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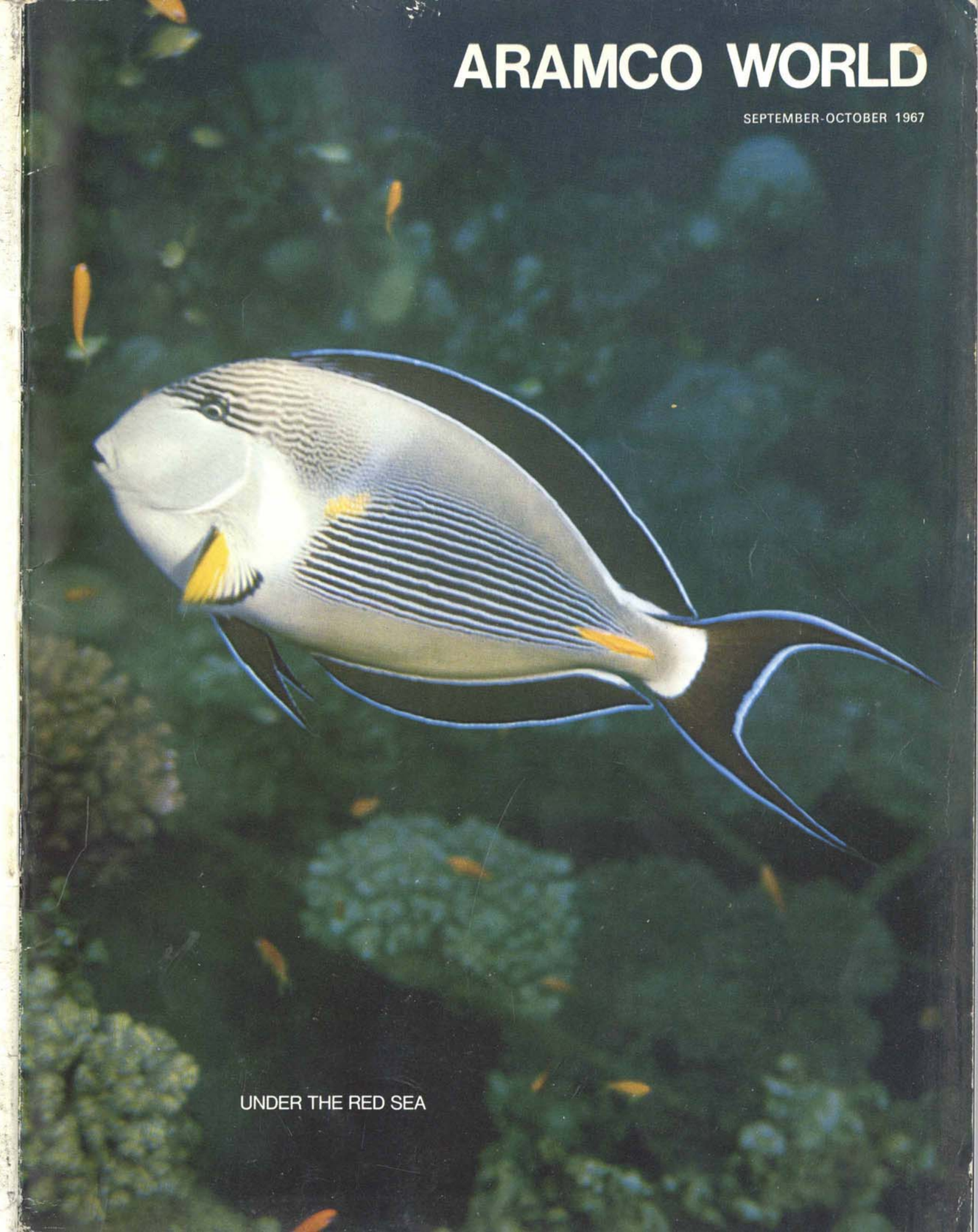

ARAMCO WORLD

SEPTEMBER-OCTOBER 1967

UNDER THE RED SEA

ARAMCO WORLD
magazine

Cover: Along the Red Sea coast of Saudi Arabia are miles of "fringing reefs," age-old coral formations teeming with color, life and excitement for the underwater explorer. Writer-photographer Ludwig Sillner, who captured the fluorescent beauty of this lyre-tailed "surgeon fish" ("Acanthurus sohal"), recounts some of his unusual experiences beneath the surface of the sea beginning on page 27.

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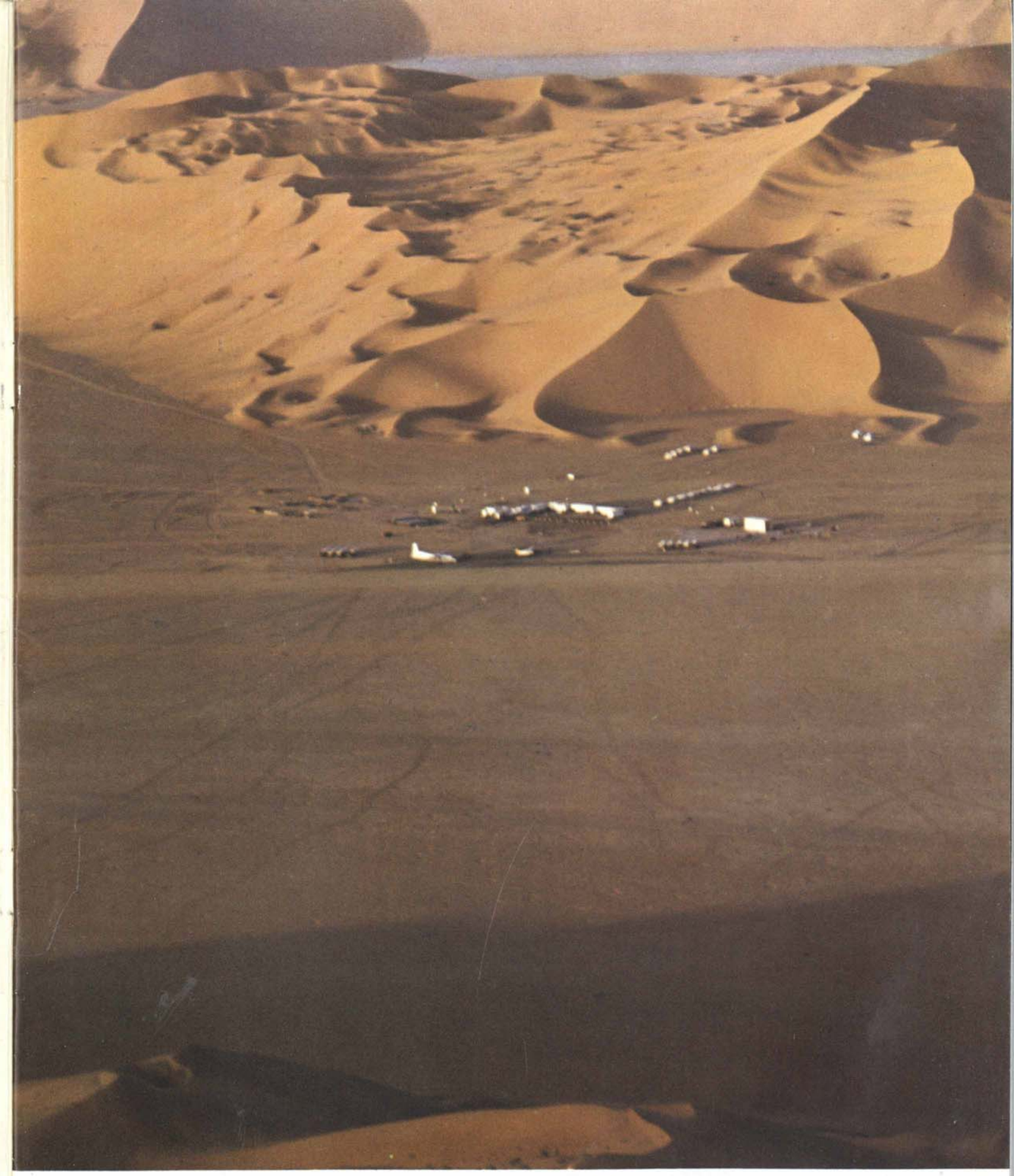
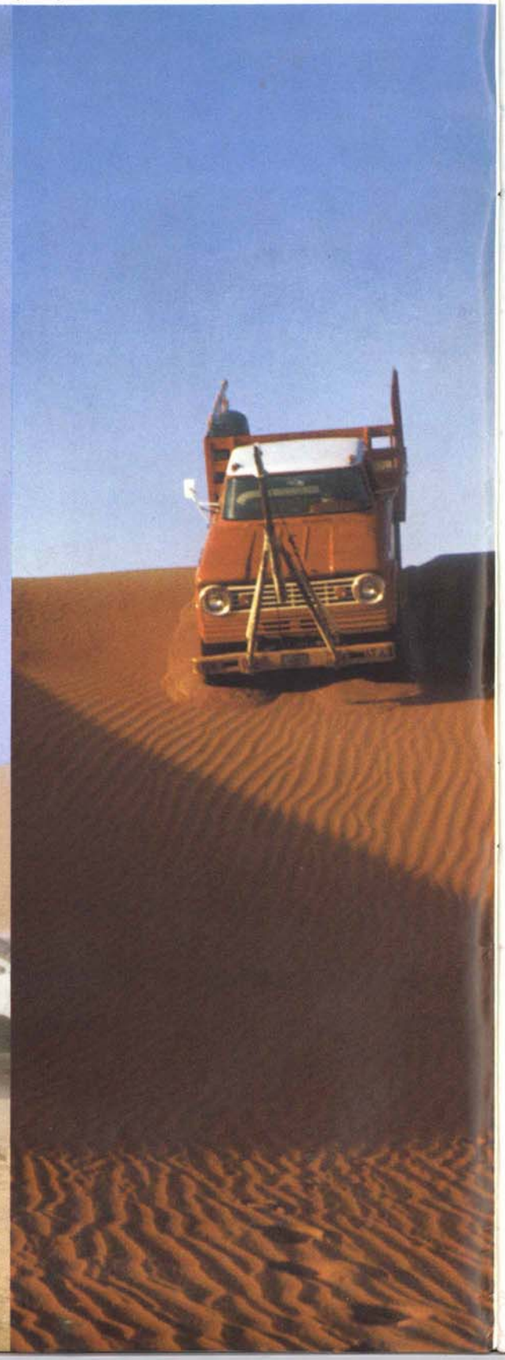


In the most inhospitable - and perhaps most beautiful - area yet penetrated by Aramco's exploration teams...

The men who conduct Aramco's search for petroleum in the vast Empty Quarter employ a wide variety of transport. There are single engine Beavers, Bell helicopters, (below left,) rugged desert trucks ...



SEARCH IN THE SAND MOUNTAINS

BY BRAINERD S. BATES / PHOTOGRAPHY BY BURNETT H. MOODY

Early in 1966 a long convoy of heavy-duty trucks set out from the Dhahran, Saudi Arabia, headquarters of the Arabian American Oil Company (Aramco) on an 850-mile journey to a dot on the almost empty map of the eastern edge of the great Rub' al-Khali. When they came to a halt some two weeks later in the lee of a towering mass of red sand, the dot became a place—a campsite called "Seismo-3"—and the search in the Sand Mountains had begun.

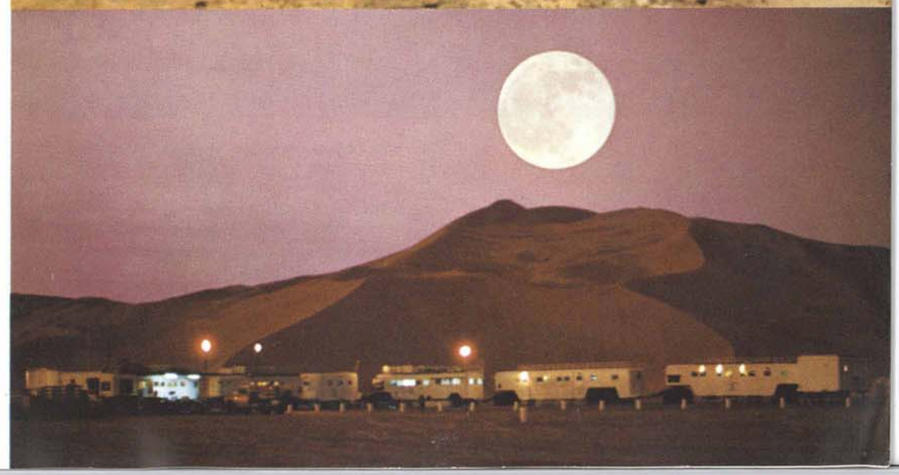
The establishment of Seismo-3 was the beginning of two years of seismic exploration of the subsurface geology of what was at once the most inaccessible, most inhospitable, most rugged—and perhaps most spectacularly beautiful—area yet penetrated by Aramco's exploration teams. There, arid mountains of sand rise six to eight hundred feet above mud flats that barely cover reservoirs of ground water seven times as salty as the sea. In the spring desiccating winds carry temperatures above 110°F during ten hours of the day and in the summer the heat is so great that until this year work was often suspended.

Yet, though suspended during parts of two summers, the seismic exploration of the Sand Mountains area, one of the first and most vital steps in the continuing search for oil, will be completed on schedule this winter—thanks to a special breed of rugged men and uniquely adapted desert equipment.

The approximately 106 men attached to Seismo-3 at any one time stay in the field for up to four weeks at a stretch with very little rest. Then they are flown back to Dhahran on an Aramco Fokker F-27 which makes one round trip per week carrying personnel and priority cargo. The F-27, which is based in Dhahran, and other aircraft attached to the S-3 exploration party, land on an airstrip which was made on the "sabkha" floor next to the dunes by rolling and packing the salt-mud flats with truck tires. Five contract helicopters with motors specially adapted to work in the hot air of the Sand Mountains are also stationed at S-3.

In their ground work the seismic crews employ 12 "sand buggies" (originally developed for oil exploration in the Louisiana bayou country where they are

... drilling rigs on outsized tires that carry rigs through sand, and (below) air conditioned trailers in which men are fed and housed.



To haul supplies and transport personnel to the remote "Seismo-3" exploration camp Aramco sends a convoy of trucks each month from Dhahran but for weekly trips the company also uses one of its Fokker F-27's (top). For transport from the main camp to the outlying spike camps the men use "sand buggies" (below) and, (right,) five helicopters with motors specially adapted to operate in the hot desert air.

called "marsh buggies"), whose outsized tires allow them to practically "float" over difficult sandy terrain.

At S-3 the men live in air-conditioned trailers but when their work in the vast area being explored takes them too far out for easy commuting they set up tents at "spike camps" for a few days at a time. Back at the base camp, where thermometers installed in standard meteorologist's louvered huts measure as high as 123° as summer approaches, an ionics demineralizer processes about 1500 gallons of water a day from the Aramco-drilled well to bring it from 7,000 parts salt per million to a drinkable 500 parts per million.

About once a month another convoy of trucks makes the 1700-mile round trip from Dhahran to the S-3 base camp. Each convoy consists of from six to nine Kenworth trucks carrying loads of 50,000 to 60,000 pounds apiece, a radio their only contact with the outside world while en route.

To the isolated men at S-3, finishing up their seismic exploration in a small corner of the barren Rub' al-Khali, their trailer camp dwarfed by the immensity of the towering dunes, the outside world, despite the radio, the truck convoys or the F-27, must sometimes seem less real and further away than the nearby moon, rising white and cool above the red Sand Mountains.

Brainerd S. Bates is an Aramco Public Relations writer specializing in petroleum subjects.

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from the classics #3

BY ALOIS MUSIL/DRAWINGS BY MORAG

Some of the men who traveled in Arabia and wrote the classic accounts were scholars whose interest derived from the reports which had come down from antiquity and Biblical times. The Czech orientalist Alois Musil was such a man. A professor in Vienna and Prague, a dedicated student of Bedouin life and ancient Arab history, yet a man of unusual physical toughness and courage, he wandered the lands of Moab and Edom at the turn of the century in an effort to gain an insight into the desert-born concept of monotheism and Arabia's role in the wider history of civilization. From 1908 to 1915 he explored Mesopotamia and much of the Arabian Peninsula, later writing a detailed narrative and topographical notes which were published in six volumes by the American Geographical Society. Two volumes, Arabia Deserta *and* The Manners and Customs of the Rwala Bedouins, *were edited by Katherine McGiffert Wright and incorporated into the book* In the Arabian Desert *from which this excerpt, a vivid journal of his crossing of a section of the Great Nefud Desert, is taken.*

IN THE GREAT NEFUD

We proceeded through a boundless plain toward the rosy Areyzh an-Nefud, a sandy projection which the Nefud thrusts out against the wind toward the west, seeking, as the Shararat declare, to destroy all their wells. The sand hills seemed to be close to us, yet we could not reach them. I kept closing my eyes to convince myself after a few minutes that we really had made progress; but the plain was endless. Masud, beside me, had been singing the same short ditty, off the key, for over an hour:

"May your omen, O **ghazw** (raid), be good!
May it signify herds spending the night far from tents.
May your omen, O **ghazw**, be good!
May it signify herds close by."

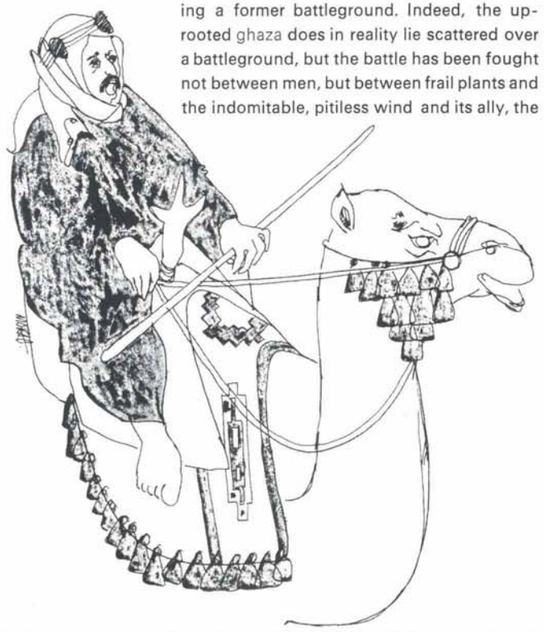
In the fine sand we found many tracks of lizards, showing the sharp outlines of their feet on both sides of grooves made by their tails, and near many of the bushes we saw deep spirals made by snakes, which lean upon their own bodies, especially when crawling upward. Several times we crossed the fresh tracks of antelopes, ostriches, hyenas, and wolves. Once we came upon the new grave of a Sharari into which hyenas had penetrated; from within protruded the two shins of the dead, both gnawed off.

At last a dark solitary hill, a landmark in the district of Khunfa, appeared on our right. It is a sign to travelers from the north that they will soon enter the stony desert, whereas to travelers from the south it heralds the proximity of the sandy waste.

We reached the edge of the sandy desert. Whoever views it from the south notices innumerable sand dunes, sharply pointed, ranging from west to east; all are of the same height and all are separated by hollows sixty to a hundred feet deep.

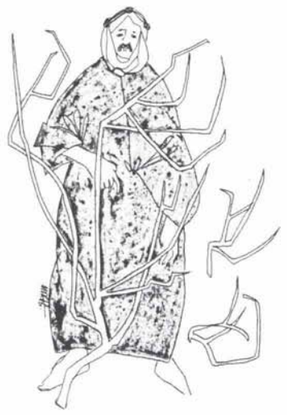
In the afternoon we entered the projection of the Nefud which rises gradually from the level plain. On its southern slope ghaza, which is one of the most beautiful plants in the desert, grows abundantly. Frequently it develops into trees twenty-five feet high with trunks eight inches in diameter, but more often it grows in bushes. The branches are long and elastic, the bark clear white, the needles a fresh green. Camels eat the needles and young twigs with gusto. The wood is tough and when dry it is an ideal fuel, producing almost no smoke, burning with a white flame for a long time and leaving only smoldering red coals and fine white ashes. No other fuel furnishes so much heat as the ghaza and its coals will smolder for over ten hours. What joy they give to a traveler shivering with cold, who dares not have a flame in the night although he yearns for warmth! Wherever the ghaza grows in bushes it holds the sand by its roots, thus making a nucleus for the formation of small mounds of sand.

A very sad spectacle is presented by bushes that have been uprooted by the wind. Their glistening, dry, white branches and trunks protrude from the sand so bent and broken that they seem like the bleached bones of men or camels covering a former battleground. Indeed, the uprooted ghaza does in reality lie scattered over a battleground, but the battle has been fought not between men, but between frail plants and the indomitable, pitiless wind and its ally, the



treacherous sand. At the wind's bidding the sand forms a mound among and around the stems of the ghaza into which it permits the plant's roots to sink; hardly has the plant come to feel secure than the sand obeys the wind again and the piteous ghaza must perish.

As we found some of the sand dunes too steep to climb we went around them to the west. On this detour we crossed fresh tracks of eight large and three small antelopes. We made camp for the night in a secluded pit.



Now, February 2, we began to traverse the Nefud proper. The Nefud is one of the most interesting and beautiful natural features of northern Arabia. The low, rosy dunes, their steep sides overgrown by ghaza and other plants, give it the appearance of a huge garden or a terrace-like cemetery planted with weeping willows and birches. The sharp bare peaks and crests of the dunes remind one of glaciers in high mountains, and the hollows among the dunes resemble green mountain valleys. But there is no water and the soil of this beautiful region is treacherous sand. Even the sea is not so dangerous as the shimmering, rose-colored sand which forms these splendid, sleek plains. The eye lets itself be deceived; the rider takes it for granted that he may hasten ahead and urges his mount to a swifter pace. At places the sand is so solid that it does not even take footprints, when suddenly the animal sinks up to knees and the rider must quickly swerve his frightened mount if he is to avoid disaster. Often the camel has been going in long strides over the sandy level when, on entering what looks like nothing but a small swell, he finds himself on the brink of a precipitous wall of sand: one more step and both animal and rider would lie, with shattered bones, in the deep pit.

"In the Nefud there are roads everywhere," mused our guide, "and yet in the Nefud there are no roads. Whosoever does not know the Nefud must not venture thither, and who loses his way in the Nefud loses his life."

Every migrating tribe and every raiding party provides itself with a guide who knows the Nefud well, usually an ostrich or antelope hunter. Only he who is thoroughly acquainted with the passes among the various sand dunes can travel through the Nefud freely. These passes are usually near the funnel-shaped pits.

Besides numerous tracks of antelopes and ostriches, we noted in the sand the footprints of the rapacious zarbul. It is said to be an animal smaller than a dog with a grayish-yellow back, a black belly, and a dog's head. Its skin has a characteristic smell. It attacks lone camels and even sleeping travelers.

From under an arta bush (...a nearly leafless shrub with scaly branches, clusters of small flowers, and hairy nut-shaped fruit) I scared out a yellow bird about as large as a domestic fowl and known as tandara. Its meat is reputed to be excellent. Flapping its wings heavily, it flew several hundred yards off and hid again in a thicket. I shot two dozing hares. The color of their fur was a blend of yellows and reds completely harmonizing with the sand, whereas the fur of the hares I had shot in the volcanic region was dark brown or black. Even the smaller birds I saw in the Nefud were the color of the sand. The umm salem, about the size of our sparrow, has a pleasant song, brief and quiet.

Before noon our camels grazed. Later on we crossed several perilous slopes so steep that we had to dig a succession of slanting steps in the sand down which we cautiously led our animals. A false step, a slip, and the animal would roll down the steep incline. The camels trembled, spread their legs, leaned upon their forefeet, testing the ground before venturing ahead. The Nefud fairly bristles with such hollows.

Often it seemed to me as if we were proceeding through vineyards; this was especially so where arta grew abundantly, often developing into huge stalks with heads as large as four yards across. Its bare branches resemble the branches of vines and cover the mounds of sand just as the vine branches rest upon heaps of stone in many parts of northern Syria. The thin roots look like ropes and are sometimes as much as twenty yards long. The foliage of the arta, long and narrow like needles, is utilized by women in place of tanbark in the tanning of hides.

We encamped on the eastern side of a pit. The camels were tired and the terrain was arduous, and since we were well concealed there, I did not intend to proceed at night. We made a map of the environs, ascertained the latitude, and spent some time in changing photographic plates.

Feeling safe in the pit, we built a cheery fire in the morning, heated our coffee, and rode merrily on. The dunes of this part of the Nefud run from northwest to southeast. Several days before, this district had been traversed by a large migrating throng of the Rwala: evidently hundreds, nay, thousands of camels had trodden the sand. We could see their tracks, however, only in the hollows; upon the upper flat areas all the prints had been leveled even with the surface, which was again seamed by ripples shaped like ellipses with transverse axes running at right angles to the direction of the last wind. Only camel dung indicated the direction that the migrating throng had followed ...

Far ahead of us and, as it seemed, below us we saw the Tawil range, which appeared to be lower than the Nefud. Rwala herdsmen

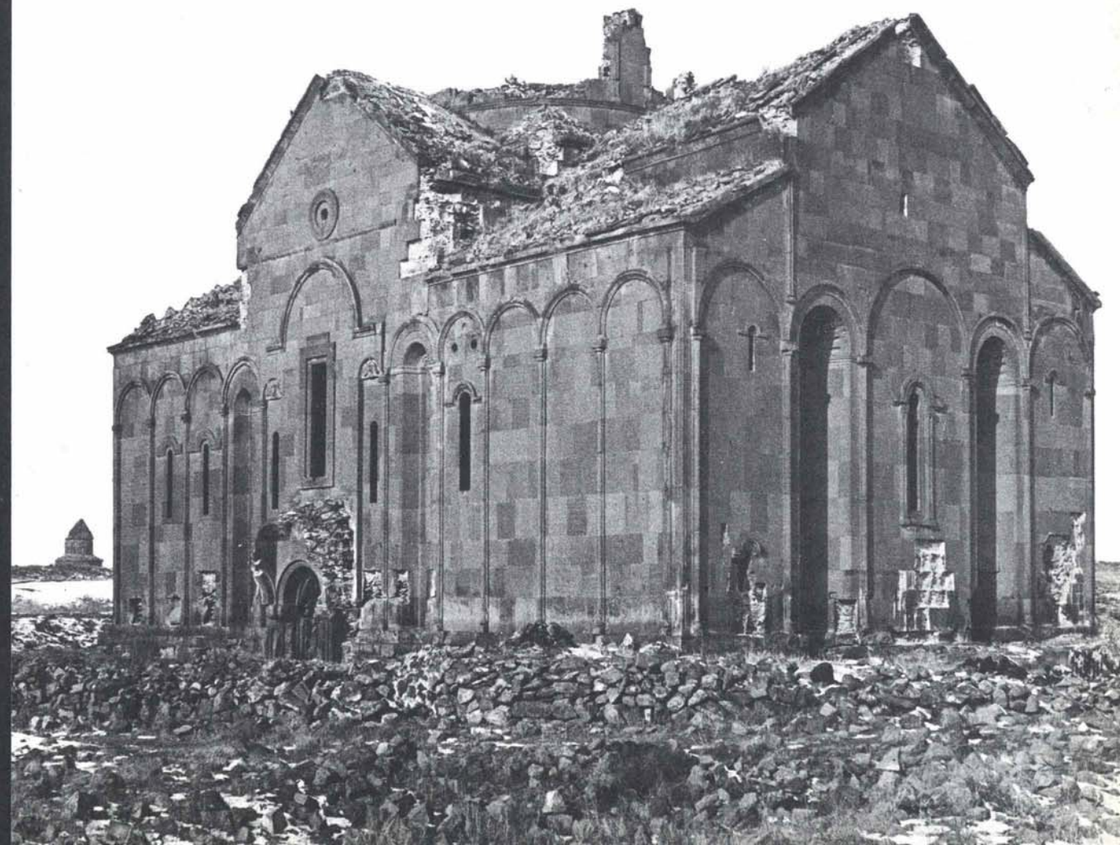
told us that Feysal eben Rashid had ordered the wells of sfan to be filled up in order to prevent an attack on his people. This news was disappointing for, as sfan had always contained water even when all the other wells went dry, we had intended to water our camels there and to fill our bags. The only thing left for us to do, therefore, was to hasten on to Jowf. We left the Nefud behind us.

ANI

STORY AND PHOTOGRAPHS
BY KEITH CARMICHAEL

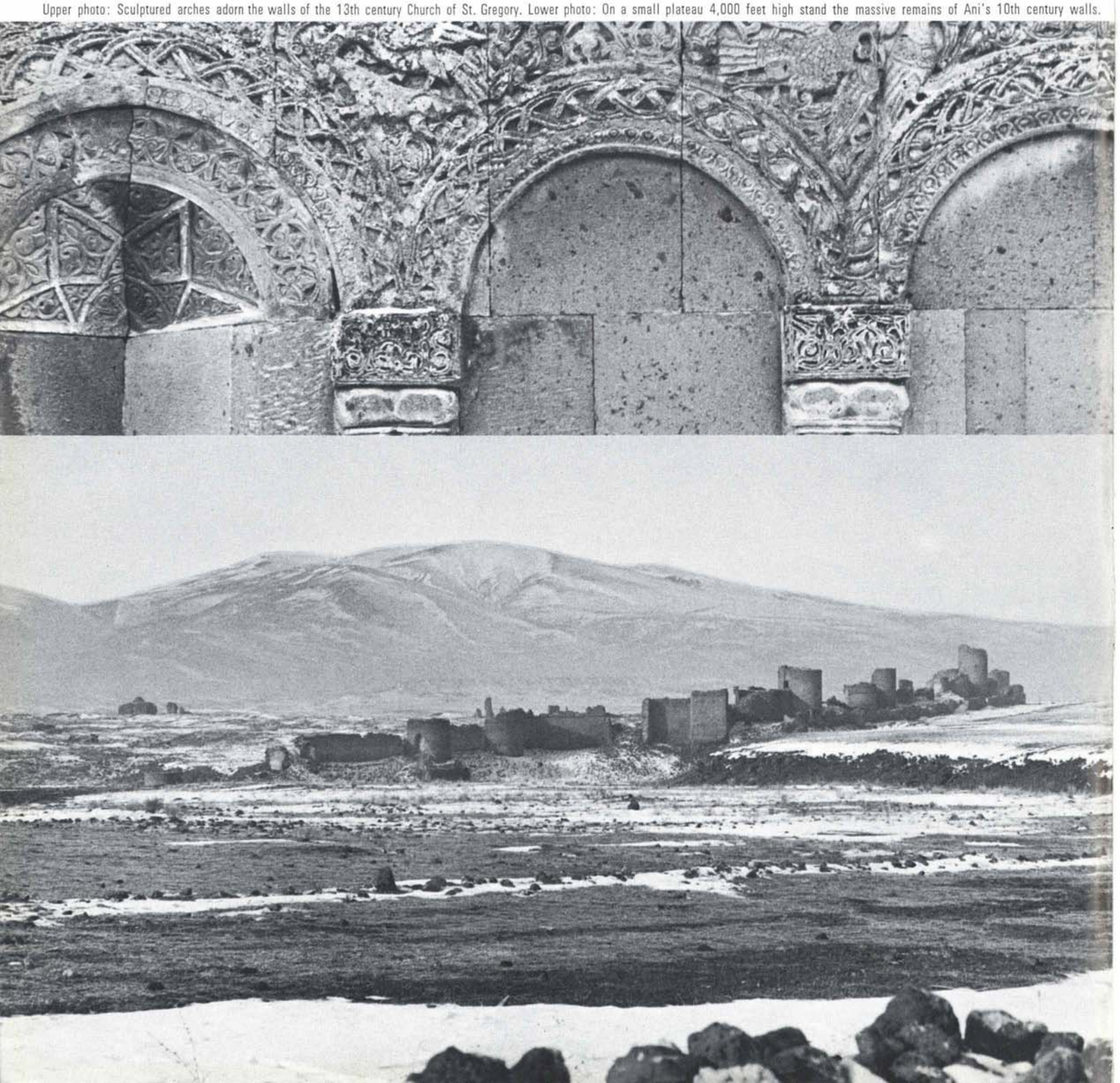
The fragments of Ani stand in poetic desolation on a great cliff on the frontier between Turkey and the Soviet Union. In the ghostly silence, cold winds howl through empty arches and ruffle the mane of a single stone lion that has stood guard for centuries over the remnants of ancient Armenia's fleeting glory.

Few people have visited Ani recently —for military reasons the frontier region has been more or less closed to visitors for about 20 years. Many have never heard of it at all. Yet Ani was a thriving community as early as the first century,



On the cold frontier of Turkey and the Soviet Union... "The city of a thousand and one churches."

Upper photo: Sculptured arches adorn the walls of the 13th century Church of St. Gregory. Lower photo: On a small plateau 4,000 feet high stand the massive remains of Ani's 10th century walls.



served as a buffer between the Byzantine Empire and the Baghdad Caliphate and, as a center of Christianity, was graced with so many churches that it was named the "city of a thousand and one churches."

To tell the story of Ani is to tell the story of Armenia—that unfortunately obscure mountain kingdom whose chief role for many centuries was to offer a battlefield to the warring armies of Byzantium and Persia. In the ninth century, however, during a 200-year period when the Arabs were in power, Armenia began to emerge as an independent kingdom ruled by a great local dynasty called the Bagratids. The Bagratids, according to tradition, traced their ancestry back to David and Bathsheba and called the Virgin Mary their cousin. They came to power on the slopes of Mount Ararat, where Noah's ark supposedly came to rest, and established themselves as leaders over many rival rulers in the valleys and mountains of Armenia. In the 10th century they ousted the Arabs and ushered in what was to be Armenia's short-lived golden age.

One of the first kings in the Bagratid line, King Ashot the Meateater, bought Ani for Armenia in the first half of the ninth century. It is a strategically placed city on one of the trade routes running from present-day Iran to the Black Sea. In the 10th century, when wars between the Arabs and the Byzantine Empire made the trade route along the Euphrates unsafe for caravans, the route via Ani became vital. From the sudden increase in income the Bagratids were able, during the reigns of only three kings, to turn a simple fortress into a splendid royal residence and a small village into the capital of a kingdom.

In 922 the Arabs, recognizing the new importance of the Bagratid kingdom as a buffer state between Baghdad and Byzantium, conferred on Ashot II, the "Iron King," the magnificent title of *Shahanshah*, "King of Kings." Successful and rich, the Bagratids enlarged their city to an area of about 4,000 acres, built a series of outer walls to protect it and spanned the Arpa-Chai River with bridges to help the caravans plodding between Trebizond and the East.

These few glorious years, however, were all there were. With Gagik I, who reigned from 990 to 1020, completed the Great Cathedral and established the seat of the Patriarchus in Ani, Armenia reached its zenith. After that, decay set in—a decay that was never arrested. The next king, Gagik II, was deposed by the Byzantines who decided, in 1044, to take over Armenia as a buffer against the Seljuk Turks. And 20 years later, under Sultan Alp Arslan, the Turks swarmed over Ani after a 25-day siege and massacred everyone in sight. The few survivors fled and by 1071 the Kingdom of Armenia was no more. Ani itself suffered through successive waves of Georgian and Shaddadid rulers, revived for a time during the rise of the Trebizond Empire, but succumbed finally in 1239 to the Tartars of Genghis Khan and to an earthquake 80 years later.

Like the ruins of all great cities, Ani today is a sad and silent place. In winter, the stark wind-and-snow winter of Turkey's high mountains, it suggests somehow that man, not nature, has destroyed it; it looks rather like a village in France after the shelling had stopped and the troops had moved on.

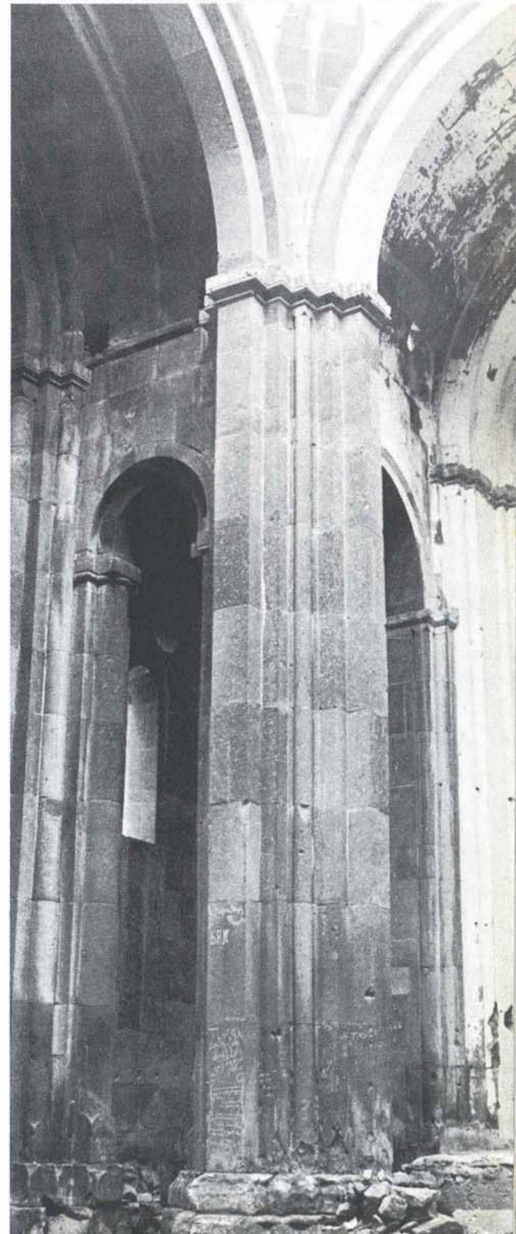
What is left of Ani—some crumbling walls and towers and the soaring walls of the churches—occupies a triangle of rock nearly 4,000 feet high and overlooking the gorge that separates Turkey from what today is Soviet Armenia. On two sides cliffs drop off to ravines and on the third the remains of a massive wall, 40 to 50 feet high in places, cut the city off from the flat tableland of a plateau. Within the walls and near the cliffs are the shells of two churches. One is the Great Cathedral and the other is the Church of Saint Gregory the Illuminator. On the west side is the Chapel of Saint Gregory of Apughaments. Together they make up an impressive reminder that if the political impact of Armenia was slight its contribution to architecture was not.

Armenian architecture is something of an enigma. It has its own virtues and its own character, to be sure, but in addition it may well have been the original model for Gothic architecture. That, at least, is the theory of the redoubtable Joseph Strzygowski, who believed that Armenian architecture had an empire far greater and more durable than the political domain of the Bagratids—extending as far afield as north Italy and into the high renaissance evolution of the Gothic style.

Mr. Strzygowski, in 1918, put forth the view that it was the Armenians who first solved the problem of putting a dome over a square space. There are two ways: first, by the use of the squinche—a triangular-shaped section of a dome which fills up the corner of the square and so transforms it into a circle; second, by the pendentive—a small arch spanning the corner of the square, and so converting it into an octagon, onto which the circular base of the dome could be conveniently fitted.

The pendentive found great favor throughout Europe and Asia. When the possibility of placing a dome over a square had been realized, a variety of alternative elaborations became possible to architects. The square, for instance, could be extended in one or more of four directions,

Cathedral's pointed arches suggest Armenians originated Gothic architecture.



permitting a plan of much greater interest and significance than a mere rectangle, and leading at last to the basilican and cruciform plans, and sometimes a synthesis of all three. And the pendentive, according to Mr. Strzygowski, was developed by the Armenians.

At Ani there is ample evidence that in the Church of Saint Gregory the Illuminator the Armenians at least *used* the pendentive. This church is perched on the side of a cliff, which breaks away by a series of black crags to the murmuring river curving through a gloomy ravine of gray rock to the south of the city where it is joined by the Alaja Chai (Valley of Flowers). For the church, with its echoes of a golden age of style, romance and faith, it is a romantic location. The striking conical dome stands out against distant Mount Ararat reaching for the sky. Its unbroken walls are decorated with delicate, beautifully sculptured arches and doubled columns and with stone tracery of birds and flowers. Inside, dramatic frescoes, 700 years old but as fresh as flowers, cover the nave, apse, the ceilings and all the walls with scenes from the Bible and accompanying legends in Greek. The apse is to the east end of the nave, a trend apparently started by the Armenians and said to be based on the pre-Christian sun cult beliefs of the people. Above the nave, on four piers, sits the dome, lit by a circle of windows that throws light onto the small arches spanning the corners of the square. It is a perfect example of the pendentive.

Nearby, in the Great Cathedral there is more evidence of a different kind: the presence in the cathedral of the pointed arches and clustered piers considered to be one of the hallmarks of Western Gothic architecture.

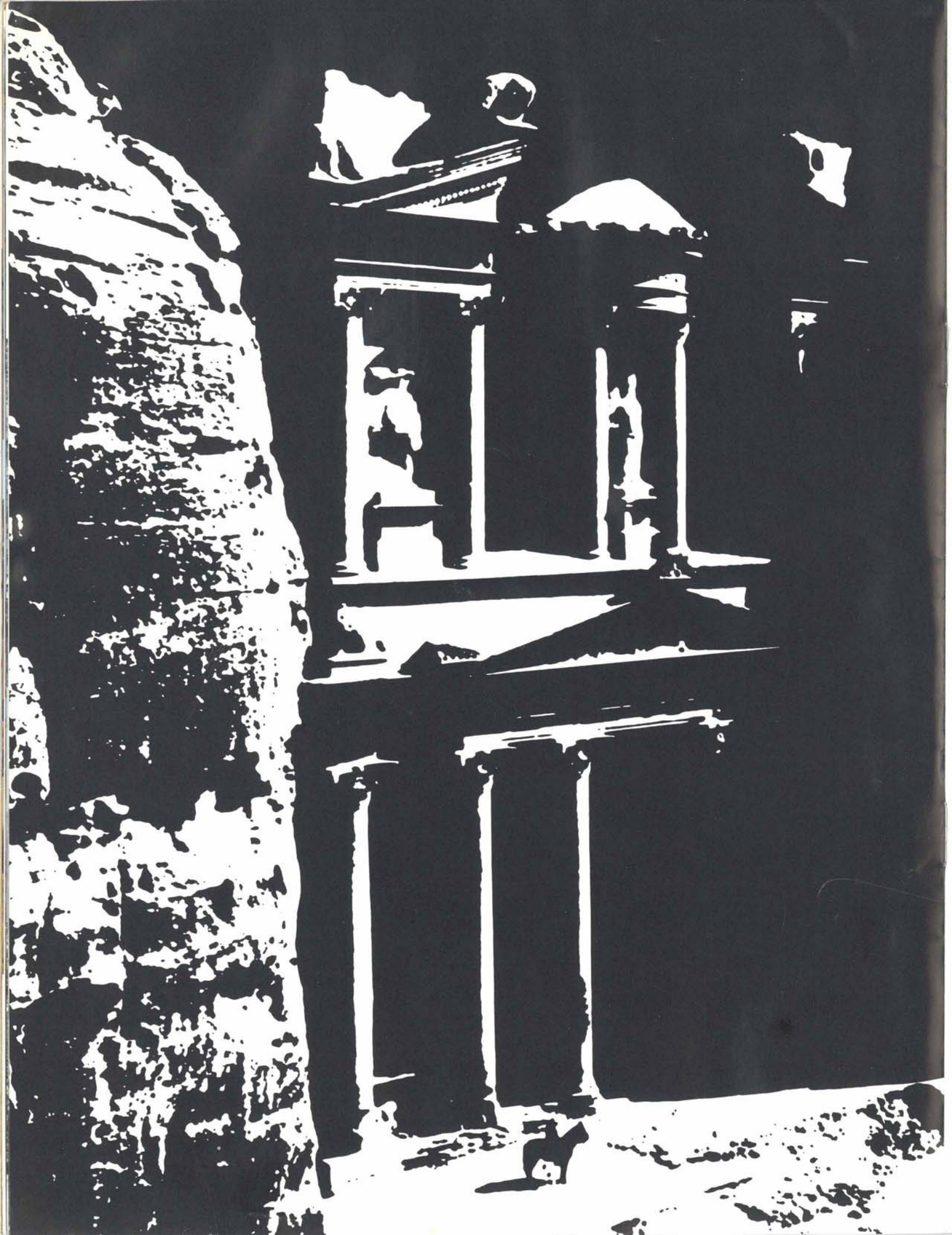
The cathedral will surprise any traveler. The extreme simplicity of design lends it a particularly stately kind of beauty: four almost unbroken walls of delicate rose-pink stone; false arcades rising almost to the roof and embracing niches on three walls; the tall arches of the arcades curving gracefully to form a delicate horseshoe.

The design of the cathedral is on a cruciform plan, with a dome over the central crossing, and a three-apsed east end. The dome is supported by four massive piers of coupled pillars with plain capitals and spanned by bold pointed arches. At either end of the building stand four similar piers, a pair at the entrance and one on each side of the apse—all "Gothic" features designed by the Armenian architect, Tiridates (who also designed the present dome of the Santa Sophia in Istanbul) in 989-1001, more than 100 years before the style made its first appearance in Western Europe.

At the same time the cathedral was under construction, it is believed that King Gagik built the Chapel of St. Gregory of Apughaments on the west side of the city. The chapel, a circular building with a drum-shaped dome and a conical roof, rises above the ravine of the Alaja Chai in full view of the city. Like the cathedral, it blends elements of Armenian and "Gothic" art. Its twelve-sided base, of which six sides are recessed, has niches framed by ornamental arches with classical cornices and oriental motifs. Although the inside diameter is not more than about 30 feet, an impression of space and height is created, for the rather plain exterior conceals the six-lobed interior and a dome of great depth. This chapel is, in many ways, similar to that of the Holy Savior, standing like a broken eggshell on the other side of the city.

Despite the evidence in Ani itself and other parts of ancient Armenia, Mr. Strzygowski's theory has not gone unchallenged: one source, for example, argues that since there are earlier examples elsewhere in the Middle East, Armenia's claim to developing the placement of the dome on a square is unfounded. But all hypotheses aside, the ruins of Ani are still indisputably works of manifest beauty and variety which, despite the ravages of man and seven centuries of silent cold winds, still reflect the glory of their builders' short-lived golden age.

Keith Carmichael, a regular contributor to Aramco World Magazine, *is a free-lance writer formerly based in Beirut, now working in Kuwait.*



Shaikh Burckhardt: explorer

BY TREVOR L. CHRISTIE

Beyond the silence and shadows of a narrow canyon: the discovery of a lifetime.

About noon on September 11, 1809, a portly young man dressed in the flowing garb of a Muslim merchant from India rapped on the door of the British Consulate in Aleppo in northern Syria and presented papers identifying himself as "Shaikh Ibrahim ibn Abdullah." The consul, John Barker, who doubled as agent for the East India Company in its trading operation in the Orient, accepted the papers with a smile. For Mr. Barker knew that "Shaikh Ibrahim" was really someone else: Johann Ludwig Burckhardt, a young Swiss aristocrat en route to Africa to explore the Niger River and locate Timbuctoo, then one of the most mysterious cities in the world.

Mr. Barker greeted the "shaikh" warmly, led him to a comfortable room in the huge ramshackle khan that housed the consulate and left him there—to ponder, probably, the twists of fate that had led him, reluctantly, to Syria, and had committed him to eight years of struggle, privation and danger...

Johann Burckhardt was then 25 years old, the son of a controversial army colonel who had been exiled from Switzerland for opposing French rule during the Napoleonic Wars. Johann thus grew up in Germany—where he was recognized as a brilliant scholar. In the summer of 1806, however, as his family's fortunes dwindled, he emigrated to England in hopes of finding some way to help England oppose the French Revolution. England, however, was not interested and for two years he tramped the streets of London seeking employment. Then, nearly destitute, he was introduced to Sir Joseph Banks, a noted explorer and president of the Royal Society.

Sir Joseph and the African Association were just then looking for explorers—more specifically, explorers to explore Arabic-speaking North Africa. Like the rest of the great powers in the 19th century, England was then obsessed with the Dark Continent, to a degree equaled only by today's frenzy over the exploration of space. The African Association, in fact, had fed at least six poorly-prepared, poorly-equipped young men into Africa's maw already—none of whom had ever returned. Now it was to be the turn of Johann Burckhardt; as with many successful men his profession had been thrust upon him.

No one knows if young Burckhardt was aware of the fate of his predecessors or whether his sponsors simply decided that it would be more sensible to train one man properly before sending him into Africa. Whichever it was, Burckhardt's agreement with the society suggests a measure of prudence and foresight. He signed on for eight years at half-a-guinea per day (about $2.60) for the first three years and a guinea a day for the last five years, plus a clothing allowance and passage. Before departing, however, he was sent to Cambridge to take some short courses in Arabic, chemistry, astronomy, mineralogy, medicine and surgery. Furthermore, he was to spend two full years in the Middle East perfecting his Arabic and steeping himself in the religious and social customs of the Arab world. His first stop was Aleppo.

In Aleppo, still a great caravan center throbbing with the movement and dialects of a cosmopolitan population from all over the Levant, "Shaikh Ibrahim" quickly got down to business. By the following spring, in fact, he was able to report to the African Association that "I am now so far advanced in the knowledge of Arabic that I understand almost everything that is said in common conversation and am able to make myself understood on most subjects ..." As an example of his progress he attached a copy of his adaptation of *Robinson Crusoe* into an Arabian tale, to which he had given the title, "Pearl of the Seas."

Within nine months of his arrival Burkhardt felt confident enough to venture into the countryside to study the Bedouins and gather material on their culture. He went under the formal protection of a shaikh called Duehy ibn Ryeiben, whom he described as the "mightiest chief of all the Arabs between Aleppo, Damascus and Baghdad." He was also, as Burckhardt admitted, a "famous robber," but because he apparently subscribed to the sacred code of the desert, Burckhardt decided to trust him. It was a disastrous decision. No sooner had his "protector" assigned him a guide and left than an enemy tribe attacked them and stripped them of all their possessions. Furious, Burckhardt rode for 36 hours through the desert to catch up with his protector—only to be told that the shaikh could not honor his contract. It was too dangerous, the shaikh said. In answer to Burckhardt's protests, the shaikh finally did assign another guide to take him to the ruins of Palmyra, the ancient stronghold of Queen Zenobia. Unfortunately, at Palmyra, he did not have enough money to meet the local shaikh's demands, so the shaikh confiscated his saddle. Then his guide abandoned him in the middle of nowhere and he had to follow a salt caravan to get to Damascus. The final indignity occurred a few days later. The "famous robber" showed up in the capital and forced the angry Burckhardt to pay the full amount of the contract.

To many men such experiences would have been the end. But Burckhardt apparently didn't give up easily. A short while after, he set out again—this time to Baalbek, the Roman Heliopolis or "City of the Sun" where he jotted down an interesting observation. "The entire view of the ruins of Palmyra when seen at a certain distance," he wrote "is infinitely more striking than that of Baalbec but there is not any one spot in the ruins of Tadmor so imposing as the interior view of the Temple of Baalbec (Jupiter). The architecture of Baalbec is richer than that of Tadmor."

Later, he climbed Mount Lebanon and visited the celebrated cedars. He counted a dozen of the "oldest and best looking" trees, 25 large ones, about 50 of

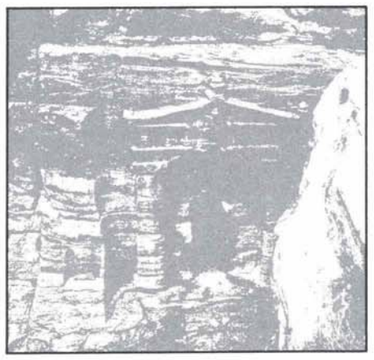
PHOTOGRAPHY BY THOMAS F. WALTERS

medium size and more than 300 smaller and younger ones—some pockmarked with the names of tourists dating back to the 17th century.

Late in 1810 "Shaikh Ibrahim" set forth on a journey to the Plain of Hauran, the Biblical Bashan, and the wild Jabal Druz area. This time he donned the Bedouin headdress and threw a sheepskin over his shoulder. For 26 days he explored this region and then sent back to London some valuable observations on the habits and activities of its little-known inhabitants. "At every step I found vestiges of ancient cities," he recorded in his journal. "I saw the remains of many temples, public edifices and Greek churches."

Returning to his base in Aleppo, Burckhardt stayed put for some months and resumed his studies of Arabic and Islam. To the Association he wrote at this point: "I have completed the perusal of several of the best Arabic authors in prose as well as poetry. I have read over the Koran twice and have got by heart several of its chapters and many of its sentences."

Meanwhile, he had asked that his employers extend his prescribed stay of two years in Syria by six months to enable him to perfect his disguise. Like



many a student before and since, he was also forced to notify them that his remittances had not reached him and that he was broke. "I am at last under the disagreeable necessity of telling you that, notwithstanding every economy in expense, I have spent my last farthing," he wrote. "I performed my travels throughout in the garb of a pauper, yet some expenses in feeding myself and my horse, together with some occasional presents were unavoidable." He calculated that he had lived for 19 months on the equivalent of about $1.50 a day.

Toward the end of 1811 Burckhardt set out on a long-planned exploration of Deir in the remote desert northeast of Aleppo on the Euphrates River. He had delayed this for some time because

warring tribes supposedly made the area extremely dangerous. But at length he entrusted his safety to the powerful Shaikh of Sokhne and set out—only to learn for the second time that the "protection" of a powerful shaikh was a small guarantee in those times. Although Burckhardt himself never wrote about it, Consul Barker reported that he had been attacked, stripped to the skin and driven back to Sokhne, his naked body "blistered with the rays of the sun." Barker added that at one point Burckhardt even had to "struggle with an Arab lady who took a fancy to the only garment which the delicacy or compassion of the men had left him."

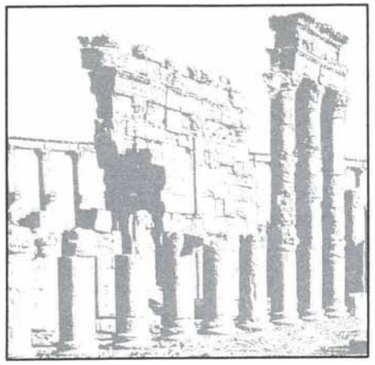
Again, however, Burckhardt refused to quit. Early in 1812, after a few months of recuperation, he gamely struck out for the south again, this time through the valley of the Orontes and across Mount Lebanon to Tripoli, then a silk center on the Mediterranean coast. On his return to Damascus, he made one more excursion into the Hauran. On this occasion he visited Jerash (Gerasa), once one of the principal cities of the Greek Decapolis and the Roman Province of Syria, and found it to be strewn for several miles with the ruins of fallen temples, theaters and aqueducts.

By the summer of 1812, after nearly three years in Syria, Burckhardt decided that his apprenticeship was over. Confident that he could not only talk like an Arab but pass for one, he decided that it was time to go to Cairo and prepare for his trip to the Niger and Timbuctoo. To put his abilities to one more test he decided to proceed to Cairo by way of *Arabia Petrea*, a wild region east of the Dead Sea, instead of by the shorter and safer route through Jerusalem and Gaza. It was dangerous, he knew, but he set out anyway and at first all went well. He crossed the River Jordan and paid fleeting visits to the town and lake of Tiberias (Galilee) and to Mount Tabor and Nazareth. Crossing back he proceeded down the Valley of the Ghor and the Wadi Araba, skirting the Dead Sea, to Amman (Philadelphia of the Decapolis), Mount Nebo and its traditional tomb of Moses and at last to the Crusader stronghold of Kerak.

Before leaving Damascus, Burckhardt had tried to anticipate trouble. "Knowing that my intended way led through a diversity of Bedouin tribes," he wrote in his journal, "I thought it advisable to equip myself in the simplest manner. I assumed the most common Bedouin dress, took no baggage with me and mounted a mare that was not likely to excite ... cupidity ..."

In view of his past two experiences it was a sound idea. Unfortunately in Kerak he learned that cupidity is a relative thing. For there, for the third time, he placed himself under the protection of a shaikh —the Shaikh of Kerak—and for the third time was betrayed. Although he swore on the head of his son to protect Burckhardt, the shaikh promptly robbed him of most of his funds and turned him over to a guide who made off with the rest and then abandoned him. Again he was stranded in the desert without either money or a guide.

At that point—a low point, surely—Burckhardt's fortunes began to change. Although he didn't know it then, his persistence and courage were about to



pay off—and transform a seemingly gullible young traveler into one of the more famous explorers of the Middle East.

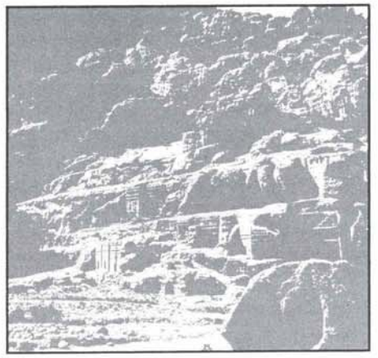
He found an encampment, and somehow persuading one of the Bedouins to accompany him, set out again for Cairo. But having heard that there were some interesting ruins nearby—this was in the Wadi Mousa, the Valley of Moses—he asked his guide to take him there so that he could sacrifice a goat at the tomb of Aaron, the brother of Moses. The guide, although suspicious, agreed and led him into a valley in which ran a small stream. The stream in turn led into a gorge that grew steadily narrower. "The precipices on either side of the torrent," he wrote, "are about eighty feet in height; in many places the opening between them at the top is less than at the bottom and the sky is not visible from below."

For nearly a half hour Burckhardt and his guide rode through the gorge, Burckhardt growing more excited by the minute. Finally they emerged into the sunlight and through dazzled eyes Burckhardt stared with amazement at what lay before him: a towering mausoleum some 90 feet high carved into the face of an enormous sandstone cliff. Continuing down the chasm he found other such sepulchers, then a theater, "cut entirely out of the rock with all its benches." The theater, he wrote, "... may be capable of containing about three thousand spectators; its area is now filled up with gravel which the torrents bring down." Further along, he noted, "The ground is covered with heaps of hewn stones, foundations of buildings, fragments of columns and vestiges of paved streets, all clearly indicating that a large city once existed here."

The city was Petra, the capital of the once-great Nabatean civilization that had collapsed toward the end of the first century. The city had faded in importance, had been deserted and then forgotten until this day in 1812 when Johann Burckhardt rode through the silence and shadows of a narrow canyon to rediscover it for the Western world.

At the time Burckhardt was not entirely sure what he had found. He thought it was the fabulous Petra but although his blood raced with excitement he dared not show too much; his guide was already suspicious. In fact as they approached the end of the valley his guide faced him and said: "I see clearly that you are an infidel who has some particular business among the ruins of the city... But depend on it that we shall not suffer you to take out a single coin of all the treasures hidden therein for they are in our territory and belong to us."

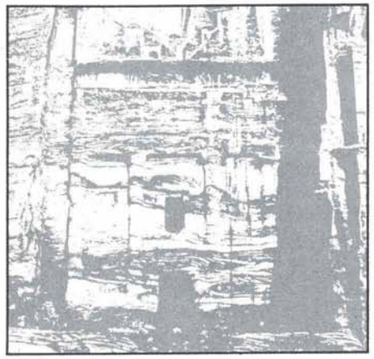
At this challenge Burckhardt hastily ended his inspection and, fearful for his safety and the loss of his journal, climbed at once to a high plateau called "Szetouch Haroun", or Aaron's Terrace, and sacrificed the goat at sunset while his guide



prayed: "O, Haroun, be content with our good intentions for it is but a lean goat. O, Haroun, smooth our paths and praise be to the Lord of all creatures."

Later, however, when the guide slept, Burckhardt returned to his speculations and wrote, with rare prescience, that in the future "the antiquities of Wadi Mousa will be found to rank amongst the most curious remains of ancient art." Ten days later he arrived in Cairo to announce to an excited world what he had found.

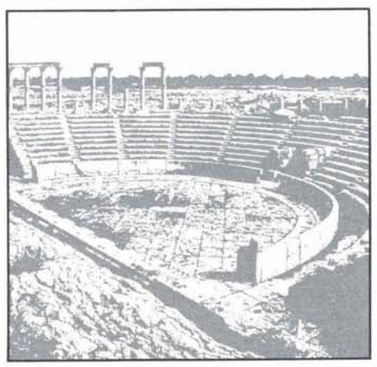
In the next five years Johann Burckhardt became the explorer that he had, however accidentally, set out to become. He ascended the Nile several times—the last time getting as far as Shendy in the Sudan about 1,500 miles from Cairo. He rediscovered the twin temples of Abu Simbel in Nubia. He crossed the Red Sea to Jiddah in Arabia and—40 years before the famous Richard Burton did it—passed three months in the Holy Cities of Mecca and Medina posing as a beggar. Not once



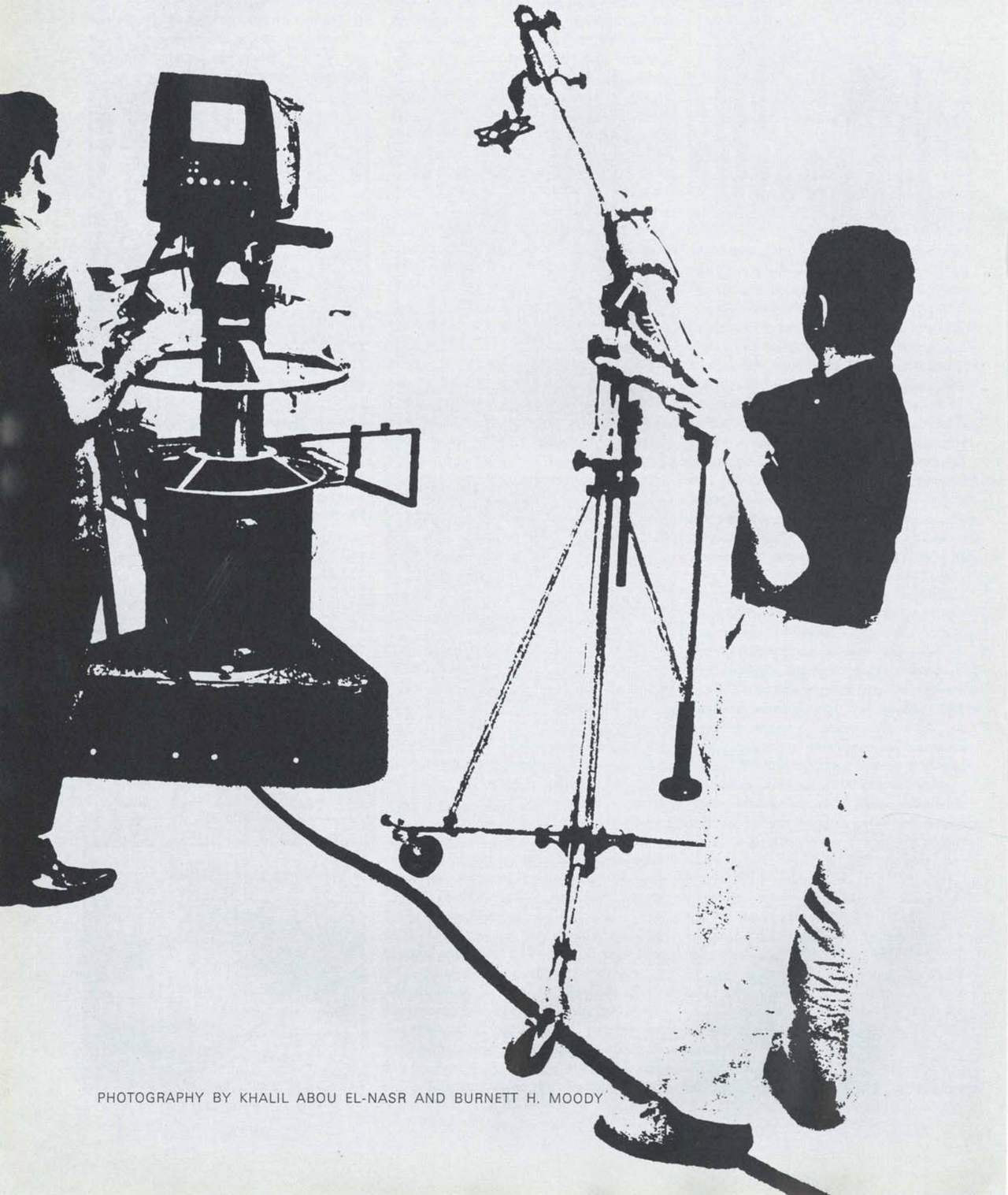
during his travels was he unmasked as an impostor, so perfect was his knowledge of the language, the religion and the customs of the people. And all the while he continued to plan his trip to the Niger.

But despite all that, Johann Burckhardt is only remembered by most people today as the man who found Petra. Had he lived—and explored the Niger—he might have ranked with Burton, Doughty and Lawrence as one of the great Arabists. But on October 15, 1817, only 33 years old, he succumbed to dysentery and died, leaving behind the memory of a man who became an explorer by accident yet left an indelible mark on the map of the Middle East.

Trevor L. Christie is the author of Legacy of a Pharaoh, *the story of the United Nations' efforts to save the monuments at Abu Simbel, and* Antiquities in Peril, *both published by Lippincott.*



diverse and dedicated, stimulating and ambitious, it's...



PHOTOGRAPHY BY KHALIL ABOU EL-NASR AND BURNETT H. MOODY

TV IN THE M.E.

BY DANIEL DA CRUZ

Ten years ago this fall a scattered audience of some 1,000 viewers grouped around some 200 spanking-new television receivers in Saudi Arabia's Eastern Province settled down to watch a Muslim religious leader intone in sonorous Arabic the Koranic passage traditionally used to launch new projects. It begins: "Lo! We have given thee (O Muhammad) a signal victory."

The date was September 16, 1957, and for the Arabian American Oil Company (Aramco) and for Saudi Arabia it was a most important occasion. For Aramco it meant the inaugural of its newly-built television station. For Saudi Arabia—indeed for most of the Middle East—it meant the introduction of a system of communication that in the coming decade would sweep across the land with the force and inevitability of a desert *shamal*.

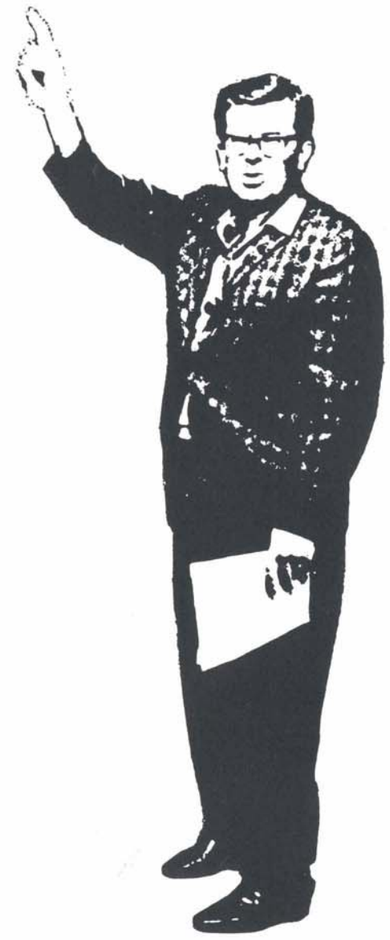
The transmission from Dhahran was not the first ever seen in the Middle East. A station in Baghdad had gone on the air just a few months before and the U.S. Military Training Mission at Dhahran International Airport had, then, a small English-language TV operation for its base personnel. And Aramco Television was introduced primarily for the company's 9,000 Saudi Arab employes and their families,—even though its 12-kilowatt power was sufficient to reach 350,000 potential viewers in eastern Saudi Arabia and neighboring lands.

But from that year on, television has become a factor to be reckoned with throughout the Arab world. Antennae have sprouted into the traditional skyline of domes and minarets in the cities of Syria, Lebanon, Jordan, Iraq, Saudi Arabia, Aden, Sudan, Egypt, Libya, Tunisia, Algeria and Morocco. And when such countries as Jordan, Bahrain, Qatar and Mauretania eventually have their own TV stations too, the Arab world will be able to boast of a unique distinction in the realm of broadcasting: the largest group of independent nations whose television stations speak the same language—Arabic.

Despite the common language, of course, and what is admittedly a strong homogeneity of interests, there are bound to be differences over such a vast land mass, especially with regard to the employment of a system of communication with the potential of television. In fact, the most important similarity among the new stations is the dedication of huge amounts of broadcast time—up to 30 per cent—to education and the promotion of national objectives. In Syria, for example, the prime-time 8:30 program is devoted to news and commentary. And the United Arab Republic makes certain that everybody with a set gets the latest news and views by telecasting them hourly every evening from 7 o'clock through 11. The UAR, furthermore, in an ambitious effort to bring the fellahin into the mainstream of Egyptian affairs, has installed 1,000 communal television sets in village TV clubs where farmers can watch Cairo programs on payment of a token fee.

Lebanese television, to the contrary, is a free-wheeling example (and the only one) of private enterprise—and the only one, too, which must pay its own way. The revenue to do this comes, naturally, from advertising, for which the Lebanese Government generously allows 25 per cent of air time. Fortunately for the viewer, owners of the media have hewed to a limit of 15 per cent—which works out very close to the eight minutes per hour of advertising inflicted on American TV audiences. On some programs which lack sponsor appeal the percentage is much lower. Until recently, in fact, viewers could often sit through an entire movie without a single commercial.

Advertising on Lebanese television tends to be more amusing (albeit unconsciously) than its counterpart in the United States. Night after night on one program last year sponsors ran the same commercial three times in a row—once in Arabic, once in French, and once in English.



Advertising breaks on Lebanese television, though less frequent, are often longer than those in the United States, so that a viewer may walk, instead of having to run, to the refrigerator for a tall glass of something cool. Otherwise, it's much the same, even to the American habit of shoving the volume up two notches during commercials to blast the viewer awake.

In Lebanon, advertising rates are computed on the basis of cost-per-1,000 homes reached per minute. An advertiser can thus buy a minute on Lebanese TV for from $40 to $160, as compared with an average U.S. network minute at $18,000 and a top of $33,000. Nevertheless, the cost-per-thousand-homes is approximately the same in both countries, and considerably more expensive than in Iraq ($10) and Syria ($6), both of which have greater populations than Lebanon. Significantly, of the $15 million spent annually on television advertising in Kuwait, Syria, Iraq (which accept advertising even though government-owned) and Lebanon, nearly $6 million is spent in Lebanon alone, This amount breaks down to $3.30 per capita, against an overall Middle East average of 43 cents.

A cosmopolitan Mediterranean land where, as a legacy of the French Mandate and American education, French and English are spoken almost as often as Arabic, Lebanon has two television stations which broadcast in all three tongues. The C.L.T. (Compagnie Libanaise de Télévision, S.A.L.), broadcasting mostly in French with a 60-kilowatt signal over channels 2, 4, 7 and 9 has had the French Government television company, ORTF as a major stockholder. Télé-Orient (Compagnie de Télévision du Liban et du Proche-Orient S.A.L.) which broadcasts with 100 kilowatts over channels 5 and 11, concentrates on Arabic and English, and is partly owned by British interests representing Lord Thompson. Both stations have isolated mountain-top transmitting towers high on the 6,000-foot Lebanon range which flanks the city of Beirut and so have some viewers in neighboring Syria, Jordan, Cyprus and Egypt.

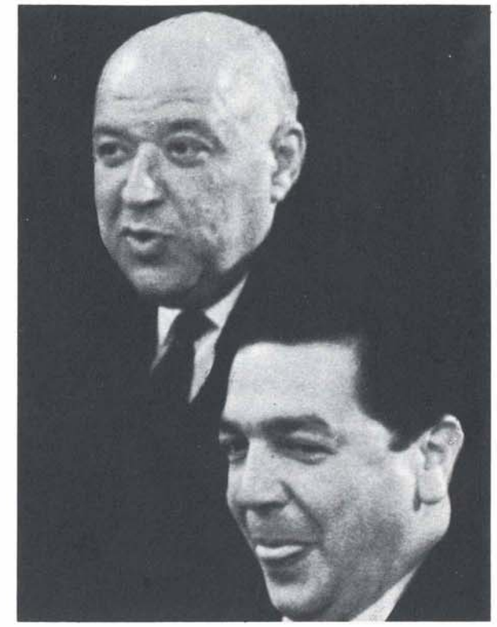
In some ways, of course, the sharp differences in the social approach of Lebanese television stations tend to make Lebanon's essentially profit-minded approach seem frivolous. But according to the men who run the stations this contrast is more apparent than real.

In the first place, concentrating air time on such subjects as, say, reading or writing, is not necessary in Lebanon simply because illiteracy is no longer a major problem in that country. Similarly, it isn't necessary to teach basic agricultural and industrial skills or to exhort isolated villages to introduce modern practices affecting, for example, health. Moreover, by allowing the country's creative elements to experiment freely and by providing them with an audience eager for Arab culture, television, according to Dr. Lucien Dahdah, director general of Lebanon's Télé-Orient, has created a veritable revolution in the Arab arts.

"There's probably not a single major Arab art form," he says, "that has not benefited from the stimulus of television. The cinema, music, poetry and set design, not to mention dramatic writing, acting and production, have all flourished thanks to the mass audience created by television. The interchange of taped programs between Arabic-speaking countries diffuses Arab culture throughout the Middle East, which in turn helps to ignite the creative energies of young artists and, coming full circle, offers them a marketplace and an audience for their productions."

There has long been talk in the Lebanese press about the feasibility of a merger of the two privately-owned companies sometime in the future and about the possibility of limited government participation in the new corporation, and there are good arguments for a merger, at least. But whatever happens it seems likely that Lebanon's consumer-oriented broadcasters will continue to set the pace in the Middle East, if only because of their policy of filming and distributing live programs. According to Harold Jamieson, a British advisor to Télé-Orient, the station has "an extraordinary amount of live studio programming, far far higher than in the United Kingdom, where stations are obliged to have 15 per cent." The Lebanese station now schedules 50 to 60 per cent of its programming for live broadcasts in Arabic. "The sense of national identity in the Arab world creates a great desire for drama or comedy with an ethnic content," Jamieson adds. It is reflected, too, in such projects as the new series, "Our Heritage," a locally-produced program which depicts the Arab's ancient contributions to the rest of the world in such fields as cartography, exploration, science and mathematics.

Télé-Orient's studios are equipped to use both video tape (electronic) and kinescope (16-mm film) to record these live productions for export to eight Arab nations. Last year alone the station sold about 250 hours of programming in the Middle East.



The giant of Middle East television is Egypt, partly because of the reservoir of creative talent produced as a by-product of its thriving film industry, partly because of the size of its audience. Egypt's three channels, now two, used to broadcast a total of 25 hours daily. Seven transmitters cover nearly the entire Nile Valley, where more than two-thirds of Egypt's 30 million people live in some 4,000 villages. Cairo's Channel 5, powered at 160 kilowatts, sometimes even reaches viewers in Lebanon and parts of Syria.

Unique among Arab stations, Cairo television begins broadcasting in the morning, with the First Program going on the air at 10 o'clock. Six hours later, at 4 p.m., it is joined by the Second Program, both schedules leaning heavily on a variety of news, music, women's programs, serials, and Arabic and foreign films. The Third Program, like its BBC eponym, stresses culture and education, and begins at 6 p.m. News, press reviews and political commentary are broadcast at short and regular intervals on all channels. Together they constitute 15 per cent of the schedule, with variety programs accounting for another 18 per cent, foreign films an equal share (but a fat 40 per cent of the Third Program output), and live drama and cultural programs leading with 21 per cent. Arabic films, far and away the favorite fare in Egypt, occupy only 3.6 per cent of air time.

A built-in paradox of Egyptian television is that the government is beaming its programs mainly toward the rural population, whose standards of health, prosperity, and general education it desperately wishes to raise, but nevertheless must face the uneasy realization that it is precisely this largely illiterate class which has the least interest in the programming Cairo can offer. Foreign films about foreign problems have little appeal to the peasantry, and unless treated with great care and imagination the expanding role of women in Egyptian life, cultural developments, and international news draw even less response.

Television has been introduced to audiences in central and western Saudi Arabia by the Saudi Arabian Government.

Channels in both the capital, Riyadh, and the large Red Sea port city of Jiddah, are now on the air an average of six hours every evening. They offer fare designed to instruct and to entertain, though not necessarily at the same time. Programs of local and world-wide news have become as much a fixed viewing habit in these two localities as the nightly appearances of Huntley-Brinkley in the United States. Many programs are put on live and, of course, in Arabic. Others, such as filmed nature and travel shows, have English sound and Arabic subtitles. Saudi Arab viewers who are tuned in to "Perry Mason" can either follow the conversation in Arabic subtitles or tune up their English sound. Some features, such as the U.S.-made series "Forest Rangers" are dubbed entirely in the Arabic language.

With television in Riyadh and Jiddah now well established (one Saudi newspaper recently estimated that there are now over 100,000 television sets in the kingdom), the Saudi Arabian Government plans to include the kingdom's other main population centers in its future TV development so that in the not-too-distant future there will be coast-to-coast communication via the electronic picture tube. By the end of 1968, according to the government's announced timetable, there will be new TV stations in Buraydah, Medina and Dammam, the east coast's principal port city, with micro-wave relays beamed from Jiddah into the holy city of Mecca and to Taif, high in the mountains just to the east of the Red Sea coast.

In Saudi Arabia, of course, it was Aramco's local television station that led the way. The oil company's pioneering effort in this field has demonstrated with startling clarity how quickly a people unacquainted with Western technology can master it when given an opportunity.

Aramco TV's initial telecast was produced entirely by a foreign staff. In the 10 years since, on-the-job training, supplemented in several instances by special schooling and practical TV work experience in the United States, has brought Saudi Arabs to the point where they fill 39 out of 45 positions on the station staff. Station Manager Saleh Mozaini, a Saudi Arab from Buraydah, supervises fellow countrymen who have learned to direct productions, write scripts, edit film, produce special sound and visual effects, and operate TV cameras in the studio and motion picture equipment on location.

Ironically, for a station with strong American associations, Aramco Television enjoys the distinction of being the only outlet in the Middle East to broadcast every one of its programs in the Arabic language. TV fare originally produced in

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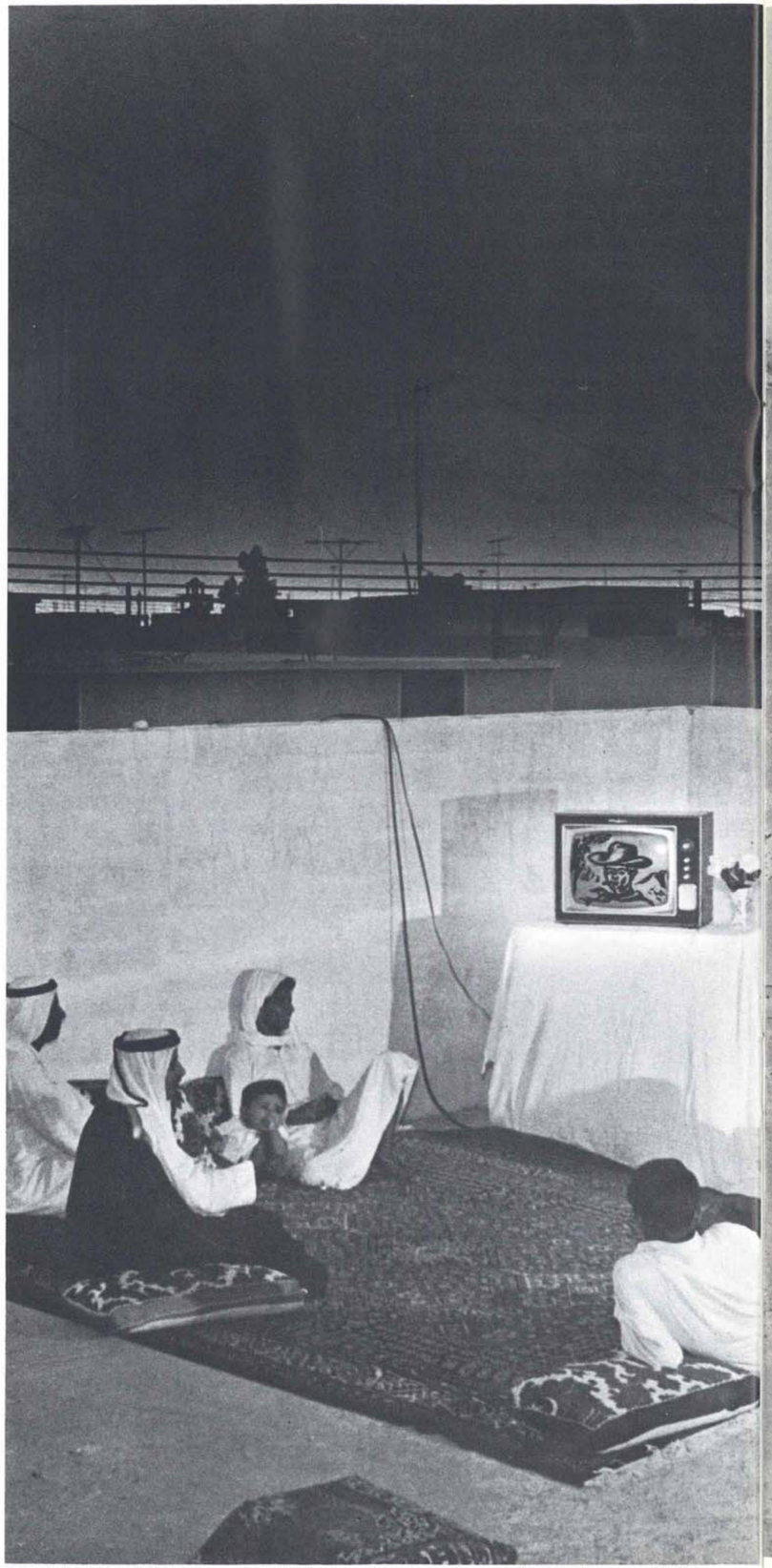
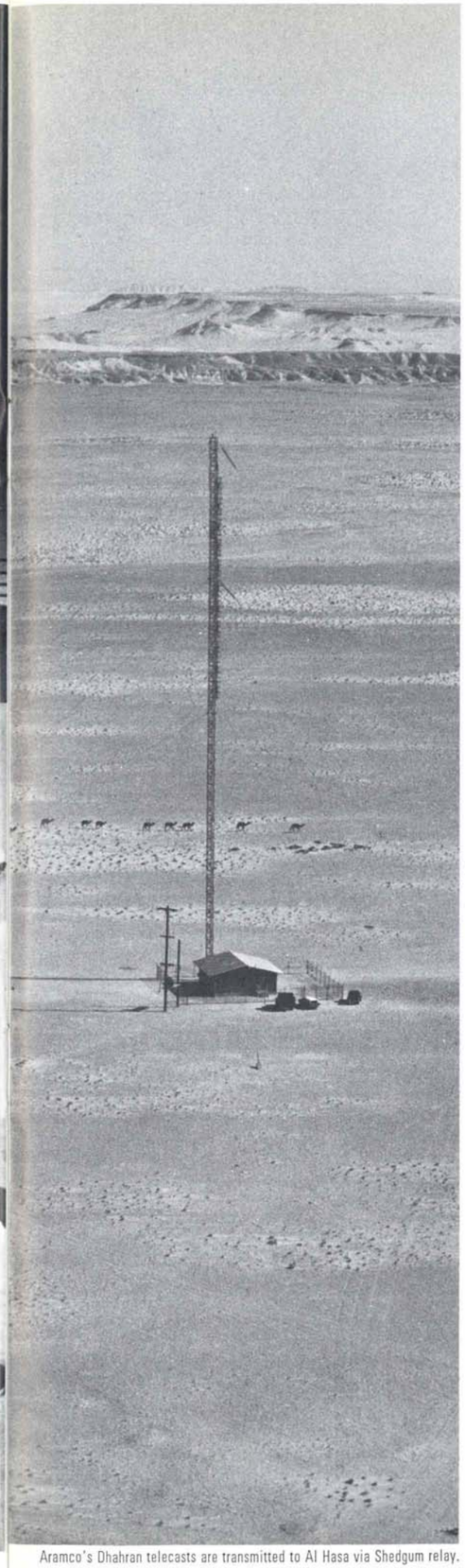


On the cool roof of their Dhahran home a Saudi Arab family settles down to enjoy an evening of Arabic language television.



Aramco's Dhahran telecasts are transmitted to Al Hasa via Shedgum relay.

"LIPSYNC"

or, every "hmm," "umm" and "err"...

Sulaiman Audeh, a Lebanese school teacher, has never ridden a horse or made a movie. Yet each week when TV viewers in eastern Saudi Arabia sit down to watch "Rawhide's" tight-tipped, tough-voiced Gil Favor issue his whip lash orders to trail crews, it is Sulaiman Audeh that they're listening to—courtesy of a Beirut "dubbing" studio and a process called "Lipsync."

Ten years ago when most of the programs imported by Middle East channels were in English, TV executives faced a serious language barrier. To solve it they tried two-language subtitles—which blot out a large segment of the screen—and "voice-over" in which a narrator interrupts the dialogue every few minutes with an intrusive Arabic resume. But it was not until a man named Kan'an Abu Khadra introduced almost perfectly synchronized dubbing that the language barrier crumbled and Sulaiman Audeh began to herd cattle up Texas trails with a crisp" Move'em out!" or "Head 'em up!"—in perfect Arabic.

Mr. Audeh is a youngish man of 35 who admits that he has never even sat on a camel. "Although," he says, "as a boy I did ride a donkey once." He has supplied Gil Favor's voice for more than a year. Before that he was Ben Casey.

"I like playing such parts," he says "Being a tough guy appeals to me. Perhaps it's because I'm rather stubborn myself."

Mr. Audeh's biggest problem with Favor is the tightness of those trail boss lips. "For example," he explains, "without really moving his mouth at all, Favor says 'Did you calm the cows?' This translates into Arabic as 'Hal hada'at al baqar?' But because the whole point of what we are doing is to synchronize lips with sound precisely, I can only say 'Hal hada'at?' or 'Calm?'"

Mr. Abu Khadra whose plans and persistence made synchronized dubbing for Middle East audiences possible, calls his end-product "instant Arabic" though, in fact, many hard hours go into each program. A former newspaper editor who once worked for Aramco Public Relations in Dhahran, Mr. Abu Khadra founded the Middle East Editorial and Translation Services from which developed Television Services which currently processes as many as 100 feature films, documentaries and cartoons a month, possibly the largest output of "dubbed" or "lipsync" adaptations turned out by any studio in the world.

Mr. Abu Khadra's television director, Rashad Bibi, a radio and TV producer with 20 years experience, and Zuhdi Jarallah, a distinguished linguist who masterminds the Arabic scripts, generally set the scene for Mr. Audeh and his 15 fellow "voices." Mr. Jarallah's staff—another 15 men and women—first corrects the written English TV scripts, which generally bear little resemblance to the actual English soundtrack on the completed film because actors often change or muff their lines while performing and because directors sometimes make sweeping changes on the studio floor during the shooting. Before they can even begin to translate and produce an Arabic version, Mr. Jarallah says, his staff has to listen to the English soundtrack and copy every spoken word exactly.

The actual time on the screen for a Rawhide show is 50 minutes. It takes an average of eight hours to comb through the original English script comparing it with the sound track, checking every phrase and inserting every "hmm," "umm" and "err" or even whole speeches. The translation into Arabic takes at least another ten hours. This is because "lipsync" is not just a matter of turning one language into another. "Lipsync" requires that translators try to achieve the same colloquial style of vernacular English, yet use Arabic words which have the same rhythm or beat as the original. It is as difficult to do as a polished translation of poetry.

"Often the spoken English is extremely rapid and describes something in a way which has no immediate Arabic equivalent," Mr. Jarallah explains. "Our translators face a major task in catching and conveying the true spirit of the story and its setting."

The typing of the Arabic script demands another three hours; eight more hours go into checking, four in revising, seven in the actual dubbing and recording sessions. "If we can produce a single Rawhide show in 50 hours we are doing well."

Mr. Abu Khadra feels that his studio has started a fast-moving trend which may enable the entire Arab world to see its foreign TV imports with spoken Arabic sound in as little as perhaps four years. Or, to put it in Gil Favor's parlance, "lipsync" is "headin' up" and "movin' out!"

English is dubbed into Arabic and the tape is then broadcast via a unique system of synchronization: English-speaking viewers can simply tune down the televised Arabic and listen to an English-language sound track on their radios.

Another concession to the station's host country is its schedule, which is based on Arabic time, shifting each day according to the hour of sunset. Each day's program continues to be opened with Koranic readings and the station is always off the air during prayer periods. Furthermore, all material to be telecast is selected to avoid any conflicts with the standards of Islamic morality. Films depicting drunkenness or extra-marital love, for example, are carefully edited.

In a part of the world where neither education on a broad scale nor Western-style entertainment had ever received much attention until recently, the question of how much air time to allot to instructive programming and how much to pure recreation always poses a problem to the staff of Aramco TV. Clearly in the entertainment column are the nine feature length films (five in Arabic and four adroitly-dubbed English-language movies) and episodes of such series familiar to U.S. audiences as "Rawhide," "Mr. Novak" and "Bachelor Father" which are shown during a typical broadcast week. For a people who as both participants and as spectators take athletics very seriously, the station puts on many sports programs of international import. Viewers of Aramco TV have watched world championship soccer matches from England, big-league wrestling from Chicago and Texas, and heavyweight boxing.

Aramco Television also brings into Eastern Province homes original news and documentary shows of professional quality and, when circumstances warrant it, at great speed. (The station has been known to put on the air an edited sound film of, for example, the ceremonial arrival of a visiting head of state at Dhahran International Airport as soon as three hours after the actual event has taken place.) Educational television occupies about one third of the 37 hours Dhahran's channels 2 and 13 are on the air each week. Mostly on film, programs in this category range from the highbrow to the popular, including a long-running series of instruction in the English language.

As is the case in Lebanon, locally-produced shows which emanate from Dhahran are receiving ever-increasing emphasis. Very popular now is a show originating in Aramco TV's studio called "Questions Have Answers," on which participants, chosen from among the company's Saudi Arab employes and the general public are quizzed on their general knowledge and compete for prizes in cash and merchandise. Arabic-speaking doctors from Aramco's Medical Department discuss pre- and post-natal care, personal hygiene, and how to keep cool in hot weather. An Arab lawyer and amateur critic discourses on literature. Arab women with a flair for public speaking put on "Happy Home," a show for female viewers that covers much the same ground as do the service departments of *McCall's* and the *Ladies' Home Journal:* food preparation, household hints, child psychology and interior decoration.

It is a mixed bag, with a balance of program content which attempts to offer something sometime during the week which appeals to every segment of the viewing audience. There are shortcomings, of course, but the station has one concrete measurement of the size and enthusiasm of its following. Last year it received about 250,000 pieces of mail, including contest answers. The letters contained compliments and complaints, program requests and suggestions, and even freelance scripts. It was a response that indicates that the station at least generates plenty of interest.

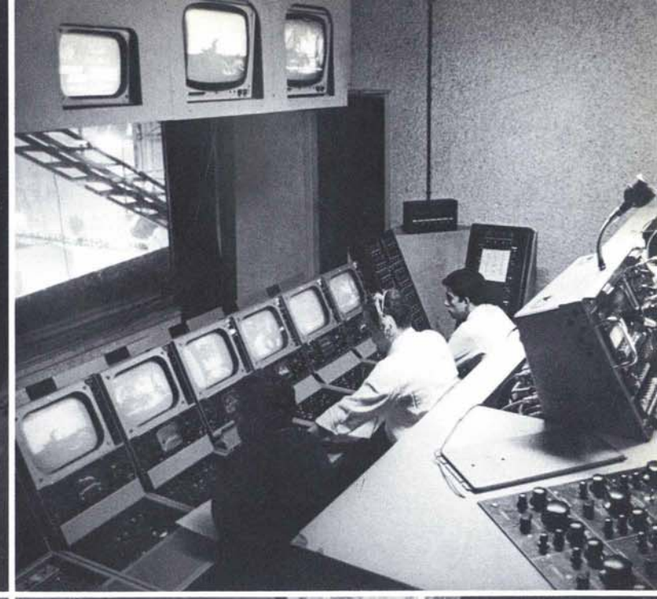
With little more than 10 years of experience behind even the oldest stations it would be remarkable if the Arab world had mastered all its problems in television. But if programs sometimes drag on 20 minutes to a half hour longer than the scheduled time or appear mysteriously the day before they are scheduled, if the lighting is often poor and if work outside the studio is sometimes less than professional, time is, nevertheless, gradually wearing away most of the rough edges.

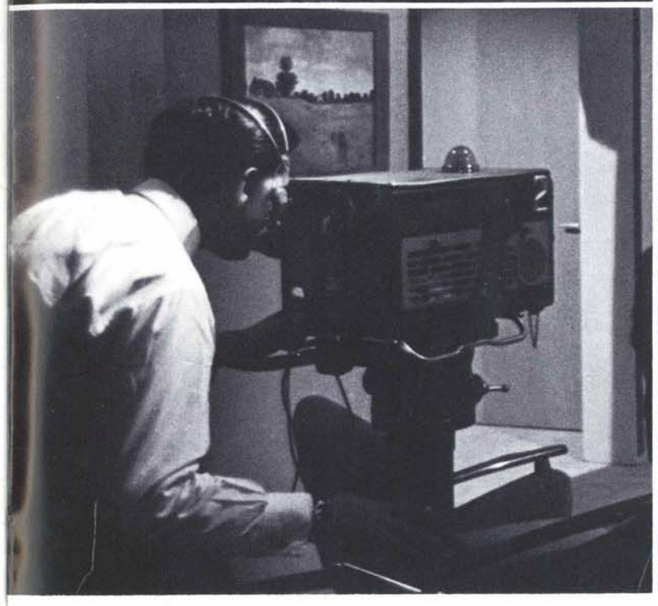
Furthermore, most Arab television stations transmit on the 625-lines per-inch CCIR international European standard, which offers sharper and cleaner pictures—or will when remaining transmission problems are straightened out. Even color TV, though not economically promising, is already on the horizon. Lebanon, in fact, ran a successful two-week test of color transmission last year.

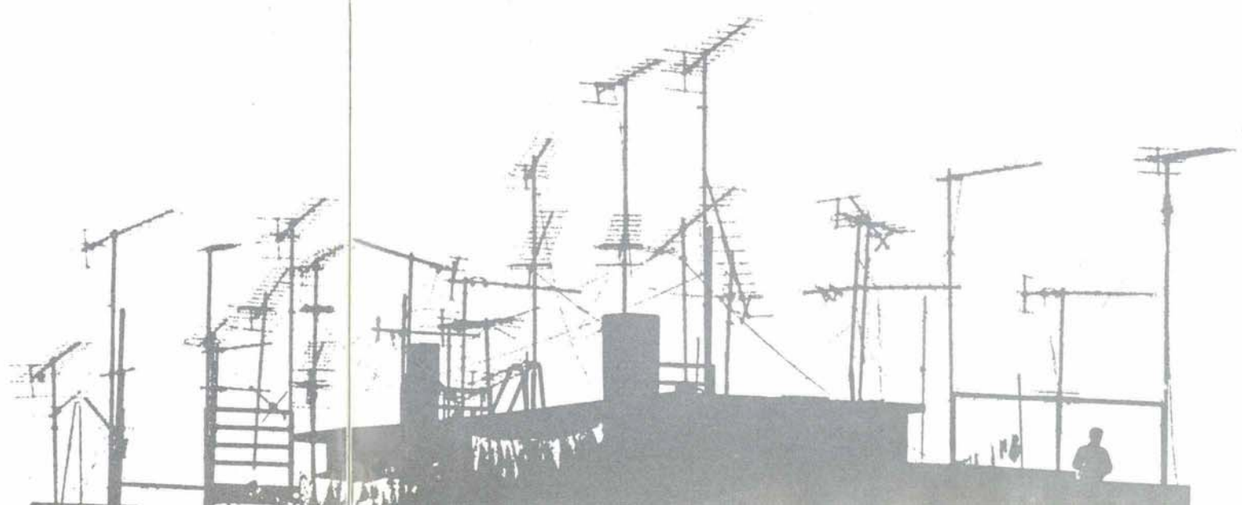
Further in the future, but "just as soon as economically feasible," is a link with the four-satellite network which spanned 28 countries of the world for the first time last spring. "We will give every possible consideration to tying in," said one television official in Lebanon recently. "There is a tremendously exciting future for television in the Middle East. We simply couldn't let this kind of development pass us by."

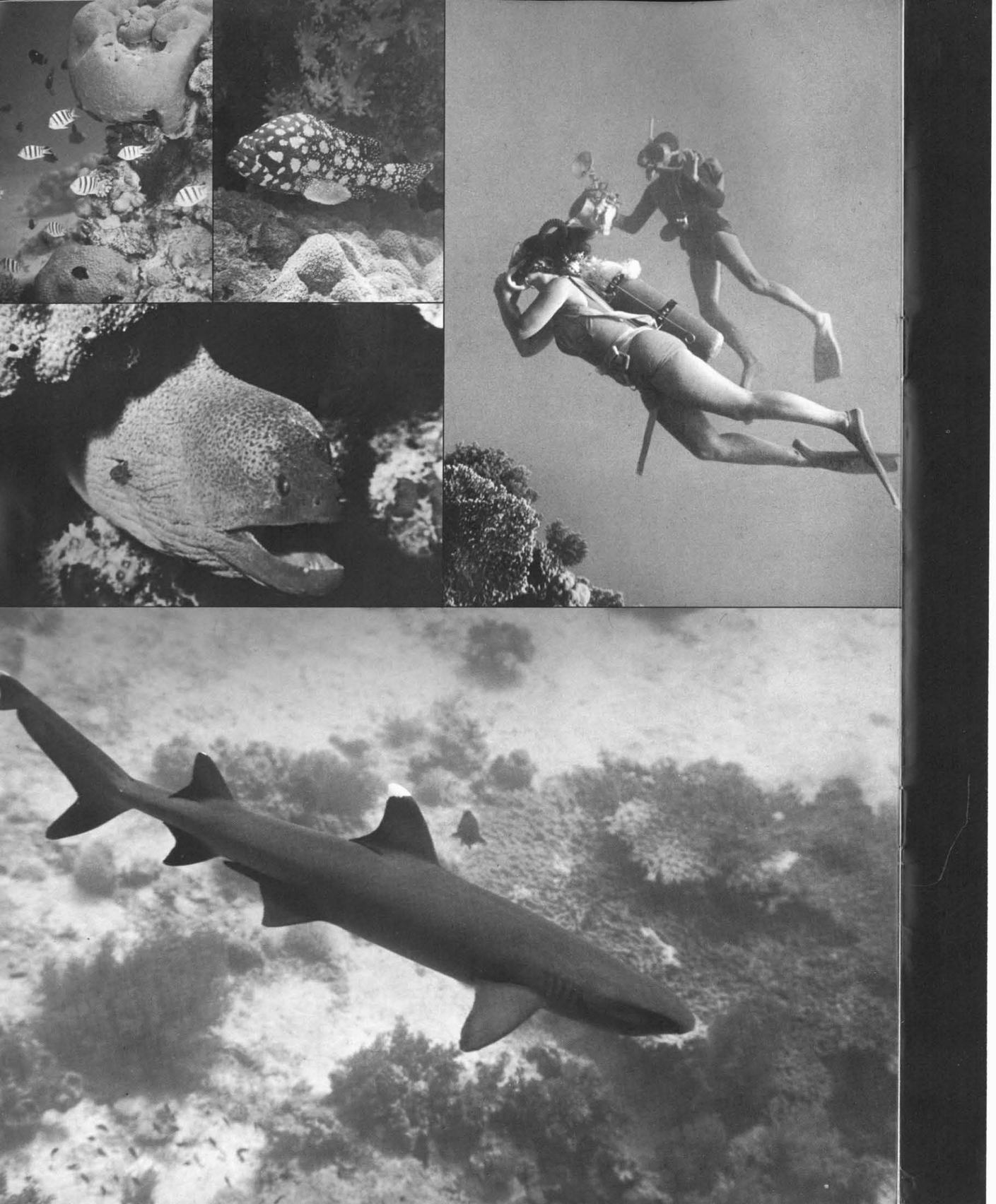
Exactly what one would expect to hear from the Arabic-speaking television industry, which has let very little pass by in the ten short years since electronic pictures first crowded flying carpets out of the air over Baghdad.

Daniel da Cruz, a long-time resident of the Middle East, is a regular contributor to Aramco World Magazine. *He has published one novel, written a second and is at work on a third.*









Don a face mask and descend into the haunting, hypnotic world...

UNDER THE RED SEA

WRITTEN AND PHOTOGRAPHED BY LUDWIG SILLNER

Off the coast near Jiddah about six years ago I slipped a pair of flippers onto my feet, put on a face mask and gingerly poked my head beneath the placid surface of the Red Sea. I am not sure, now, exactly what I saw in that first glimpse; shafts of sunlight, probably, slanting off through clear blue water; a coral reef of fantastic beauty and, no doubt, many fish. But I do recall that by the time I surfaced I had already developed a need to return to that incredibly lovely world below. So I did. Indeed, it would not be much of an exaggeration to say that except for such periods as were necessary to earn a living, I have rarely been anywhere else. Diving became a passion and then a way of life —one, as you will gather, I totally endorse.

For the first year after that initial experience I amused myself by hunting fish with a spear gun. It was not at all difficult. Fish are so abundant there that divers do not need to use tanks to get down to where the fish are; they find them near the surface. Furthermore, the water of the Red Sea, like the Caribbean, the South Seas and parts of the Indian Ocean, is so transparent that you can see up to 150 feet away. Thus all you really need are a mask, a snorkel tube to breathe through, flippers and a spear gun.

Hunting, however, began to pall on me. I began to wonder if it wouldn't be more interesting—and more sporting—to photograph some of these magnificent creatures rather than kill them. It was certainly an ideal place for underwater photography. In addition to hundreds of species of fish the Red Sea coast offers thousands of miles of what they call "fringing reefs,"—great barriers of coral 10 to 200 miles wide that wind along the African shore from Egypt to Djibouti and down the Asian shore from Aqaba to the Bab al-Mandab at the gate of the Indian Ocean. Although no more than the accumulation of billions of coral polyps —minute creatures that produce a calcareous deposit—the reefs have grown to fantastic sizes, the largest being the 1,200 mile-long Great Barrier Reef in Australia.

Living in the shelter of the reefs, in the quiet haven of coral forests beneath the wind-blown surface, countless varieties of brilliantly colored, almost fluorescent coral fish swim lazily through the branches. Among the loveliest are the bizarre "angel" or "butterfly" fish. Their Latin name is *Chaetodontidae* which means "bristle toothed." They have a long trunk-shaped mouth which enables them to pick up their food from the ramified coral. They are not very good swimmers but luckily, like most of the brightly colored coral fish, they do not have good meat either, so few carnivorous species ever harm them. They have practically no enemies, in fact, except the members of their own species who sometimes try to penetrate their living areas. For a long time the fantastic colors and designs of these fishes were a riddle to scientists, but today they generally believe that the glowing dots and stripes may be a kind of signal to warn others of the species from entering their preserve.

Some butterfly fishes live alone while young but later find a mate whom they never abandon. If you try to separate them they find each other again with absolute certainty, even over distances of several hundred feet. What instincts guide them? Love, or the undersea equivalent? We know so little about underwater life.

Let me say right now, that I didn't know any of this back when I began. I had to learn everything as I went along: the kinds of reefs, the names of fishes, the techniques of safety and such things as how to either slip up on a fish without alarming him or else how to lure him close enough so I could take a good clear picture. With the fish extremely sensitive to vibrations and the water so clear that the fish can see you as easily as you can see them, it is not easy to make an unnoticed approach. Without either a camera or a gun you can sometimes do it by keeping your arms close against your sides and depending entirely on your flippers for locomotion. With a camera it is much harder.

Tricking fish, however, is possible. Once, for instance, I wanted to get a good close-up of a barracuda, a nasty fish that rarely comes closer to a man than 20 or 30 feet unless he is looking for food, in which case you don't concern yourself with photography. I had tried several times to approach barracuda but they always withdrew, and usually stayed almost exactly the same distance away. Since even 20 feet was too far away for a sharp picture, I decided to try a trick. Knowing that barracudas, like magpies, are attracted by shiny objects, I waved the silvery reflector of my flashgun in the direction of a barracuda and, when he approached, turned over on my back and moved away still waving the reflector. The barracuda followed, this time getting a little closer. When I thought he was really interested I suddenly accelerated, turned suddenly with my camera ready and shot an excellent close-up before he could withdraw.

On another occasion a companion and I were trying to take a picture of a manta, that enormous "winged" creature that men know as the terrifying "devilfish."

It happens that the manta is one of the most peaceful creatures in the sea, a vegetarian, in fact. Unfortunately it has a distressing habit of scratching its back against the bottom of boats to rid itself of parasites. Since this back is rather large, the manta often upsets the boats without even knowing it.

But if harmless, the manta is an exciting creature for a diver to see as it swims slowly through the water, its huge triangular pectoral fins flapping up and down like the wings of a giant bird and its two large feeding fins, one on each side of the head, scooping up plankton and feeding it into the huge oval mouth. It is these "wings" that have added so much to the aura of terror that surrounds the manta. Stretching nine to 12 feet from tip to tip they are indeed a strange sight as they ponderously undulate just beneath the surface, their tips appearing and disappearing like the dreaded dorsal fins of a shark. Nor are these "wings" entirely misnamed, for the manta, despite a

weight that often exceeds one ton, can actually "fly." Scientists doubted this for a long time until someone eventually took photographs showing the manta leaping out of the water and "sailing" several yards through the air before crashing back down into the water in an effort to dislodge its parasites.

For all those reasons I was more than eager, one morning in the Farasan Islands, to join a companion who through his binoculars had spotted a manta in the water near a reef and wanted to swim out and try to photograph it. We seized our underwater cameras, donned our masks and flippers and swam to the reef. The water was murky—which was probably why the manta had come in so close—and at first we could see nothing but a sort of bluish-green mist beneath the surface. Then, out of the mist came the manta, a pale ghostly monster with a "wingspread" of about nine feet. He swam right at us and for a moment I found myself wondering if there were more to the "devilfish" legend than I had supposed. But the manta was only curious and began to circle us, as if he wanted to play. I began to shoot as fast as I could. Fortunately I had a wide-angle lens on the camera, and in 10 minute, time I was able to make more than 20 photographs as the creature gamboled around us. Once he came right up to me and I automatically dived to avoid a collision only to find myself looking directly into a huge eye that seemed to be staring at me with definite curiosity. He swung around and came back while my companion tried to put himself between us so that I could photograph them together. He went right up to the manta and touched his right wing without provoking any reaction at all. But just then another manta appeared, apparently a female. Our monstrous friend joined her and together they "flew" lazily away into deep water, their "wings" flapping almost in unison.

Such experiences, of course, are exciting, but they would be fruitless if you didn't know how to use a camera underwater or which camera is best. I use, now, a special underwater camera called the Rolleimarin, a Rolleiflex 6×6 with a special underwater housing. The latest ones are fitted with close-up lenses with which you can shoot from as close as 10 inches. But even at the beginning it was the problems with light that bothered me most. Water has a filtering effect on reds, oranges, and yellows and in just a few feet of water those colors disappear

A segment of coral seen near Farasan Islands. It is part of the great "fringing reef" that winds along Arabian Coast to the Indian Ocean.

Although the great coral reefs are home to sharks, barracuda and other dangerous inhabitants of the sea they also shelter some of the most beautiful fish in the world—such as these two colorful butterfly fish.

Among the more dangerous fish in the Red Sea is the "scorpion fish" or "chicken fish" a lovely creature with fins that look like feathers but are loaded with poison that can paralyze a man for days.

completely, leaving you and your camera in a world in which only blue and green can survive. To achieve natural colors, then, it is imperative to use a flashgun, preferably with normal bulbs rather than the "strobe" light so much in vogue now in the United States, since the electronic flash is good for only short distances or for black and white pictures. For daylight reversible film, I learned that at distances of more than a yard the "warm" light of clear bulbs helps compensate for the filtering effect of the water but that blue bulbs can be used for close-ups.

Of all the things I had to learn, the hardest was how to cope with the fear that I imagine must grip all men when they venture into an environment inhabited by strange and possibly dangerous creatures of another species. It was particularly hard in the Red Sea, because, like everyone, I had heard that it was alive with barracuda, moray eels and, above all, sharks.

So much has been written about sharks that even now, after six years of experience with them, I hesitate to make definite statements. Here, as a matter of fact, I am only going to make two: they *can* be dangerous and they are always interesting.

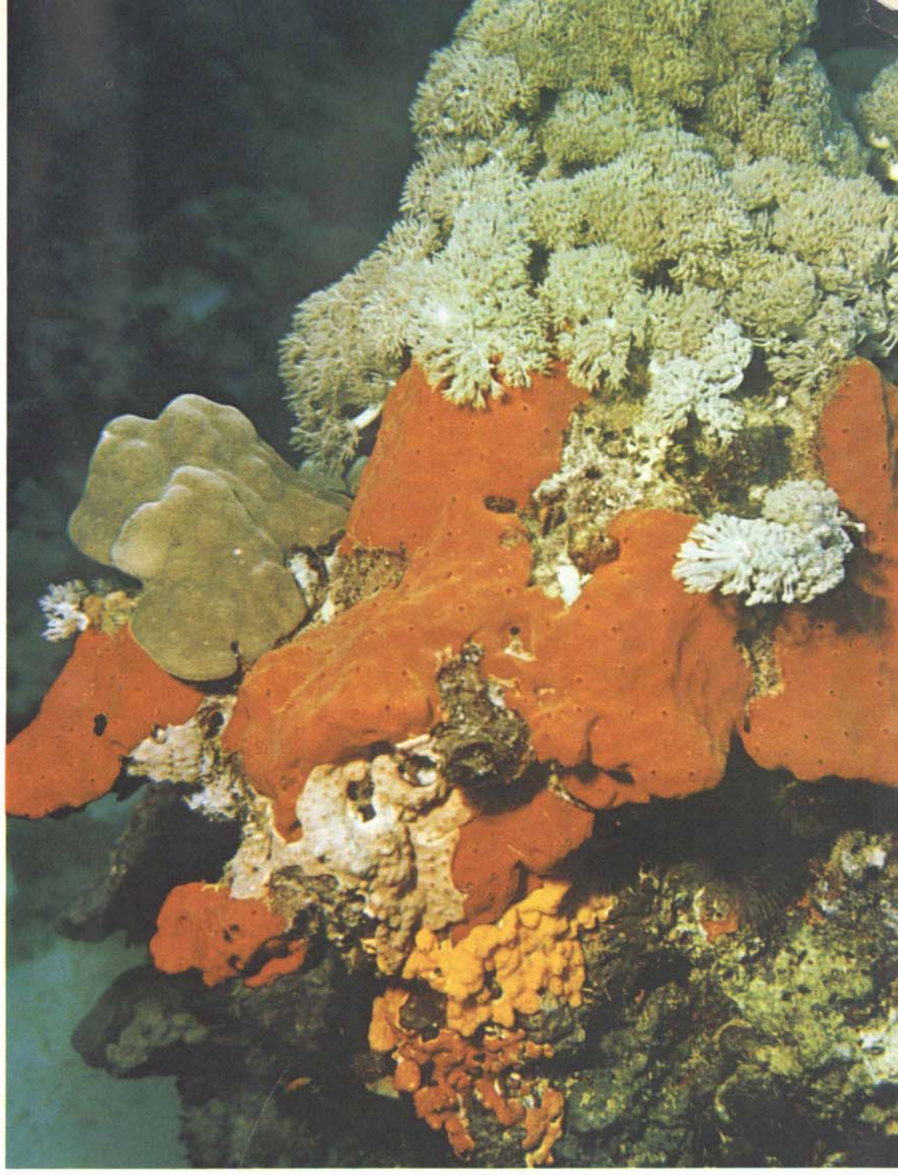
I am often asked if I am not frightened to meet a shark under water. To answer frankly, yes! There are, after all, some 200 different species of sharks and although many species will never attack a man, there are some that will, and unless you are an expert you will hardly be able to distinguish the dangerous ones from the harmless. In the Red Sea, for example, you commonly find a white-tipped shark called *Triaenodon obesus*, a relatively harmless species, but you can also meet the *Carcharhinus menisorah*, a gray and rather dangerous beast, as well as such definitely dangerous deep-water species as the blue shark, the tiger shark and the hammerhead shark.

But having said that, I must also add that I think the dangers faced by divers in the Red Sea have been exaggerated. For example, the most dangerous shark of all is the white shark and yet Hans Hass, a famous Austrian sea explorer, has seen only one white shark in his whole career. Furthermore, although it is always dangerous to swim in deep water, divers can generally work safely in the Red Sea if they keep their eyes open, never dive alone, avoid murky water and always keep the reef at their back. Above all, a diver must remember that when there is blood in the water, any shark, no matter how "harmless," can turn savage in an instant. For that reason experienced underwater hunters always take speared fish immediately to an accompanying boat and never fasten them to a belt around their waist as some careless beginners do. It is also very helpful to know what to do when and if sharks approach you.

When sharks approach divers they usually do so warily. Why? Because divers are *in* the water, not *on* it. And to the shark, or any fish, this makes a difference. From experience, sharks and other fish know that what they find *on* the surface of the water is usually easy prey—carcasses and garbage, etc.—while what is *in* the water is usually alive and possibly dangerous. That's why sharks, before they actually strike, first nudge their victims—with bruising power—and then circle back to see whether the victim is dangerous or not.

There are very few cases of sharks attacking a *diver*, but stories about *swimmers* killed by sharks are rather frequent. Thus divers, unlike swimmers, start with a definite advantage. If they make use of it they can usually drive most sharks away. Some people, for example, carry a "shark billy," a stick about four feet long with an iron point that they can drive into the presumably sensitive snout of curious sharks. Of course, should a shark pick you as prey, his teeth could snap that billy like a dry twig, but since his first approach is usually a scouting expedition, the poke on the snout is ordinarily enough to discourage him.

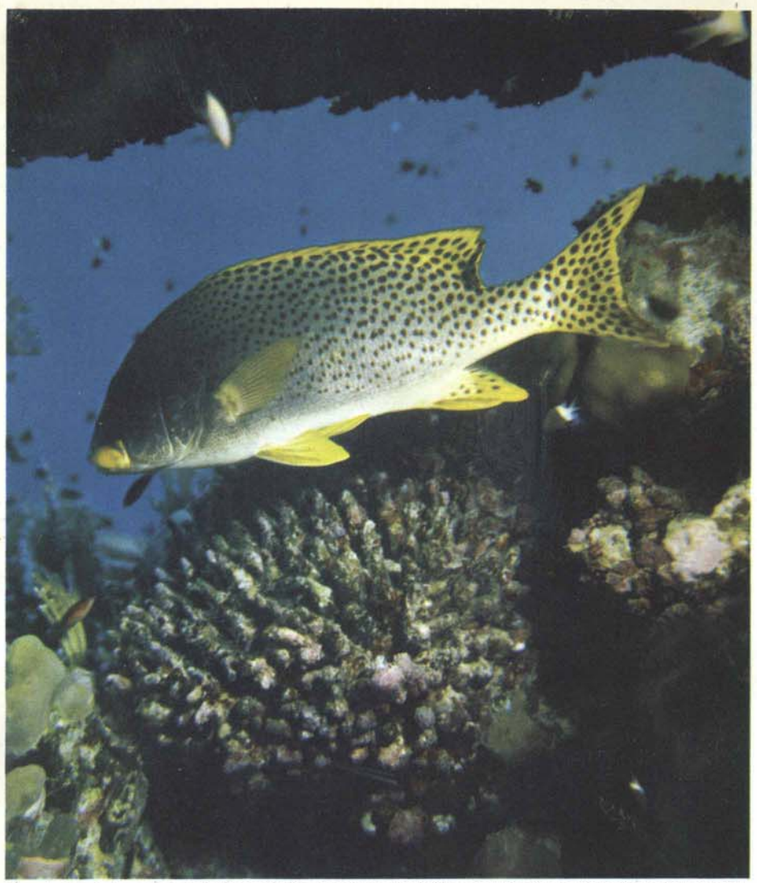
You can also drive sharks away by kicking them. Once, early in my career, I decided to try to get some pictures of sharks in the Gulf of Aqaba and had some Jordanian friends toss in a charge of dynamite from a reef in hopes of attracting some. It worked better than I expected.



Although only an accumulation of minute creatures that produce a calcareous deposit, coral forms reefs up to 1,200 miles long.

Within seconds a shark appeared, and headed right for me, moving with the speed and power of a torpedo. All I had time to do was kick out at him with my flipper. He rolled away, circled, hesitated —then streaked for the surface where he seized one of the fish killed in the explosion and disappeared. The scene reminded me of a dog who had stolen a piece of meat and was afraid of being caught.

Noise also seems to discourage sharks. I once chased away a shark by slapping my hand against the surface of the water. Hans Hass has driven them away by shouting through his snorkel. This method, he reports, is so effective that the sharks jump as if they have been hit—although off Greece or other Mediterranean countries where fishermen frequently use dynamite to kill fish, sharks



Deep in the shadows of an umbrella coral this gorgeously colored fish called Gatarin gaterinus tries to find security.

are sometimes either deaf or insensitive to noise.

Sharks are often accompanied by so-called pilot fish *(Naucrates ductor)*. They are said to guide their host to his prey but probably they just clean parasites from his body. Another companion is the *Echeneis naucrates* which attaches itself with a sucking plate to the body of the shark and scours its host of parasites and dead tissue.

There are, of course, many other dangerous inhabitants of the Red Sea besides sharks. One is the "stone fish," a small creature so camouflaged that its warty surface looks like a rock, but which can inject a deadly poison into any unwary foot that treads upon it. Another is the "scorpion fish" or "chicken fish," a beautiful creature with fins on each side of the body that look like the feathers of a chicken. This fish also has fins on its back which are tipped with poison. An Egyptian friend of mine who was stung by a scorpion fish—right through his diving suit—was partially paralyzed for three days.

Two of the more "dangerous" creatures are the moray eel and the barracuda.

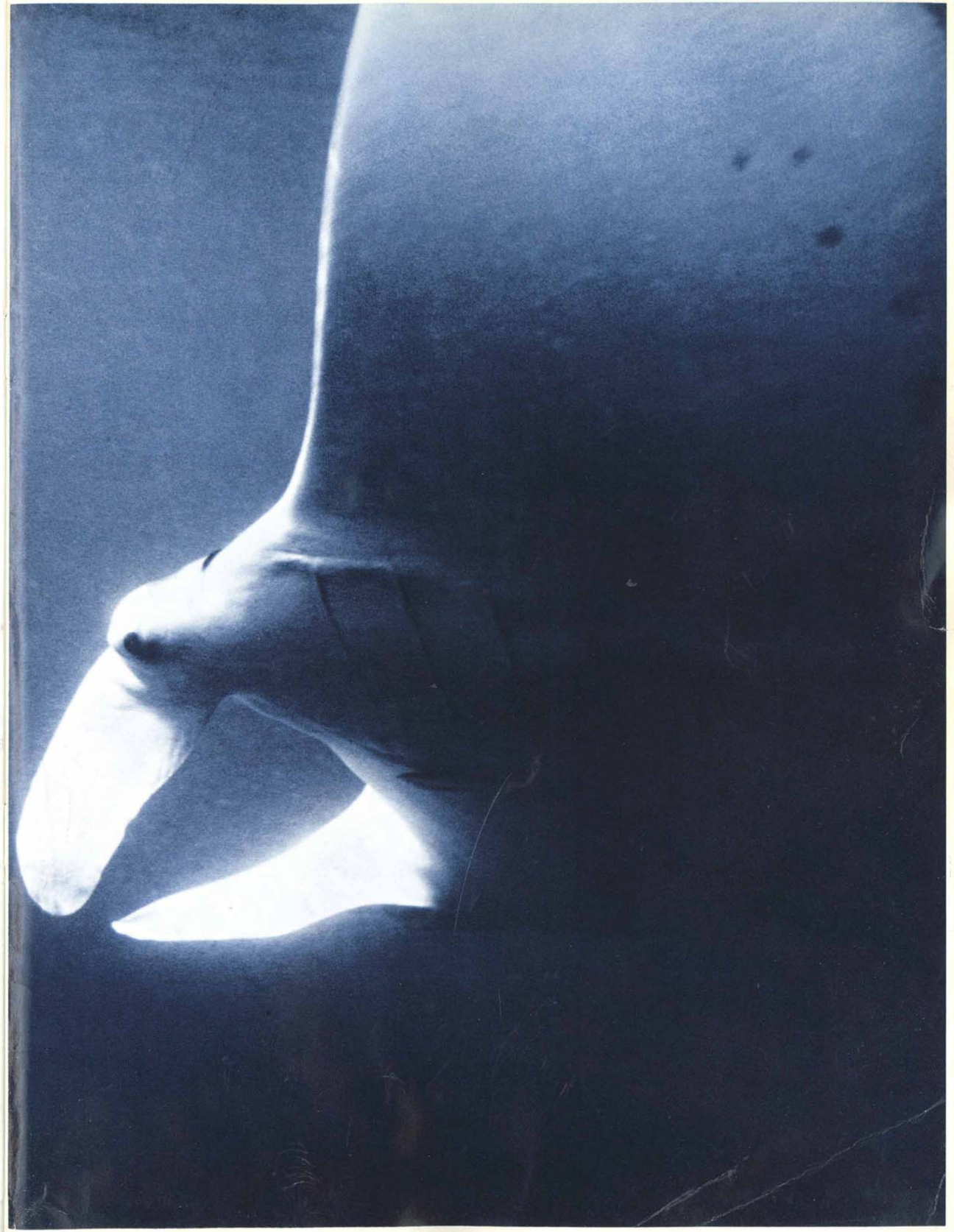
Actually moray eels are dangerous only when threatened and are rarely seen since they spend most of their time in narrow holes in the reef with only their heads protruding. If they are provoked, however, they have a poisonous bite and are incredibly strong. Once, a German expert on fish asked me to shoot an eel for his collection. I located one in relatively shallow water and fired a spear into him from a compressed air spear gun. The spear went through the eel's head and pinned him, literally, to the reef. With a second spring gun I fired another spear and for good measure gave him a blow with the shark billy. I was sure I had him and had started to swim to the surface to wait for the mud to clear when I felt a pull on the line leading to one of the spears and looked down just in time to see the eel—an enormous six-foot creature—vanish, leaving behind the bent and twisted spears.

Of all the dangerous fish, the barracuda, whose shape resembles that of the fresh water pike, is probably the most underrated. The largest are as large as common sharks and they all are equipped with rows of savage teeth that can tear prey to ribbons in minutes. In some circles they are considered even more dangerous than sharks. Indeed, it is possible that barracuda are responsible for some of the fatalities ascribed to sharks by people who do not know the different characteristics of the marks left by the teeth.

I have seen single barracuda but they usually travel in schools of up to 20, and even though there are no recorded incidents of barracuda attacking divers, it is still a disconcerting experience to find them near you as you dive, waiting motionlessly in the still water, their rows of murderous teeth flashing fierce grins through the clear water.

From all this it might be thought that I am trying to say that underwater exploration is a very dangerous sport. It isn't at all. I have singled out the dangerous fish simply because to most people they are the most interesting and because they do add a certain spice to the sport. But they are not, as the old saying goes, the only fish in the sea. There are thousands of others, most more beautiful and certainly less dangerous. They are the ones you usually see. And it is the haunting, flickering colors of the coral and its innocent inhabitants as much as the hint of danger always lurking in the shadows that draw me back again and again to the hypnotic, timeless world under the surface of the Red Sea.

Ludwig Sillner, a German sales representative who has dived for sport in the Mediterranean, Red Sea and Arabian Gulf, last spring accompanied the French explorer Jacques Yves Cousteau on a two-month expedition to the Indian Ocean.



Although harmless the manta, or "devilfish" is a frightening sight as it "flies" through water on its great "wings"