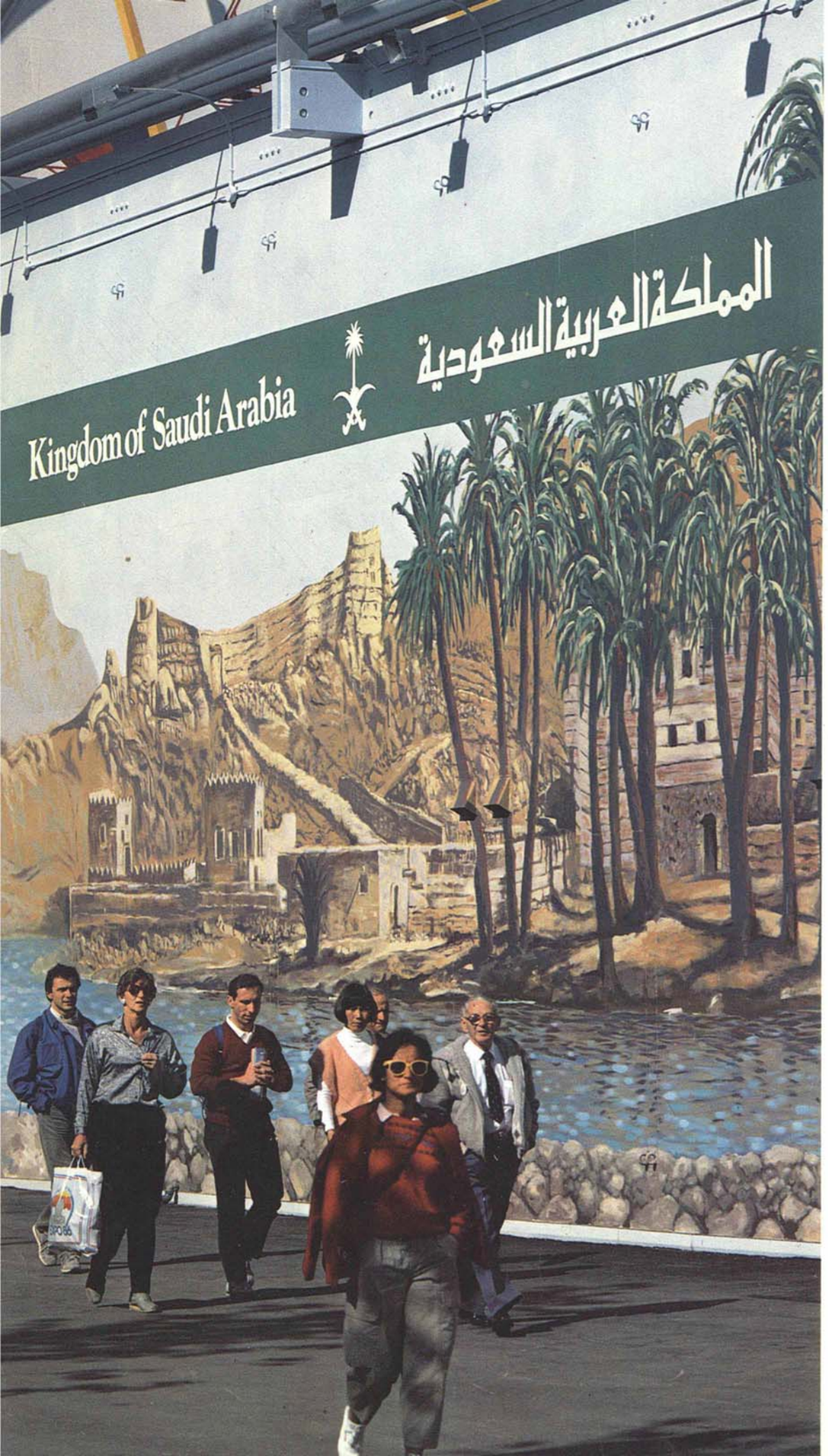

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JULY-AUGUST 1986

A SPECIAL REPORT

المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA
EXPO 86

AN OMANI CELEBRATION

ARAMCO WORLD magazine

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Cover: To mark 15 years of dramatic modernization, Oman, last November, staged fireworks displays in Muscat that rivaled Fourth of July festivities in the United States. These displays recalled days – not too long ago – when real battles were fought over the sultanate's mud-brick forts. They also provided vivid testimony to Oman's rapid transformation from a war-torn tribal nation to a peaceful, modern state. Photograph by Helmut R. Schulze. Back cover: In Vancouver, in May, Saudi Arabia decorated its pavilion at Expo 86 with a mural of a Red Sea village.

◀ Demonstrating what Expo 86 is all about – communications – a Saudi Arabian pavilion official chats with a member of the Royal Canadian Mounted Police.

THERE WAS A YOUNG MAN NAMED LEAR

WRITTEN BY ARTHUR CLARK PAINTINGS BY EDWARD LEAR

Pyramids at Giza, Egypt.

There was a young man named Lear,
Whose paintings were impossibly dear;
But when late his art
Captured everyone's heart,
Poor Lear had passed over, I fear.

When Edward Lear sent his famous "Owl and Pussy-cat" out to sea in their "beautiful pea-green boat" more than 100 years ago, some of their favorite ports of call were no doubt in the Middle East. At least that's one reading of the nonsense song – especially when it's held up to Lear the artist, whose paintings and sketches were displayed in a major exhibition at London's Royal Academy of Arts from April to July last year.

Among the works exhibited were sweeping oils of Beirut and Jerusalem and the isle of Philae in the Nile; studies of Petra, the Dead Sea and Jericho; and watercolors of Jaffa and Mount Sinai. In a penetrating look at a man whose visual art was never publicly acclaimed while he lived, the academy published excerpts from Lear's travel journals and diaries to correct the picture of someone who often hid himself behind the self-portrait of a bumbling, rotund fellow with a bushy beard and spectacles.

Lear, of course, was an artist of repute during his lifetime – he began to draw and paint professionally at age 16 in 1828 – and as an ornithological draftsman he had few peers. But, by 1836, he found his eyesight too poor to continue detailed animal sketching and set off on a nearly never-ending journey to become what he later called a "landskip" artist. Here, he found at least initial success: Queen Victoria liked his "Illustrated Excursions in Italy," published in 1846, so well that she commissioned him to teach her drawing.

Nor was royal interest in Lear's work reserved to the Queen alone. In 1859, the Prince of Wales – later King Edward VII – visited him at his Rome studio and six years later he chose two of Lear's finished watercolors of Mid-Eastern scenes, "Jaffa" and "View from Luxor," for the Royal Collection. Both watercolors were featured at the exhibition.

One reason Lear failed to find the success of his better-known colleagues, suggested Vivien Noakes, biographer of Lear, in an interview with *Aramco World* at the Royal Academy last summer, was the very fact he was so often on the road. "He was too much abroad due to his health," she said. As a child, Lear was often ill with bronchial ailments; he was prone to bouts of depression throughout his life and he

Jerusalem from the Mount of Olives, Sunrise 1895.

sought to hide the fact that he suffered from epilepsy.

Further, he was not the "self-promoter" necessary to be a successful artist in the Victorian age. "He didn't take himself seriously to the public and he never really moved into the mainstream of painting in England," Noakes said.

Lear also clearly overpriced some of his major works and then made the situation worse by mass-producing watercolors to earn enough on which to live – and travel – further tarnishing his reputation. Then, in Cairo in 1866 without adequate funds to continue a sketching expedition, he wrote to patrons asking for money in advance. While he got the cash to travel up the Nile, he also alienated some of his best prospective customers. Although his work was exhibited in major galleries and he was making sales in the 1850's, his reputation declined steadily beginning in the 1860's and continuing until his death in 1888.

The clarity and beauty of much of his art was not recognized again until the 1920's, when his original sketches and drafts for scenes in southern Europe and the Middle East came onto the market.

Lear worked mainly from pencil sketches and notes taken in the field, which he later turned into draft watercolors with inked-in notes. He took the preliminary work back to his studios in Europe – he lived successively in Rome, Corfu and San Remo – to show them for prospective commissions and prepare finished watercolors and oils for sale.

Ironically, it was that "preliminary" work, sold in the 1920's and 1930's for only a few dollars per painting (and worth many hundreds today), that brought him back into the artistic limelight. The bulk of those thousands of watercolors are now at the Houghton Library at Harvard.

Lebanon, 1866.

By the time the Prince of Wales had acquired some of Lear's works in 1865, the artist had already made three journeys to Egypt, including a 10-week trip up the Nile to Luxor and Aswan. He had also traveled to Palestine with stops at Jerusalem, Hebron and the Dead Sea, and made swings to Beirut and Damascus. He would return to the Middle East, in 1866-67 and again in 1872 on his first attempt to visit India.

Even earlier, Lear had explored parts of Italy and Sicily, sketched in Greece and Albania and visited Constantinople. And he had published several editions of his *Book of Nonsense*, full of verses that would later become known as "limericks."

Indeed, limericks about "a young lady of Tyre" (in Lebanon), "an old man of el-Hums" (in Syria), "a young person of Smyrna" (in Turkey) and "an old person of Philoe" (correctly, Philae, on the Nile), reflected Lear's continued fascination with the Middle East.

There was a young person of Smyrna,
Whose grandmother threatened to burn her;
But she seized on the cat,
And said, "Granny, burn that,
You incongruous old woman of Smyrna."

Lear "went to places where he could paint pictures people would probably buy," said Noakes. But the artist, a loner by nature, who once wrote "the elements, trees, clouds... seem to have far more part with me or I with them, than mankind," was as intrigued by brilliant color and history as he was with sales and would probably have visited the far-flung lands he did simply "out of personal interest," she added. Lear prepared well for his trips, even taking on an Arabic tutor prior to his entry into the Middle East.

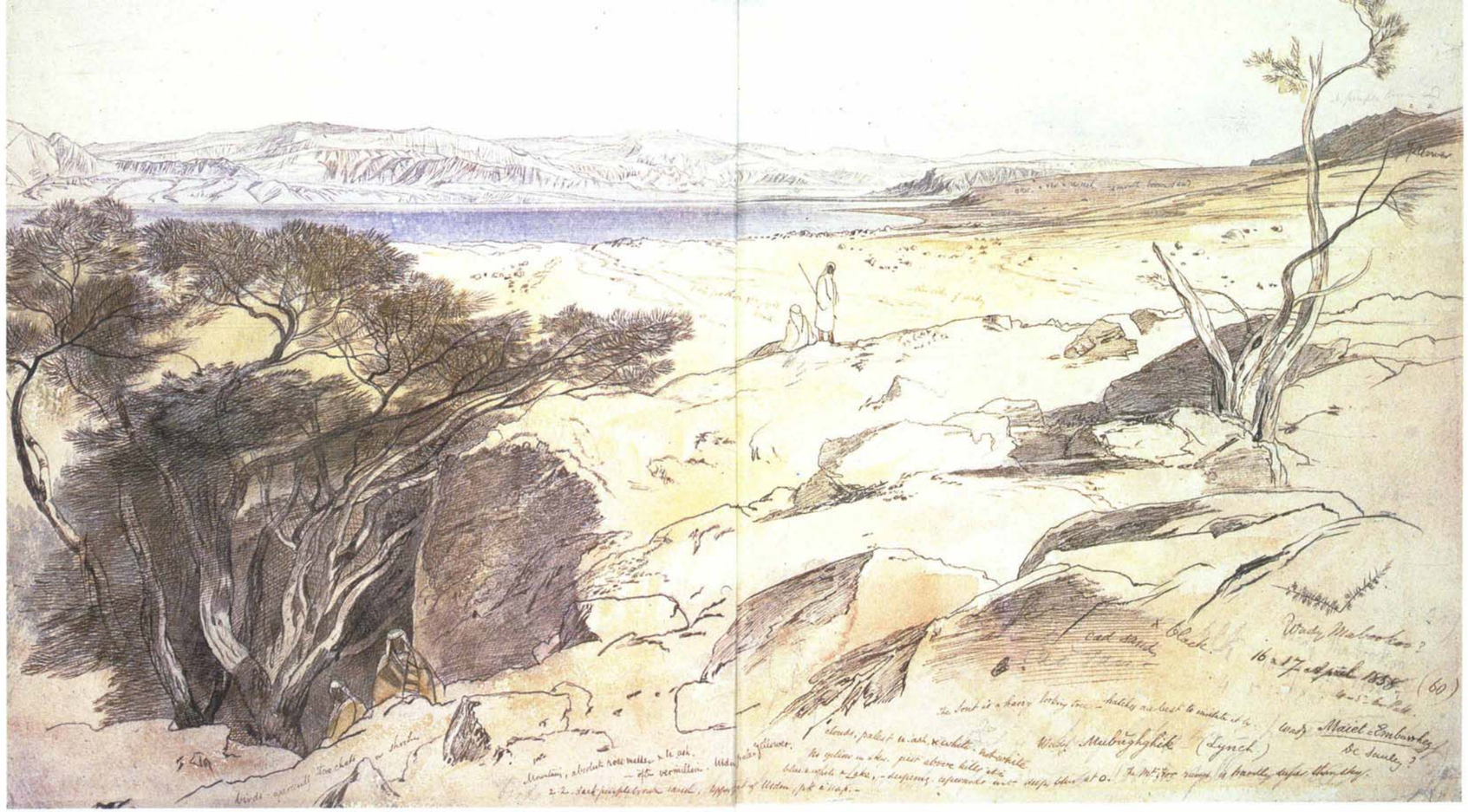
But he often wrote in his own enchanted language, making up words and phrases to best fit descriptive needs. Lear's initial watercolor sketches bear what first seem like nonsense reference notes: "rox," "phiggs" or "bloo ski," for example. On his 1872 stop in Cairo, he referred to the Pyramids of Giza – the subject of one of the most popular paintings at the exhibition – as the "Pirrybids." And in March, 1867, while en route from Cairo to Gaza in Palestine, he even sought to describe the indescribable, calling the sounds made by camels "gulpyroarygroanery."

His "nonsense" may have been an admission that some things were beyond words. Indeed, Lear often expressed wonder that he, as an artist, could ever hope to capture faithfully the works of nature and man which he discovered on his voyages.

In a sense, he was an "Orientalist" in the mold of David Roberts (See *Aramco World*, November-December 1984), intent on producing work for a public hungry to see the wonders of a hitherto hidden civilization. But, in another, he was one who reveled in wonder, as his comments on repeated trips to the lands that enraptured him make plain.

Lear first went to the Middle East in 1849, traveling to Cairo, Suez and Sinai. Late in 1853, he was back in Cairo, getting ready to travel up the Nile, a river he described as "magnificent... with endless villages" and covered with white-sailed feluccas "which look like giant moths."

He camped 10 days on the "fairy island" of Philae near Aswan and called the Temple of Isis there "so extremely wonderful that no words can give the least



△ *The Dead Sea, April 1858* ▽ *Study of Mount Sinai with the Monastery of St. Catherine in the distance, 1853.*

idea of it." One measure of Lear's feeling for the island is that it figured in at least 20 of his oils – more than any other subject he painted. On his return to Cairo, he stopped at Karnak, near Luxor, and wandered in temples and the Valley of the Kings on the west side of the river, sketching and seeing himself as "a cheese mite among such giants."

In the spring of 1858, Lear was back in the Middle East, armed with commissions for two major works from Palestine. He disembarked at Jaffa, traveled on to Jerusalem and looked long at the Dead Sea from atop the Mount of Olives, describing it as "clear pale milky far blue, with farther pale rosy mountain – fretted and carved in lovely shadow forms." He later rode by camel to Petra – a trip marred by the theft of all his funds. But he was no less captivated by the famed Nabataean city – though again he wondered about his ability to portray it on paper.

Petra's attraction, he wrote, arose from its "singular mixture of architectural labor with the wildest extravagances of nature – the excessive and almost terrible feeling of loneliness in the midst of scenes so plainly telling of a past glory and a race of days long gone." He called the "vivid contrasts" between Petra's ruined walls and hollow tombs on one hand and its "rainbow hues of rock" decked with the purple blossoms of oleander and white broom on the other, a "magical condensation of beauty and wonder which the ablest pen or pencil has no chance of conveying to the eye or mind..."

Lear soon sailed for Beirut. It reminded him of Naples, he said, with its "numerous villas and gardens, and the civil and gay people." He also climbed to the famed Cedars of Lebanon, the subject for a huge – subsequently lost – oil. "There was only one drawback to my pet cedars," he wrote. He was more than 1820 metres (6000 feet) up, surrounded by snowy peaks, and "the cold was so great I could not hold my pencil well."

He then traveled on to Damascus, describing the scene as "16 worlds full of gardens rolled out flat, with a river and a glittering city in the middle." But the heat of the impending summer had so tired him he once more departed for home.

There was a young lady of Tyre,
Who swept the loud chords of a lyre;
At the sound of each sweep,
She enraptured the deep,
And enchanted the city of Tyre.

Lear's longest Middle East sojourn came in 1866-67, when he combined his most extensive Egyptian trip with another visit to the Levant. His return to Cairo in December was joyful: "O! Dear! What wonderful street scenes..." he wrote. "And to me what wonders of broad beautiful green and lilac vegetation and far hills & mosques... O sugar canes! O camels! O Egypt!"

But the outset of the journey was trying, in an almost modern way. First, he made the mistake of asking for an advance from patrons to carry out his trip. And second, he met his cousin Archie in Luxor and quickly found the younger man was bent only on acquiring tourist trinkets and speeding in and out of ancient temples. Lear, who preferred to travel in what he called a "stopping, prying, lingering mode," had hoped for a thoughtful companion with whom he could share the Nile's beauties.

But the trip was a rich one for the artist anyway. He and his cousin visited Wadi Halfa in Nubia and then traveled to see the rock-carved Pharaonic busts at Abu Simbel... "Happy I am to feel that I nearly cried with a burst of amazement and delight – even after all I had seen and read of these statues," he wrote.

His planned trip from Egypt to Palestine proved more difficult than expected, despite Archie's departure. He complained of the problems of long-distance camel travel – "to wit beetles in your hair" – and once more sailed home.

Though Lear's Owl and Pussy-cat never grumbled about their traveling situation, they never faced the same problems their creator did. After all, as he noted in the famous nonsense song: "They took some honey, and plenty of money, all wrapped in a five-pound note."

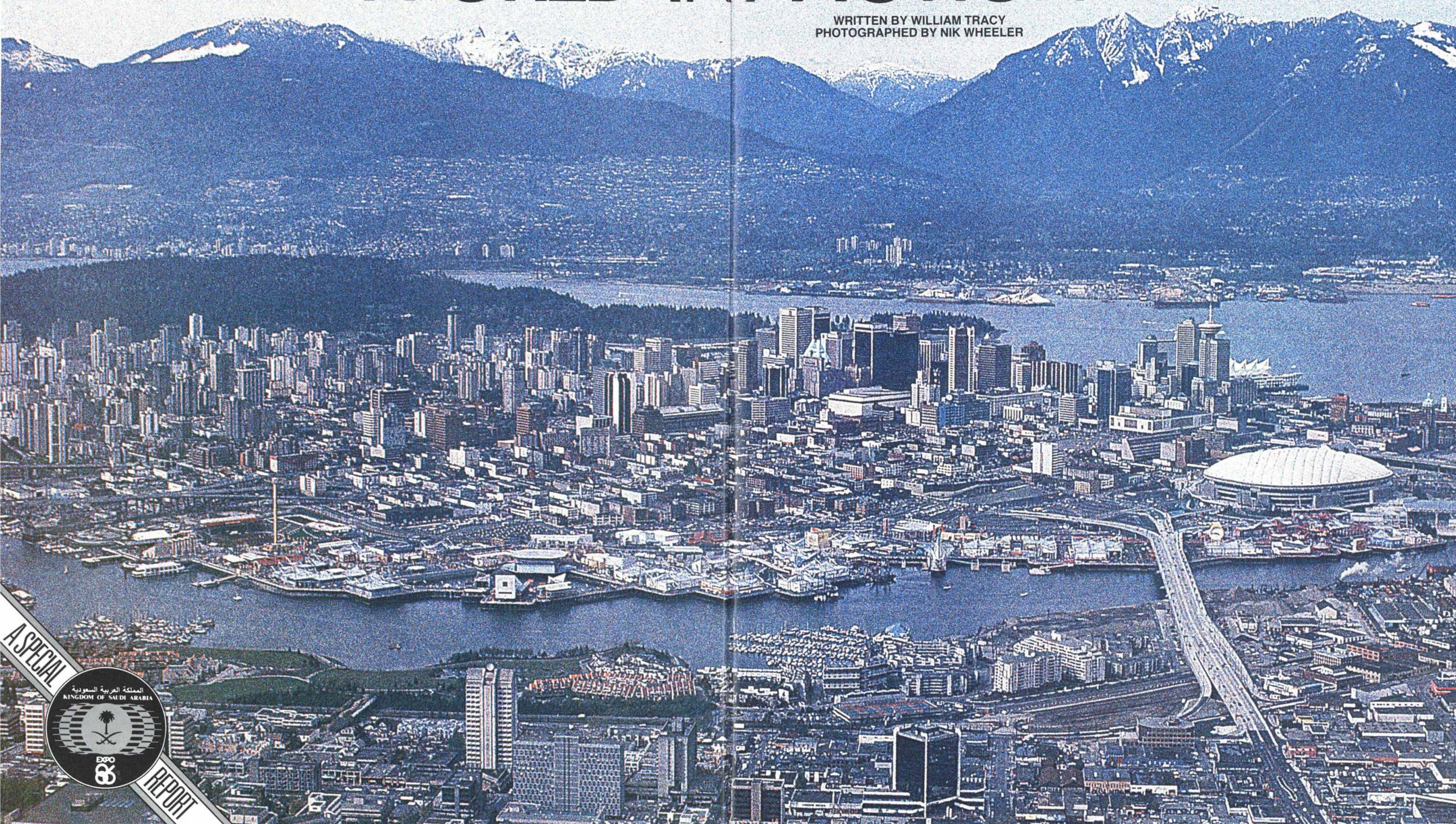
The London exhibition which featured dozens of Lear's Middle Eastern works, showed a lesser-known side of the gifted man's character. The exhibition was a "long overdue" recognition of Lear's artistic merits, said Noakes. But, she added, "I still don't think he'd be able to take himself seriously." ⊕

Aramco writer Arthur Clark reviewed Lear's paintings and career on a recent visit to London.

A WORLD IN MOTION

WRITTEN BY WILLIAM TRACY
PHOTOGRAPHED BY NIK WHEELER

An aerial view of Vancouver and Expo 86.



EXPO 86

In Canada, in May, Great Britain's Prince Charles and Princess Diana stepped from a royal barge in Vancouver, to receive a traditional Musqueam Indian greeting and to formally open EXPO 86 – which could be one of the century's more successful world expositions.

One reason for Vancouver's hopeful expectations is the fair's catchy theme: "The world in motion, the world in touch." Unlike the theme of Knoxville's 1982 fair – energy – Vancouver's focus on achievements in transportation and communications seems to have stirred a response. So far five million visitors have shown up to look at – and marvel at – the achievements and advances of those fulcrums of civilization as presented by 54 nations, nine Canadian provinces and territories, three U.S. west coast states and some 35 corporate sponsors.

As anyone with access to radio, television or newspapers must already know, Expo 86 is what the International Bureau of Expositions, which sanctions such affairs, calls a "special category world exposition." What they may not realize, however, is that the very process of advertising Expo 86 and their own travel to get there prove the importance of its theme.

The Vancouver exhibition, appropriately, will mark two important anniversaries in Canadian history in 1986: the 100th anniversary of the arrival of the first transcontinental train – and the centennial of Vancouver itself.

It was much earlier, of course – 1782 – when Captain George Vancouver, an English explorer searching for the Northwest Passage, sailed into the magnificent, densely forested snow-capped regions around the inlet now called Burrard Inlet.

Even then the region was not uninhabited. Captain Vancouver, whose name would be given to the city that grew there, was met by about 50 Musqueam Indians in canoes, who, he reported in his log, "conducted themselves with the greatest decorum and civility." But nearly a century would pass before European settlers followed in any numbers and it was not until 1886 that the city was incorporated.

For Vancouver, 1886 was an important year. As soon as it was incorporated, a great fire leveled its frame buildings to ashes and the city fathers had to rebuild from scratch. Then, in November, Canada's first transcontinental railroad pushed through the mountains to a terminus on Vancouver's False Creek and set the city's course for the future.

Now another century has passed, and with 1.2 million persons, Greater Vancouver is Canada's third largest city. Just 50 kilometers (30 miles) north of the U.S. border, it is a modern metropolis of manicured lawns, flowering trees and towering skyscrapers in the shadow of a primeval wilderness. The city's temperate climate is moderated winter and summer by passing ocean currents, and its beauty has been compared to that of Rio de Janeiro and Hong Kong and like the happy Beirut of a decade ago, Vancouver also boasts that within an hour's drive on a sunny spring day her citizens can frolic both in the snow and on her shores.

Almost equidistant between Europe and the Far East, Vancouver's magnificent harbor is the largest cargo port on the Pacific Coast of North or South America and Canada's link to the dynamic, prosperous nations of the Pacific rim. In an astonishing transformation, what was a brawling frontier town 100 years ago has become a gracious international home – whose residents include Japanese, Chinese and East Indian descendants, as well as those of her early European settlers and native Americans.

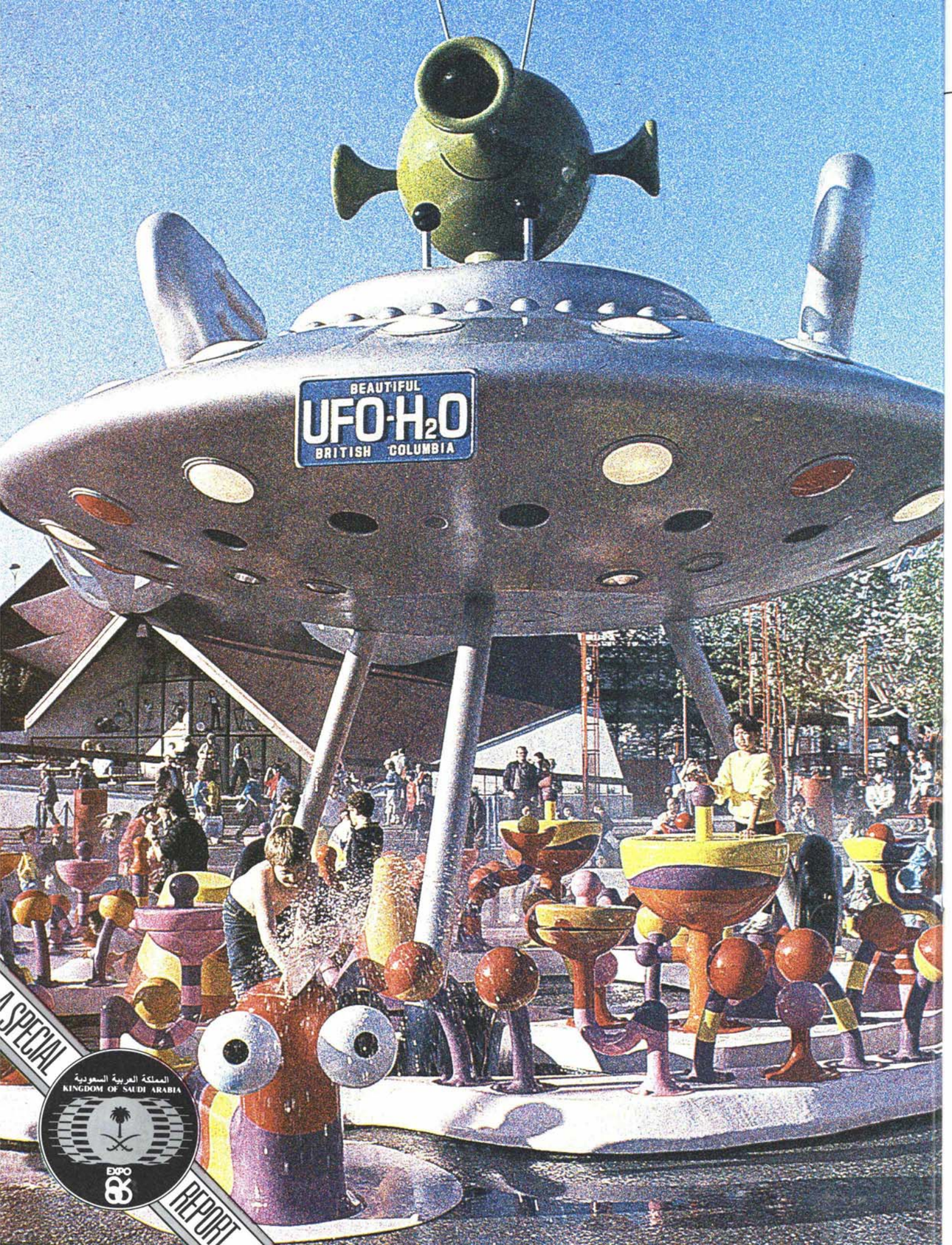
In 1978, a group of Vancouver businessmen decided that both those centennials should be celebrated and later, when the governments of British Columbia and Canada agreed, the businessmen decided to invite the world to join the celebration. With the shining example of Montreal's 1967 World Exposition before them, the businessmen then cast their eyes on 70 hectares (173 acres) of neglected waterfront flanking the skyscrapers and parks of downtown Vancouver – and began eight years of single-minded planning and building.

Those years were not without problems. Problems ran the gamut from leaky roofs in prefabricated pavilion modules to major shakeups at Expo's top management level. As in Knoxville, there were also charges of rent increases and even evictions by city landlords looking forward to more profitable Expo rentals, as well as clashes between unions and non-union contractors over Exposition construction, and demonstrations by students and social activists.

At one point, University of British Columbia economists also objected. They

The green and white Saudi Arabian flag flies alongside those of other nations participating in Vancouver's Expo 86.

The Saudi Arabian Pavilion and Air Plaza, with, inset, Prince Charles and Princess Diana touring Expo 86.



argued that investments in renewable resources would be more beneficial to the province's depressed economy – and they may have a point. Earlier, the city of Chicago, hoping to recapture the success of its now legendary 1934-35 fair, took a close look at Vancouver's figures and projections and scrubbed the idea. As one Vancouver critic pointed out: "It's the classic bread or circus debate. The $300 to $400 million which Expo is *budgeted* to lose is roughly the amount which has been cut from provincial education programs over the past four years."

Expo backers saw it differently, eventually plowing more than $1.5 billion (Canadian) into the project, business sponsors alone committing $180 million, more than the total corporate investment at 1984's Los Angeles Olympics – excluding television rights. By the time Queen Elizabeth visited Vancouver in 1983, so much had been accomplished that she felt justified in issuing, in her capacity as head of the British Commonwealth, a formal invitation to world governments to participate. Eventually, 54 responded and in 1985 fair officials launched a $90-million promotional campaign by releasing 1,986 helium-filled balloons – some with airfare vouchers to Vancouver attached – inviting the Canadian, North American and world public.

Expo's backers were determined to show that "Canada is a nation of doers, a people of achievement," as Canada's Prime Minister Brian Mulroney said at the opening-day ceremony in the covered 60,000-seat British Columbia Stadium, adjoining the Expo site. His audience included Prince Charles – whose mother, the Queen, had inaugurated the stadium during her 1983 visit – and, to everyone's delight, Princess Diana. Together on May 2, they opened Expo 86.

"Expo 86 is like a ship under full sail," Mulroney told the guests assembled in Vancouver and the world – via the same 20th-century communications miracles that the fair is celebrating – "…preparing for a voyage into the next century. Come to Vancouver. Come to Canada. What a welcome and what a world awaits you here."

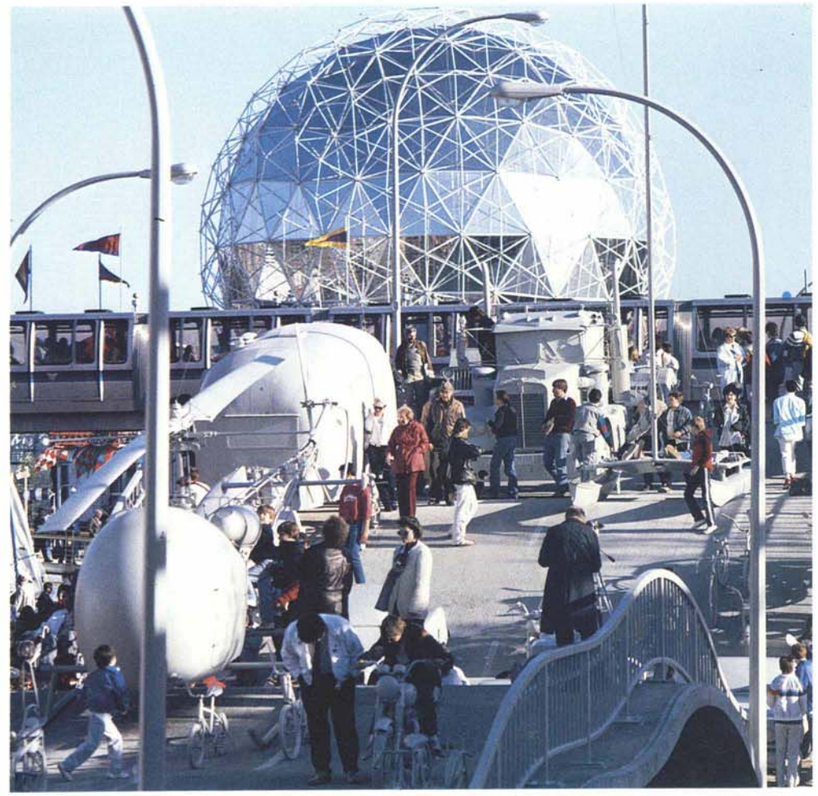
The spirit of welcome is undeniable. On opening day a retired couple who had driven some 5,600 kilometers (3,500 miles) across Canada from Newfoundland stepped through a ceremonial Expo turnstile to become, officially, the first visitors, shook hands with beaming businessmen, greeted Expo Ernie, the fair's robot mascot, and led in the first thousands of tourists who had come to see what the fuss was about.

What they saw – and what at least 13 million more will see, according to mid-May ticket sales – is a dazzling, educational, thought-provoking, sometimes uplifting and always friendly example of people in motion, people in touch.

Set up on the shores of False Creek, a protected, finger-like inlet of the Pacific just south of downtown Vancouver, the main Expo site is a marvelous mix of science and showmanship, with international, provincial and corporate pavilions, exuberant plazas, exciting theaters, good restaurants and fun-filled discos. In addition, at Burrard Inlet, the city's main harbor in the north, there's a second site: Canada Place and the Canada Pavilion – symbolically under full sail beneath five soaring white ridges of Teflon tent. This complex includes a number of innovative theaters, a cruise ship terminal, a luxury hotel and convention center, and both sites are linked by a free, four-minute ride aboard the city's gleaming new regional rapid transit system.

One element that is instantly visible is color. Expo planners divided the False Creek site into six color zones, a concept which allows visitors to explore the basically linear grounds amid buildings, benches and flamboyant banners all painted or dyed in vibrant Day- Glo hues, splendid when the sun is shining, as it does most of the time during a typical Vancouver summer. Indeed, the yellows, greens, pinks, blues, reds and purples of Expo 86 have the fluorescence of spring tulips in Holland. The flower beds are bursting with blooms – not just tulips – all coordinated with their zone color. They'll be replanted twice again as the seasons move toward the October closing.

Expo's transportation theme is commemorated in three light-hearted plazas where fanciful and authentic ships, aircraft and land vehicles have become sculptural pieces which play before the eyes like larger-than-life, three-dimensional cartoons. At the west end of the site, for example, there is a Marine Plaza dominated by a towering steel Dream Ship, turquoise and hot pink, with dozens of stiff white sails, and iron sea monsters cavorting in its undulating, painted concrete wake. Nearby is the International Harbor, where tradi-



Two of Expo 86's biggest crowd pleasers: The ghosts of Highway 86, above, and, opposite page, the playful UFO-H_2O.

The Ramses Surprise

The popularity of the Great Hall of Ramses II, with its collection of treasures, could hardly have surprised the organizers of EXPO 86. Or could it?

It's true, of course, that "Ramses II and His Times" is one of the finest traveling exhibitions of Egyptian antiquities in recent years. It's also true that the exhibition is historically relevant to Expo's themes: the early Egyptians developed chariots and boats which became world prototypes, built roads, causeways and canals, and invented ink, papyrus and the hieroglyphic symbols which predate alphabetic scripts.

But who would have guessed that the Great Hall would quickly become the single most popular – and possibly most meaningful – pavilion at Vancouver's Expo 86? After all, Egypt's old hat, no?

Maybe so. Nevertheless, sponsorship of a world-caliber exhibition of art and artifacts from ancient Egypt and its placement in an imaginative building on an urban, waterfront site amid stunning examples of 20th-century technology was a brilliant decision – intended or not.

Outside, for example, the front facade, with it bulbous, lotus-topped columns inspired by Egyptian temples, instantly strikes a chord: the columns' desert-stone tones look just fine against the blue Pacific sky.

It's not, by the way, a real temple, but as conceived by Vancouver designer David Fischer, it nearly fooled me. The walls and roof, for example, seem to be constructed of carefully fitted giant blocks and there are gaps exactly where light and ventilation are needed, with the missing stones tumbled at crazy angles on the ground beside the pavilion.

The lines began to form on opening day – and they're forming still. But the lines are organized and the friendly, gray-haired volunteer ladies can tell you what time you can expect to get in. Meanwhile, there are magnificent posters previewing the gold and statuary awaiting inside, and even street entertainers to help you pass the time. One day in May a local group calling itself Special Delivery Dance – featuring "site-specific choreography" – performed beneath the monumental sculpture "Spirit Catcher" on the waterfront.

Inside, for a $1 rental charge, you can get sleek white "audio wands," which guide the visitor through the darkened hall at his or her individual pace thanks to a network of copper wires set in the floor.

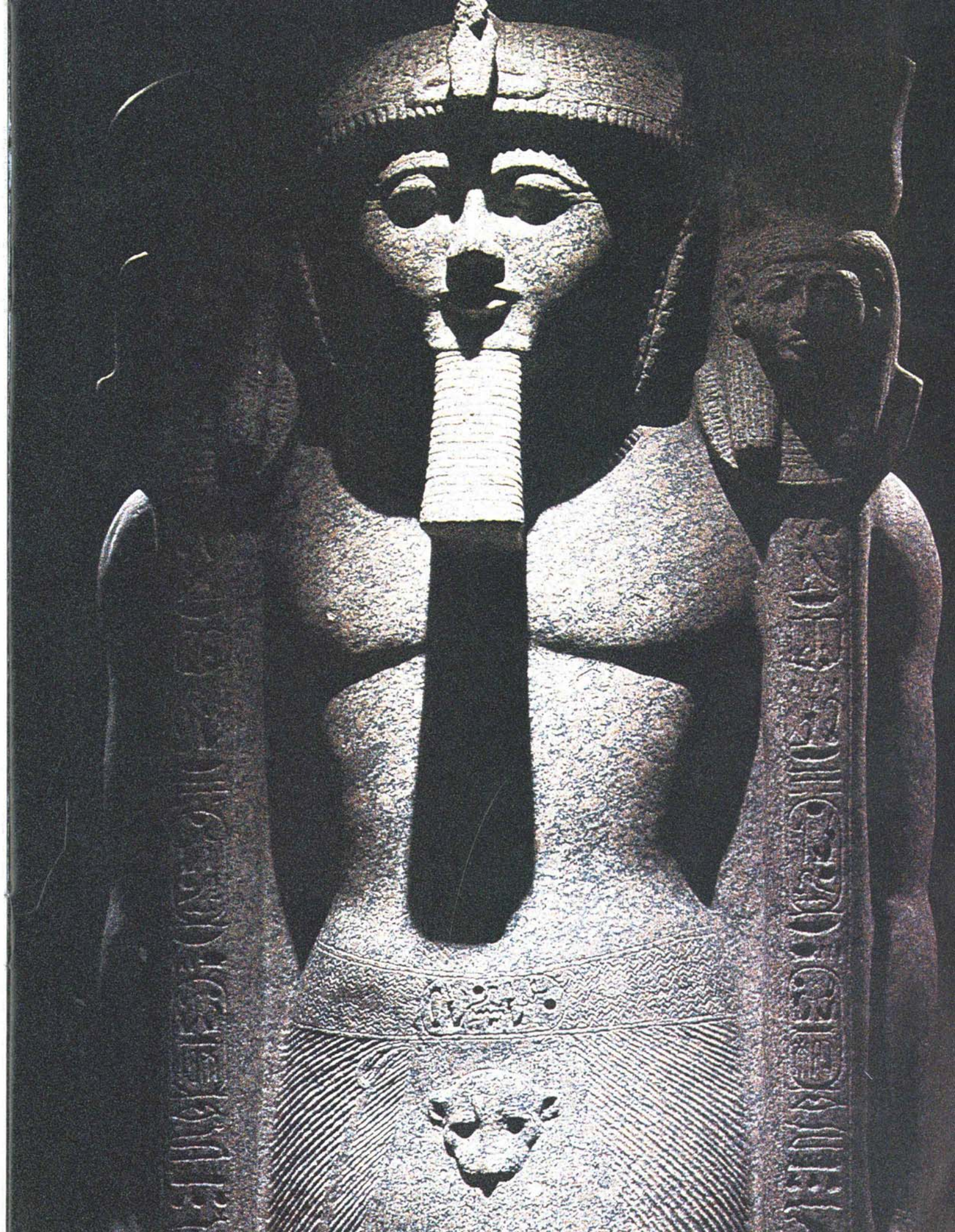
Ramses II was the third king of the 19th dynasty of Egypt. His reign – from 1304-1237 B.C. – was marked by stability, peace and prosperity, as suggested by the great temples at Luxor, Karnak and Abu Simbel (See Aramco World, *January-February 1965) built about this time.*

Until Vancouver, the exhibition, assembled from the collections of the Cairo Museum, had been seen only in Montreal and Knoxville in North America. Many pieces show off the craftsmanship of Egyptian goldsmiths: bracelets, ear pendants and the massive gold necklace of Ramses II's successor weighing eight kilograms.

Other items include the combs and mirrors of the ladies of the court, and levels and plumblines used by the architects and temple builders. There is also an ingenious waterclock, the clepsydra, carved from translucent alabaster – a reminder that the ancient Egyptians bequeathed to us a 365-day calendar.

In the midst of the sparkling high-tech exhibitions at Vancouver it is especially pleasant to stroll through the dim interior of the Ramses Hall, to pause in pools of light and to listen to the magic wand and bask in the golden glow of artisans and thinkers from so long ago – a short respite, perhaps, from the 20th-century artists and inventors waiting outside – waiting to bequeath their creativity and ideas to our *futures.*

Aided by an 'audio wand,' an Expo 86 visitor, above, tours the Great Hall. Right, the Colossus of Ramses II.



tional boats of every shape and age ride at anchor. One is a Thai fishing boat, painted in eye-filling folk patterns; another, a Pakistani dhow, similar to those on which Arab seamen once sailed the monsoon winds (See *Aramco World*, March-April 1974 and September-October 1981). On the wharf visitors can watch a team of Indonesian boat builders construct a native sailing vessel – a Pinisi – and in a small pool ashore, Canadian hobbyists demonstrate radio-controlled model boats.

There is also an Aviation Plaza, a riot of colorful flying machines suspended like kites inside a towering cubical frame, and a Land Plaza, with an amazing "International Traffic Jam," which sets sculptured camels, an elephant and a bullock cart amid motorcycles, a double-decker bus, a gypsy cart and a crazy congregation of folk-decorated native vehicles from around the globe (See *Aramco World*, March-April 1969). Nearby, 214-meter-long Highway 86 (702 feet), billed as "a relic from a future archeological dig," rises out of False Creek in waves of broad white concrete ribbon trafficked by the gray ghosts of what surely must be every transportation device employed by modern man, from submarine to skateboard to snowshoes. Both the International Traffic Jam and Highway 86 swarm daily with families posing for pictures, beside and astride the exhibits and sculptures, and other visitors watching them.

UFO-H_2O is another playful sculpture which attracts shutterbugs and kids. A monumental flying saucer, with a green-headed pilot, it spurts dozens of computerized jets of water arching over and toward the dodging humanoids beneath it. There is another "flying saucer" at the Canadian pavilion too – a helium-filled "aerodyne" doughnut with central reversible fans, cruising ethereally over visitors' heads. This though, is not real; it's a model of a new aircraft already being used for logging in wilderness regions of British Columbia.

The Canadian provincial pavilions, like the corporate pavilions, have distinctive individual architectural designs. The Northwest Territories is an iceberg, Alberta and Saskatchewan are grain silos of colorful wood and mirrored glass, and mountain climbers scale the outside of Alberta's pavilion regularly throughout the day. Ontario chose a crescent-shaped tent; host British Columbia a complex that includes a covered plaza and open-air theater beside a mountain glade and a splendid glass greenhouse.

In designing the international pavilions Expo planners faced two problems: time and uncertainty: how many countries would sign up, and when? The eventual total – 54 – set a record for expositions in the Western Hemisphere. The creek site, on the other hand, offered advantages: building materials and exhibits could be delivered directly by barge.

They also had a building style that was easy to assemble: uniform, prefabricated, tubular steel-supported modules of 250 square meters each. Several large countries, emulated China, which, joined six modules to create its pavilion, which features popular models of the Great Wall and a 2,000-year-old bronze chariot as well as a communications satellite.Other countries, such as Cuba, confined themselves to one module.

The modules came in basic white plywood and it was up to each country to distinguish its facade and design its interior. Singapore transformed its two modules into a covered arcade bazaar, with shops typical of its ethnic mix: Chinese, Indian and Muslim Malays. Malaysia wrapped itself in a fringe of stylized bright green palm trees. Hong Kong's was shaped into a large yellow packing crate symbolizing its export and building trades. At the United Nations Pavilion, planners tried to view Planet Earth as seen from space – with no flags or political boundaries – while more prosaically, Switzerland draped its facade with the world's largest wristwatch, Peru filled its darkened interior with cases of shining, finely-wrought Inca gold and Indonesia built a brick Balinese gate outside its entrance. Inside Indonesia's pavilion, visitors could play a remarkable collection of drums – hanging hollow logs, each with its own distinctive carving and tone and could watch hostesses drawing on cloth with hot wax, in a step-by-step demonstration of making batik.

Everyone had something to tout. Korea publicized the upcoming 1988 Summer Olympics in Seoul with stadium models, Alberta previewed the Calgary Winter Olympics and Spain tried to whet appetites for the 1992 World Exposition planned in Seville.

Two of the key pavilions, naturally, were those of the U.S.A. (six modules) and the U.S.S.R. (10), and, inevitably, visitors have begun to draw comparisons, especially since both focus on space exploration. The U.S. featured a six-minute, big-screen film of a shuttle lift-off and a scale model of a prototype space station due to be orbited in 1992, and the Soviet Union featured a 33-meter-long (108 foot) mockup of a 35-ton space station. The U.S.S.R. also offered a 15-meter-high statue (49 foot) of Yuri Gagarin, the first man to orbit the earth – just 25 years ago. The verdict of many visitors seems to give the U.S.S.R. pavilion, despite its curiously old-fashioned look and oppressively heavy-handed peace message, a slight edge over that of the United States.

Washington state won the best reviews of the three Pacific coast states, though California's displays of the actual Apollo 14 command module which launched the first manned landing on the moon, and the tricks of movie-making technology were crowd pleasers.

Saudi Arabia, the only Arab nation represented at Expo 86, presented a thoughtfully balanced mix of modern developments in transportation and communications, the timeless message of Islam and the crafts and lore of a traditional desert environment which, by the end of June, was drawing a steady stream of visitors. Although the kingdom had successfully mounted exhibitions at such past fairs as Osaka, Japan (See *Aramco World*, July-August 1970) and Knoxville (*Aramco World*, July-August 1982), Saudi planners were visibly pleased when its Vancouver pavilion drew some 48,000 persons during its extended opening weekend.

Other Muslim countries represented included the tiny oil state of Brunei Darussalam (the Abode of Peace), where pavilion manager Mohammed Zaini Bagul was busily stamping visitors' Expo "Passports" and passing out souvenir postcards of Omar Ali Saifuddin Mosque, with its appealing juxtaposition of Middle Eastern and Oriental architectural styles. Pakistan's single module was so chock full of Islamic motifs and patterns – on ceramics, calligraphy, printed cloth, applique, embroidery, carpets, wood carving, copper engraving, stone inlay – that it was like a walk through a jewel box, and a lavishly decorated bus from Kashmir was especially attractive to children.

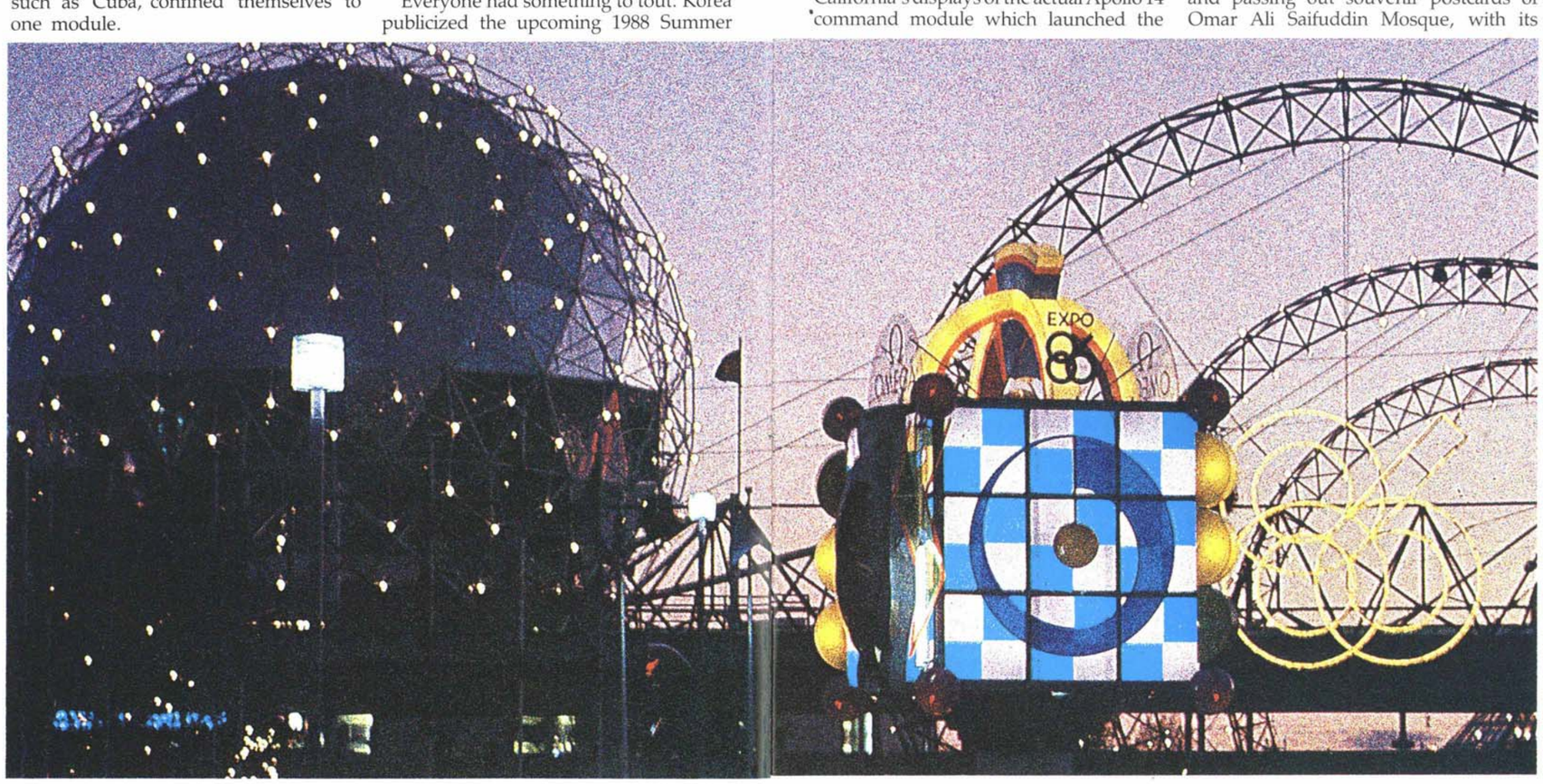
Another fine Middle Eastern exhibition was the Great Hall of Ramses II (See box). A breathtaking exhibit, it was sponsored by Expo's organizers, *not* Egypt, and included Egyptian gold and statuary previously seen in North America only in Montreal and Knoxville, Tennessee. Another Expo-sponsored pavilion was the Roundhouse, a restored section of the original terminus of the first transcontinental railroad. It featured in one wing an outstanding holographic exhibition called "The Spectral Image," and in the other, lovingly restored, fancifully displayed antique automobiles and engines.

The Roundhouse, incidentally, is one of four "Legacy Buildings" at the exposition – buildings which will not be dismantled. The others are Canada Place, British Columbia Place, and Expo Center, the 17-story geodesic dome with its two incredible film theaters at the east gate of the site. When the chill and damp of winter end Expo 86 in October, all other buildings will be demolished and moved off the site to make way for proposed urban development projects.

But October still lies in the future. For now the fun continues. Throughout history and in all cultures, one way all peoples have communicated is through entertainment. As 1985's "Live Aid" concert and May's "Sport Aid" showed, this pleasant form of communication can now touch millions simultaneously, and at Expo 86, visitors looking for live performers are not to be disappointed, be they fans of classical music, pop singing, folk dancing or street juggling.

For starters, fair planners scheduled more than 23,000 free, on-site performances from May to October, 14,000 at False Creek and 9,000 at Canada Place. They are an eclectic blend of the finest traditional elements with the wonderful and unique. "We've tried to steer clear of the 'homogenized culture' syndrome," one official said.

They have. The four major Expo theaters, three cabarets and two bandstands are welcoming a joyous international gathering of singers, dancers and storytellers, and Expo streets and plazas are alive



The East Gate of Expo 86 at twilight.

A SPECIAL REPORT

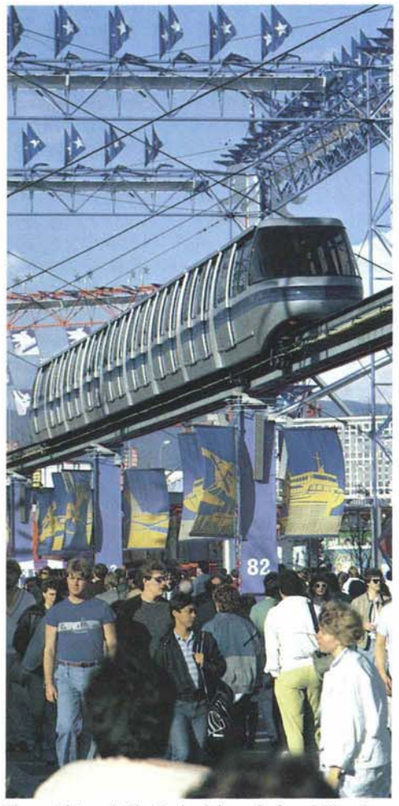
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA
EXPO 86

with parades, clowns, robots and mimes. The 1,500-seat Xerox International Amphitheater, for example, scheduled Japan's Ikuto Shrine Performing Group, Indonesia's Gamelan Orchestra, and Saudi Arabia's National Folk Dance Troop, among more than 100 attractions.

Some 250 performances are *not* included in the admission price, however. Instead, some of the world's great classic companies and top-of-the-pop artists have appeared, or will appear, at the Expo 86 World Festival in the 4,000-seat, covered Expo Theater and three large theaters in nearby downtown Vancouver: companies such as Italy's La Scala Opera, the U.S.S.R.'s Kirov Ballet, Great Britain's Royal Ballet, and the Philadelphia and Vancouver Symphonies, as well as individual stars as diverse as Charles Aznavour, Red Skelton, Johnny Cash, Bill Cosby, Harry Belafonte and Victor Borge.

And then there's film. There is hardly a pavilion at Expo without its slide show, movie screen or bank of TV sets, and a number of innovative theaters have been specifically designed to utilize some dazzling new film techniques. One is the Omnimax Theater, in the Expo Center, a glittering dome which opened a year before Expo and will remain after this year's big show. It features a 23-minute tour of the world called *Freedom to Move;* the ultimate cinematic sensation. It projects gigantic images nine times larger than those on ordinary movie screens, engulfing viewers with scenes and sounds. There's also the Imax Theater, at the Canada Pavilion on Burrard Inlet, which features *Transitions,* the first-ever Imax movie in 3D. There is too an entirely new film development, Scenography, at the Canada Pavilion. It uses nine computer-coordinated projectors and screens as well as a single spinning sphere to create lifelike illusions. It's the creation of Emil Radok, who produced *Laterna Magika,* the popular mix of film and live actors at Czechoslovakia's pavilion in Montreal.

Last, at the Telecom Canada Pavilion, there's the Circle Vision 360 Theater using Disney technology in a stand-up auditorium to show, in *Portraits of Canada,* a vast land and diverse people.



The rapid-transit Sky Train, left, and, free falling Space Tower, right, provide breathtaking experiences at Expo 86.

No fair, of course, would be complete without rides, and though there are only five at Expo 86, they're unforgettable. The Scream Machine, for example, offers 360-degree loops and reaches speeds of 88 kmp (55 mph), the Looping Starship offers the relative weightlessness familiar to astronauts, the Cariboo Log Chute is a kind of roller coaster on water and nearby, children from around the world will be lining up to gallop into the past, four abreast, on the backs of the antique hand-carved horses of the 1907 Philadelphia Toboggan Company Carousel. As a sign points out, the name is derived from the Italina "garosello" or Spanish "carosella" (little war), which is how returning Crusaders described a game of horsemanship which they had witnessed during their travels in Turkey and Arabia.

But the piece de résistance is "Space Tower," an 80-meter (262-foot) lotus-shaped, bright yellow monument soaring above Ramses' Great Hall at the west end of the site. Space Tower is modeled after the original Parachute Drop, also 80 meters high, which terrified fair-goers by the thousands at the 1939 New York World's Fair (See *Aramco World,* July-August 1973) and still stands at Coney Island, where amusement park aficionados are trying to raise money to restore it. Vancouver's Space Tower, which in its own way is as much a symbol of Expo 86 as the geodesic dome of Expo Center at the other end of False Creek, offers two choices when you gamely step to the ticket windows: a relatively tame view of Vancouver's skyline, harbor and mountains or, if you have the heart for it, a brief but breathtaking freefall. Go ahead. We dare you.

Were any details being overlooked? Very few. First off, there's lots of parking space – 26,000 cars – and free parking for bicycles. You can leave your dog, or other pets, in one of two kennels, you can rent strollers for your children and if you lose any – children, that is – Lost Children stations are everywhere. There are also storage lockers, currency exchange booths, public telephones – 450 of them – and trash cans: 1,400 trash cans. If you get tired there are 10,000 seats scattered through 200 flower beds and along the water front, and if you have trouble with the language there are interpreters on hand to help out. Last, Expo 86 is wide open to the disabled: ramps everywhere, wheelchairs at every gate and guide dogs admitted.

Inside the grounds, transportation is free, including a sleek, Swiss-built 5.4 kilometer monorail (3.3 miles) which circuits the exposition in 20 minutes and the East and West skyrides, six-passenger gondola cars suspended overhead like ski lifts. They're sponsored appropriately enough, by Canadian Pacific Air Lines and Air Canada. Then there are the ferry boats cruising along False Creek's four-kilometer shoreline (2.5 miles) and Sky Train, a special rapid transit shuttle to the Canada Pavilion. Also available are Japan's magnetically floating HSST train and France's compact Soule SK people-moving cabins, but they don't take you anywhere. Demonstration models, they move only toward the future.

An exposition that includes communications in its theme could not, certainly, overlook information and Expo 86 hasn't; at banks of IBM touch-screen computer terminals in 10 outdoor kiosks, visitors can get electronic answers to their questions about Expo in English or French and, on request, maps, entertainment updates and even video clips.

Then there's food: 50 Expo-operated restaurants, some featuring "Quick Cuisine" and seating 10,000 customers, some hot dog stands disguised as space ships and five McDonald's including the floating "McBarge." In addition, 10 international pavilions serve ethnic specialities.

Expo organizers have also made elaborate provisions to help you find a room. Res West, called the world's largest reservation system, can instantly sort through more than 13,000 "approved quality hotel rooms" in Greater Vancouver and check 2,000 more rooms in bed-and-breakfast establishments, youth hostels and university dormitories. If you're really desperate, or if you prefer it that way, Res West can also check out 8,000 camp sites located amid the majestic forests, mountains, rivers and valleys of the northwest no more than a three hour drive away.

Even before it opened, Expo 86 organizers had pre-sold 13 million tickets – many of them three-day or season passes and with many Americans and Canadians avoiding Europe this summer, the fair may sell another four to seven million tickets before October. To handle this crush, Expo organizers have hired some 15,000 employees, mostly young, vigorous and enthusiastic, and have recruited another 15,000 volunteers, many of them enthusiastic senior citizens who, at the end of an unpaid four-hour shift, typically stick around to enjoy the attractions along with the ticket holders.

As usual, most of the countries, provinces and corporations represented at Expo 86 will be celebrating National or Special Days during the summer. Canada's was on July 1 for example, the U.S.A. on July 4 and Mexico and the Kingdom of Saudi Arabia will do so in September.

A number of special events were scheduled too: Steamexpo, the largest assembly of steam locomotives in 40 years; Ships of the World, a gathering of hundreds of steam and sailing craft in Vancouver's harbor; a Vintage International Antique Auto Show; the DC3 Airmada, in which more than 50 classic airliners celebrate the 50th anniversary of the DC-3 with a fly-past over the city, and, on August 8-10, the 25th annual Abbotsford International Air Show the biggest in North America this year. (When an Air France Concorde makes its appearance, anyone with $845 to spare will be able to book a 100-minute "Flight to Nowhere" over the Pacific at twice the speed of sound).

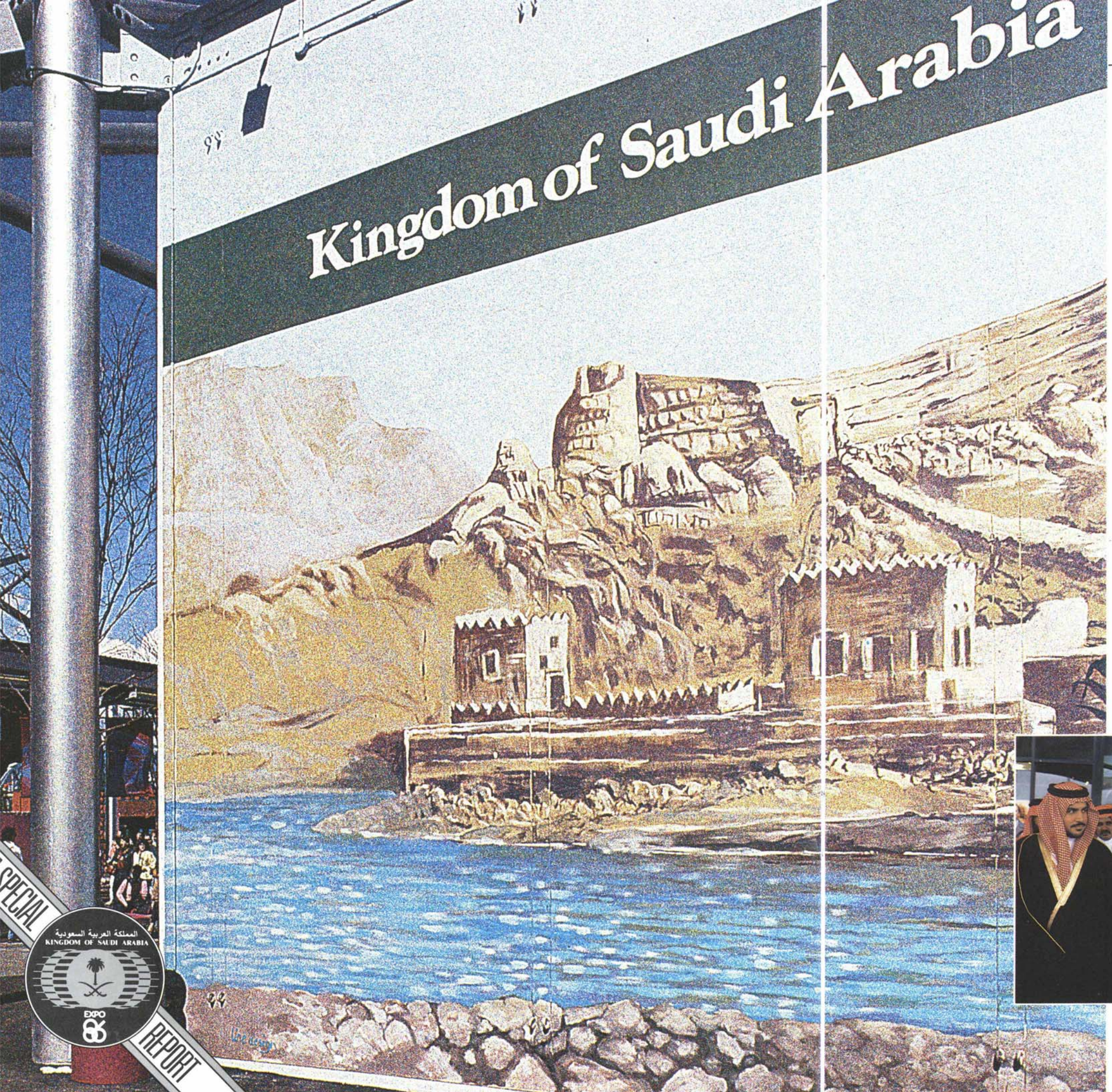
This theme – transportation and communications – is also explored in an entirely new program for world expositions: in-depth looks – conferences, trade exhibitions on- and off-site displays and demonstrations – in such fields as Polar Transport, Search and Rescue, Alternate Fuels, Underwater Resources and Modern Rail.

Symposium III, for example (the first two in this three-part series were held in January 1984 and March 1985), gathered experts in transportation and communications from around the world, and launched some 80 specialized conferences and seminars which Commissioner General Reid calls "more exciting than the pavilions themselves." One early example was the International Pipeline Symposium, sponsored by the Government of Alberta (See box).

Appropriately, the keynote speaker at Symposium III was Dr. Thor Heyerdahl, the Norwegian author, who has challenged the oceans of the world in small craft as old as man himself. "To have any intuition as to where we are going, we must know where we came from," Heyerdahl said – summing up what Expo 86 is about: the exploration of the past and the future in a voyage of discovery.

William Tracy is a former Assistant Editor of Aramco World *magazine now writing a novel in California.*

Marine Plaza, with a Pakistani dhow, similar to those used in the Arabian Gulf, at anchor in the International Harbor.



A Kingdom in Touch

WRITTEN BY WILLIAM TRACY PHOTOGRAPHED BY NIK WHEELER

During Expo's three-day opening in May, about one seventh of all ticket holders passing through the entrance turnstiles found their way to the Saudi Arabian Pavilion, one of 54 international pavilions on the grounds, and most of them came out surprised. As one white-haired lady put it, "Here I am with one foot already in the grave and I had no *idea* that Saudi was anything like this."

Few people do. Though Saudi Arabia, in three generations, has been transformed the Canadian lady's image is probably the one that most people in the West retain: an image of deserts, camels, Bedouins, and oil. At EXPO 86, therefore, Saudi Arabia has gone all out to present a balanced, well organized series of exhibits which do not neglect the kingdom's heritage but try to make it clear that today its schools, universities, housing, factories and, above all, communications and transportation are as modern as any in the world.

The Saudi Pavilion – composed of six prefabricated modules, a total of 1,500 square meters (16,140 square feet) – is in Expo's pink zone, just across the monorail line from Switzerland, with its giant watch. The entry, on the side away from the main pedestrian street, opens onto the Pacific inlet called False Creek, and that side of the building is painted to resemble a whitewashed fishing village on the Red Sea coast. Inside, photographic portraits introduce the founder of the modern kingdom, King 'Abd al-'Aziz ibn Sa'ud and six of his sons, including King Fahd, the present ruler, and another introductory display explains that although Canada and Saudi Arabia did not open diplomatic ties until 1973, more than 4,000 Canadians already live and work in the kingdom, many employed by Bell Canada, which helps manage Saudi Arabia's vast new telecommunications system.

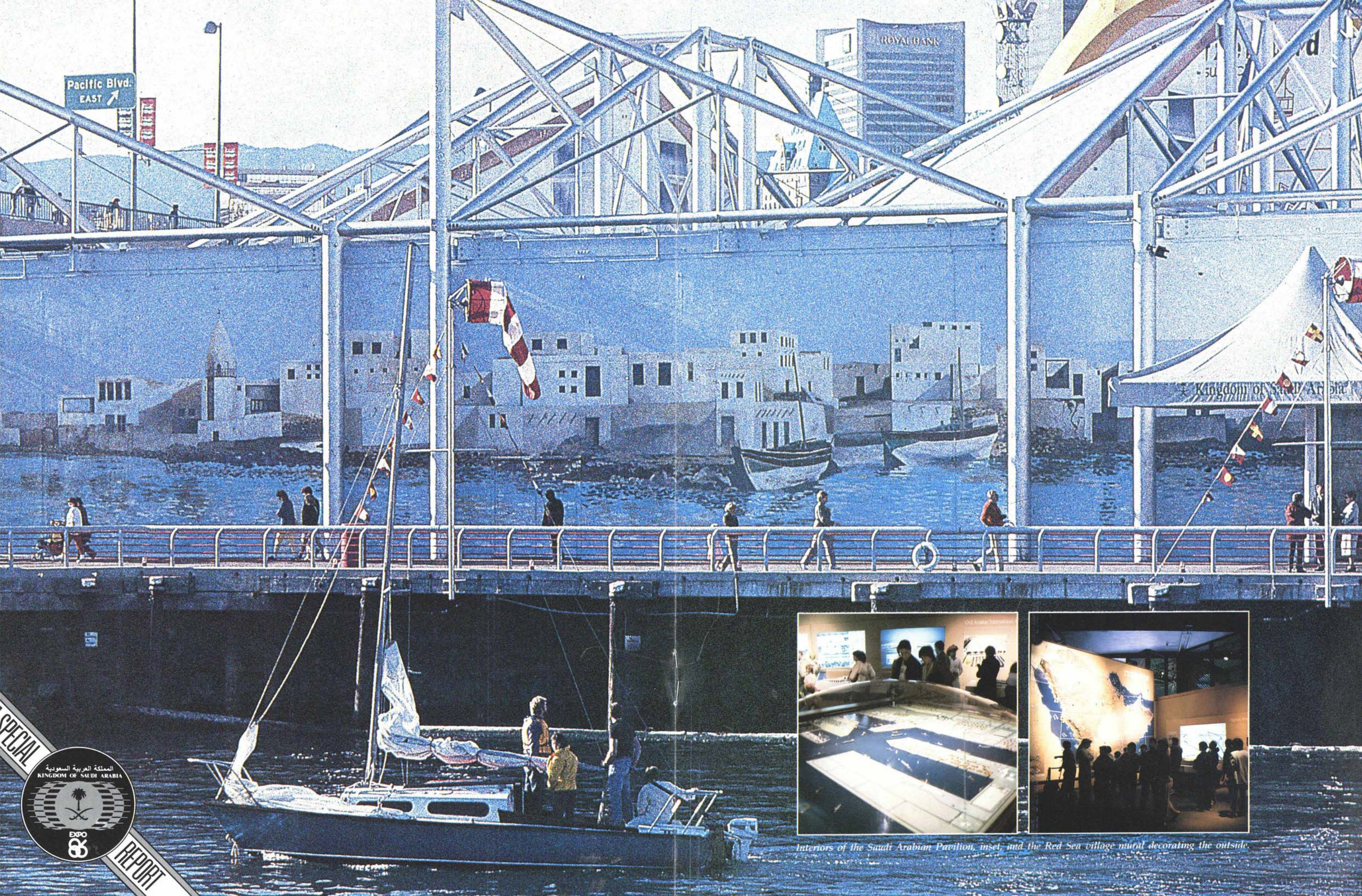
Assistant Deputy Minister for Transport Khaled Abdulghani, third from left, at opening of Saudi pavilion, left.

Subsequent exhibits tell the story of the Arabian Peninsula from the early days, when its trade routes linked Asia to Europe and parts of Africa, through the rise of Islam and the growth of the Islamic Empire, to the founding of the Kingdom of Saudi Arabia in this century and its recent emergence as a modern nation.

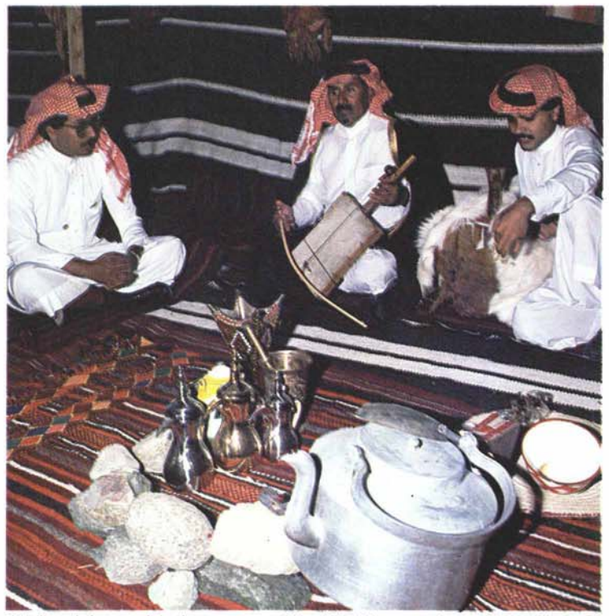
One exhibit, rich in statistics, showed how Saudi Arabia, with 77 kilometers of mostly unpaved highway (See maps) in 1951, has changed: today it has more, 80,000 kilometers (50,000 miles) of roads, nearly half of which are paved, including many ultra-modern intercity expressways. Facts like this overwhelmed one school girl. "If you had to do a project on a country wouldn't this be the perfect place to come? They have all the facts and figures."

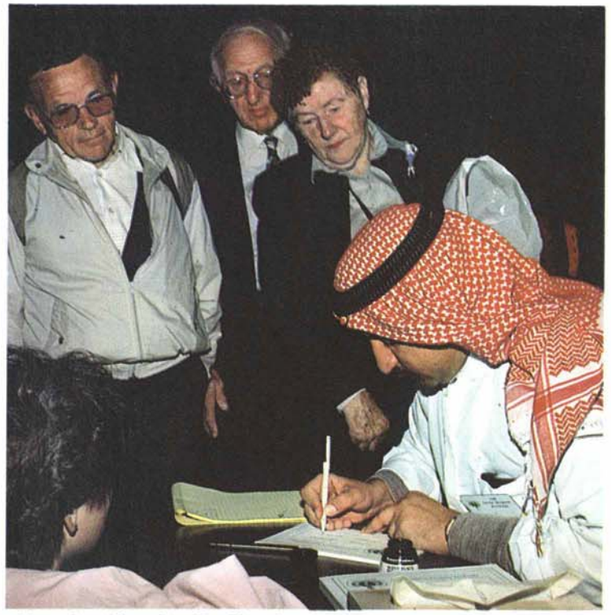
Nearby and a bit later, a man and his wife examining the same exhibits were also impressed. "Imagine, in 50 years from camels to all this," the husband said. His wife nodded. "What impresses me is not just the obvious prosperity, but the wisdom with which they've put the wealth to work. It makes me think of North America as being rather young."

With the Muslim faith the central fact in Saudi Arabia's history, the pavilion naturally devoted considerable space to Islam. The Islamic displays for example, include three handsome fragments of a *Kiswa*, the black-cloth covering which is prepared anew each year for the *Ka'ba*, the sacred cubical structure in Makkah (Mecca) considered to be the physical center of Islam. It is richly embroidered in gold with passages from the Holy Koran. (See *Aramco*

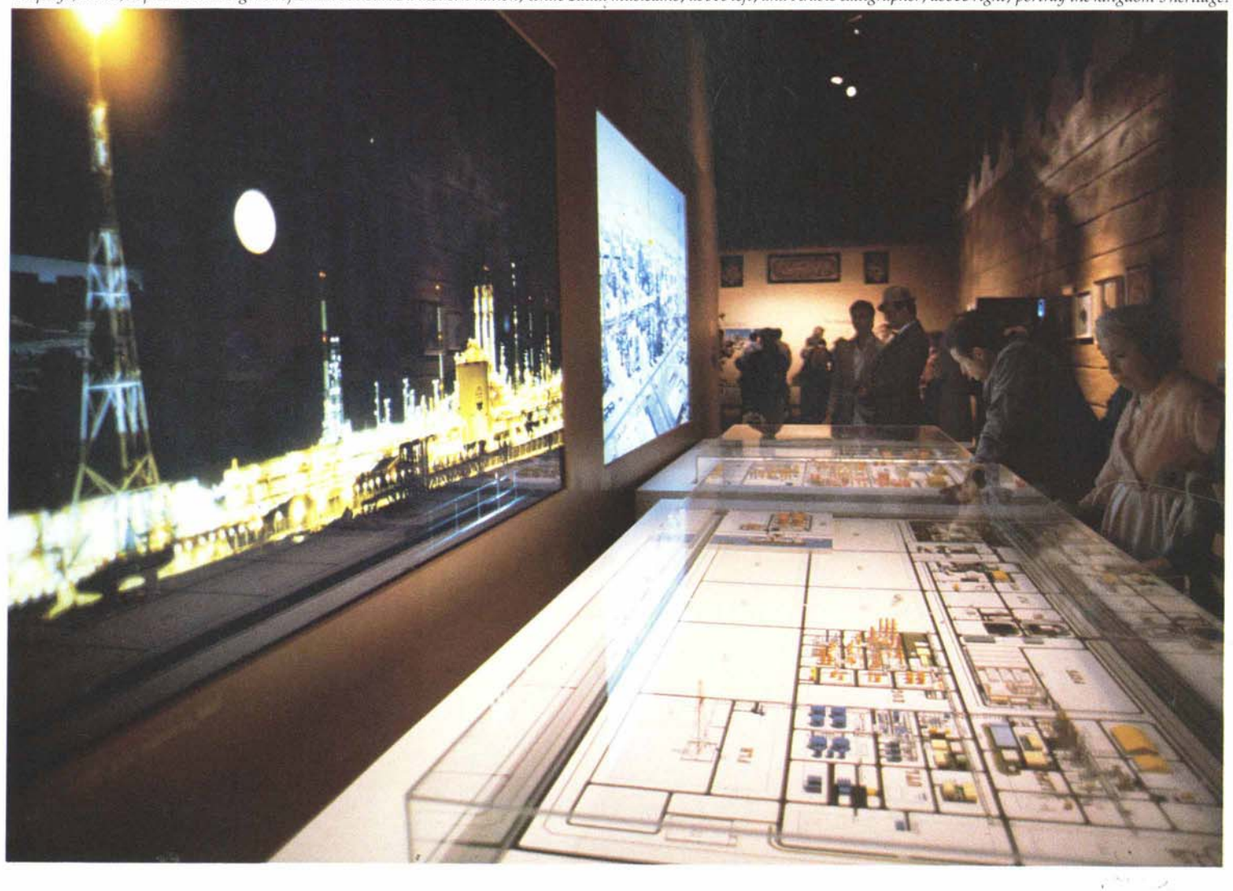


Interiors of the Saudi Arabian Pavilion, inset, and the Red Sea village mural decorating the outside.





Displays, below, explain the emergence of Saudi Arabia as a modern nation, while Saudi musicians, above left, and Arabic calligrapher, above right, portray the kingdom's heritage.



World, September-October 1985). There are also color photographs of Islam's three holy cities, Makkah, Medina and Jerusalem, as well as a panorama of Makkah as photographed by an Arab pilgrim in 1886.

In a small theater nearby, beneath a simple dome suggesting the architecture of a mosque, visitors can see an eight-minute, multi-image slide show. It features powerful images which show how Islam, as it spread across much of the known world, both enriched and learned from the cultures it encountered. It concludes with scenes of individual pilgrimages: men and women of every race and color making what the commentary calls "The journey to the heart of Islam ... to Makkah, that focal point of a lifetime of prayer, where each one must make that fearful private journey to the depths of his own heart."

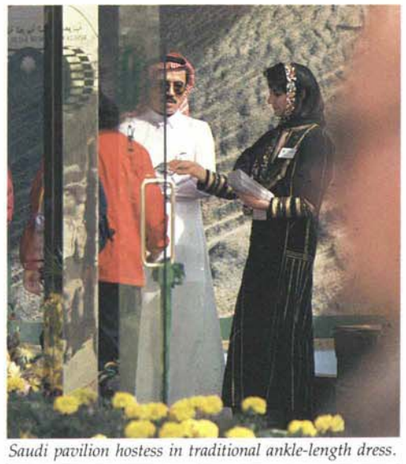
Education is another theme stressed at the Saudi pavilion, a theme echoing the Prophet Muhammad's insistence that Muslims "seek knowledge from the cradle to the grave." There was not a single government school in the Arabia of 1932, but by 1972 there were 4,000 educational institutions at various levels, and today two million students, boys and girls, men and women, are enrolled at all levels, including 80,000 at colleges or one of seven universities (See *Aramco World*, September-October 1985). Another 6,000 Saudi Arabs attend school in North America, chiefly in graduate or specialized studies.

Near the Islamic section is a theater, painted to resemble a mud fort, with paintings by contemporary Saudi Arab artists hanging on its walls. The theater seats 50 and shows a changing program from a file of some 20 films on topics ranging from petroleum – and Aramco – to experimental greenhouse gardening, Arab folklore and an archeological dig on the famous pilgrimage route from ancient Baghdad, the Darb Zubaydah.

To help tell the Saudi story, pavilion officials also recruited a corps of guides and hostesses. The hosts are young Saudi men from as many as a dozen of the kingdom's ministries, agencies and companies, including Aramco; they're being sent to work one- or two-month tours in Vancouver on a rotating basis throughout the summer. The hostesses – Canadians, Palestinians and Egyptians – were recruited locally and tutored at tea parties by the wives of several of the guides on the nuances of Saudi life. Since they wear traditional dark ankle-length dresses with colorful embroidery, their heads draped with fringed chiffon scarves, they blend in unobtrusively with Saudi women graduate students from universities in North America who are helping during their summer vacations.

The guides and the hostesses answer visitors' questions about such items as traditional clothing, weavings, inlaid chests, baskets and colorfully painted wooden shutters. They explain that the coins which visitors have been tossing into the reflecting pools by the entrance will be donated to a Canadian charity when Expo ends. They point out ceremonial coffee pots and incense burners in glass cases, plus displays of gold ceremonial swords and the elaborate silver Bedouin jewelry, traditionally one of the few visible signs of social status among the independent-spirited nomad population.

In this area too, is a small domed, whitewashed octagonal room, with plush cushions on carpeted floor and walls hung with photographs of Saudi Arab children – and examples of their artwork. The room represents a traditional *majlis*, a sort of sitting room, where an Arab host welcomes his guests or a king his petitioners. Some



Saudi pavilion hostess in traditional ankle-length dress.

pavilion visitors use it to rest and think about what they have seen. One lady, at the opening, sat there discreetly nursing an infant while, not far away, another woman read a wall plaque explaining the traditional cultural qualities most valued in Saudi Arabia. She called her two sons to her side. "Listen," she said, reading aloud to them. "Valued most highly are the family, honor, hospitality ... you hear that?" she said. "The family!" Mother, obviously, liked to see her own cultural values reinforced.

One hit of the opening was Ali Abdullah Sinan who sat at a small table beside the fountain, writing visitors' names for them in exquisite Arabic calligraphy. He wrote in black ink on note paper imprinted in green with Saudi Arabia's own Expo logo (See cover and page corners). It was so popular that many waited for up to an hour to get such personalized souvenirs.

On the far side of the platform opposite Ali's desk is pitched an authentic Bedouin tent, or black "House of Hair," traditionally hand-woven of goat hair by the women of a tribe, the panels on the downwind side of the tent raised so that visitors can see such items as carpets, water skins, hanging lamps, mortar and pestle, coffee pots, a hearth, a leather bellows and a wooden camel saddle.

Frequently, during a typical day, Mishan bin Mijwal Al-Rashidi sits inside the Bedouin tent, playing a folk instrument called a *rababa*, a kind of violin frame covered with stretched fox skin and played with a horse-hair bow. A colorful figure, Mishan wears a black, gold-embroidered vest over his *thawb*, and often steps outside the tent to perform a traditional Bedouin sword dance while four Saudi Arab musicians and singers accompany him on other instruments, the *'ud* (lute), *kanoon* (zither) and drums. Mishan is around for ceremonial occasions, too, wafting sweet smoke from an incense burner through the air, a tradition of desert hospitality.

On May 6, Mishan was in his glory. For on that day, the Saudi pavilion welcomed Britain's Prince Charles and Princess Diana. Though they also visited the pavilions of the U.S.S.R., Britain, the United States and the State of California, the Saudi visit was special, because – as Mishan wafted incense, as Saudi Deputy Minister for Communications Nasser Al-Salloum, Assistant Deputy Minister for Transport Affairs Dr. Khaled Abdulghani and other dignitaries formed a reception line – and as the Saudi musicians took their places in the tent – five-year-old Ghada Al Hussein, daughter of Pavilion Director Abdulaziz Al Hussein, was waiting to meet the princess.

In her richly embroidered floor-length dress, Ghada looked very grown up and calm. But carefully balancing a white satin pillow, – she was undoubtedly nervous, for on it was the kingdom's gift for Diana: a circular gold pendant of crossed swords with palm.

To Ghada, no doubt, the wait seemed endless, but at last the royal couple arrived – actually right on the dot – and all eyes turned to the little hostess. Encouraged by her father, she stepped forward and exchanged smiles with the princess – another example of what Expo 86 theme is about: people and countries not only in motion, but in touch.

THE LONG LEAP FORWARD

WRITTEN BY DICK HOBSON AND ARTHUR CLARK
PHOTOGRAPHED BY M.S. AL-SHABEEB, S.M.AMIN,
MOHAMMED DAHBI (SAUDIA),
HASSAN MAKRAM (AL RAED STUDIO),
M.J. ISAACS AND AILEEN VINCENT-BARWOOD
MAP BY MICHAEL GRIMSDALE

The new causeway linking Saudi Arabia with the island of Bahrain.

SPECIAL REPORT

المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA
EXPO 88

As its pavilion at EXPO 86 suggests, Saudi Arabia has leaped headlong into the modern age of communications and transportation. By investing billions of dollars and tens of thousands of man-hours, this once isolated kingdom has built an extraordinary modern transportation system and has installed a state-of-the-art communications network that, in a single generation, has transformed a largely insular society into one not only in touch with the present but on the move toward the future.

There is, certainly, a lot still to be done; though firmly in place and functioning, the new systems require, and will continue to require for a long time, adjustment, tuning and improvement. But already the kingdom's planners have shifted gears – moving from the frenetic pace of the construction years to the more measured demands of maintenance, extension and training – of the legions of technicians needed to run and repair the sophisticated network of new services.

Even in today's fast-moving world, Saudi Arabia's long leap forward is remarkable. Some veterans working in Saudi Arabia, both Americans and Saudi Arabs, can still recall when camel caravans provided the only means of reaching the interior, and Aramco personnel administrator Muhammad Salamah, who joined Aramco in 1939, can remember living as a child in a palm-frond hut on the Arabian Gulf, with no electricity, never mind a car, telephone or air conditioning.

"Who would have imagined to see what I see now?" he asked recently while driving from Dhahran, Aramco's administrative headquarters and residential area, to nearby al-Khobar. He waved a descriptive hand at the road – a six-lane expressway feeding into a new causeway linking the Saudi Arabian mainland to the island shaikhdom of Bahrain. (See *Aramco World*, January-February, 1984) "The road to al-Khobar – this road – was just a strip of sand, with oil sprayed on it, and in summer the wind blew sand across the track and the buses got stuck. We pushed the buses coming to work and we pushed the buses going home."

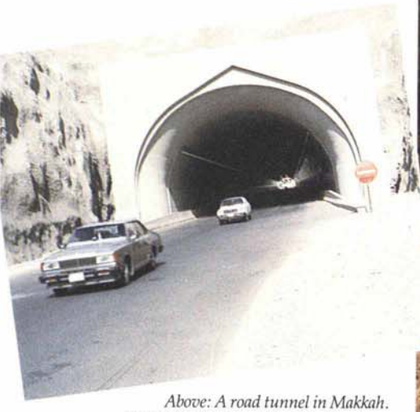
The change *is* remarkable. Today, if he wished to, Muhammad could drive to Riyadh in three hours, fly there in one hour, or get there by train in four – trips that, five years ago, would have taken nearly double such times, and, 40 years ago, would have required several days by truck or camel across unpaved desert tracks.

Muhammad could also, if he needed to, send a letter across the kingdom to Jiddah in one day , telephone – by direct dial – or Telex anywhere in the world.

Statistics tell the story even more graphically. In 1951, the Saudi government built its first intercity paved road and by 1954 had completed a total of just 237 kilometers of paved highway (147 miles). But by the end of 1985 some 30,000 kilometers (18,630 miles) of paved roads had been laid – a 125-fold increase in just over 30 years – the bulk put down since the start of the First Development Plan in 1970 (See maps). More than 45,000 kilometers of agricultural roads (27,945 miles) have also been built.

Such achievements, of course, are expensive. According to the Ministry of Communications, which is responsible for the nation's land and marine transportation, the kingdom spent roughly $20 billion between 1970 and 1985 to establish that network, plus billions more for ports, pipelines, communications, airports and other transport. But, as other statistics show, the massive spending yielded massive results:

- At ports, overall handling capacity increased from two million to around 50 million tons.
- At airports, the number of passengers leaving and arriving rose fifteenfold, from about 1.6 million to 24 million.
- At post offices, the amount of incoming and outgoing mail jumped from 80 million to 713 million pieces a year, delivered to or sent from some 3,700 Saudi towns and villages.
- In homes and offices, the total number of phone lines increased 31 times: from just 29,000 to more than 900,000.



Above: A road tunnel in Makkah.
Right: Sha'ar descent in Asir Province.

In a sense,both topography and geography demanded that Saudi Arabia invest heavily in communications and transportation when the government launched the first of its three five-year plans; because the kingdom is so large and its population so spread out, modernization and industrialization simply could not have been achieved without extensive networks of roads and communication lines.

Saudi Arabia covers about 2.3 million square kilometers (901,320 square miles) – roughly equivalent to the area of Western Europe – and its population is far-flung. Although the distance from the Dammam metropolitan area on the Arabian Gulf to the capital, Riyadh, is just 380 kilometers (235 miles) it's another 840 kilometers (520 miles) to the Red Sea metropolis of Jiddah and it's 1,952 kilometers (1,212 miles) from Tabuk to Jizan, the north-south route in the western part of the country. In between the major cities , furthermore , are scores of towns and several thousand villages scattered across vast stretches of sand desert to gravel plains, jagged escarpments, and mountains that rise to 3,050 meters (10,000 feet).

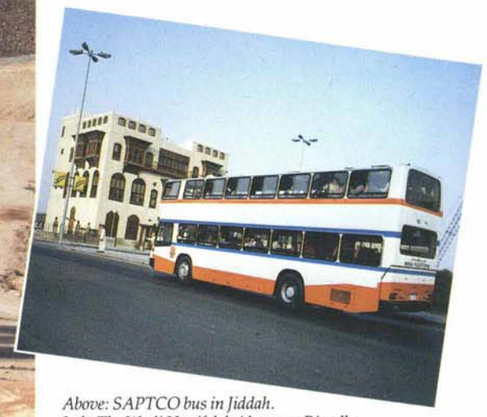
Today, nevertheless, highway travel is fast and smooth. In cities like Riyadh, Jiddah, Makkah (Mecca) and Buraydah, ring roads, sleek overpasses, viaducts and tunnels divert or direct traffic swiftly and efficiently. Outside the cities, modern expressways funnel traffic in from places like Jordan and Kuwait, and either route it toward destinations in the kingdom or send it off to neighboring states.

As late as the 1970's, a trip across Saudi Arabia's midsection – from Jiddah to Dammam – was usually a 25-hour marathon drive. Now a new 388-kilometer (241-mile), six-lane expressway between Riyadh and Dammam reduces the time by half, and a new Riyadh-Jiddah expressway now under construction will cut the time even more – a far cry from the bruising automobile expedition undertaken by King Fahd's father, 'Abd al-'Aziz ibn Sa'ud, when he drove from Jiddah across the country to Hofuf in 1929.

Though no car at that time had ever crossed all the way to the east coast, writes David Howarth in *The Desert King*, 'Abd al-'Aziz led a convoy of Fords and Chevrolets across Arabia from Makkah to Riyadh and then to the shore of the Arabian Gulf. He arrived, Howarth says, with some of his autos "tied together with leather thongs... some without springs and riding on their axles..."

In the kingdom's western province, the new network of highways includes a Makkah-Medina expressway and the breathtaking 753-kilometer (468-mile) highway that runs along the rugged escarpment from Ta'if to Abha in the southwest and then down to the Red Sea city of Jizan. Called the "Road of Prosperity," the twisting $528-million route serves more than 400 villages, as well as the big cities, and links together some 400,000 people in the mountains and 30,000 on the coastal flatlands. Previously, these people traveled by foot, airplane or ship.

Equally spectacular are 12 descents being built from the escarpment to the coastal plain. One, already completed, is the Sha'ar passage. Beginning about 20 kilometers (12.5 miles) east of Abha and linking the Road of Prosperity to the Makkah-Jizan coast highway, the 58-kilometer (36-mile) two-lane road is studded with tunnels – fitted with portholes looking out over plunging valleys – and drops from 2,012 meters (6,600 feet) to 1,219 meters (4,000 feet) in 14.5 kilometers (nine miles). The terrain was so difficult, reports the construction journal *ENR*, that the firm building the road flew in 60 supple Taiwanese mountaineers "to reconnoiter the sites..."



Above: SAPTCO bus in Jiddah.
Left: The Wadi Hanifah bridge near Riyadh.

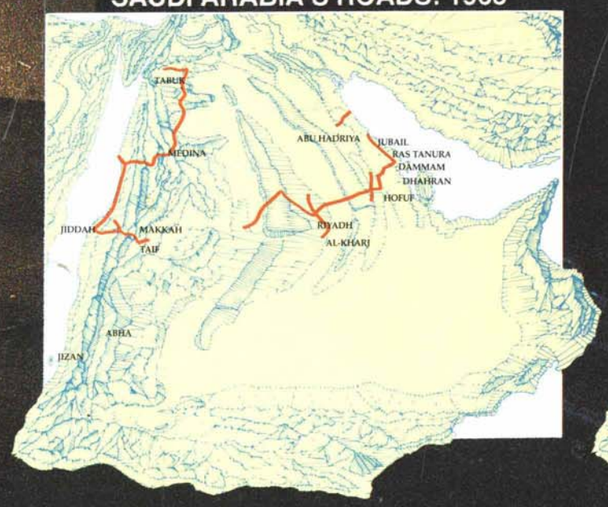
EXPO 86

Gulf Street Viaduct, Riyadh.

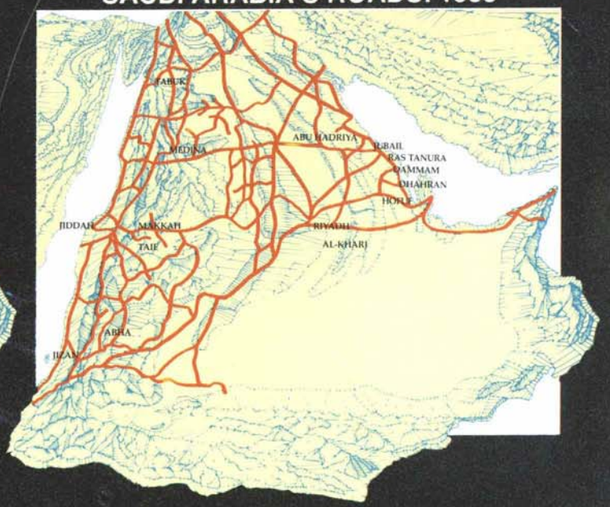
A SPECIAL REPORT

المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA
EXPO 86

SAUDI ARABIA'S ROADS: 1963



SAUDI ARABIA'S ROADS: 1985



As the highway system grew, so did the number of registered vehicles in the kingdom: from 60,000 in 1970 to 3.9 million in 1984 – an average annual increase of 37 percent. As a result, about 70 percent of all intercity trips in the kingdom are made by private car as opposed to public modes of transport – airplane, bus, rail or taxi.

Growth of that sort, of course, created traffic congestion, but by 1979 the government was taking steps to cope with congestion too: it helped found the Saudi Public Transport Company (SAPTCO), a joint government-private bus company in Riyadh. With 165 distinctive blue, orange and white vehicles, SAPTCO was an instant success in Riyadh and by the end of the year had spread to Jiddah, Makkah and Dammam and had a total of 698 buses.

Today the total is even higher: 1,100 buses serving nine major cities and intercity routes, linking all of the country's main population centers. Every day, the company's long-distance cruisers clock some 72,650 kilometers (45,115 miles) – the equivalent of nine round trips between Los Angeles and New York.

Each year, the bus company also assigns 600 to 800 additional buses to Jiddah, Makkah and Medina to help move pilgrims during the Hajj season and this April, 70 doubledeckers normally used on intracity routes were pressed into service to transport soccer fans to the Gulf soccer championships in Bahrain, making SAPTCO the first transport company to use the new causeway.

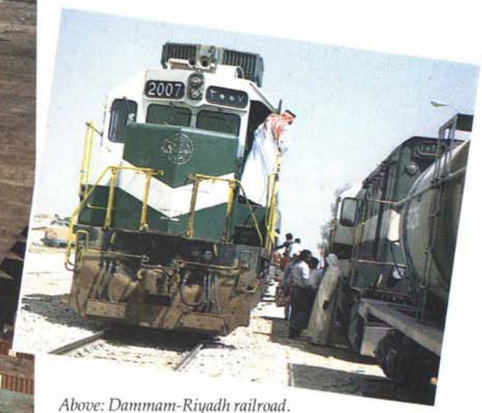
Passengers can also enter and leave Saudi Arabia by ship – through ports like Jiddah, Jizan or Yanbu' on the Red Sea or al-Khobar and Dammam, a 39-berth port, all on the Arabian Gulf – though, in fact, port modernization in Saudi Arabia has been focused on cargo rather than people. Jiddah, for instance, handled 470,000 arrivals in 1985, but has 51 berths, including one brand new livestock facility and another exclusively for cold-storage vessels.

Port development in the kingdom got under way in earnest in the mid-1970's, when bottlenecks began to hold up the massive development projects. To break the logjam, the kingdom built new berths and ports, and, in addition, installed computer systems to link all ports to the Saudi Ports Authority headquarters in Riyadh. Eventually, says a survey sponsored by six major Saudi companies in *Newsweek* in January, 1984, port investments reached $12.2 billion.

The increase in trade and commerce that required port development also helped fuel the rapid expansion of the Saudi commercial fleet: to 225 ships and a capacity of 5.16 million tons in 1983 – more than a 100 percent increase over 1980 – and 300 cargo vessels by 1985.

In another development, Saudi Arabia is also stressing cooperation with the ports of other Gulf Cooperation Council (GCC) countries: Kuwait, the United Arab Emirates (UAE), Qatar, Bahrain and Oman. One example is the possibility of building a railway along the Arabian Gulf coast from Basra in Iraq to the Omani capital of Muscat, with spurs from Saudi Arabia reaching Bahrain and Qatar. Because of the precipitous drop in GCC oil revenues recently, that project may remain on hold for some time, but in Saudi Arabia, interest in railroad development remains high – partly because railways offer a fourth mode of transport, partly because King 'Abd al-'Aziz was the prime mover behind the kingdom's railway from Dammam to Riyadh via Hofuf.

Built by Aramco and inaugurated in 1951, the railroad, together with a two-berth deep water port at Dammam, heralded today's huge public works projects. And though, with the development of highways and regular air service to the interior, the railroad later fell into decline, construction of a huge railroad freight terminal and customs house in Riyadh in 1981 revived it; those improvements allowed importers in the Central Province to unload Dammam ship-cargo directly onto trains and then clear their goods in the six bonded warehouses, the cold storage area and the sprawling open yards of what is called the "Riyadh Dry Port" rather than at the port.



Above: Dammam-Riyadh railroad.
Left: The main container terminal at Jiddah Islamic Port.

Recently, the Saudi Railways Organization (SRO) has also begun to upgrade its passenger service. With an investment of $330 million, SRO laid new track – on tough concrete ties – shortened the run to Riyadh by 121 kilometers (75 miles), and introduced locomotives able to reach speeds of 150 kilometers an hour (90 mph). As a result, the journey between Dammam and Riyadh by passenger train has been reduced to four hours. At a cost of $56 million, moreover, SRO is constructing three new passenger terminals – in Dammam, Hofuf and Riyadh – and has spent $28 million on 40 new passenger carriages from France and West Germany. Today, consequently, passengers can ride in air-conditioned, first-class comfort over continuous-weld track for $16.50. The price even includes video programs.

Government planners are also evaluating the feasibility of a rail link between the commercial and industrial ports at Jubail and Dammam, and an extension of the Dammam-Riyadh line all the way to Jiddah and on to Makkah and Medina. Other proposals would link Riyadh to the Qasim, an agricultural area north of the capital, and even revive the famous Hijaz Railway, which, in its brief heyday beginning in 1908, ran from Damascus to Medina.

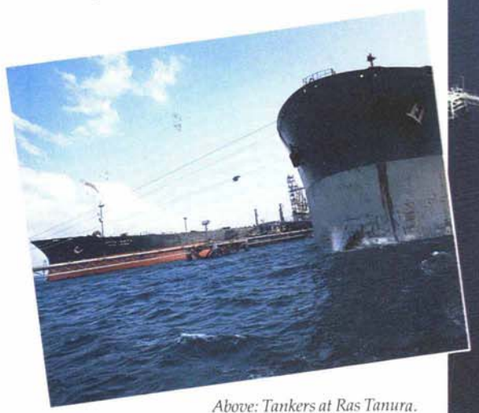
Neither marine nor overland transport, however, has had the impact on Saudi Arabia that air travel has had. With a network of 23 commercial airports, Saudia, the national airline can now reach every destination in the country in five hours or less, and can cross the breadth of the kingdom – Jiddah to Dhahran, for example – in only two hours. Saudia also flies to 46 cities in Europe, Africa, the Middle East, the Far East and North America and for the past decade has operated the largest fleet in the Middle East.

It was not always so. While planes were used in Saudi Arabia for limited special purposes prior to World War II – Aramco, for instance, used a small plane in geological survey work in the 1930's – civil aviation in the kingdom did not really take off until 1945, when the United States presented the kingdom with a twin-prop "Dakota." But then, pleased with the aircraft, the kingdom quickly purchased six more, established Saudi Arabian Airlines and, in 1947, dispatched a chartered DC-3 to Palestine to pick up pilgrims to Makkah – its first international flight.

Since then, Saudia – as it was later christened – has continued to grow, sometimes steadily, sometimes in great spurts. In late 1961, two Boeing 720B's were added – making Saudi Airlines among the first in the Middle East to use passenger jets – and in 1972 so were a range of new Boeing jets. At the same time, the carrier introduced a new image on all its planes: a two-tone green stripe over a blue field running along the body with the national emblem, a palm tree and crossed swords, emblazoned on a dark green tail. The markings have been used ever since.

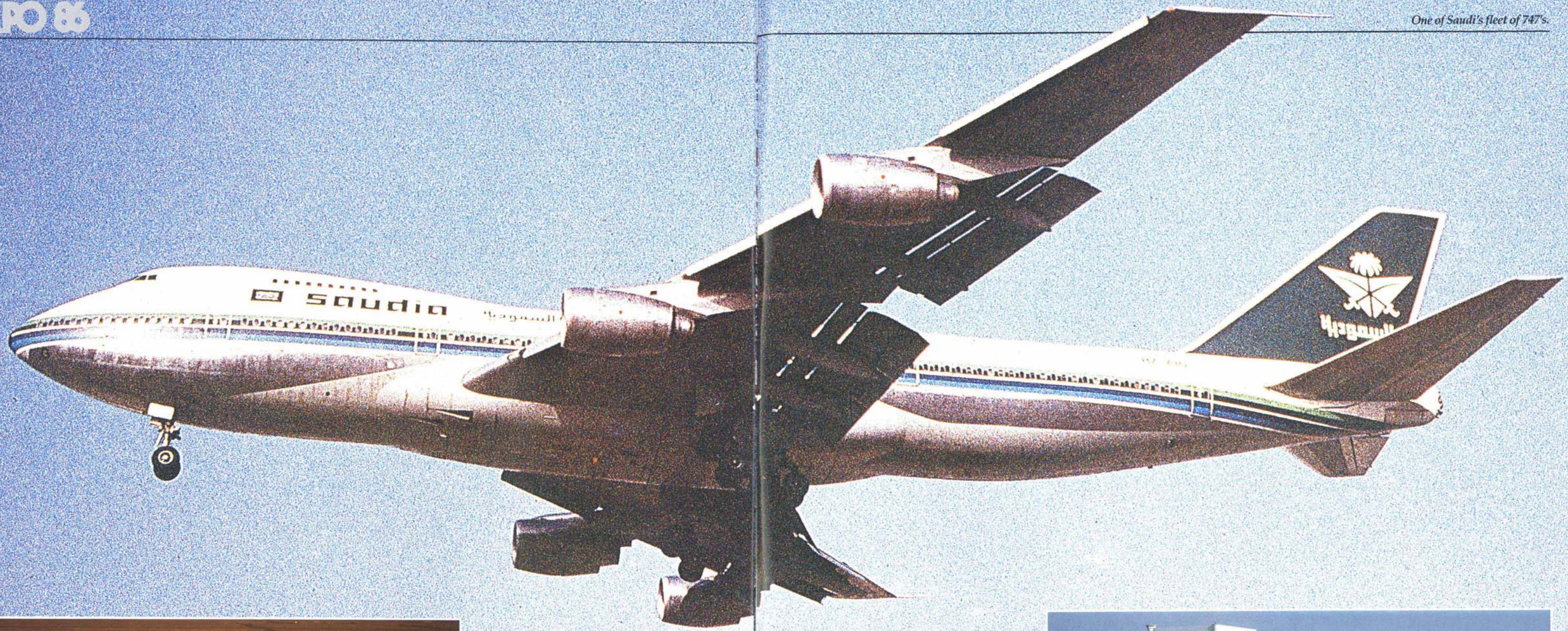
In 1973, Saudia really took off: it carried more than a million passengers and earned a profit of about $3 million. The following year, the total of passengers increased by 300,000 and profits by $7 million.

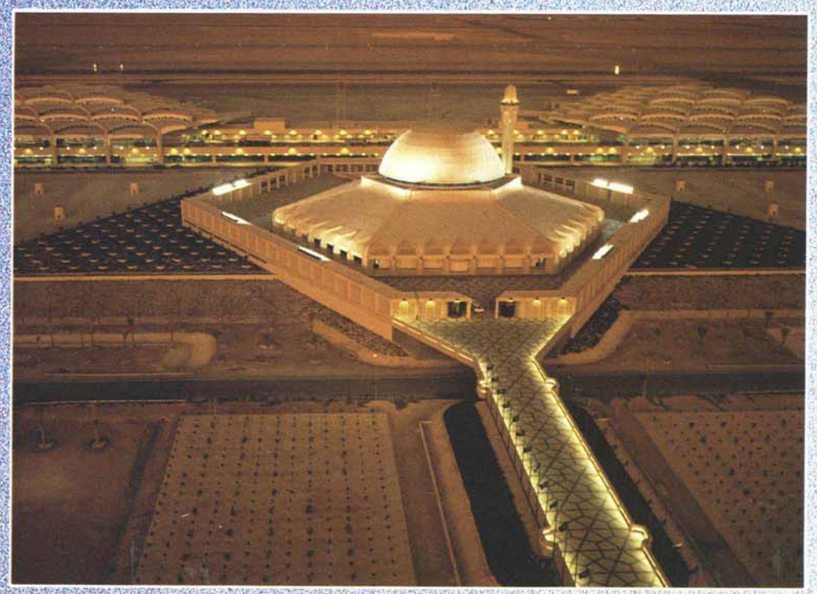
At the same time, the Saudi government was investing billions of riyals in such new airports as King 'Abd al-Aziz International Airport in Jiddah and King Khalid International in Riyadh (See *Aramco World*, January-February 1984) – both showcases for air travel and architecture. The Jiddah airport, for example, included an unprecedented tent-terminal (See *Aramco World*, July-August 1981) to accommodate more than 600,000 Muslim pilgrims who come by air each year, and the Riyadh field, gateway to the capital, boasts some of the world's most stunningly beautiful passenger terminals. More prosaically, but equally as important, it also has a vast auto-



Above: Tankers at Ras Tanura.
Right: The Natural Gas Liquid terminal at 'Yanbu.

One of Saudi's fleet of 747's.





The mosque and terminals at King Khalid International Airport – the world's largest – in Riyadh.

The "tent" terminal, specially built for pilgrims, at King 'Abd al-'Aziz International Airport in Jiddah.

The Other Network

For the Arabian American Oil Company (Aramco), transporting oil – and gas – is as essential as finding it. One of the vital transportation cogs in the kingdom's economy, therefore, is its national network of pipelines, especially three transpeninsular lines that serve an entirely separate set of seaports. Though the pipelines stay put, the petroleum products within – crude oil, natural gas liquids (NGL) and liquefied petroleum gas (LPG) – flow swiftly and safely to, and through, the ports.

This network is enormous as Abdullah al-Ghanim, Aramco's vice president of engineering services, made clear in a speech at the International Pipelines Symposium at EXPO 86 in Vancouver in May, the first of a series of symposia and seminars on transportation and communication technology. Other papers were given on developments in Canada, the Soviet Union, Norway, the United States, Argentina and Malaysia.

Aramco facilities are served, al-Ghanim said, by more than 7,000 kilometers of major pipelines (4,300 miles) – crude oil, gas and NGL pipelines plus an extensive water-injection network used to maintain reservoir pressure.

In 1938, the year oil was discovered in the kingdom, one 15-centimeter in diameter pipeline (six inches) moved the oil to al-Khobar, then a tiny fishing village. From al-Khobar the oil was shipped by barge to Bahrain, which had been in the oil business for several years. A year later, Aramco opened a port on a sand spit they called Ras Tanura and built a pipeline – 25 centimeters in diameter (10 inches), 63 kilometers long (39 miles) – from the Dammam field near Dhahran to Ras Tanura, the first terminal to ship oil from Saudi Arabia and still, 47 years later, a major oil terminal in the kingdom.

During that time, of course, the port has changed almost beyond recognition – it now has eight deep-water loading berths at a man-made sea island – and meanwhile, other ports have been added. One – deep enough to accommodate and load the largest oil tankers afloat – opened just north of Ras Tanura in 1974; called Ju'aymah, it also handles LPG via a 10 – kilometer trestle (six miles) extending into the Arabian Gulf. Two others, across the kingdom, are at Yanbu', both NGL and crude oil terminals and both providing a vital second outlet for kingdom exports to European, African and Western Hemisphere markets, far from the recently troubled tanker routes of the Arabian Gulf. The three-berth crude oil export terminal started business in 1981 and the NGL loading facility, equipped with two berths, opened in 1982.

Such networks are the arteries that carry Saudi Arabia's economic lifeblood and some of today's lines are six times as large as that first 25-centimeter conduit that fed Ras Tanura. The parallel cross-country pipelines, for instance, the longest in the system, cross a 450-meter high pass in the Hijaz Mountains (1,500 feet), and the NGL line, 1,170 kilometers long (726 miles) is also the most advanced computer-monitored pipeline ever built for the transportation of gas liquids. It has a capacity of 270,000 barrels per day, and 50 percent expansion capability.

Like the NGL line, the 1,200-kilometer, East-West crude oil pipeline – it is 30 kilometers (18 miles) shorter – was also completed in 1981. The line is 122 centimeters in diameter (48 inches) and can transport up to 1.85 million barrels per day. With the addition of a new 142 – centimeter (56-inch) pipe close by, the line will eventually be expanded to a

Abdullah al-Ghanim, Aramco engineering services vice president.

capacity of 3.2 million barrels per day in a "looping" project scheduled to be completed late this year. With new pumps even this could be increased to 4.1 million barrels per day.

The two lines, he went on, are the longest built in the kingdom since the 1,215 kilometer (754 mile) Trans-Arabian Pipeline – "Tapline" – was completed in 1950. Now only in partial service as far as Jordan, Tapline transported crude oil from Qaisumah in the Eastern Province to Sidon on Lebanon's Mediterranean coast for more than three decades.

In his talk, al-Ghanim focused on the "looping" project. Some excerpts:

"The construction of the loop was divided into three packages, two for the pipeline and one for the pump-station and terminal modifications. Work began at both ends of the loop in July 1985 and is currently more than 60 percent complete. The combined peak contractor work force, including subcontractors, is appoximately 7,500, comprising more than 25 nationalities.

"About half of the line will traverse sandy areas of Saudi Arabia and the other half will cross rock varying from granite and lava to shale and limestone. While the trench is being prepared, the pipe is trucked to the jobsite, requiring a fleet of 170 trucks making about 17,000 trips. About one-fourth of the pipe was manufactured in Saudi Arabia and the balance was procured from Japan and Italy. Along the route, more than 250 pipeline and power line crossings must be made, along with nearly 100 road and railway crossings. The pipe is aligned and welded on the side of the ditch in strings about 0·6 miles (one kilometer) long. In all, more than 50,000 field welds will be made.

"The operation of the new loop, like that of the existing line, will be monitored and controlled remotely from Yanbu'. A remote sensing system continuously scans all major data points through a microwave communications network. However, local operation of each pump station is also possible for emergency situations. To limit any spillage that might occur from an unforeseen rupture in a remote area, the 56-inch loop, like the existing 48-inch line, will have 77 mainline valves spaced 10 miles (16 kilometers) apart. To mitigate external corrosion, the pipeline is being coated with either fusion-bonded epoxy or polyethylene. Impressed-current cathodic protection systems, powered by solar energy, are also being installed to inhibit corrosion.

"At the current rate of construction Aramco forecasts that the loop will be completed by the end of this year."

Having already operated the 48-inch line, Aramco has, of course some advantages during the looping project, al-Ghanim suggested. "Our experience allowed us to modify the design for the 56-inch loop where it appeared necessary. But where things have been working perfectly, we relied on the earlier engineering to provide for consistency in our future operations."

That's what the pipeline symposium was about, learning from the past in order to better plan the future.

mated cargo building. The kingdom's third new international airport, now under construction west of Dammam and due to open in 1988, will replace Dhahran International Airport, which currently doubles as both the Eastern Province commercial gateway and an important base for the Royal Saudi Air Force.

The furious pace of growth in aviation justified the expansions: in 1975, Saudia carried 1.8 million passengers, in 1980, 9.5 million and in 1984, 11.6 million. The amount of cargo hauled by Saudia grew even faster: from nearly 21,000 metric tons in 1975 to 172,000 tons in 1984. By 1984, when the aviation boom finally leveled off, Jiddah had handled 58 million travelers, Riyadh 43 million and Dhahran 27 million.

One of Saudia's key functions, especially on domestic routes, involves still another form of communication: it carries mail. In 1984, in fact, it hauled 11,500 metric tons of mail, a sevenfold increase over 1975, and an almost immeasurable increase in the levels of the 1920's when mail service began.

As late as the early '70's, the volume of mail in Saudi Arabia was still under 100 million pieces of mail a year – perhaps no more than about 10 pieces a year for every man, woman and child resident in the kingdom. But in 1980 the postal services handled more than 400 million pieces and in 1985 713 million, an average of nearly two million pieces a day. To an extent this change measures educational and commercial growth, but it also measures expansion of the postal system itself: by 1985 there were about 580 post offices and the postal service was reaching some 3,700 towns and villages.

Three of the post offices – giant regional postal centers in Jiddah, Riyadh and Dammam – were designed by the French firm Sofrepost and came on stream in the early part of the Third Development Plan (1980-85). Highly mechanized, these centers employ overhead conveyors – to deliver several hundred mail bags an hour to sorting areas – automatic facing and canceling machines, with sensors that react to envelope glue, addresses or air mail markings to organize the mail in bundles, and automatic sorting machines that separate them by geographic area at the rate of about 30,000 an hour.

With that sort of equipment, plus new postal codes and training institutes for recruits, postal service productivity increased from an annual average of 55,000 pieces per employee at the start of the Third Development Plan to 95,000 by its

end in 1985, and domestic delivery times reportedly dropped 25 percent. And even that may be improved. "Our goal is to deliver all in-kingdom letters within 24 hours," says Faisal Faris al-Faisal, director of post for the Eastern Province.

In another communications breakthrough, TPT also launched a multi-billion-dollar effort to establish a modern all-electronic telecommunications network.

As late as 1977, to reach someone by telephone in Saudi Arabia was an iffy proposition at best. As the American-educated Minister of TPT Dr. Alawi Darweesh Kayyal has pointed out, people in the kingdom's three biggest cities often sent drivers to deliver messages rather than wait to get through to someone in the same city by telephone; fighting traffic was faster. And either international or long distance calls within the kingdom had to be booked through the operator – a procedure that took hours usually, and sometimes days. Incredibly, there was only one phone directory for the entire country and not a single public pay phone anywhere.

Today, reliable and fully automated phone service is taken for granted by several million Saudis. And though the demand for phones still outstrips the supply in both rural areas and fast-growing urban centers, the advances made in the past decade stand among the nation's proudest achievements.

The great leap forward in telecommunications really began in 1977, when TPT embarked upon TEP – its Telephone Expansion Program – by awarding a five-year billion-dollar contract, since renewed, to Bell Canada International to manage the project. At the time, the giant Canada corporation called the award "the largest-ever managerial undertaking in the history of the telecommunications industry..."

TEP was a crash program, and by 1981 Saudi Arabia ranked number one in the world in terms of growth in working telephone lines. It seemed as if virtually every street in the kingdom was being dug up as thousands of kilometers of buried cable were laid.

Again, statistics tell the story: the local switching network shot from 177,000 lines in 1977 to more than 1.2 million by 1985. Working lines increased sevenfold, from 126,000 at the start of TEP to more than 950,000 by November 1985, with 213 local electronic digital exchanges spread throughout the kingdom plus 20 trunk exchanges and five international exchanges.

To supplement its ground-based system during expansion, the ministry temporarily linked 11 cities in the kingdom by satellite using mobile earth stations. In 1977, work also began on a 10,000-kilometer (6,210-mile) microwave network with 300 towers, some in extremely remote locations. Completed in 30 months, the project provided 35,000 new telephone circuits.

TPT also laid coaxial cable running east-west across the kingdom's midsection and north-south on the west coast carrying more than 30,000 telephone channels to augment high-frequency radio transmission.

Nor did TPT stop there. It introduced a uniform seven-digit dialing code and three-digit codes for emergency services. It offered direct dialing, both domestically and internationally, to the subscribers and today more than 90 percent of them use the convenience. It introduced a computer billing system. It installed more than 4,000 coin-operated public telephones in 47 locations – at airports, bus terminals, train stations and on urban street corners – and it put up emergency phones on desert expressways. In 1983, TPT instituted one of the world's most modern mobile telephone services: 49 radio base stations, that enable about 10,000 customers to dial directly to domestic or foreign cities from telephones in their cars. .

While developing its ground and microwave systems, the kingdom also began to reach into space and today Saudi Arabia is the seventh largest user of Intelsat, an international satellite communications program with antennae–trained on satellites over the Atlantic and Indian oceans – and earth stations providing direct dialing to more than 150 countries. Saudi Arabia also contributed more than 25 percent of the funds to launch the Arabsat communications satellites in 1985 (See *Aramco World*, March-April 1985 and January-February 1986). While using Arabsat-B, primarily for television transmission to or from other Arab countries, the kingdom expects to begin using the satellite's telephone circuits as well in the near future.

Today, Saudi Arabia also operates a coastal radio system that provides ship-to-shore telecommunications for commercial vessels in the Arabian Gulf and the Red Sea – code, telephone and Telex.

Telex service is another important means of communication that Saudi Arabia has extended and improved. Though introduced in 1974 there were no more than 700 lines for the three main urban areas until 1979 when three gateway exchanges were completed in Riyadh, Jiddah and Dammam and line capacity was boosted to 15,000, extending service to more than 70 other Saudi cities and nearly 200 foreign countries. By 1985, the number of available lines had increased to 30,000 and there were more than 17,000 subscribers in the kingdom, up from just 7,042 five years earlier. And in a crucial breakthrough for all Arab countries, the kingdom introduced, in June 1983, 2,000 newly developed Arabic-English Telex machines at the gateway exchanges.

Early in its management contract, Bell Canada had advised the Ministry of TPT to establish a government-owned but operationally autonomous phone company to run and maintain the burgeoning telecommunications system. As a result, Saudi Telephone was born.

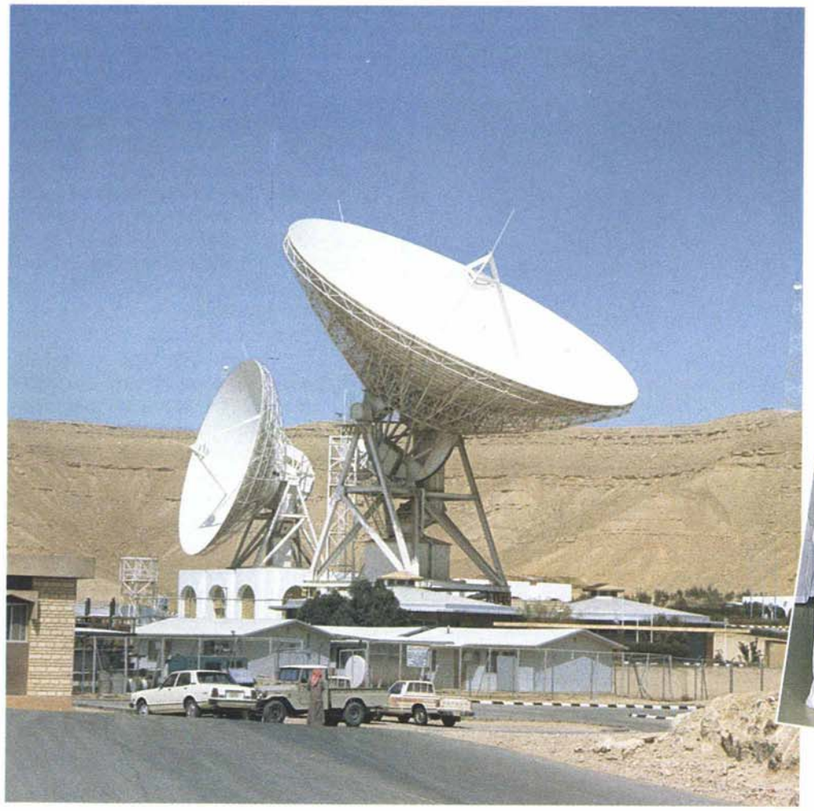
Later changing its name – as it expanded to include telegraph and Telex services – Saudi Telecom is the equivalent of the former U.S. giant, "Ma Bell." It employs 15,000 people, mostly Saudis. It generates more than a billion dollars a year in revenue. And it can monitor its entire telecommunication system on giant computer display screens at a futuristic National Network Control Center in Riyadh, site of a central computer data center and a computerized directory inquiry center.

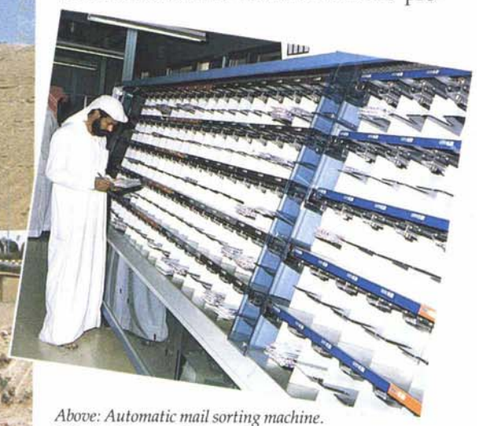
By any standard, Saudi Telecom has achieved a high degree of efficiency. According to the Ministry of TPT, 99.9 percent of subscribers get immediate dial tones; 99.7 percent of bills are issued error-free; 93-94 percent of callers get operator help or directory assistance within 10 seconds; and 87.9 percent of all faults are repaired in less than eight hours. Consequently, telephone users in Saudi Arabia can, at the push of a few buttons, communicate with friends, family or business associates throughout the kingdom or the world, thus quickening the pace and broadening the horizons of Saudi life.

To create these elaborate and enormous transportation and communication systems required, of course, an immense effort, and for a time Saudi Arabia seemed like a giant boom town. But today with the boom subsiding, spending on transport and communications is expected to drop to roughly $21 billion, and future emphasis will be on operation, maintenance, training, productivity and, above all, on cost control – an inescapable imperative in a period of declining revenues.

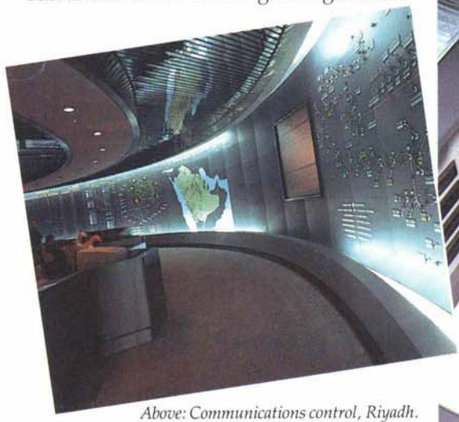
In some cases this will be more of a challenge than it sounds. Road maintenance, for example, is a major problem in Saudi Arabia because of sand encroachment and though Saudi engineers have tried a variety of techniques – stabilizing dunes with oil, chemical sprays, vegetation and snow fencing – sand control will require a tremendous effort – and continued funding. This, though, is a minor problem compared to those faced and overcome as, in one generation, Saudi Arabia entered – and conquered – major challenges in the modern world.

Dick Hobson and Arthur Clark are Aramco writers.



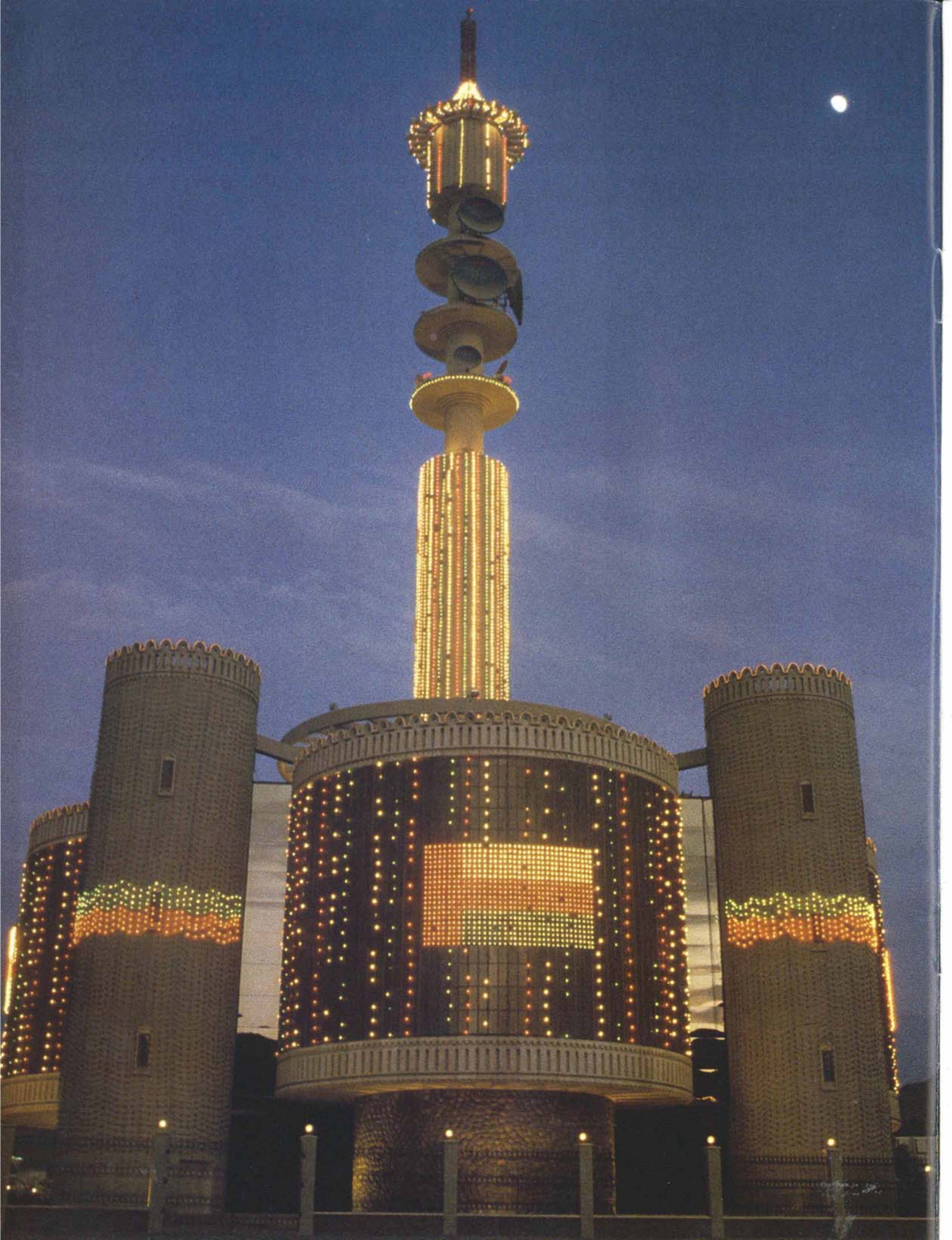


Above: Automatic mail sorting machine.
Left: A microwave dish near Riyadh.



Above: Communications control, Riyadh.
Right: Dammam international telephone exchange.

AN OMANI CELEBRATION



WRITTEN BY JOHN LAWTON.
PHOTOGRAPHED BY HELMUT R. SCHULZE.

Americans in Oman during the festivities compared them to the Fourth of July, and one visiting British reporter waxed lyrical about a "winter wonderland" by the Arabian Sea. But the fireworks in Muscat last November– and a brilliant display of colorful lighting – were actually something else: part of the celebrations marking 15 years of dramatic transformation.

The five million light bulbs illuminating the capital, the rockets exploding playfully against mud-brick forts and the presence of presidents, prime ministers and princes from 50 nations provided a particularly vivid testimony to the importance of that transformation – possibly the fastest and most visible in recent history.

Before 1970 – when Sultan Qaboos bin Sa'id took over power and launched his sweeping programs of development – people in Muscat had had to walk at night by lantern light, provincial garrisons were besieged by rebels and Oman had relations with only three states.

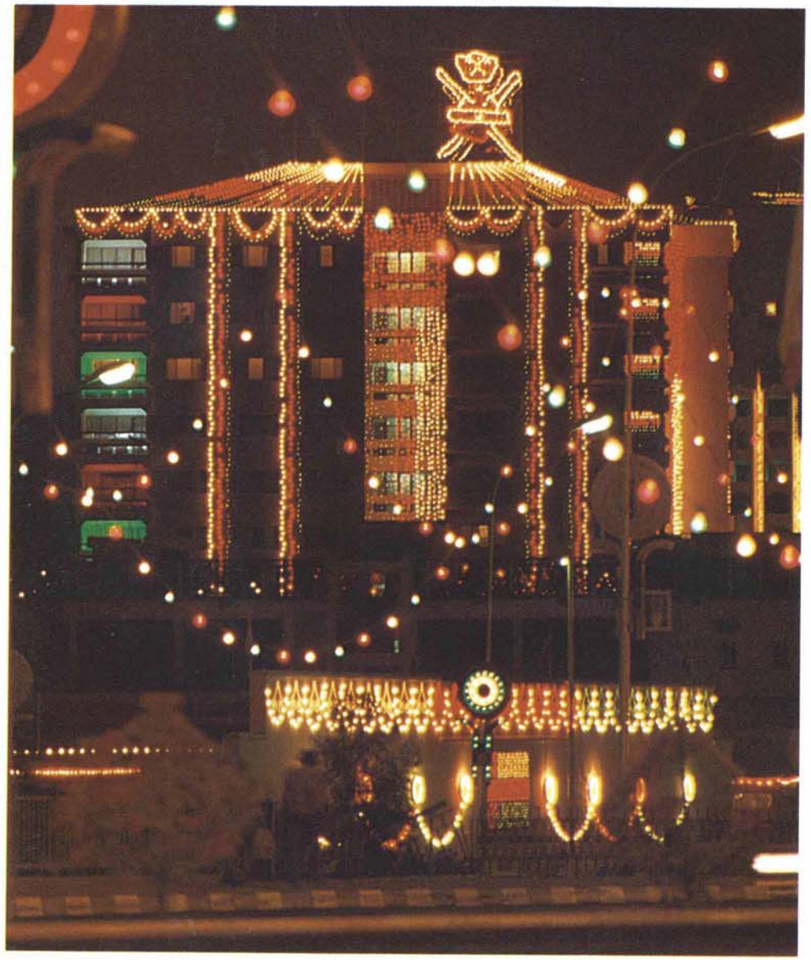
Though Oman once ruled a medieval empire, though it was a major maritime power, and though it was the first Arab nation to send an ambassador to the United States (See Aramco World, *May-June 1983), the country, by the late 19th century, had sunk into obscurity – partly as a result of losing its African and Asian colonial interests and revenues, partly because the new Western steamships that had begun to penetrate the Arabian Gulf and Red Sea regions could easily outsail Oman's trading dhows.*

Thus, plagued by poverty and racked by internal conflicts, Oman was bypassed by the 20th century; in 1970, for example, it had only 10 kilometers of asphalted road (six miles), three schools – educating 900 children to primary school level only – and a total of 12 hospital beds.

Today, however, such conditions have changed. Today there are more than 3,300 kilometers of asphalted highway (2,100 miles), almost 200,000 pupils in 561 schools, and 2,600 civilian hospital beds provided by the government. Average income, moreover, has risen 40-fold – to about $8,000 a year – unrest in the southern province of Dhofar has been

To photograph Oman's fireworks (page 42) Helmut Schulze climbed the mountains ringing Muscat, above. Below, an Arab dhow, and, left, Ruwi communications tower, lit up for the 15th anniversary celebrations.

Five million light bulbs turned Oman's capital area into a kaleidoscope of colors for the 15th anniversary of the sultanate's "renaissance," whilst mosques, like the one opposite, were simply, but effectively, floodlit for the occasion.



resolved and thousands of disaffected Omanis, who had left the country to study and work abroad, have now returned to help rebuild it.

In fact, as the fireworks and fairy lights testified, Oman had much to celebrate on the 15th birthday of what government officials call its "renaissance."

That renaissance began in July, 1970, when Sultan Qaboos succeeded his father, Sultan Sa'id ibn Taimur, a ruler in such financial straits that he had to sell the last of Oman's foreign territories – the Gwadur enclave in Pakistan – to Pakistan to keep Oman solvent.

Even the discovery of oil in Oman – in 1964 – made little difference, since Sultan Sa'id, after years of necessarily-frugal, rigidly-centralized rule, was unable to adapt to changing times; though the oil revenues raised Oman's export earnings from $2.5 million in 1964 – from sales of limes, dates, fish and frankincense – to $18 million in 1970, the sultan was slow to use the new wealth to modernize the country and help its people.

In his first speech after assuming power, Sultan Qaboos promised his people "a new dawn" and as five million light bulbs in the red, green and white colors of the Omani national flag showed last November, he kept his promise. Using income from oil, Sultan Qaboos brought in a corps of expert advisors and, in 15 years, revolutionized a way of life untouched for centuries by the outside world by building schools, hospitals, clinics and roads, introducing welfare programs and initiating construction of the country's first university. It opens later this year.

The Sultan and his advisors have also built new ports and airports, set up industries, brought in television, modernized the armed forces and restored Oman's relations with the rest of the world.

As Oman is only a modest oil producer – an average of 416,000 barrels a day in 1984 – it has had to use its money sparingly and plan well. But because its development began late, Oman has been able to learn from the mistakes of others. Consequently, there are few prestige projects in Oman, and much of the country's original character and charm has been preserved.

It did, to be sure, go a bit overboard for its "modern" 15th birthday – building a one million-dollar-a-room hotel to accommodate visiting dignitaries, staging a massive military parade and youth pageant, and inviting hundreds of journalists from all over the world to whom to show off its achievements. Few of those present, however, saw cause to criticize. Oman, after all had good reason to be proud.

Contributing editor John Lawton coordinated coverage of Oman's celebrations for Worldwide Television News.