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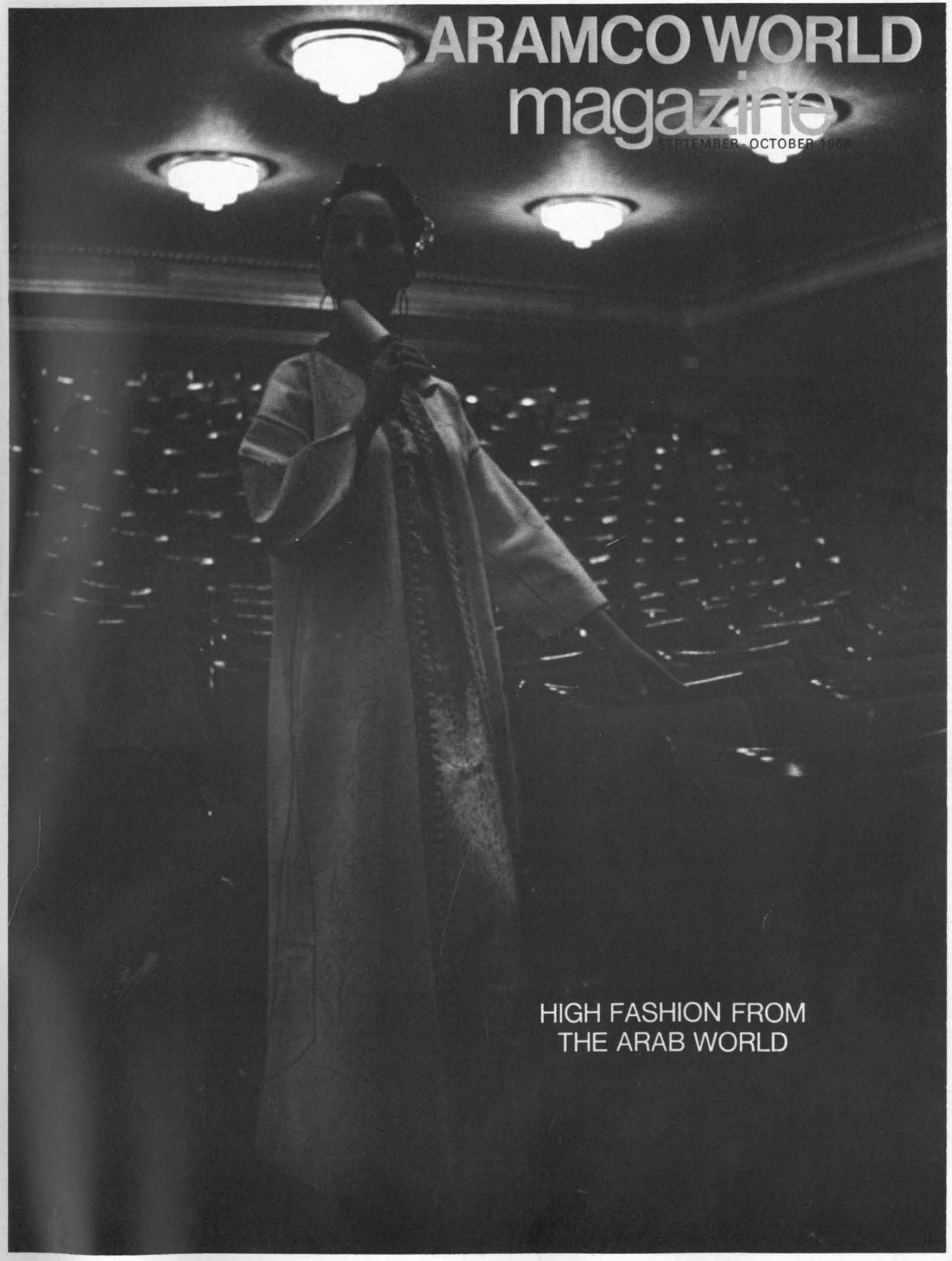
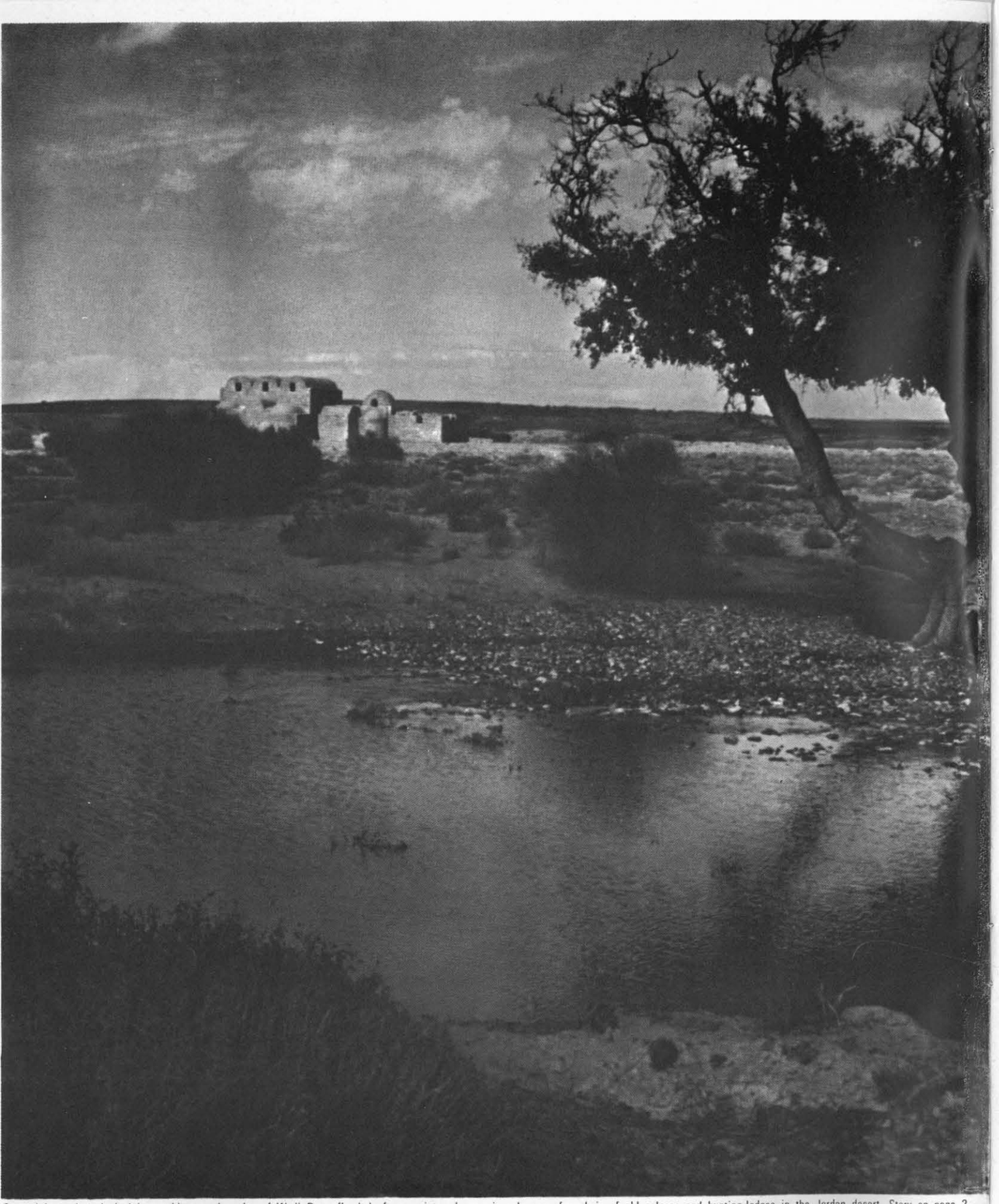
SEPTEMBER - OCTOBER 1968



HIGH FASHION FROM
THE ARAB WORLD



Qasr al-Amra, here bathed in sunshine on the edge of Wadi Butm, flooded after a winter shower, is only one of a chain of old palaces and hunting lodges in the Jordan desert. Story on page 2.

ARAMCO WORLD magazine

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Cover: In Beirut's new Piccadilly Theatre, the beautiful Lebanese mannequin Caline models the Arab world's latest contribution to high fashion: an elegant kaftan handmade in white felt with gold embroidery and buttons, worn, in this striking photograph by Burnett H. Moody, as a floor-length evening coat. Story and more photographs on page 6.

Qasr al-Kharana dominates a junction of desert tracks.

As did the eighth-century caliphs of Damascus, take leave of the luxury of the city and...

RETREAT TO THE WILDER-NESS

BY JAN VAN OS

PHOTOGRAPHY BY THOMAS F. WALTERS AND WILLIAM TRACY

In the early morning, drive south from Amman, capital of Jordan. Follow the new Desert Highway which skirts the fertile but rugged mountains all the way to Aqaba in the extreme south. After half an hour—no more—turn left, enter the great desert that begins here and head east until you come to Jordan's deserted desert castles.

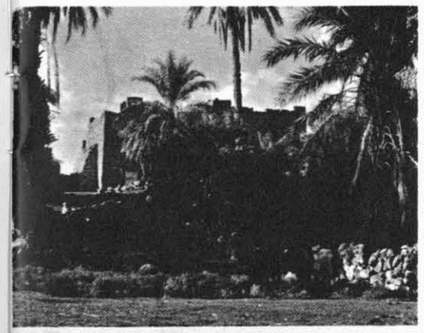
The dozen or so, so-called "castles" in present-day Jordan and Syria, are not at all like the massive stone fortresses built centuries later by the Crusaders and Saracens. Although fortified, they were principally pleasure palaces and hunting lodges for the eighth century Umayyad caliphs of Damascus. Recent descendants of Bedouin warriors from the Hijaz, the caliphs seemed to have felt a need to retreat occasionally from the comforts of their oasis capital to the solitude of their native desert. There they could engage in the manly sports of hunting, hawking and horse racing without entirely giving up their newly acquired, more sophisticated tastes for music, dancing and the Turkish bath.

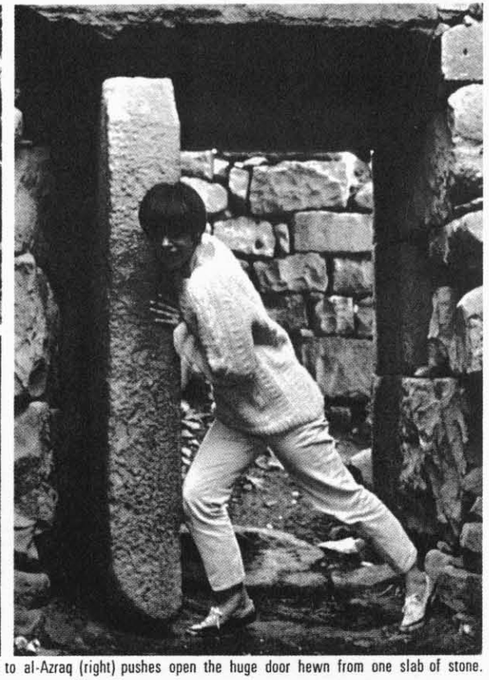
With a sturdy car at your disposal and an able man behind the wheel you can, on a circular trip into the flat black-flint desert east of Amman, visit five castles in one day. The going is rough but pleasant, especially in the early morning.

After turning off the asphalt highway near Zizia, south of Amman, the sandy trail crosses the Hijaz Railway and strikes off for the Qasr al-Mushatta, a ruined pile started by Caliph Walid II in the first half of the eighth century but never completed.

The façade of the palace was originally decorated with ornate carvings, but only one large section, just off the main entrance, stands intact. The rest were hauled off to Berlin before the First World War, a gift to Kaiser Wilhelm from the Turkish sultan Abdul Hamid.

Within the remnants of a square wall dominated by 23 watch towers, many sections of the central structure are still standing, though the dome over the great hall has collapsed. An unusual feature of al-Mushatta is that burnt bricks were used in a country where most ancient buildings were of stone or,





Eighth-century Qasr al-Mushatta (left) is mostly in ruins while ancient Qasr al-Azraq (center, top) stands almost intact. Fine frescoes (center, bottom) once covered the interior walls of tiny Qasr al-Amra. A visitor to al-Azraq (right) pushes open the huge door hewn from one slab of stone.

as in the similar palace of al-Tuba not too far away, of sun-dried bricks.

The next castle, Qasr al-Kharana, lies at least an hour and a half east of al-Mushatta and riding, rattling and bumping along the rolling desert, you wonder how man, beast or plant keeps alive in such barren areas. Today, in time of great drought, the Jordan Government sends tank cars with water out into the desert to supply the Bedouins and their flocks, but how did they survive in the old days?

Al-Kharana is built on a scarp dominating a wadi to the south and at midday seems to float in the air. In fact it squats foursquare on the rocky plain, defending a busy "crossroad" where several desert tracks converge. It was built, according to a Kufic inscription, about A.D. 710, but is well preserved. It stands two stories high, almost square, with sides measuring 115 and 118 feet, round towers on each corner and half-round towers between them. Courses of large undressed stones alternate with rows of smaller stones, the whole covered with an unusually hard plaster surface. High up on the wall is a thin line of slanted bricks set in a herringbone pattern below which are two levels of arrow slits. In spite of its grim first appearance al-Kharana, as fortresses go, is oddly attractive. Its layout, simple but clear, suggests that whoever designed it was an experienced architect. Some of the large rooms are decorated with hard plaster, finely carved. Al-Kharana is a palace built not only with safety but also with "togetherness" in mind and reminds the traveler in more than one way of some of Western Europe's fortified farmhouses.

About 30 minutes north and east is Qasr al-Amra. Thirty minutes in the dry season, that is, for al-Amra lies in shallow Wadi Butm named for the *butm* or turpentine tree which grows thickly there. After a winter rain a car must be coaxed across the muddy valley. The wadi, of course, is the reason the castle was built there. In the spring the tree-shaded stream was the haunt of gazelle and its underground water, tapped by a deep well, now dry, supplied the lodge's elegant baths. Qasr al-Amra is quite different from al-Mushatta and al-Kharana. It is the smallest as well as the friendliest of the three, and it is almost intact—thanks partly to a low dike constructed by the Jordanian Government to protect it from flash floods.

Al-Amra has only one large, triple-vaulted hall, with a few smaller rooms and the baths. This palace was built by Caliph Walid I and fine frescoes once covered almost every inch of the interior walls. The lower wall paintings have been obscured by the countless scribbling and carving of visitors' names, a harmful heritage of the insignificant. Fortunately, height—and a thick coating of campfire soot—has protected others sufficiently so that they can be restored and properly guarded. In the *History of Byzantine Art* Dalton says, "No such extensive decoration in fresco is known to have survived in any other secular building earlier than the Romanesque period."

The baths have a frigidarium or cold room and a domed hot room or caldarium. Here in mid-desert, painted on the ceiling of the baths and still easily identifiable, is a real treasure: frescoes which historians say mark the earliest known attempt, more than a thousand years ago, to map the heavens on a dome, a primitive planetarium showing the night sky filled with the various constellations and the zodiac.

A little further east, a long 50 miles east of Amman, is al-Azraq, an oasis village set amid groves of palms on the edge of rugged lava country at the head of Wadi Sirhan. Here a great swamp, now a national park, still attracts the flocks of migrating ducks and waterfowl that made it another ideal spot for a castle. Qasr al-Azraq was built there, in fact, long before the Umayyads, probably in Roman times, on a site inhabited still earlier by Nabateans.

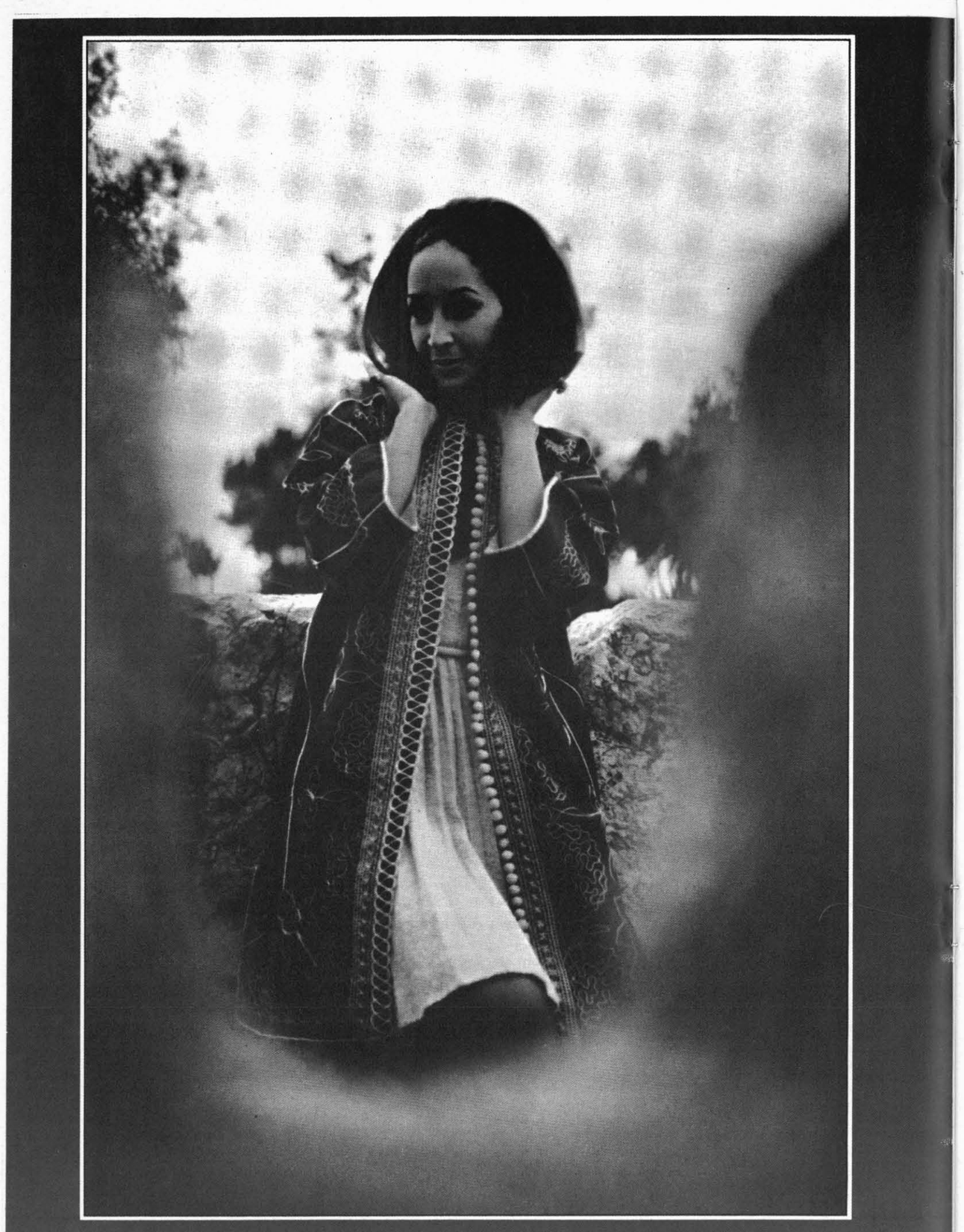
During crusader times Qasr al-Azraq was rebuilt by Azz al-Dyn Aybak (AD 1213-1238) and it was used by Colonel T. E. Lawrence during the First World War as headquarters.

The castle is constructed of black basalt, a material that is strong but fairly easy to cut and dress and was used in remarkable ways. One door, for example, is a huge slab of stone which still swings on stone hinges set in stone cups filled with oil. The ceilings were also made of stone slabs. G. Lankester Harding, former Director of the Department of Antiquities in Jordan, describes similar ceilings in a ghost village in the north of Jordan also built in Roman times. "The walls were corbeled out, usually in two stages ... and the remaining area covered with large slabs of stone. If the gap was too wide to be bridged direct by slabs, then long, thin joists of basalt were cut, laid across the corbels and the slabs laid on these."

One recent visitor to Qasr al-Azraq, impressed by this unusual ceiling, pointed it out to his companions, and added with assurance that no doubt its precarious design limited its use to the top-most story—only to discover that the floor on which they had been standing was exactly the same.

On the way back to Amman, on the edge of a great mudflat, before reaching the asphalt highway again, you come to the fifth castle, Qasr al-Hallabat, a Roman fort, probably built in the reign of Caracalla as a defense against desert raiders. A low wall about a mile to the east, which stretches three miles in a straight line, may have been designed to break up a charge by nomadic raiders on horseback. A Greek inscription tells of its rebuilding during the reign of Justinian. During the seventh century it served as a monastery and a small mosque was added by the Arabs in the 12th century.

Jan van Os, formerly with Aramco World Magazine, *is now an assistant editor of the* Reader's Digest *in the Netherlands.*



HIGH FASHION FROM THE ARAB WORLD

PHOTOGRAPHED BY BURNETT H. MOODY

Imagine a fashion line so charmed as well as so charming that it can change as easy as abracadabra from an enchanting evening gown into a bewitching cloak—a fascinating dressing gown—a cocktail frock—a coat—a vest—a ski jacket. Or even, with a wave of the designer's wand, into devilish smoking jackets and opera capes.

To find such versatile fashion, just say the magic words: **abaya,** a handsome cloak worn for centuries by Bedouins (and sometimes called **aba**) and **kaftan,** a simple gown out of Morocco and other areas of North Africa, both of which, thanks to the magic of some enterprising Arab designers in Lebanon, have begun to edge into the high fashion scene in London and Paris.

According to Madame Rene Moua'wad, a young, chic, jet-setteuse of Beirut, the new kaftan was inspired by the elegant gowns once worn by Lebanese princesses at the court of 18th century amirs.

"That was a few years ago," says Madame Moua'wad. "I was lamenting the disappearance of the Arab traditions and the loss of old skills when I thought: 'If the women in the mountain villages can still make these handsome old gowns why can't I sell them?' "

Encouraged by her husband, a member of the government's chamber of deputies, who was delighted at a chance to help his constituents, Madame Moua'wad began roaming the mountains of North Lebanon, asking villagers to search their attics for samples of traditional patterns.

Next, she went to work persuading friends that the **kaftan,** which is as elegant open as closed, is the perfect thing for hostesses to slip into for dinner on breezy penthouse patios or cocktails in cool mountain gardens. She really scored, though, when women in Arab diplomatic circles began to wear creations from her **Artisanat Zghorta** abroad; orders began to come in from all over Europe.

Asseily Eddé al-Khazen al-Khoury Moua'wad

The revival of the **abaya** is a similar story. Traditionally a man's square, generously-cut garment, it served Bedouins and mountain shepherds as cloak, blanket and coat. A few years ago, Madame Pierre Eddé's charitable society **l'Artisanat Libanais** began to make an abaya for women in pampered wool from 16th-century handlooms in the village of Zouk near Jounieh.

Then, two years ago, George Asseily was lunching at a Beirut restaurant owned by "Madame Abaya," a lady of such generous proportions that she had taken to wearing the figure-hiding abaya instead of dresses any time and anywhere. The "anywhere" intrigued Mr. Asseily, whose factories produce towels, linen and blankets. He consulted his wife, who runs the Domestic Textile Center (**Domtex**) on Beirut's busy Hamra Street and soon her seamstresses were turning out abayas for the bath, the beach and the boudoir, adapting short versions for wear as debonair smoking jackets and even as cozy après-ski wear.

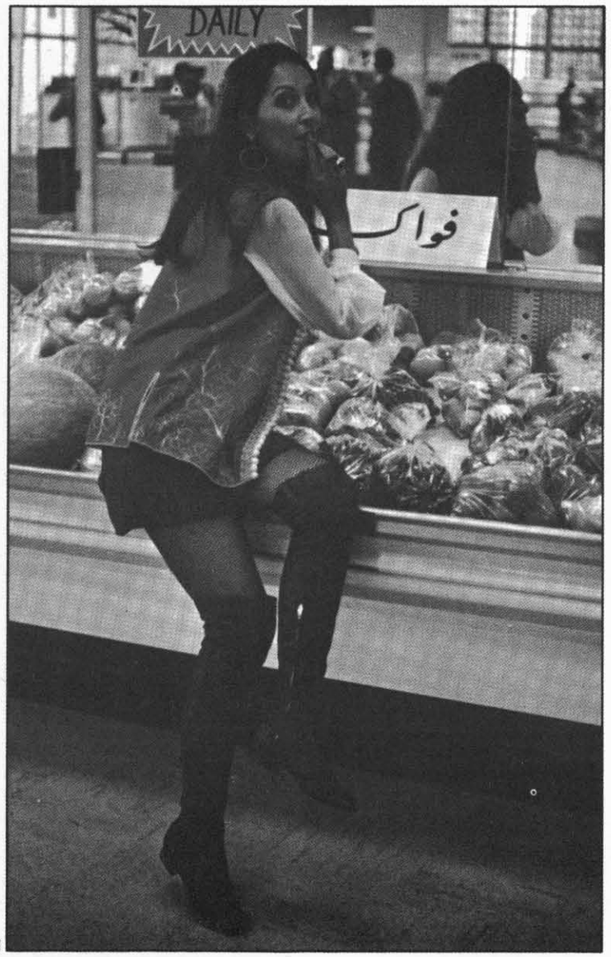
Prices are as flexible as the garments themselves. Madame Moua'wad, for example, asks only $60 to $70 for a modern A-line **kaftan** in silk or felt, in all colors and several lengths, some with elaborate embroidery and a long row of crocheted buttons in silver or gold. **Artisanat Libanais** goes as high as $200 for elaborate museum copies with intricate gold needlepoint and massive collars, while **Domtex** practically gives away colorful, embroidered terry cloth **abayas** for $10 to $20 and asks only a modest $30 for blanket cloth dressing gowns so handsome that Beirut's with-it women began wearing them to the theater.

Two more designing women, Mesdames al-Khazen and al-Khoury, have also opened a shop called **Artisans** in a seaside cellar. They're selling hand-woven wool abayas in bold stripes, and positively psychedelic mixes from their color caldrons: coral, pink and purple; or lime, turquoise and yellow. With different sleeve lengths and in different weights they sell as evening coats or dressing gowns for $30 to $70. The ladies also offer belts made from traditional donkey ropes with blown glass slip rings.

Although orders from abroad are still pouring in and show no sign of peaking, the Lebanese designers know that fashion is a business where change is everything and have already begun to prepare for the future—by adaptating two other traditional Middle East garments. We'll tell you about them next season.

The Editors

1. Spring shopping: a sleeveless vest in orange silk tops white blouse. 2. Summer swim: an ...



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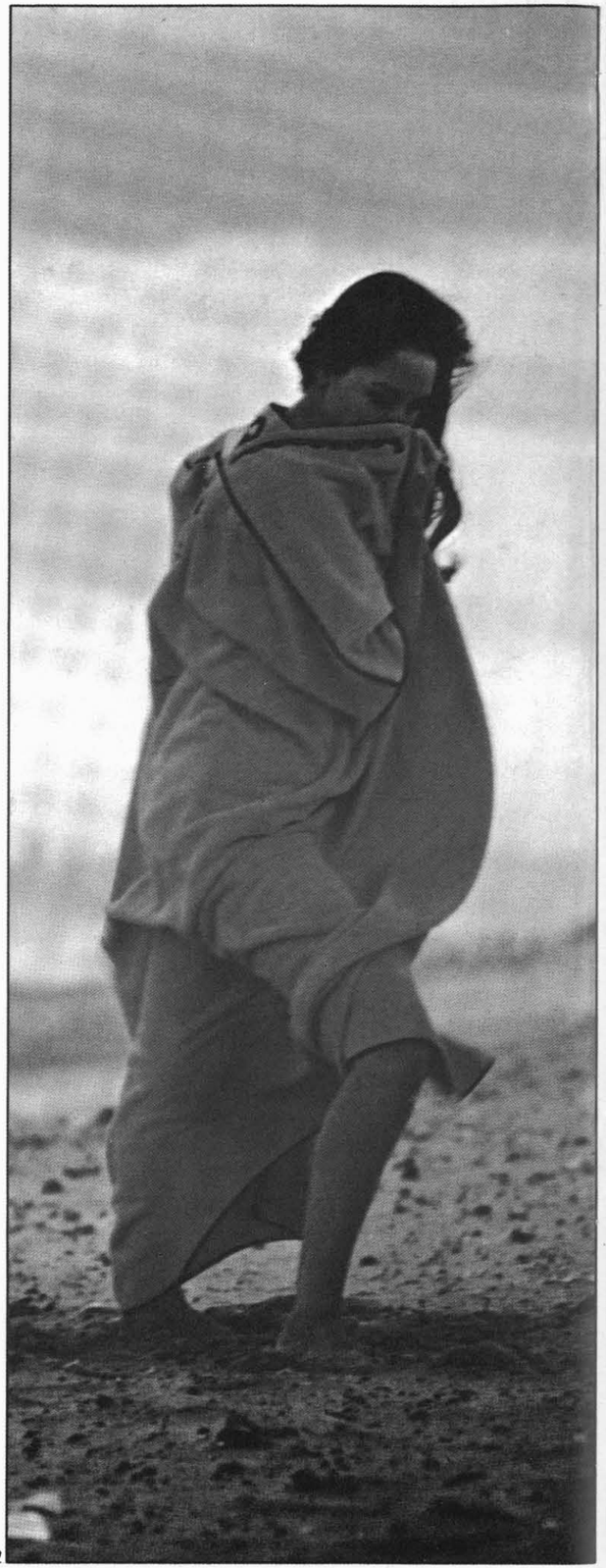

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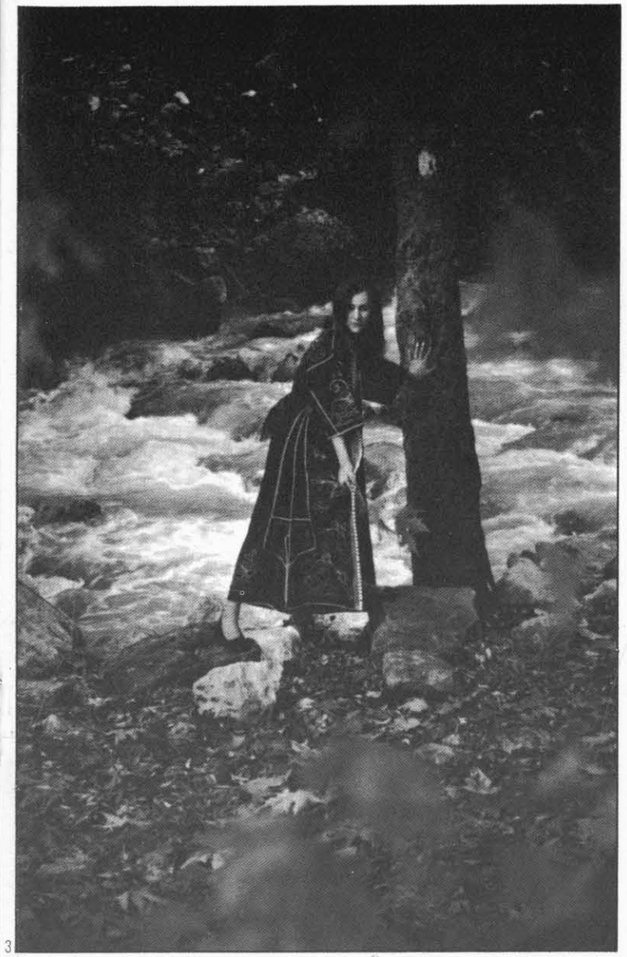
... abaya for the beach in loose folds of gay terry cloth. 3. Autumn elegance: a silk kaftan mates quiet brown with gold embroidery. 4. Winter warmth: a blue quilted cloak wards off the winds of the mountains.



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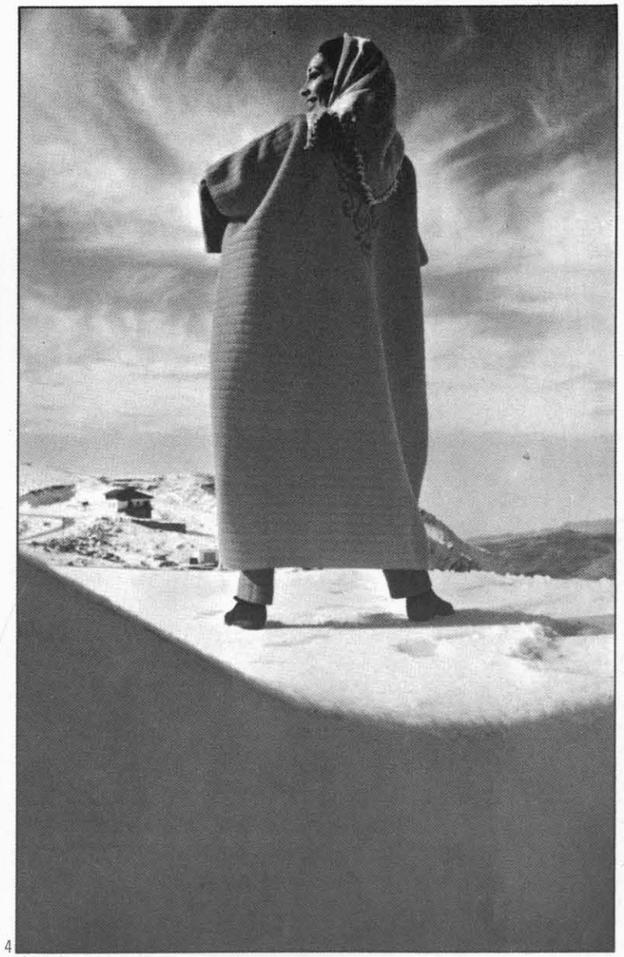

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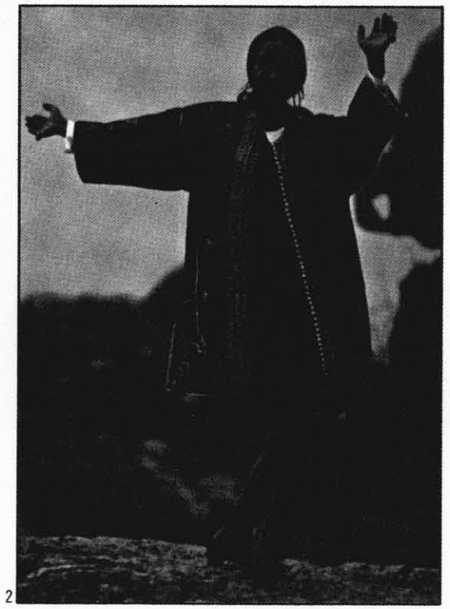
1. Red felt for that swinging dance at the Country Club. 2. A-line short kaftan to brighten up any girl's foggy day. 3. An aura of mystery; what **did** become of the Orient Express?



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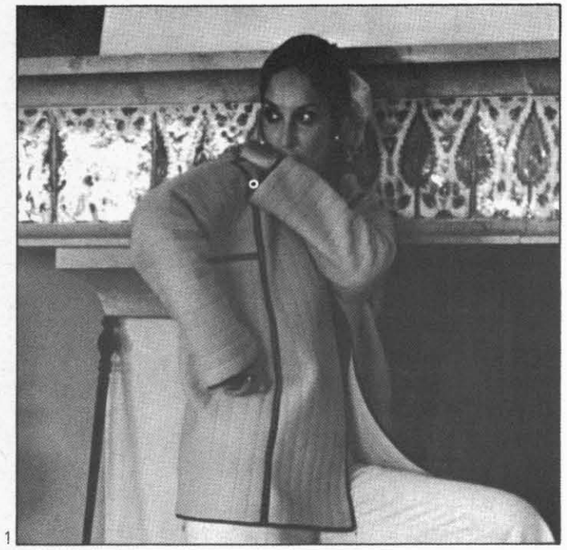

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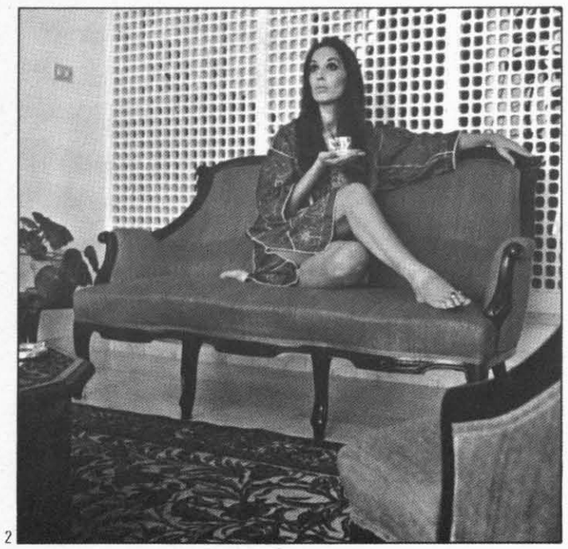

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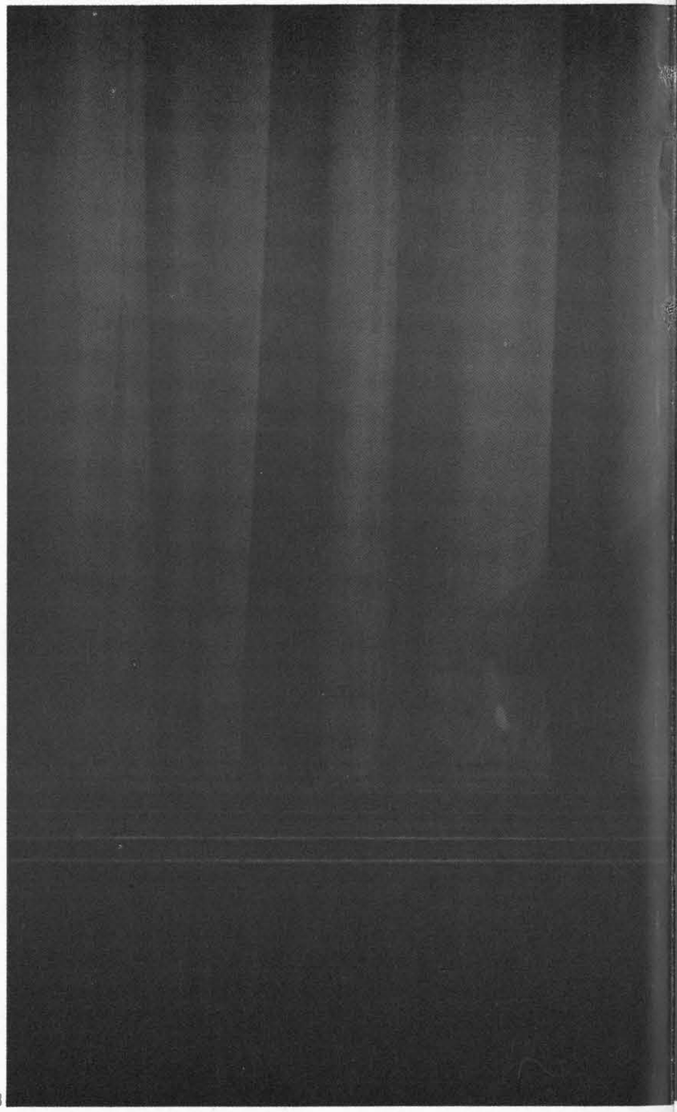

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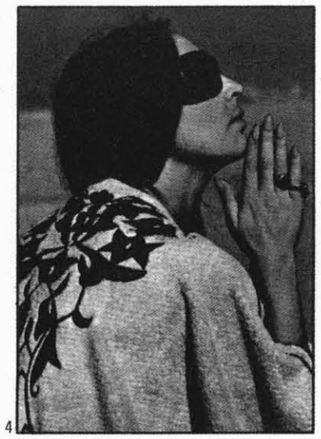
1. Camel-colored jacket belongs before the fireplace. 2. Turquoise kaftan in silk will suit a hostess to a T. 3. Dramatic sweep of felt sets the stage for fashion. 4. Embroidery adds an elegant touch to a beach robe. 5. Short abaya jacket puts the après in the après-ski. 6. A row of golden buttons runs up a hand-knit kaftan. 7. Gold thread and a hood top an abaya cut for skiing.



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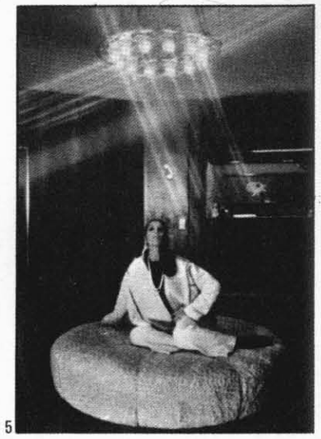

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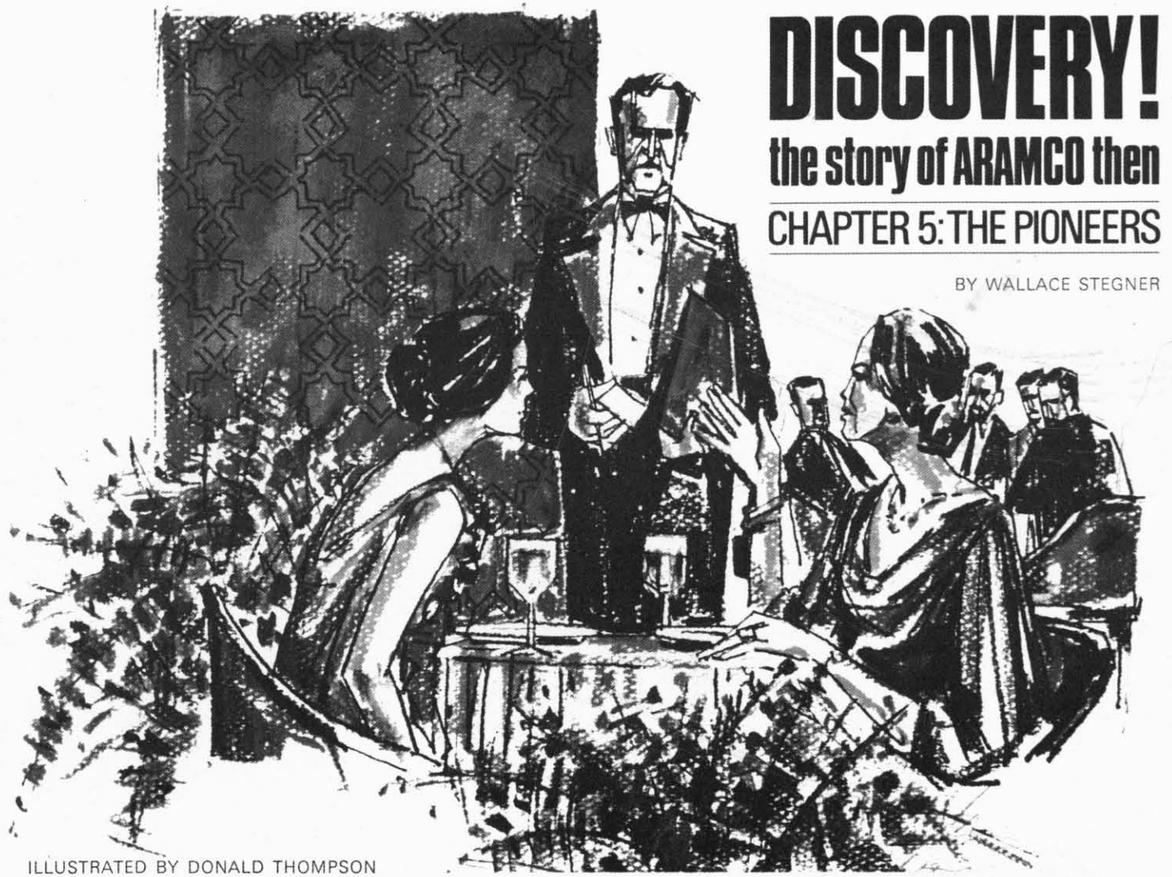
"Tissue des Cedres" is the name of the synthetic fiber spun for blankets but cut by Domtex of Beirut into a short abaya that is as comfortable as it is stylish. Any color, quilted, about $15.

The Artisanat Zghorta makes this floor-length kaftan in a felt so orange it beats autumn to the draw. With a hundred handmade gold buttons, about $65.



DISCOVERY!

the story of ARAMCO then

CHAPTER 5: THE PIONEERS

BY WALLACE STEGNER

ILLUSTRATED BY DONALD THOMPSON

SYNOPSIS: Dick Kerr, pilot and geologist, didn't know what he was getting into when Standard Oil of California (Socal) hired him to make an aerial survey in Saudi Arabia, where, in the early 1930's, the American company was conducting its first search for Arabian oil. But when he did know he was delighted. To Kerr, and mechanic co-pilot Charley Rocheville, helping design a plane mounted with an aerial camera, shipping it to Egypt and flying it to Arabia was the greatest lark ever—even though Kerr, having survived Egyptian customs, a sand storm and RAF hospitality, was immediately arrested when he eased the Fairchild 71 down onto the Jubail landing strip.

Kerr and Rocheville were the ninth and tenth members of the exclusive, hand-picked, ten-man team Socal had dispatched to make the first geological reconnaissance. But on the list of people who, since the 1920's, had been preparing the way for this search—people ranging from financiers, explorers and engineers to an American philanthropist, a shrewd land-lease expert and a far-sighted Arab king—the two geologist-pilots were way down at the bottom.

Neither they nor the other eight, of course, cared a fig about where they stood in the sequence of events. For them, it was a job like other jobs and for six months the men in the field had been waiting for this plane so they could get on with it. In the meantime they had made a good start by inspecting a promising structure they called the Dammam Dome and mapping at least a small section of the eastern coast. They had also begun to import or build the products of an industrial age that would spark what today they would call a revolution of rising expectations.

The mapping job was sometimes routine, a simple matter of flying back and forth along ten-kilometer strips, sketching and/or photographing what they saw and transferring it onto maps. On other occasions, when sandstorms closed in or the engine coughed as they hauled supplies to a camp 150 miles into the interior, it was far from routine. But then on any frontier, very little is normal and in these years this land, in all its harshness and challenge, its color and its excitement, was indeed a frontier, and these ten were the pioneers who had come to find its treasures.

In later seasons, and at a geometrical rate of acceleration, life in the coastal regions of al-Hasa would be transformed. Though for a number of years field trips would let recruits taste Arabia almost undiluted and unaltered, the coastal region was a frontier that changed with a magical swiftness once the Americans began to impose upon it the full range of their control over physical nature. The life the first ten men lived in their first season or two has already, after hardly more than 30 years, a remote and half-legendary look, and some of the towns they knew are now unrecognizable.

How was it? Later recruits always asked that as they tried to imagine their way back to a time when no Dhahran existed, and no Abqaiq, no Ras Tanura, no al-Khobar; when there was no place where you could buy spearfishing equipment or color film or a sports car; when there were no roads, no pipelines, no airfields, no U.S. consular officials, no international air transport, no piers, no air conditioning, lawns, swimming pools, golf courses, tennis courts, or clubs; no women and children; no intricate corporate divisions and delegations of work and authority and loyalty. How was it when the few Americans wore not only the *agal* and *ghutra*, but the *thaub*; when, except in the field, they walked around in sandals of ornamented camel hide? How did it feel to be thrown so completely on their own resources and their own decisions? How did they get along?

Not one of them apparently kept a diary for posterity and they wrote few letters. *(Nothing new here. I'll write you a good long letter when we get back from our next desert tour. All well except for prickly heat.)* But being gadgeteers, they had camera bugs among them; and a good many of them are still around with memories not only unimpaired by time, but enhanced. From such sources came the answers to the question: How was it?

"I wonder who it will be?" Krug Henry had said to Bert Miller before they left Bahrain for the mainland. "In every outfit there's always one S.O.B. I wonder who it will be this time?" But as their numbers grew to the final ten, and their weeks and months of frontier service lengthened, they found no S.O.B. among them.

They did not lack personal oddities, to be sure, and they were not in incurable good health. Miller worried too much. He was a terrier, a nibbler; he had a feeling that somehow they should be suffering considerably more hardships and making greater sacrifices. He seemed to vacillate between the opinion that desert duty, if properly organized, was the pleasantest of all kinds of foreign work, and the opinion that it was not quite normal to organize it *too* well and make it *too* comfortable.

Burchfiel and Hoover assured him a little sourly that they were making all the requisite sacrifices. Hypochondriacs, they swore they could taste camel urine in the water, their stomachs turned inside out at some of the food, and they listened anxiously at their own doors for the knockings of liver flukes, amoebas, roundworms, and other specimens of what was in those days still a lavish variety of intestinal parasites.

Dreyfus too worried about himself, but with more cause: he was what a later generation would have called accident-prone. His entry into Arabia had been delayed for weeks by a badly-burned hand, and there was never a time in all his period of service when he was free of scabs, bruises, bumps. Likewise he was pathologically difficult to awaken in the morning. When the rest of them struggled out from under the mosquito nets, and stood on the roof yawning and stretching and blinking into the intense flat morning light, there lay Dreyfus, stunned and paralyzed with sleep. They could shake him, yell at him, kick him, roll him out on the bare roof, set his bedclothes afire, blow him up—he slept on.

Their clothes, at first purely Arab, underwent progressive hybridizings, but they never adopted the sun helmets that were standard among the British on Bahrain. The *ghutra* they found most useful, both as costume, to match their beards, and as a protection against flies, wind, sand, and sun. It could be wrapped around the mouth or around the throat and used to wipe sand out of an eye. It shaded the back of the neck as well as the face. Because they all wore it, they blended more quickly and completely with the Arab population, and they felt themselves different, in dress and attitude, from the British: when they saw a Bahrain Englishman in his pukka sahib sun helmet they referred to him among themselves as a lion-tamer.

Even in a country with none of the artificial entertainment, they found recreation. They swam. They fished—with troll lines borrowed from dhow crews—and if they caught a *hamur* or a *shanad* and could get him to the table quickly, they ate him.

It was the Gulf that gave them most. The Gulf offered, as a matter of fact, excursions of considerable interest. Mikimoto's cultured pearls had not yet, in 1933 and 1934, nearly destroyed the Gulf pearl

fisheries. They all managed at some time or other to visit the pearling dhows and watch the nose-clipped divers come shooting out of the green water as fast as barracuda with their oysters in the baskets.

Everybody too went to watch the curious spectacle of the dhows filling their water tanks from fresh undersea springs. With the dhow anchored directly over the spring (located by some skill that the Americans could not name), a diver went overboard carrying a rolled camelskin *ghirba*. Down on the bottom, distorted and wriggling, he opened the roll and placed the neck over the flowing fresh mouth of the spring. When he had been down about a minute a second diver went down, took over the *ghirba*, and let the first one rise for a breather. After three or four exchanges the skin would be fully distended. With a twist of the neckskin the diver floated it to the surface, the crew hoisted it aboard and dumped it in the tanks, and the divers started over.

Sometimes when the Portuguese man-of-war was around in force, the divers put on black cotton suits like long underwear. They did not fear at all the deadly five-foot sea snakes, fast enough to catch fish on the run, but they were extremely respectful of the jellyfish. At first the geologists thought this one of the positive cultural differences between an Arab and an American: an American, coming up from a dive and meeting a red-brown water snake nose to nose, was likely to tear the Gulf apart getting ashore or onto the boat, but meeting a little innocuous two-inch jellyfish with delicate trailing feelers, he had at first no such feelings of alarm.

He acquired them, just as he acquired the Arab's disregard of the snakes. For the snakes never seemed to cause any trouble, but a jellyfish that laid his feelers ever so gently across a swimmer's chest left him burning as if he had been whipped with nettles dusted with red pepper.

As the season wore into May, however, no diversions could ease the growing strains. Desert temperatures had begun to lift above 110. The Bedouins had begun to gather in great camps around the wells; at waterholes, the windlasses creaked almost the clock around and the donkeys pattered back and forth in their runways, drawing up in camelskin *ghirbas* the water for hundreds of impatient animals. From the north the dry *shamals* had begun to come down, filling the air with red-brown dust, grounding the air operations, driving grit through and into everything, and sandpapering the nerves. To make it worse, most of them, spongy with sweat all day and most of the night, bloomed all over their bodies with the red intolerable rash of prickly heat.

Arab-American relations too began to show the strain. All season long Miller had had to deal only with the local government representatives, all of them concerned lest they make an error, most of them without authority to decide anything major. He had seen nothing, not a trace, of any higher officials, not even the redoubtable Ibn Jiluwi, the Amir of al-Hasa province. Far from their own base, they had been trying, often with difficulty, to establish or compromise matters of high policy with Muhammad Tawil, as isolated from his own base as they were. It was just as well the season was about over. The record of good relations might have blown up in a row if there had been many more incidents like the one at Dammam Dome. Going back there to finish the detailing of the structure, Henry and Hoover had found all their survey stakes pulled up, perhaps for firewood, perhaps out of curiosity, by the Bedouins.

In short, they were ripe for a change and since the Concession Agreement specifically allowed field work to be suspended in favor of office work during the hot season they decided it was time for a break. First, though, they had to tie up some loose ends; one of them was to complete the detailing of the Dammam Dome before Hoover and two Babco engineers came to survey the possibilities for fresh water, roads and harbors. It was an important survey because it would affect the Company's decision whether to drill or not.

Accordingly, on June 6, as one of their last acts of the first season in the field, Kerr came down from Jubail and took a lot of horizontal pictures with the airplane camera and helped pile up a cairn of stones to mark what they hoped would be the first Arabian oil well, Dammam No. 1. On June 7 they closed up the Hofuf office and brought up to take charge of the Jubail compound poor Allen White, who had already had the lonesome assignment at Hofuf but who was also their best Arabist. Dreyfus, though sick, would also have to stay behind to help overhaul the cars and trucks in time for the next season. The rest, with one exception, joyfully got ready to go to Lebanon. The exception was Charley Rocheville. On a rough drive looking for a site for a landing field near Jabal Dhahran, Charley, already sick, was seriously hurt and had to leave. He wound up, after stops in Bahrain and London, in the Mayo Clinic in Minnesota, the first casualty of the campaign. He did not recover for several months and even when he left it was clear he would not be back.

Lebanon, where the seven geologists were gathered by mid-July, first elevated them to beatitude and then let them sag into a mental and physical collapse. No sooner had they arrived in the cool mountain climate of Dhour el-Choueir, where Miller had booked them all *en pension* at the Medower Palace Hotel, than the uncertain ailments of Hoover and Burchfiel turned into colds and bronchitis. Those who escaped the germs were afflicted by a great lassitude, an unwillingness to stir except in the rediscovery of diversions and pleasures that they had almost forgotten existed. In the Medower Palace dining room they ate well and largely, became connoisseurs of the wines of Lebanon. They kept their own table, invited many guests, and every Thursday listened with flattering attention to an orchestra of Russian refugees. There were women around, too: wives and daughters of Lebanese and Egyptians and Jewish families from Haifa. It was all most pleasant, and thoroughly unproductive.

By the second Thursday of their stay, however, they had begun to recover. And since Burchfiel and Hoover were recuperating and Miller was getting ready to go on to London and spend a month arranging supplies and conferring with Hamilton, they all decided to have lunch together. They sat down, looked over the menu and the wine card, listened vaguely to the refugee Russians who were tuning up. And then the dining room door opened to admit a woman and a girl.

Krug Henry was facing the door. His eyes followed the pair to their table, stayed on them as they sat down, did not even look away when the girl, petite, dark-eyed and pretty, glanced across at him. She blushed. Henry did not hear the ribald and witty words of his companions. If the girl had carried a charge of 6,600 volts he could not have been more paralyzed. But he did not waste a moment. He was an extremely direct man and in this instance he knew his own mind completely.

Within minutes he had bribed the headwaiter to arrange an introduction through the girl's mother, had overpowered the mother's objections, and had brought the two to the geological table. Only when he had them there did he begin investigating the possibilities of conversation. He himself spoke English, some Arabic, and Spanish with a Venezuelan accent. He discovered that Mlle. Annette Rabil, Lebanese-French and the daughter of an engineer who had helped build the Suez Canal, spoke French, Arabic and Italian. It wasn't the best combination, but it would do. And she was an excellent listener.

By the time Bert Miller left for London, Madame Rabil was scared to death. She had never experienced such an approach. For assistance she called in Annette's two sisters, but they quickly melted before Henry's advances and became his allies. The Egyptian women in the hotel were agog and aghast. Did he mean to marry her? If not, how did he dare take her photograph? Why would he spend every spare minute in her company? They sympathized with Madame's troubles and were so delighted they could hardly talk about anything else. The geological table was an uproar of festivity every night.

Unfortunately, and unwelcome as it was, there was also work. Hoover and Henry, who, in their first report had recommended drilling the Dammam Dome, were now working on their second. It concerned an "area in Hasa" and they had concluded that though surface geology revealed no clear indications of oil-accumulating structures, geophysical methods to learn more about it would be justified.

While they worked on this, Burchfiel was preparing a general report called *Arabian Geology, al-Hasa Concession* (in which he was pointing out that the only place that justified test drilling was the Dammam Dome), and Koch and Brown, who had covered more territory than any of them, were also recommending in a report on Central Hasa, further exploration by geophysical methods. When this was done, they said cautiously, enough would be known to permit the Company to decide whether it should retain or relinquish the concession.

In the meantime Henry's romance proceeded apace, and sometime in August, Bert Miller, then in London, received a cable. It said that Krug Henry had married Annette Rabil and needed fifty pounds.

Hugh Burchfiel had gone into Beirut with Henry to pick out the diamond. Since they did not fully trust the jewelers of the gold *suq*, and since they themselves were experts on rocks, the diamond was subjected, said Dick Kerr later, to every mineralogical test known to man before it finally wound up on Mlle. Annette's finger. The two were married in the Rabil home in Beirut with many geological attendants and Tom Koch for best man, and the foundation was laid for another revolutionary innovation in Arabia. In 1937, Annette Henry would be one of the first two wives to arrive in the Company's outpost in al-Hasa.

Nothing else in the summer of 1934 quite equaled for interest Krug Henry's whirlwind courtship, but other things were happening nonetheless, some of them important. Casoc, after some pondering, decided to take the recommendations of its geologists and drill the Dammam Dome. It was time to go back to work.

The work, of course, had never really stopped; it had just been upstaged by the events in Beirut. Even there it had never quite come to a halt and in places like Bahrain, where Fred Davies was working out the logistics of a drilling operation, and in places like London, Alexandria and Jiddah it had gone along at a pace fast enough to suit even the man who was expecting al-Hasa to sink into the sea tomorrow: Bert Miller.

Miller was having a busy summer. In London he had discussed the problems of the past year and the plans for the next with Lloyd Hamilton and he was now in Alexandria to do the same with Bill Lenahan, up from Jiddah where he had paid over Casoc's second £20,000 loan to Saudi Arabia, opened negotiations for land in Ras Tanura, and ironed out some more problems about the plane. There was much to discuss, but the paramount problem was relations with stubborn local officials. Lenahan said that everyone from the King on down was anxious to help and Miller, relieved, went on to Beirut to collect his geologists and lead them back to Arabia.

In Lebanon, there were also problems. Burchfiel was in the hospital and Felix Dreyfus, who had been left in Arabia, was shortly to join him. An infected appendix, they learned later, had sent him off to Bahrain for surgery, after which his doctor told him to take a vacation. He set out for the Kashmir in India, suffered an attack that he was certain meant heart failure and decided he had better go to Lebanon. With his fingers on his pulse he did so—by way of the Kashmir, a return trip to and up the Gulf and an overland trip across Iraq and Syria. In a hospital in Lebanon he and Burchfiel comforted one another for a month before they felt strong enough for a second go at al-Hasa. They arrived in Jubail on October 20, just one month after the star Canopus appeared on the horizon, signalling to the Bedouins that it was time to move on and to Casoc's team that a new season had begun.

Unexpectedly, returning to Jubail was for the geologists a little like returning home. On the dock to meet them were familiar faces. Old Muhammad Tawil, troublesome and officious as they had sometimes thought him, seemed genuinely glad to see them: they pumped his hand, crying upon him the peace of God. Here were the *qadi* and the Amir, smiling and without warrants for anybody's arrest. And here were employes carried over from the previous season—Nasser the mechanic, Saleh the cook, a driver or two, the water boy, soldiers, guides, all making up the first small core of a westernized work force.

The original 10 Americans were now 13 and among the new faces was a man who was to be most important to the history of Arabian oil: Max Steineke.

It is conceded by those who worked with him that Steineke was the man who first came to understand the stratigraphy and the structure underlying eastern Arabia's nearly featureless surface. As a field geologist he rated with the best anywhere and as a man, a companion, a colleague, he could not have been better adapted to the pioneering conditions he now encountered. Burly, big-jawed, hearty, enthusiastic, profane, indefatigable, careless of irrelevant details and implacable in tracking down a line of scientific inquiry, he made men like him, and won their confidence. He was a very pure example of a very American type and heir to every quality that America had learned while settling and conquering a continent. In a man he respected most of all enthusiasm, intelligence, a capacity to do his job; to systems and procedures he applied only the pragmatic test: he wanted to know if they worked.

As he would have said himself, Steineke was "no son of a bitch for civilization." Since his graduation from Stanford in 1921 he had worked in Alaska, Colombia, and New Zealand and was one of Socal's senior geologists with 13 varied years of experience when he wrote to Clark Gester from down under in 1934 and asked to be put on the Arabian venture. A fine shot with either rifle or pistol, a man who loved the outdoors and thrived on work, a "big man with a big arm and a big voice," as the Arabs said, he had worked in the California desert and had packed with mules across the Andes. He never stopped driving, never stopped thinking, and habitually could not be bothered with details.

But if Steineke, now just getting his first curious glimpses of Arabia, represented and epitomized the Americans, expressed their collective virtues at the highest pitch, gave them a leader and a model and gave the Arabs a standard by which to know the American type, one of the familiar faces on the dock did the same for the Arabs: the guide Khamis ibn Rimthan.

Khamis ibn Rimthan—his first name meant "Thursday"—had come to Casoc no more willingly than Friday came to Crusoe. An Ajman tribesman of al-Hasa, Khamis was about 19 in 1929 when the Mutair rebellion against Ibn Sa'ud led by Faisal al-Dawish was suppressed, and when the fierce Ibn Jiluwi in revenge for the death of his son all but decimated Khamis' fellow tribesmen. When, therefore, about the middle of October, 1933, Ibn Jiluwi sent a peremptory order to Khamis to report to him in Jubail, it was with considerable uneasiness that Khamis complied. It took five days to get there and many hours of waiting, but at last he was told why he had been summoned: he was to be the guide for the foreigners who had come, gossip said, "to search for gold and the relics of the old people."

Khamis, who had no desire to be separated from his family for months, indicated that he was a very poor guide, that there were many better to be had, and anyway he was not a soldier, he did not belong to any form of army. But Ibn Jiluwi had said Khamis, and Khamis it was.

Khamis was a little disingenuous in saying that there were better guides. Though he spoke no English, the geologists soon found him sharply and steadily intelligent, at once a great joker and a man of dignity and loyalty. Considering that he was both illiterate and almost totally ignorant of any world other than his own, he had an extraordinary understanding. Also he had built into him somewhere a foolproof gyroscopic compass.

It was impossible to lose him. He did not use the maps, but ask him in what direction a certain landmark lay, and he would tell you. Ask him how far, and he would know within a very narrow margin of error, although he didn't learn to estimate distance in kilometers until after he had joined the geologists. Before that, he had used the terms of the desert, reckoning distance in so many hours or days by a specified kind of camel: as "six days by *dhalul*." Even in country which he had not seen before, he had a knack of finding his way, and if the Americans accused him of using black magic he would tell them innocently that he had got information from two good men. How he told reliable informants from others, and how he managed to make such nearly infallible use of the information he got, was his own secret.

During the first season he had worked mainly with Henry and Hoover. During the second, and later, he was assigned more and more often to Steineke's party. In the years to come, Khamis and the Americans he worked for made the sort of cultural exchange that nations wish they knew how to promote. They did not change their known ways to fit one another: they overlapped, supplemented and informed one another. If Khamis or the soldiers told stories of raids or battles, the geologists could counter with Custer's Last Stand or the Alamo. If Khamis astonished them with tales of jinns and afreets, they could try to kid him into believing the world was round. If Steineke or Hoover or Koch brought down a gazelle, they might find Khamis sliding in front of them to stoop and turn the gazelle toward Mecca and cut its throat with a swift *Bismallah:* In the name of God, most gracious, most merciful.

What they learned from one another was respect and friendship. Just as the Casoc people who knew him felt that King Ibn Sa'ud would have been a great man no matter where or in what circumstances he had been born, the geologists felt that Khamis would have stood out in any society as a man of great ability, integrity and character.

The new season's work was a continuation from where they had left off, an attempt to read the structure of their 320,000 square miles underneath its masking of dunes and *dikaka*, to interpret the enigmatic outcroppings, establish the age and relationships of strata, locate every regional high that might reveal the presence of a dome. There was little enough to go on, and they had as yet none of the gravity meter and seismographic and structure-drilling equipment that might have simplified the job. Steineke, looking off the roof of the Jubail compound his first day in Arabia, and seeing the Jabal al-Barri, made the same mistake Miller and Henry had made. The Jabal al-Barri looked very like the Jabal Dukhan on Bahrain and the Jabal Dhahran down by Dammam. It was a cinch; the way you did it in this country was to cruise around until you found jabals.

But it wasn't quite that easy, as Steineke quickly discovered. The cruising itself was nothing to take lightly, even in cars whose springs and front crossmembers had been built up by Dreyfus, Carpenter and Nasser for off-road work, and whose wheels were now fitted with the new, effective 9:00 by 18 low-pressure tires that Miller had discovered and bought in London. They had not so many soldiers to hamper their movements—Lenahan after his conference with

Miller in Cairo had persuaded the Government to reduce the guard for each party to 10—but they still had camels enough, and flies enough. The slow, camel-supplied camps settled, and mapped, and moved, and settled again, while other camel caravans went out to establish plane bases and gasoline dumps at Lina, far up on the edge of the Dahana near the Iraq border, and at al-Lisata, in the flint desert below the Iraq Neutral Zone. To this latter spot went Henry and Brown for a spell of isolated exploratory work, while Steineke and Koch worked west and south of Jubail and Burchfiel and Hoover started for Nuqair. They found plenty of jabals; what else they found was more ambiguous. This was obviously not a hit-and-run job.

September's heat gave way to the warm but pleasant weather of October, and by degrees to chilly fall. One November day in a big *sabkha* south of Jubail Steineke and Tom Koch snowballed each other with packed hailstones. They had a crisis when the plane, making an aerial traverse of the as-Sayyariyat region, broke its tail skid and was laid up at al-Lisata; without too much trouble they cobbled up a jury tail skid of automobile springs for it to come in on. On November 11, 1934, they got their 14th man, who arrived off Jubail by dhow and rode on a donkey the final shallow stretch to shore, dressed in Arab clothes and hanging on with both hands. He was a youngster with some business training and some experience as a field clerk with oil companies in Texas and California. Name: Bill Burleigh. He would relieve Allen White of much of the paper work.

At the end of November, Miller crossed over to Bahrain and brought back the first three members of the drilling crew scheduled for Dammam Dome, and three days after Christmas another contingent of the drilling crew came over in the care of Allen White. On that same launch, looking so terribly civilized that they didn't let him wade ashore like the others, but had a crewman carry him piggyback through the shallows of al-Khobar, came Lloyd Hamilton, starting a "public relations" tour of the field.

They gave Hamilton a realistic view of the whole operation from Jubail to Hofuf, and though he did not conform to field practice by letting his beard grow, he did start a mustache and he did get into *ghutra* and *agal*, and on formal occasions into a *bisht* as well. He bore up under the osteopathic treatment of desert driving, but just barely made it through the ceremonial visits to Ibn Jiluwi. He counted nine cups of coffee and five glasses of tea that he drank while paying his respects to Ibn Jiluwi and immediately afterward to his son. As soon as he and Miller got to their quarters, his esophagus echoing of cardamom and his bones disconnected by the day's six hours of cross-country driving, he fell on his pallet bed and slept like a dead man until Miller called him at five. He particularly wanted to be up early: one of the few things Ibn Jiluwi had communicated to him was permission to take movies of Hofuf, something that no one had ever done. He also wanted to get off a telegram to Ibn Sa'ud asking if he might visit the King in Riyadh, and after that go on across Arabia to Jiddah.

He got his movies, and he got his reply from Ibn Sa'ud. The King not only wanted him to come to Riyadh, he wanted him to come on the first day of the Feast of the 'Id al-Fitr that ended Ramadhan's month of fasting and prayer.

It was January 5, 1935, the last day of Ramadhan, when Hamilton, Miller, Felix Dreyfus, three soldiers, a guide, a cook, and an interpreter left al-Khobar in three Fords to drive to Riyadh. It was, they said later, a trip rich in memories: the walls and mud forts of Hofuf, with a motionless jackal watching them; the Ford roaring recklessly over dunes hardened by rain into giant roller coasters; the overwhelming concern of the soldiers lest the royal guests come to harm.

This was Arabia as a romantic imagination might have created it: nights so mellow that they lay out under the scatter of dry bright stars, and heard the silence beyond their fire as if the whole desert hung listening. Physically, it might have been Arizona, or New Mexico, with its flat crestlines, its dry clarity of air, its silence. But it felt more mysterious than that; and the faces of soldiers and guide and interpreter, dark, bearded, gleaming in teeth and eye as they spoke or laughed, corroborated Hamilton's sense that this was authentic Arabia, hardly touched by the West. The water that he shaved with in the gray predawn light, and the coffee he drank before they started off again, corroborated Arabia further: they were so flavored with mutton tallow from the *ghirba* the water had been carried in that Hamilton felt he could smell sheep all morning.

The next day they got to Riyadh and moved into the Badia Summer Palace outside the walls. The place astonished them: a Spanish or Moorish-looking house surrounded by palm gardens and peach and fig trees. It might have been in California, except for the numbers of servants and the amplitude of the space assigned them. After the somewhat primitive hospitality of Hofuf, this was luxury, with brass-framed mirrors, brass washbowls and water ewers, drapes, cushions and Persian rugs. They had barely had time to decide to put all their cots together rather than scatter through a bedroom apiece, when the King sent to ask when he might see them; and they had barely cleaned up when Hafiz Wahba, whom Hamilton knew well as the Saudi Minister to London, came to escort them to the *majlis*.

The meeting was so friendly that its import could not possibly be mistaken, and it brought comfort to Bert Miller, harassed throughout his first season by the suspicions and prohibitions of local officials. At least at this level, suspicion and prohibition did not apply. Even Hamilton, sophisticated in negotiation, felt he was having one of the notable experiences of his life. Miller and Dreyfus, a geologist and a mechanic, could be excused for pinching themselves now and then to test if they really sat here in the council chamber among potentates and guards, in the remote capital of Ibn Sa'ud's Kingdom, making jovial conversation with the King and one of his sons and exchanging jokes through an interpreter.

They had taken the first movies ever taken in Hofuf; on the morning after their arrival they took the first ones ever taken in Riyadh, and it is unlikely that any camera bug since has had richer opportunities. That morning, as part of the Lesser Festival, the 'Id al-Fitr, 5,000 soldiers paraded in a dance of war, long double lines of them brandishing rifles, pistols, and swords while they moved in a slow, hypnotic shuffle and barked out a hoarse antiphonal chant. The air was full of bullets fired at what the Americans thought were terribly flat angles, but they were not nervous for their safety. The King himself had authorized their movie camera, the Amir Sa'ud himself had placed them at their spot of observation, Yusuf Yasin himself was their companion, and four of the King's soldiers stood guard at the four fenders of their car.

At every stage of their visit they had impressed upon them the Government's friendship and desire to cooperate. In the afternoon, after the war dance, Miller and Hamilton went over with Fuad Hanna, Hafiz Wahba and Yusuf Yasin all the plans for the season's work as well as all the incidents of friction and cultural misunderstanding. It seemed, as they talked, that the difficulties had been fewer than might have been anticipated; considering the strangeness of the Americans to the Arabs, and the equal strangeness of the Arabs to the Americans, everyone had done pretty well. In Lenahan, the Company had a Jiddah representative whom the King liked and whom the ministers could deal with. And in the news that the Company planned to drill the Dammam structure the Government had the most welcome information it could have received. It was January, 1935. The world was still sunk in depression, the hajj would be light again, the Saudi need of money was acute in spite of the second loan, which the Company had made in advance of its due date. Needing income so badly, the Government from the King down waved aside the warnings of the Americans that there might be no oil down there. They wanted to believe, needed to believe, perhaps, that the result of drilling would be automatic riches.

After the bizarre yet rich experience at Riyadh, Hamilton and his party might have felt let down as they set out to complete their crossing to Jiddah, four days of driving and breakdowns away. But it was not to be a dull trip. The road led west across the Tuwaiq escarpment and 400 miles of broken desert and plateau and brought them at one point to the worn granite teeth of the ancient continental mass from which the sedimentaries had been washed. They moved fast, met H. St. John Philby and Abdullah Suleiman outside of Mecca two and a half days later, and were soon ensconced in the airy and elegant Bait Americani, three floors of spotless tile, Egyptian furniture, bathrooms with showers, a roof garden and, for atmosphere, two pet baboons named Mickey and Mona.

There was, as always, work to be done and so Hamilton and Lenahan made sure that they saw Abdullah Suleiman often enough to convince him that their problems were serious. But on the whole a holiday spirit prevailed. And in the glow of dinners and parties in the burgeoning European quarter, Lenahan convinced Hamilton that with drilling beginning he needed help and Bert Miller conceded that without Lenahan in Jiddah he couldn't have worked in Jubail. They enjoyed it so much that when he and Hamilton set out for Cairo, while Felix Dreyfus took the cars back to the Gulf, they decided to cross to Port Sudan and Khartoum and float down the Nile.

They were entitled to their vacation, and anyway what they did at this moment was not extremely important. The really important events were beginning on the other side of Arabia, on the scabby, barren flanks of the jabals near al-Khobar.

TO BE CONTINUED

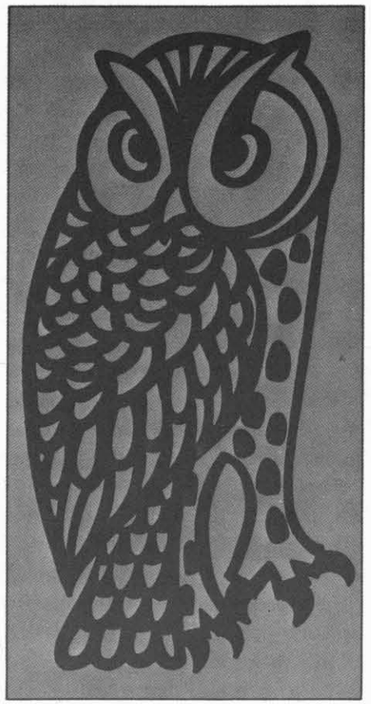
WOOL OF BAT & TONGUE OF DOG

Here's a little study we know you'll enjoy (knock on wood)...

BY LESLIE FARMER
ILLUSTRATED BY DONALD THOMPSON

At Halloween I always recall that whenever my friends and I, out riding late in the soft California evenings, heard an owl hoot, a little uneasiness came over the group and we knew it was time to be home.

Myself, I always rather liked to hear



the owls, especially two of the small ones telegraphing hoots back and forth in the dark outside my home. A soft "hoo!" somewhere; a pause, then an answering one somewhere else nearby. It could go on for hours.

But I grew up with the impression that at least in California my tastes were not shared—I never knew quite why—and when I came to live in Lebanon two years ago, I found my friend Fatima and her mother sharing the sentiments of California.

"I saw an owl this evening on a lamppost—a very small one. I wouldn't have noticed him if he hadn't hooted..."

"Yiii! Don't talk about it!..."

Fatima explains that many people think seeing a *booma* is very bad luck; hearing it hoot, worse. *She* doesn't believe in such things, of course, but...

Intrigued, I asked her what she would do if she spilled salt.

"Wipe it up, of course!" she said. "But if we let coffee boil over we say '*Kheir!*' (Good!) It's supposed to bring good luck; and look out if you mention your plans and don't say '*Duqq 'ala khashab!*'"

"What does that mean?"

"Knock on wood."

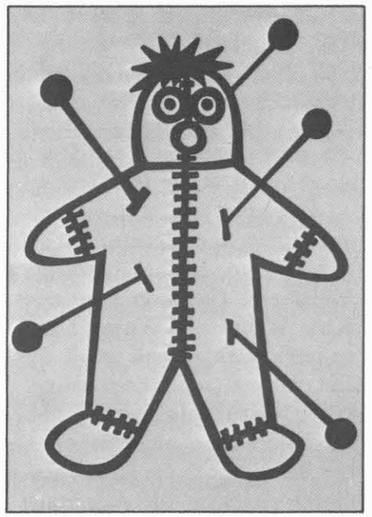
Out of this idle conversation came a study of what, over the next two years, Fatima in the United States and I in the Middle East would call Comparative Superstition. Intrigued by the obvious parallels we had stumbled on, we launched a haphazard, but still informative investigation into the extraordinary similarities of folk beliefs in the East and West.

One of the first things that struck us was the stringent Islamic prohibition of the manifestations of superstition. Orthodox Islam, particularly, views superstition as virtual heresy and wages a continuing battle to stamp it out.

As in all societies, however, superstition persists in the Arab world, particularly among those without real education or religious learning. The most striking example is the *'ain*, the "evil eye", largely because in most Middle East cities the devices to ward it off are so vivid and ubiquitous, hung, tied, wound around and nailed up in the hearts of the cities as they are.

What the origins of the evil eye are is anyone's guess. Judging from the mentality of primitive peoples, which identifies the wish with the act, it might have been the equation of ill-will with positive power to harm. Very primitive peoples of today—Australian aborigines and certain African tribesmen—can demonstrably be killed simply by the wish of an enemy; the conviction that an enemy's ill-will can kill them so robs them of the will to live that they *do* die.

The belief is of immense antiquity. Egyptian tombs have yielded ceramic talismen almost identical to amulets sold throughout the Middle East today. And

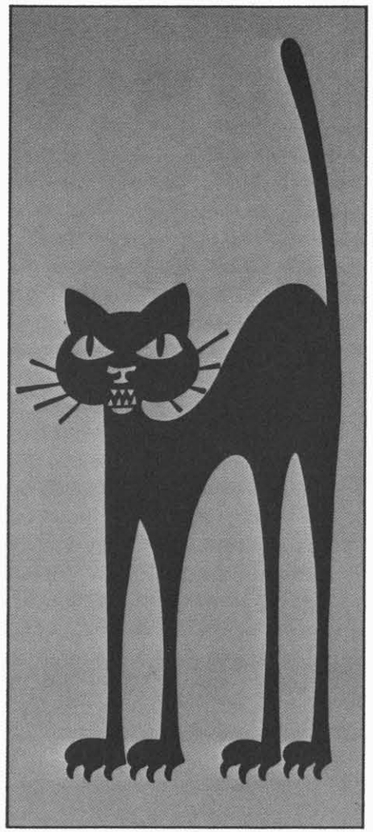


through the ages it has survived, to the distress of eccentrics in places and eras as far apart as medieval Europe and witch-hunting New England, where they were accused, tried and burned with a chilling disregard for both justice and common sense. Even in America it is not unknown, and the roots of the belief are still in evidence in Britain where, in rural areas, a person who looks run down is still thought of as "wisht"—ill-wished—and a sick animal or child who shows unfamiliar symptoms may still be suspected of having been "over-looked."

One of the most illustrious evil eyes showed up in Italy in the unconscious countenance of Pope Pius IX, before whom many of the devout while kneeling for his blessing, were reported to have surreptitiously made the "horns" sign. That sign, another ingrained belief, supposedly annulled the effects of an evil eye and is thought to have given rise to the American children's game of trying to hold horns above the head of a second child without the latter noticing it.

Anyone, it seems, may possess an evil eye: cripples, old women, handicapped children and people with widely spaced teeth, red hair or blue eyes. Not the least unpleasant characteristic is that its possessor—like Pius IX—may be totally unaware of having it.

In some instances reasons for the belief can be found. The conviction that redheads possess the *'ain* possibly stems from a long tradition both in English-speaking countries and the Arab world that Judas, accursed of all Christendom, had red hair. Blue eyes were suspect because for many years they were such a



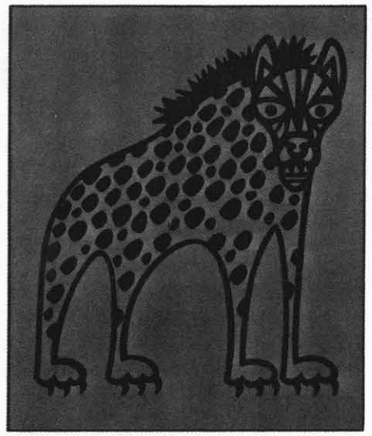
rarity in much of the Middle East. T. E. Lawrence illustrates this with the horror of an old Bedouin woman at his blue eyes—which she described as looking like the sky shining through the eye-sockets of an empty skull, her uneasiness perhaps in half-memory of an Arab tradition that the examining angels of the Day of Judgment have red hair and blue eyes.

Fortunately for those who believe in such things, there are numerous shields against the *'ain*, one of the most effective being the amulet. The belief in amulets may have begun in a fit of faulty reasoning, when some remote Neanderthal picked up a pretty stone or a bear claw, wore it for decoration, and had a run of good luck. In any case, they now come in a variety of sizes, materials and forms. Most common, most ubiquitous and most striking are the bright blue beads wound around the grilles and hood ornaments of cars, trucks and buses, sewn onto or wound around the harness and bridle of every second horse or mule that passes, pinned to a child's clothing or worn in fat bracelets sold in every *suq* of the Arab world.

There are other amulets also. A bus on the road to Damascus, for example, bears above its front windows two great painted eyes, each two feet across. The walls of small cafes are brightened by vividly colored prints of the hand-and-eye, with *Ya Hafiz*—"O Preserver"—above it. License plate shops carry metal hands with a single staring eye set into the palm. And there are the cowrie shells and brass bells, the big beads of amber in the necklaces of the Kurds.

One reason that these amulets so leap to the eye is that they are meant to. If the *'ain's* first glance, the most potent, is caught by an amulet, the person wearing it will escape evil effects.

Oral amulets exist too. Since all good fortune, health or handsomeness may draw envy, the primary cause of a conscious evil eye, some unsophisticated villagers consider open admiration of anything the worst of luck. The most appropriate way to admire something is to merely say "*Bismallah!*"—usually



shortened in Lebanon to "*Smallah!*"—"In God's name!" The expression is much used, even in middle-class and westernized circles, when admiring a baby or small child. Some villagers may wax extremely uncomplimentary over a favorite child to "fool" the *'ain*, a practice very similar to the old American theatrical expression used to wish luck to someone about to go on stage without hexing him: "Break a leg!"

United States amulets have no such clearcut objectives as those against the *'ain;* rather they aim at a general prevention of bad luck, or promotion of good luck. There are, of course, the rabbit's foot, the four-leaf clover, the mascots for sporting organizations; to say nothing of the significantly named *charm* bracelet, that with small imagination one can see dangling from the wrist or neck of some tribal medicine-man, hung with eye of newt and toe of frog. The horseshoe, in use in East and West as a charm against spirits, might have its rationale in an old belief in England that "cold iron" is anathema to all spirits. A Scottish folktale explains the belief by recounting that one day the devil, in the form of a great black horse, came to a smithy to be shod and made the mistake of asking for the service in a human voice. The smith, in no doubt as to the identity of his visitor, obliged by shoeing him backside-to. In great pain, the devil was constrained to promise before he was properly shod that he would never enter a door with a horseshoe above it.

Besides the *'ain*, there are other supernatural dangers to be feared from one's fellow humans. The belief in sympathetic magic—roughly, magical practices that work on resemblances or imitations, on the lines of the Voodoo doll stuck with pins—goes back to very primitive times and persists to the present. The belief probably accounts for three outwardly very dissimilar beliefs, one in the United States and two in the Arab world: the taboos against breaking a mirror, being photographed and scattering one's nail clippings around.

If an American breaks a mirror, he is letting himself in for just bad luck, generally or, specifically, for seven years' bad luck, or even for a death in the family within the year. Why? Because he has destroyed something that has reflected his own image—something more a part of him than his arm or leg, like Peter Pan's shadow.

The dislike, among some Arabs, of having a photograph taken is generally accepted as a reflection of a traditionalist interpretation of the Koran's prohibition against making images. In many cases the assumption is correct; however the opposition to photographs is not confined to Muslims. It crops up among many groups of people around the world.

In the Arab world as elsewhere it may stem from the primitive fear that if an enemy should acquire a piece of clothing, a lock of hair, an image of someone, he would be able to harm its owner by "injuring" it.

The same basic beliefs, common to many simpler societies, probably are at the heart of one of the Arab world's more intriguing after-life punishments: the belief that the person who is so slovenly as to scatter his nail-clippings around will regret it on the Day of Judgment, when he will have to pick them all up with his eyelashes, rather like the Irish girl who, if she sews on Sunday, will have to take all the stitches out with her nose.

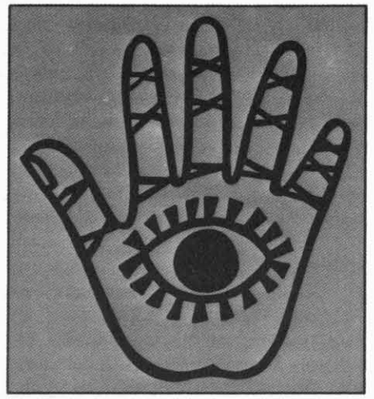
Another taboo common to both societies is whistling. Up to a few years ago, the worst thing an American sailor could do was whistle aboard ship; it was sure to raise a "whistling wind". And many American girls can still quote an irritating little saying their mothers probably repeated for their benefit during tomboy days:

Whistling girls and crowing hens
Always come to some bad ends.

The point of this is probably that it isn't wise for females to act like males, but it could also be an English-Irish belief that if a crowing hen is not immediately caught and executed for a chicken dinner, someone in her owner's family will die within the year. Superstition aside, it is undeniably unlucky for the hen.

In the Arab world, Bedouins frown upon whistling, at least outdoors at night, for fear it will call up an evil jinn. Jinns, incidentally, are mentioned often in the Koran, which they predated in pagan times in Arabia. The angels are made out of light, but the jinns are of fire; they can be good or evil, having free will (Iblis, who rebelled against God, was not an angel but one of the jinns; on the other hand, a "company" of jinns is mentioned in the Koran as listening to and approving the teachings of Islam), but in popular belief they are best avoided.

Another tribute to the presence of the jinns is the back-country Egyptian custom of saying "*Destoor!*" ("Watch out!") before pouring hot water down a sink—a jinn might be passing through the pipes, and not take kindly to a scalding. This practice has its counterpart in the Irish custom of saying "Take care!" when throwing water out after dark. The leprechauns might be passing and would resent having their green



garments spoiled. In the Arab world and in America sneezing must be followed by an invocation of God: "God bless you!" or "*Al-hamdu l'allah!*"—"God be praised!"—because primitive peoples believed that the soul of the sneezer was momentarily expelled and unless the name of God was pronounced, evil spirits might injure it. Spilling salt, in the Arab world, seems to be no more than carelessness; in the United States it's bad luck, unless whoever spilled the salt throws a pinch of it over his left shoulder, where in East and West evil spirits always lurk.

Another treasurehouse of superstitions is the body of beliefs about the natural and supernatural powers of animals. Some beliefs in the United States probably originated in the conviction, in medieval Europe and puritan New England, that certain animals—black cats!—were the familiars of witches. Again there are beliefs that have their origin in some peculiar feature of the animal itself which gives it a supernatural character.

First and foremost producer of tall tales in Arab animal lore is the hyena. The hyena story is the shaggy dog story of the Middle East: seldom credible, always fascinating. Its weird reputation dates back at least to the days of the Roman Empire when the famous naturalist Pliny left it on record that men of his time claimed it "allured human beings and deprived them of their senses," and could render a man immobile and speechless if it saw him before he saw it.

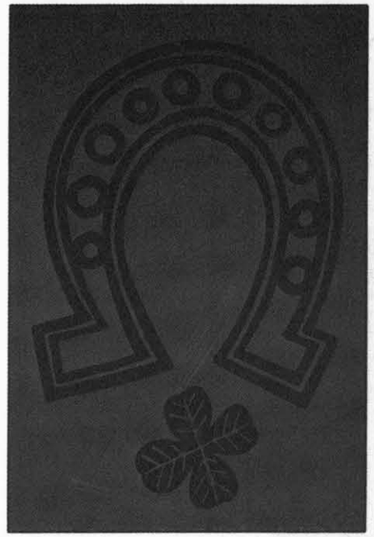
Arabs have many stories about how the hyena "allures" its victims, some told seriously, most, one guesses, for the pleasure of a good tall tale. One, told me by an officer in the Jordanian army, goes like this:

The officer and several men under his command were returning to Ma'an in their Land Rover one evening when they saw a hyena. One of the soldiers began to shoot at it, but although the beast followed at a tantalizing distance, its eyes gleaming in the dusk, he had no luck. Apparently unable to resist showing his marksmanship, the soldier went after the animal. A moment later his friends noticed with astonishment that he had left his gun behind. The commanding officer, alarmed and angry, shouted at the top of his voice, "Come back immediately—*this is an order!*"

The soldier paused a moment, turned and walked back to the car. "What is it?" he asked. He remembered getting out of the Land Rover—and nothing more.

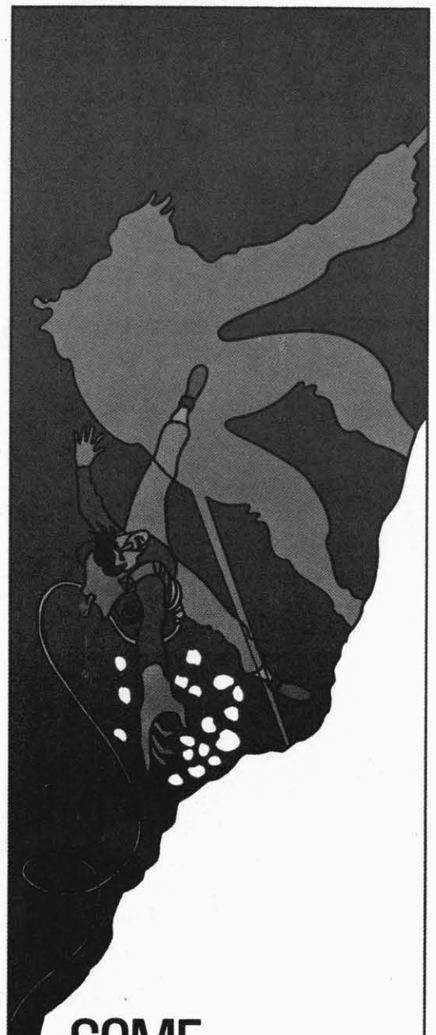
Whether in America or in the Middle East, howling dogs are bad omens, presumably because animals are credited with being able to perceive supernatural presences. In American folklore, spiders, toads, robin redbreasts, ladybugs and crickets were all bad luck—if you killed them. Other curious American beasts are the bat, the bane of many an elderly woman, which likes to tangle itself in a woman's hair—a predicament which according to all students of natural history would be infinitely more traumatic for the bat than for the lady—the dragonfly (darning needle) which sews up the ears of misbehaving children, and the saltable bird which, according to an old tradition whose usefulness must have been tested at least once by every child who heard it, was certain to be caught, if you could put salt on its tail.

The common superstitions of two cultures are beliefs one can laugh at, or deplore, as survivals of a past age that should have been buried with it. Like poetry, however, superstitions are



not necessarily true, yet impose an order on life, give some reassurance of a logic in existence—like religion, science, and philosophy, of which they are the great-great-half-uncles, and of which in each superstition, however wild, there is often a fragment. If now useless in themselves, such beliefs still serve as useful reminders that some of the science and religion and philosophy of the present, may someday go the way of the immutable scientific law of a few years ago: *matter is neither created or destroyed*—that one day after the splitting of the atom was quietly penciled out of school textbooks.

Leslie Farmer, an American free-lance writer, speaks fluent Arabic, has lived and worked in Egypt, Jordan and Lebanon, and once wrote for the Jerusalem Star.



SOME REFLECTIONS ON MIRAGES

BY DANIEL DA CRUZ

One summer a few years ago a pilot flying a seaplane from the Gulf of Mexico to the West Coast developed engine trouble over Arizona. When a quick check of his maps revealed that he was in range of Cochise County's Hado Flats, he breathed a sigh of relief: only the winter before he had passed this way on the Southern Pacific railroad, and he remembered seeing along the right-of-way a lake about 10 miles long, with an island in the middle, and the surrounding mountains clearly reflected in its waters. Sure enough, when he altered course and let down through the bumpy air, there was the same lake, beckoning him toward the safety of its smooth, glistening waters. He swung the nose of his plane into the wind, throttled back, and touched down, completely demolishing his plane on the brick-hard surface of a lake that had abruptly disappeared.

A split second too late, the pilot discovered that an optical illusion had induced him to land in the middle of a bone-dry lake bed. As an example of nature's whimsy, this particular mirage would be hard to improve upon, for ironically enough when the pilot had observed the same area from his train window the winter before, it *had* been a lake and the water in it *had* been real. Brimming with water from mountain runoff following winter rains, the lake regularly dries up under the hot summer sun, but the smooth baked-mud bottom provides a perfect reflector above which the sun's shimmering rays create a fictitious lake, complete with upside-down images of adjacent mountains mirrored in its surface.

Nature's mirages are seldom so neat, but they are invariably persuasive, taking in even such hard-headed explorer-scientists as Roy Chapman Andrews and Admiral Robert Peary, discoverer of the North Pole. Peary, in fact, was an unwitting participant in a comedy of errors that was to lure a scientific institution into exploring a wholly non-existent range of mountains:

Act I: Seeking a Northwest Passage across the top of the American continent, Sir James Ross and his uncle Sir John sail across Baffin Bay into Lancaster Sound, only to find it blocked on the west by an enormous range of mountains. They return to England, bitterly acknowledging defeat. The year is 1818.

Act II: In 1906, Admiral Robert Peary confirms the Ross discovery, but ice floes forestall his attempt to map the mountains at close range. He labels the unexplored area "Crocker Land" on his maps and reports his findings to the American Museum of Natural History.

Act III: In 1913, Arctic expert Donald MacMillan is dispatched by the American Museum of Natural History to explore and map Crocker Land. At last, after a trip dogged by misfortune, the elusive mountains turn up, far to the west of their mapped position and blocked by ice floes. MacMillan leads a picked crew of volunteers across the jagged ice in hot pursuit of the mountains, which now seem to retreat ahead of them. And then, as the sun slowly sinks below the horizon, so do the mountains and their hopes as nothing lies before them but a vast, flat, unbroken ice floe, extending out apparently to infinity. Curtain.

Considering how commonplace mirages are—nearly everybody has seen "puddles of water" on a hot road receding as his automobile advances—scientists know surprisingly little about them. Normally, air nearer the surface of the earth, compressed by the air above it, is correspondingly denser. The light rays which transmit images of objects to an observer thus refract, bend downward, as they pass through the increasingly dense layers of air, slowing down just as a man walking slows as he passes from ankle-deep water to the viscous mud of a bog. The refraction is usually so little as to be scarcely noticed, unlike the refraction of a soda straw in a glass of water, where the differential densities of the air and water apparently bend the straw to a quite visible degree.

The slight distortion of light waves in air through normal refraction becomes immediately noticeable, however, if for any reason the usual density pattern is disrupted. This most commonly occurs when a radiating surface—the heated earth, for example, or relatively warm water between two ice floes—heats a layer of surface air which in expanding, becomes less dense in exact proportion to its rising temperature. Now, instead of refracting the light rays down, it deflects them *upward*, lifting and carrying them far beyond their natural destination. The result: a mirage.

Optimum conditions for the creation of a mirage are a stretch of absolutely level landscape, still air, and great contrasts between the layers of air overlaying the surface. Few mirages are therefore perfect, yet their very imperfections often reinforce their semblance of reality. In a brisk breeze, for instance, the "waters" of a mirage lake may appear to form combers and break on the shoreline, while the lake's shoreline itself unaccountably stays in place. Nor is flat land really essential. One of the most fearsome mirages is the "Brocken Specter," named for Germany's Brocken Mountain on which it was first observed. Alpinists sometimes are uncomfortably aware that they are being watched and, looking up, see an enormous climber ascending an identically steep rock face. The sudden apparition so frightened some climbers that they lost their balance and fell to their death—victims of nothing more than a mirage of themselves, projected and enlarged against a distant cloud bank.

Mirages, it should be emphasized, are representations, however distorted, of objects that do exist. The cliché, beloved of cartoonists, in which a thirsty desert traveler sights an inviting pool surrounded by palm trees and thinly-clad beauties and dives in, only to surface with a mouthful of sand, is a confusion of two distinct phenomena—mirage and hallucination. The image of palm trees bordering a body of water is a frequent desert mirage. Tree images are transported by freak heat waves over scores, even hundreds, of miles; or they may be merely clumps of grass or knee-high bushes, magnified and twisted by heat waves into giant palm groves. The "water," as is the case in almost all mirages, is the reflection of the clear blue sky above. The lissome females, sad to report, are manufactured by the fevered mind of the traveler to his own specifications.

The popular association of mirages with deserts goes back at least as far as Napoleon's abortive Egyptian campaign of 1798, during which his parched troops were plagued by water that wasn't there. In the remarkable company of scientists who accompanied Napoleon, was a physicist named Gaspard Monge who was driven by the soldiers' suffering to discover the secret of the tantalizing visions. Monge usually gets credit for the invention of the word mirage—from French *mirer*, "to gaze at"—as well as for the first scientific description of the phenomenon; actually, the word was in current use long before the French savant was born. More significantly, Monge quickly came to the correct conclusion that differential densities of surface and near-surface air, caused by extremes in temperature, give rise to mirages. This view was immediately accepted by the scientific world, which has modified the theory only to the extent of classifying mirages into three types: superior, inferior, and double.

Inferior mirages include such illusions as the puddles-in-the-road and the palm-tree oasis, in which light waves are reflected upward, away from the surface of the earth. Superior mirages are the mirror twins of inferior mirages, except that in superior mirages the light waves first bend upward, *then* down, thus inverting the image. The Eiffel Tower has been observed numerous times, while not noticeably under the influence, standing on its own head. Similarly, one of the most common mirages at sea is that of a ship sailing serenely along under full sail, high in the sky, upside down. Double mirages are simply a combination of superior and inferior mirages, and are much less common. A rare type of optical illusion, called the lateral mirage, would come in very handy if a party of campers ever spotted a bear on the other side of the mountain coming their way.

Since mirages are natural phenomena, they can be charted and photographed as well as seen, but they do embody one basic contradiction that stubbornly defies explanation. A law of physics states that the apparent size of an object diminishes at a rate inversely proportional to the square of its distance from an observer. An object whose distance from an observer is doubled, therefore, should appear one-quarter its former size. This rule conspicuously fails to apply to "long-distance" mirages which carry images of trees, ships, buildings and other objects a thousand or more miles, and set them up in the sky or on dry land, with no diminution in size. No one knows why.

In deserts, where day after day conditions most closely approximate the ideal, some mirages appear almost as regularly as the morning sun. In some places mirages occur seasonally, and in others infrequently or not at all. A village in Maryland has recorded only one mirage in its entire hundred-year history, but that one made up for what the town had been missing: a city of domed roofs appeared in the sky above it, perhaps brought all the way from North Africa or even the Middle East.

Perhaps not, for mirages have the habit of playing tricks. Cakes of ice are often transmuted into icebergs which frighten ships' crews into altering courses to avoid collision. Saplings loom as redwoods, riot-sized rocks as mountain peaks, a gravelly beach becomes a metropolis complete with industrial smoke manufactured by nature from sea spume.

When the oil geologists first landed in Saudi Arabia's Eastern Province, they had a terrible time with mirages. Dunes became cliffs, palmettos became forests, camels came over the horizon as tall as silos and the tiny village of Jubail, as Wallace Stegner wrote, "threw up a skyline like New York's, a vision of cloud-capped towers and gorgeous palaces."

In 1918, as British General Allenby pushed forward into Palestine, he met head-on a Turkish contingent which by sheer weight of numbers ground his forces to a standstill. Allenby was seriously contemplating breaking off the engagement when suddenly the Turks themselves decamped in haste, leaving the field to the baffled British. A Turkish outpost, sighting large British reinforcements hurrying toward the battleground, gave the alarm to their commanders who, after one of the briefest conferences on record, decided to fight another day. There were reinforcements, all right—slogging along 100 miles away.

Probably the eeriest of all mirages was that seen by the soldiers left behind at Fort Abraham Lincoln, South Dakota, when General George A. Custer and his 264 troopers marched out in 1876 to their appointment with immortality at the Battle of the Little Big Horn. Sentinels on the ramparts watched the little detachment pass out of sight behind the hills and then, as if nature had suddenly become prophet, a mirage formed revealing the silent column marching up into the sky. Shortly after, Custer and his men were annihilated.

Daniel da Cruz writes regularly for Aramco World Magazine.

THE TOAD-HEAD FROM NAJD AND OTHER REPTILES

BY JAMES P. MANDAVILLE, JR.

Miles beneath the deserts of eastern Saudi Arabia last week, oil drills probed restlessly into the bottom of what was once a great ocean. What they sought was the liquefied residue of the creatures that flourished in the warm waters of that ocean 150 million years ago, gave their name to an era—Mesozoic—then dissolved into petroleum, leaving behind no more than a few dozen miniaturized but recognizable descendants, eerie echoes from the Age of Reptiles.

Reptiles are not snakes. That is they are not *just* snakes. They are a class of cold-blooded, air-breathing vertebrates whose bodies are often covered with scales or bony plates. They include turtles, lizards and snakes and some of the most interesting specimens still survive in the desert—thanks to the evolution of reptilian architecture. Because of the efficient construction of their scales or plates, for example, most desert reptiles go through life without ever drinking water; their water-tight bodies permit them to conserve every drop of moisture derived from their food. The desert, on the other hand, provides an excellent refuge for reptiles from the savage extremes of climate, because even a few inches of sand offer excellent insulation against heat and cold.

Turtles are probably the most primitive reptiles; they rank low on the scale of evolution and deserve, more than other members of their class, the name "living fossils." Common on land in some deserts, they live only in water in eastern Saudi Arabia, two marine species in the Gulf, and one fresh water species, the Caspian pond turtle, in the irrigation ditches of the oases.

Unlike turtles, lizards abound in nearly all types of inland terrain and range in size from the tiny adhesive-toed geckos—insect-eating guests in nearly every household—to three-foot brutes that prowl the empty sands and gravel plains and resemble dinosaurs.

Many lizards provide unusual examples of adaptation to life in a world of sand. The *sa'waddah*, or fringe-toed lacertid, known to specialists as *Acanthodactylus*, is probably the most common lizard in eastern Arabia. This six-inch, long-tailed speedster may be observed nearly any time of day scurrying swiftly from bush to bush, propelled, as close examination shows, by rows of outward projecting scales on its slender fingers and toes that work somewhat like oars. Another specimen, the *tuhayhi*, can practically gallop if chased and if cornered he can resort to a disappearing act that fascinates small boys and hardened oilmen alike. Stopping suddenly, he vibrates his flat body in a nearly invisible shimmy that would put the most accomplished Cairo dancer to shame. In a wink, he sinks straight down into the sand out of sight, leaving only a faint outline on the surface. Readily identified by his blunt head and black-tipped tail, the *tuhayhi* is known officially as *Phrynocephalus nejdensis*—a scholarly way of saying "toad-head from Najd."

One of the most fascinating lizards is the *dammusah*—or sandfish—which can actually swim in sand the way a barracuda swims in water. The five-inch member of the skink family has evolved a form adapted to a nearly full-time existence under the desert sands: tiny limbs and a smooth shiny body as streamlined as a submarine, so as to offer minimum resistance to movement. Because he travels underground, in contrast to other lizards that merely maintain residences there, the *dammusah* is one of the few desert reptiles that prefer real dune country to shrub-covered flats. His home is the steep slip faces of active dunes, where the absence of packed sand layers provides the environment that is ideal for subsurface cruising. His scientific name, *Scincus philbyi*, commemorates H. St. John B. Philby, the British explorer, who collected it during his travels through Saudi Arabia.

If the *dammusah* has evolved half-way toward snakedom, then the *nadus*—perhaps eastern Arabia's most unusual reptile—has gone nearly all the way. Only a specialist would recognize worm-like *Diplometopon zarudnyi* as a lizard, and several of them are presented every year by construction excavators to oil company preventive medicine specialists with the question, "Is this little snake poisonous?" This five-inch, reddish and entirely legless lizard seldom, if ever, comes to the surface of the sands. Living always in darkness, its eyes are nearly functionless dots. It is incapable of coordinated movement on a hard surface and dies within a few minutes if exposed to the direct rays of the desert sun.

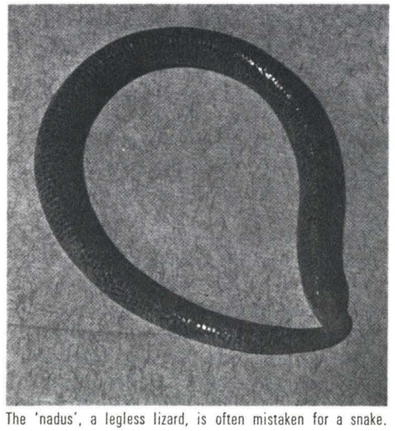
The *dabb*—often transliterated as *thub*—and the *waral* are the big lizards of eastern Saudi Arabia. The first is a two-foot-long, heavy-bodied species with a spine-covered tail that gives it its English name—the spiny-tailed agamid. Living in deep burrows often seen in hard, gravelly terrain, the *dabb* is edible, with meat resembling tough lamb. Bedouin *dabb* fanciers who now drive pick-up trucks instead of camels sometimes capture them by extending a hose from their car's exhaust pipe into the burrow; the groggy lizard soon staggers out and is easily captured. A cornered *dabb* puts on a ferocious display, with much hissing and puffing, and his thrashing tail can inflict painful bruises. But generally he is a fraud; if careful you can capture him by hand. The *dabb*, or *Uromastyx microlepis*, is primarily a vegetarian, its body color varies from slate-grey to bright yellow—according to changes in temperature apparently—and it is capable of sprinting almost as fast as a man can run.

The *waral*, or desert monitor, known scientifically as *Varanus griseus*, is a cousin of the 300-pound Komodo dragon of the East Indies. The *waral* may grow to a length of three feet and its fierce appearance—with slender forked tongue, hooked claws and painted scowl—is matched by its aggressive nature. But rumors that it inflicts a poisonous bite are untrue. None of the Arabian lizards is venomous and talk of poisonous lizards is probably no more than the desert Arab's safety-first attitude toward all reptiles.

Thanks to Herodotus, the Greek "Father of History" who wrote of the "winged serpents" of Arabia, and to modern travelers who have made capital of the "dangers of reptiles" in their books, the very idea of "the desert" often conjures visions of deadly snakes lurking behind every rock. Actually there are very few species of snakes in eastern Arabia and most of them are harmless. Even the three potentially dangerous species seldom pose a threat to man. *Hydrophis*, the sea snake of Arabian Gulf waters, for example, is a distant cousin of the cobra and undeniably as deadly, but although hundreds of them are seen every summer by beach-goers, no swimmer has ever been bitten because the sea snake is shy and avoids swimmers. Visitors to the beach, unaware of the sea snake's potential danger, have even handled live specimens without being bitten.

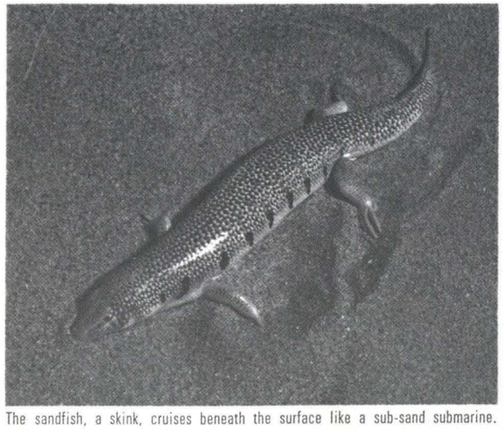
The only other species which can be described as truly deadly is the *yaym*, the black *Walterinnesia* of the cobra family. This snake, fortunately, is probably the rarest species in Arabia. It is seldom seen, except by the professional reptile hunter, and there are no local records of snake bite attributed to it. Some Bedouins claim it can fly like a bird, and such a tale could account for Herodotus' solemn account of Arabia's winged snakes.

The third venomous snake, the sand viper or *hayyah*, is certainly not rare; numerous specimens have been collected around, and even in, oil company camps. Formerly classified as *Cerastes cornutus*, or the "horned viper," *Cerastes cerastes*

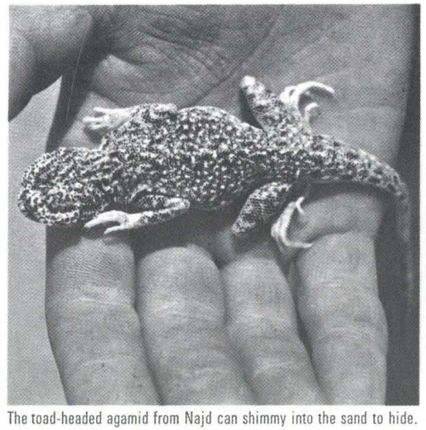


The 'nadus', a legless lizard, is often mistaken for a snake.

The sand boa's eyes protrude above the sand like twin periscopes.



The sandfish, a skink, cruises beneath the surface like a sub-sand submarine.



The toad-headed agamid from Najd can shimmy into the sand to hide.

is a small but thick-bodied snake with the wide "ace-of-spades" head and abruptly tapering tail characteristic of the true Old World vipers. It is now known that less than half of the individuals of this species possess the horn-like scales over the eyes that gave it its old name. Some of the habits of this snake provide good examples of parallel evolution—the development of similar characteristics, in response to environment, in different groups of organisms. The sand viper belongs to a family different from that of the sidewinder of the American Southwest, but it has developed the same peculiar mode of locomotion in sand. Its tracks are not the usual wavy line produced by other surface-moving snakes, but a series of unconnected marks each resembling an elongated letter "J". The clear prints of the snake's belly plates in the long part of the "J" prove that the sand viper does not drag or push himself along but actually "rolls" as a unit. Snake experts explaining the motion to laymen point out that a nearly identical track can be produced by rolling a bedspring across sand.

The sand viper feeds at night on small rodents. It spends most of the daylight hours buried up to its eyes in sand, curled in an S-shape beneath a bush or rock ledge. Like the toad-head lizard, it can sink vertically in the sand by moving its body in a rapid "run-in-place." When threatened it produces a peculiar hissing sound by rubbing together a series of small pointed scales on opposing loops of its coiled body. The sand viper produces a relatively small amount of venom, a little of which, delivered through its hinged hollow fangs, is efficient in killing desert rats and mice. Numerous instances of men being painfully bitten by this viper are known —most were the result of stepping directly on the snake at night with bare feet—but there is no medically authenticated record of a death caused by this snake in the east-central Arabian oil-producing area.

One of the stories that circulates in Saudi Arabia is that there are hooded cobras in the country. It isn't true. However, a harmless, sand-colored mimic of another family has left more than one desert traveler convinced that it is. This is *Malpolon moilensis*, sometimes called the Arabian rear-fanged snake but perhaps better described as the hooded Malpolon. When threatened, the hooded Malpolon sometimes raises the forepart of its body above the ground and faces its attacker with neck flattened and spread in an impressive cobra-like hood. Not many people will stick around long enough to notice, of course, but the Malpolon has a dark mark on each side of the head, at the back, which distinguishes it from a cobra. The hooded Malpolon, like other harmless snakes often described as "non-poisonous," does possess a mild venom effective in numbing its prey of small rodents, but it is not dangerous to man.

Other harmless snakes sometimes seen in eastern Arabia are Gray's whip snake, a lined sand snake, and the sand boa, another subterranean sand dweller. The sand boa, *Eryx jayakari*, is a thick-bodied, practically neckless snake with protruding eyes perched on the upper part of its head like twin periscopes. According to Bedouin legend, he buries himself below the surface of the sand and waggles his tongue in the air to attract birds, which mistake it for a wriggling worm. No naturalist has ever seen this fellow in action, but who is willing to declare it impossible in a land where skinks swim underground, *warals* look like dragons and vipers roll like bedsprings?

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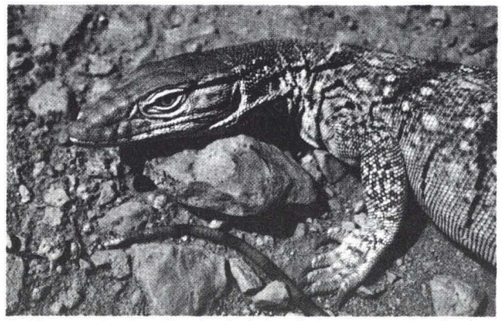

The desert monitor is as fierce as he looks and often grows to three feet long.

The 'dabb', or spiny-tailed agamid ('Uromastyx microlepsis'), a two-foot-long, plant-eating lizard that lives in gravel plains and sandy flats, has a tail that can inflict painful bruises. Its flesh is edibl