and the handles, flying up like fists, would club the poor farmer on the chin. Caught with the reins looped around his back (to free his hands for the plow), he couldn't escape.

French farmers, knowing the headaches ahead, would light "plow lights" in their churches and pray as the plowing season began.

There are today at least 65 kinds of farm plows. And if you add snowplows, land reclamation plows, and the great plows which chop fire-stop lanes through our forests, the list grows past 100. There are slim chisel plows, peanut plows (for harvesting that crop), potato plows, corn plows, chilled steel plows (good for sticky soils), subsoil plows with moles (which burrow under the surface), sulky plows (to ride upon), seeding plows and even some that spread a trickle of fertilizer as they go along.

"Middle-busters" blast along like a ship and throw out a wake of soil that curls over on both sides. Most farmers, however, use "moldboard" plows that curl the soil over on one side only. The moldboard is the big curved wing which you see following the sharp cutting point (the "share") through the soil. This wing has two jobs: (1) to twist the soil so hard that it breaks into tiny pieces, and then (2) to replace it upside down. The latter is needed to bury sod, old stubble, weeds and dead grass (scornfully known as "trash") so they will rot, nourish the earth and not get in the way of the planting.

In a well-plowed field, scarcely a bit of trash is left on the surface; the soil looks clean and as even as a rug.

But not long ago farmers in dry areas learned, tragically, that they can plow *too* well. When hot winds dried out the beautifully-plowed grain fields in Texas, Oklahoma and Kansas, the rich, clean soil blew away leaving the disastrous "Dust Bowl." As a result of this experience, many farmers in Western states now prefer the slender "chisel" plows with narrow teeth that till the soil but *don't* pulverize it and *don't* bury all that "trash." It is now known that some of that scorned "trash" is needed to hold the fields together when dry winds blow — and also to help rain soak deeper.

Wooden plows, like the forked sticks men used 12,000 years ago, are still used by primitive tribes in South America today, and in some parts of the world improved wooden plows such as those developed by the Egyptians 6,000 years ago still are found. But most of the world now uses the steel or iron plow.

The latter dates back to 1797 when Charles Newbold of New Jersey invented a cast iron plow. Strangely enough, he had trouble getting farmers to use it. Farmers thought iron not only would poison the soil but would *create stones!*

To the casual onlooker, plowing might seem easy: just hook up to a horse or tractor . . . and plow. But plows don't always go where you want them to go. A hand plow may burrow too deep, get clogged in mud, climb out and skid on the earth, or wander dizzily from side to side. These bad habits test a plowman's temper, strength, and skill.

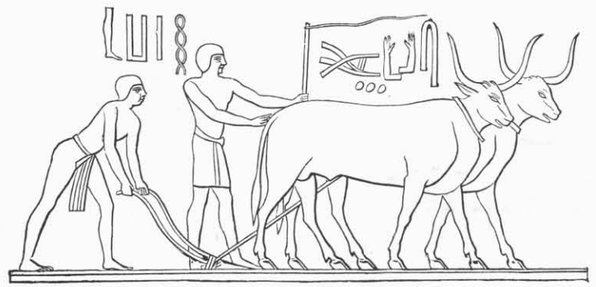
Good modern plows are designed to minimize these troubles and to slice a field as cleanly as you would slice a cake. Leading the way on many plows is a clever little device called a "colter." This is a little knife-edged wheel that slices a thin "pilot groove" through the trash or sod, opening the way. Close behind comes the powerful share, slicing steadily ahead and turning the furrow. Making this share cut the kind of slices you want is a matter of skill.

And here is where you touch a plowman's pride.

Since 1600, the world's best plowmen have matched skill in great autumn contests. While judges watch, each man cuts his "opening furrow." Judges squint down the cut: Is it straight and true as an arrow? Is the soil evenly turned? If so, score 15, and the farmer's off to a good start!

Row by row, each furrow is checked. Are they all the same depth? All nicely shaped? The judges bend down and study the soil. Is it properly pulverized for the region?

Now the judges stride down the field to see the "land ends." Here is where the farmer lifts his plow after each row, turns, and starts again. If he hasn't been careful, the land ends will be ragged. Finally the "closing furrow" is judged, and the farmer who comes closest to a score of 100 wins. In all the world no man is prouder than a farmer who has plowed a prize acre.



The all-wood, ox-drawn plow at left was perfected by the ancient Egyptians. The one above is comparatively modern: South America used it less than 100 years ago.

Lately farmers have been crying to tractor and plow manufacturers for more and more speed. Oxen traveled one mile an hour, horses three. Tractors now plow at about five miles an hour.

But the faster you pull a plow, the faster it wears out. And so some farmers now pull (at slow speed) as many as twelve "bottoms," each cutting a furrow sixteen inches wide. In this way a farmer in one day can cultivate sixty acres — and still not pull his plows so fast that stones will cut them to pieces. All this, of course, is merely a refinement of what Joseph Fawkes was doing 100 years ago!

Some day Modern Man may commission one of his great sculptors to carve a masterpiece: an heroic monument to the plowman and his plow.

And for his inscription, the sculptor might choose a Biblical quotation, one that the world would respond to warmly in this day and age:

And He shall judge among the nations, and shall rebuke many people: and they shall beat their swords into plowshares . . . Nation shall not lift up sword against nation, neither shall they learn war any more.

In 1875 a farmer needed three horses to draw a one-share sulky plow with oblique wheels (left). Today a tractor easily pulls four shares.

THE SAUSAGE *a meal in itself*

SHORT order cooks call it "hamburger with tights on." Historians refer to it as one of the oldest forms of processed food. Both would probably agree that the sausage is just about the most versatile item on any menu.

From tiny cocktail "pinks" to blimp-like knockwurst and great winding tubes of salami, sausages are beginning to appear with surprising regularity at breakfast and lunch, apéritifs and dinner.

In the United States alone, more than two billion pounds of sausages are gulped down annually at hot dog roasts, barbecues and in the dining room. And the rate is rising each year.

Salami-making in America has soared in the past decade from a $10,000,000 to a $60,000,000-a-year industry.

To keep pace with this rocketing demand, food columnists and culinary experts have sought to elevate the sausage from the snack class to a place of honor on every dinner table.

The once lowly wiener is being dressed up with Eastern spices and Western wines, concealed in pies and casseroles.

But — except for improvements in packaging and a few fancy new names — there has been no real change in the major varieties of sausage for generations.

That sliver of Bologna the hometown butcher used to slip you across the counter when you trotted into his store as a youngster to pick up the family meat order is the same Bologna you were served last night garnished with peppers in a French-style casserole.

Poets and playwrights have sung the praises of sausage—in link and loaf — for hundreds of years.

The first known reference appears in the 9th century B.C. when Homer in his *Odyssey* depicted the impatient Odysseus "as when a man near a great glowing fire turns to and fro a sausage . . . anxious to have it quickly roast."

The sausage actually pre-dates recorded history. It merely emerges into view as a popular item on the bill of fare in our earliest known writings.

Athenaeus refers to the salami in the *Deipnosophistai*, the oldest known cook book, dating back to 228 A.D.

The Romans gorged themselves on sausage from the days of the Caesars. They were particularly fond of a spicy variety concocted from fresh pork, white pinenuts and spices. It became a favorite dish at the Lupercalian and Floralian festivals and was condemned for a long time by the early Christian churchmen because of its connection with these debauches.

The ban finally had to be lifted, however, as the public clamor for sausages arose and a few illegal Romans took to bootlegging the popular fare.

Salami is mentioned by many Greek writers before Christ's time. They indicated that it might have originated in the ancient city of Salamis which existed on the east coast of Cyprus in the Aegean Gulf until about 449 B.C.

Ancient writings also tell us that sausage was made by the Babylonians about 1,500 B.C. and that it was popular in ancient China.

The word sausage is derived from the Latin *salsus*, meaning salted or preserved meat.

We have evidence that the American Indian combined chopped dried meat with dried berries and pressed the lot into a cake for use when hunting was poor. Similar preserving of dried meat was commonplace along the shores of the Mediterranean before the rise of the Roman Empire.

Sausage-making became a serious business in the Middle Ages and many sausages still popular today derive their names from the European cities in which they were conceived. For example, we have frankfurters from Frankfurt, berliners from Berlin, Bologna from the Italian city of the same name and many others.

In Britain, sausage-making was developed to a fine art with the Scottish black puddings of hog's blood, dried oatmeal and suet.

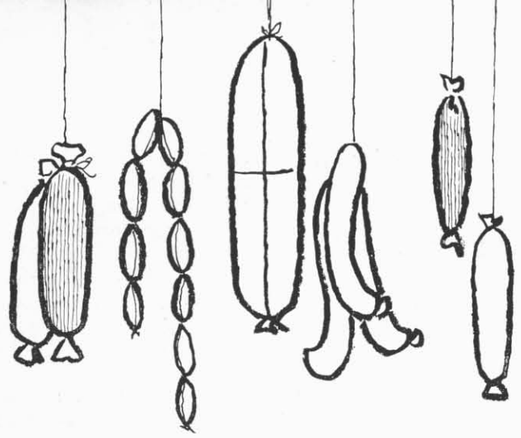
The French adopted the black pudding, and to prove their own skill they also concocted a white pudding made from white pieces of raw chicken, egg yolks, bread crumbs and other ingredients.

Our forefathers brought the lore of sausage-making to America with them and soon developed a tradition of their own.

The scrapple of which Philadelphia is so proud and which appears in every butcher shop in the Quaker City, was dreamed up a couple of hundred years ago by settlers in Chester County, Pennsylvania. It has become a nationally known product.

Some country butchers in parts of the United States still follow the old custom of making up country sausage in bulk from their own recipe. Anyone who has ever sampled these pungent little patties at a country-style breakfast with

This delicatessen in New York City's Yorkville section offers the wide assortment of sausages for which the Germans have always been famous.



THE SAUSAGE—A MEAL IN ITSELF

pancakes and maple syrup will recall the incomparable flavor of good country sausage.

By the same token most American salami manufacturers have their own private spice formula and keep it a jealously guarded secret.

Sausages have been linked with many holidays and religious festivals around the world.

In many parts of rural France it is customary to eat black pudding on Christmas Eve after returning from Midnight Mass. In Flanders, families make this a holiday dish served up with baked apples.

In Scotland, an integral part of clan festivals is the Feast of Haggis — a dish consisting of sheep's heart, liver and lungs. The mixture is boiled in the stomach of the animal with chopped suet, oatmeal and seasoning.

In Germany sausage is king during the numerous beer festivals. Munich's Oktoberfest runs 15 days during which tons of knockwurst, bratwurst, and other pungent sausages are downed with gallons of the famed Munich beer.

The Germans also feature a special feast day sausage known as bockwurst. They make it each spring of beef, veal and pork mixed with eggs, milk and chives, put it in trim little casings and serve it up with bock beer.

In Mexico and other Latin American countries a feature of carnival time is the appearance at street booths of the chorizo — a little red sausage made up of cured pork and beef and highly spiced with chili powder and red peppers. They come both sweet and hot, and American tourists claim the hot variety can burn blisters on your tongue.

Despite the enormous quantities of sausages they consume each year, few Americans are acquainted with the names of the numerous varieties available in this country. A recent survey showed that less than 50 per cent know any names beyond the standard frankfurter, Bologna and salami.

Buyers usually walk into a delicatessen or butcher store and point mutely to the loaf or link that strikes their fancy.

If you were to compile the names of all the types of sausage available in the world, you'd wind up with nearly 500 names on your list. There are more than 100 kinds — domestic and imported — sold in the United States alone.

The variety of sausages produced by the Western world ranges from tasty Scottish liver puddings to savory German mettwurst, from smoke-cured mortadella to cooked, uncured souse. From Sweden we get gotesborg and cervelat with its coarsely chopped, salty meat filling. Switzerland offers landjaeger, made of smoked lean pork.

Italy is famed for its copicollo, a dry sausage made from boneless pork seasoned with ground red pepper. Spain prides itself on a highly spiced beef sausage, longanizo. Krakow and kielbasy are Polish specialties, and the United States developed head cheese and "whole hog" sausage. The latter won its name by including meat from every edible part of the pig, and supplied us with the slang phrase "to go the whole hog."

Most varieties reflect the food tastes of a particular nationality, and a quest for imported varieties takes you to many colorful neighborhoods.

The search for sausage will lead a New Yorker through the city's Italian Mulberry Street sector with its little food stores where the odor of garlic captivates your nostrils the minute you open the door and wend your way past gnarled garlands of salami and pepperoni.

It will take you to the German colony in Yorkville where the butchers feature a wide assortment of wieners of all shapes and sizes.

In New York's uptown Spanish sector, one can purchase a number of exotic favorites, including *queso de puerco*, a spicy concoction resembling American head cheese.

French restaurants around Manhattan offer a variety of patés and sausages, including two named after their cities of origin: Arles and Lyons.

Sausage is generally divided into two main classifications: fresh and dried.

Fresh sausage, such as bloodwurst, liverwurst, head cheese and bockwurst, is made from fresh ground meat that is sometimes smoked, but can't be kept too long.

Dry sausage, sometimes called summer sausage, includes such varieties as salami, capicola and Italian pepperoni. Heat will not harm this type to any degree, and it can be kept for long periods in a dry, dark, cool place.

Salami, once known only to habitues of delicatessens in big cities, has since World War II become a favorite of Texas ranchers, New England housewives and Pacific coast fishermen.

Salami is a mixture of beef and pork trimming, spiced. stuffed into a cellulose casing with garlic, pepper corns and other spices. Then it is hickory smoked.

After the ingredients are jammed into the casings, they are hand tied by veteran workers whose fingers move at lightning speed after years of practice.

Then the salamis, ranging in size from the one-pound midgets to the big five-pounders, are hung on salami trees — metal frames — and rolled into the smoke room.

The floor of this pungent-smelling chamber has gas burners over which are poured sacks of hickory sawdust. The heavy door is swung shut and the salami is smoked in the rich aroma for six or seven hours at a temperature of 160 degrees. When they are taken out, they are a deep brown hue and have an aroma that sends salami lovers into spasms of ecstasy.

Some diehards still consider the sausage a refugee from the breakfast table, but with the growing trend toward casual living and quick grilled meals, it is fast rivaling the roast as the main dish on the dinner menu.

Aramco's training program in Saudi Arabia adds up to

JOB PROGRESS

IT is said that if a boy has what it takes, it doesn't matter how modest or how grand his origin, or whether he's from the sidewalks of New York, the prairies of Wyoming, or the broad central plateau of Saudi Arabia — just give him opportunity, and he'll go places.

Aramco's employee-training people find their share of young men like this among the many Saudi Arab youths they train for oil jobs. Paul E. Case, who has devoted years to training them for oil jobs, sums it up this way:

"Their intelligence, their adaptability, their flexibility and natural good humor let them move ahead in strides that we consider amazing — but, to them, it's too slow."

These men are like their country — Saudi Arabia — which has gone very far, very quickly. And which is dedicated to going much further — with no dawdling.

It is amazing to recall that the late King 'Abd al-'Aziz ibn Sa'ud achieved final unification of the broad area that constitutes the Kingdom only 27 years ago. Only 14 years ago, industry and commerce got their first sharp impetus as oil production began to be substantial. At that time, the Eastern Province, where Aramco operates, was sparsely populated; its people about equally divided between town dwellers and nomadic tribesmen.

It was in these circumstances that Aramco began evolving the effective training program now being followed. Its goals:

Skill, which is developed in the shops, plants and offices where the employees work, and in special training shops. *Knowledge,* which leads to qualification for better positions and more responsibility. Supervisors are responsible for seeing to it that employees have opportunity for both.

At Industrial Training Shops ("ITSs") within the industrial areas, practical instruction is given in the manual and mechanical skills needed in many crafts found in oil operations and supporting activities.

Industrial Training Centers ("ITCs") offer academic courses in Arabic, English, mathematics (including algebra, geometry and trigonometry) and sciences (including chemistry, physics and biology). All courses, except Arabic, are taught in English by qualified American and Middle Eastern teachers, and some of the courses in office practice, for example, are taught in both Arabic and English.

Employees receive full pay during instruction periods to which they are assigned, at both the ITSs and the ITCs.

Let's take, as an example, Mustafa Saad. (That isn't

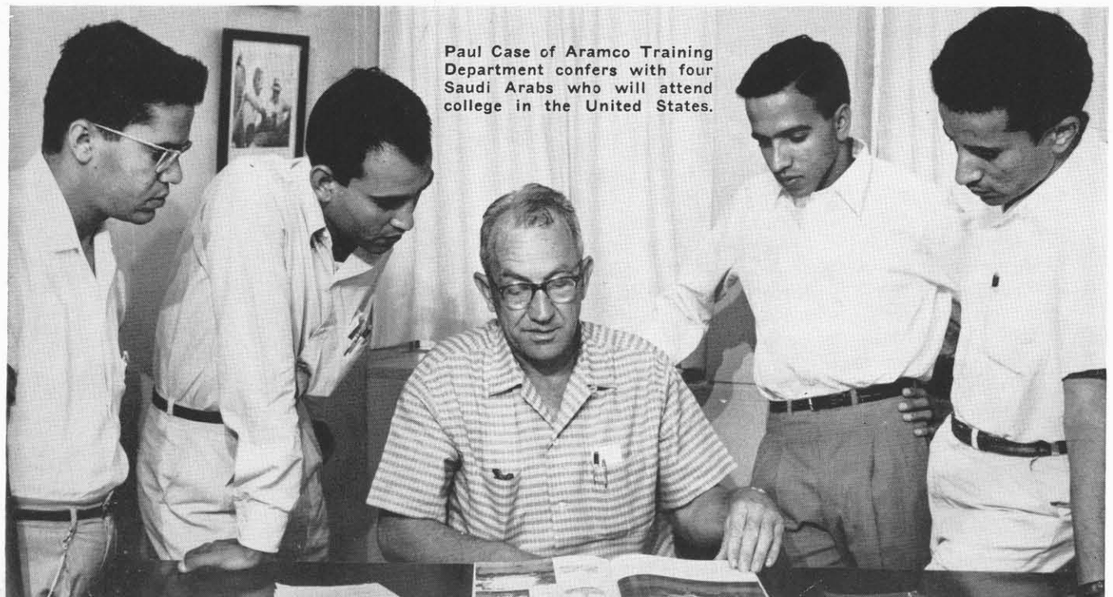
his real name, but what he does is very real, indeed, and his career is typical of the wonderful opportunities in Saudi Arabia today.)

Mustafa was born in the Province of Najd. One day, he walked into Aramco's employment office, a bright-eyed youth, asking for a job. He obtained a work permit, and then began his climb up the ladder.

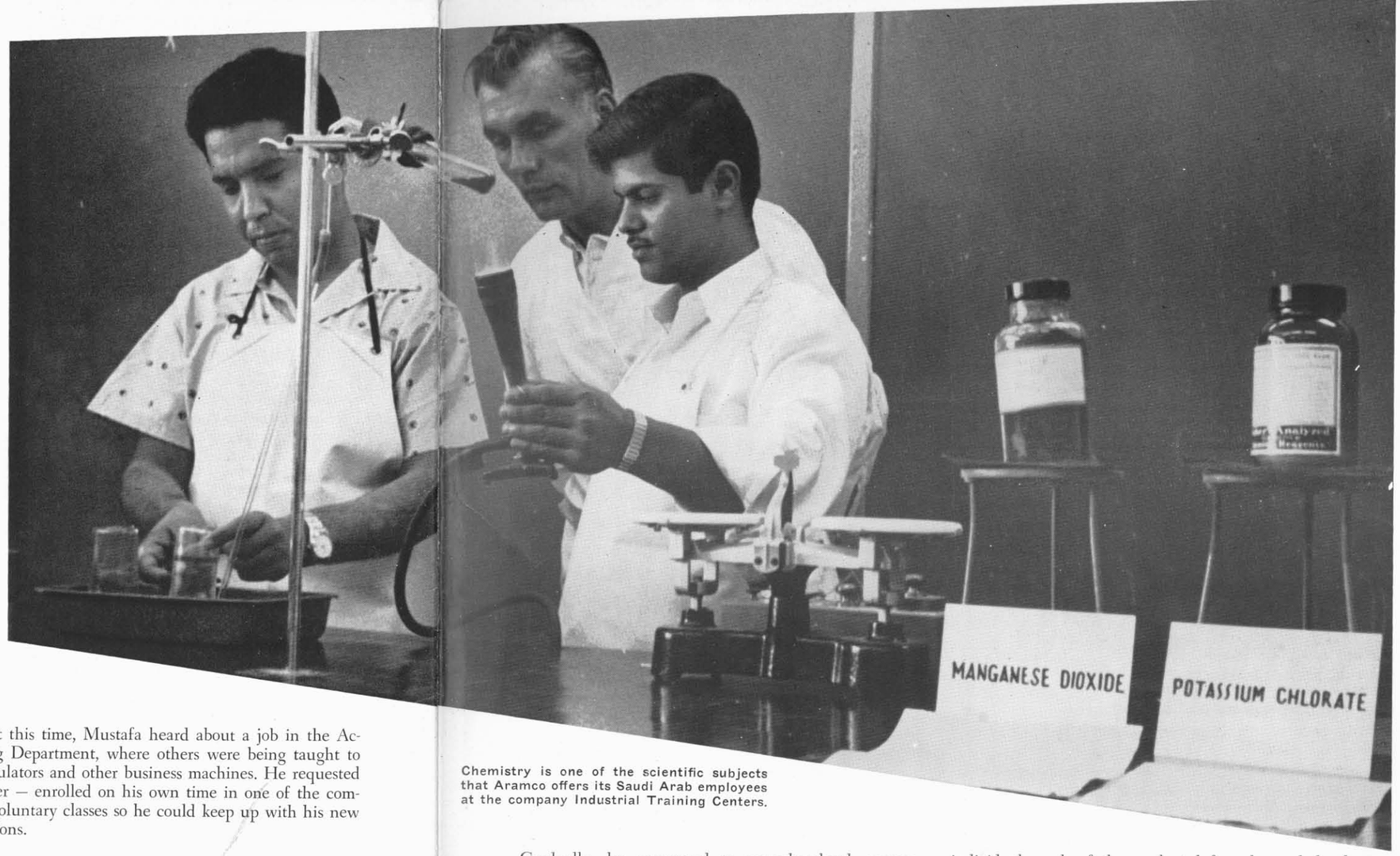
First, office boy, with all the assorted chores that office boys do. But, from the very start, eager to learn. Always asking questions. A few months later, enrolled by his supervisor in Arabic and English courses.

After two or three years, and other jobs, including a year in the shops as a trainee instrument repairman, Mustafa had moved ahead in Arabic and English. He also studied arithmetic and took typing.

About this time, Mustafa heard about a job in the Accounting Department, where others were being taught to use calculators and other business machines. He requested a transfer – enrolled on his own time in one of the company's voluntary classes so he could keep up with his new companions.



Paul Case of Aramco Training Department confers with four Saudi Arabs who will attend college in the United States.



Chemistry is one of the scientific subjects that Aramco offers its Saudi Arab employees at the company Industrial Training Centers.

Gradually, he progressed to secondary-level courses: Arabic, English, algebra and general science. Under the company training plan, supervisors have authority to enroll promising students in Aramco classes up to half-time.

So, Mustafa was now studying four hours on company time, and working four hours. He was making headway – studying four major subjects, with classes five days a week. Most of his technical subjects were taught in English, which would allow him to transfer to outside schools for higher-level courses. The best was yet to come.

A basic aim of Aramco's training program is to help talented Saudi Arab employees to advance progressively in skill and knowledge. To that end, the company has special committees in each of its three operating districts.

Their responsibility:

First, to identify talent as early as possible – young men who are believed to have the abilities and leadership qualities that justify their training for higher supervisory or management responsibilities.

Second, to carry out development programs to meet the individual needs of those selected for advanced development.

Saudi Arab employees who are selected are given advanced academic training at the ITCs, or skill training in the ITSs or the Medical Center. When qualified they may be sent out of the Kingdom for specialized functional courses, or for preparation and study at college levels.

Mustafa's supervisor proposed Mustafa to the committee; and he was designated a Saudi Development Candidate. Continuing his studies through secondary-level courses, Mustafa met, and in some ways exceeded, the company requirements for beginning training out-of-the-Kingdom.

He was on his way, now. He put in a preparatory year at International College in Beirut; was graduated with his principal's recommendation for admission to American University of Beirut without further examination.

Today, young Mr. Saad has his Bachelor of Science degree in mechanical engineering, and is going through a two-year Aramco orientation program that will give him