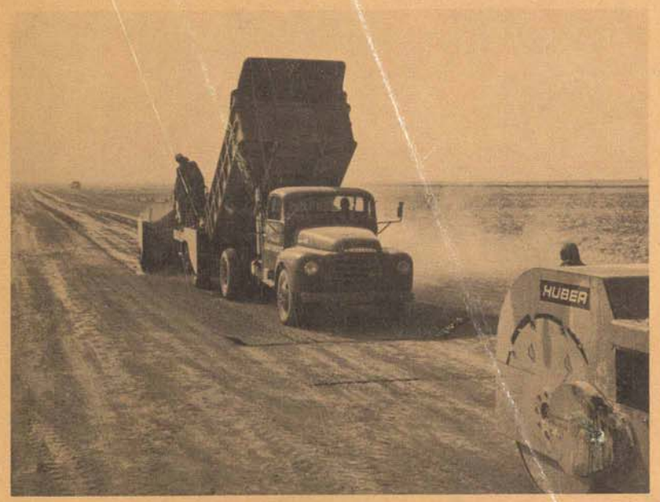


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# ARAMCO WORLD

March–April 1967

DESERT ROAD

# ARAMCO WORLD

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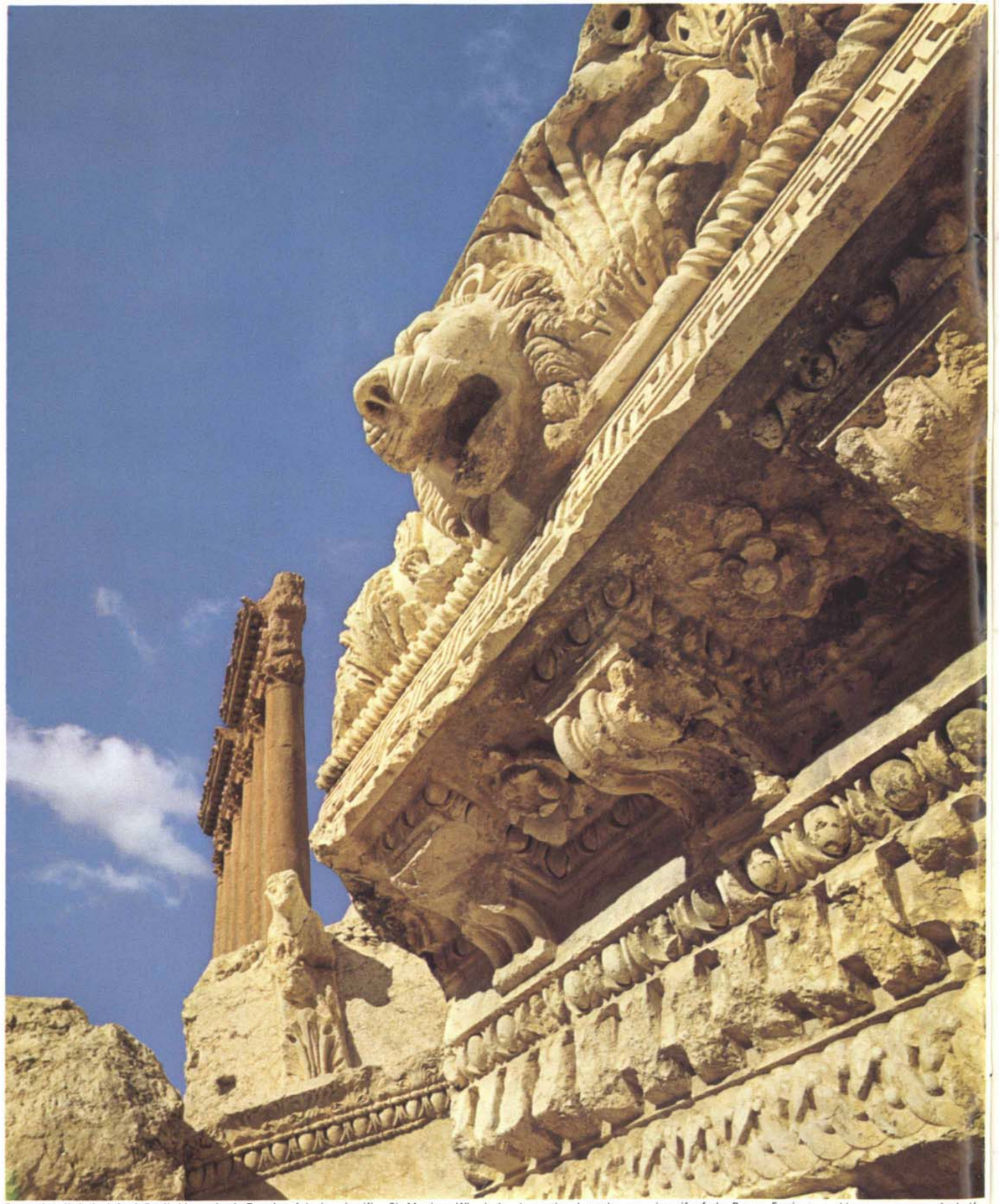
Cover: Like an endless strip of black carpet, the Tapline Road unwinds across the desert, sometimes streaking off toward the horizon as straight as the shaft of an arrow, sometimes curving and twisting through or around unexpected hills or outcroppings of rock, as in this photo, by Khalil Abou El-Nasr, of a section of road about 40 miles northwest of Rafha in Saudi Arabia. Story on Page 22.

From the ashes of destruction it rose:
BAALBEK, the marvel of its age...

PHOTOGRAPHY BY THOMAS F. WALTERS



Even what little is left of Baalbek's majestic Temple of Jupiter justifies Sir Mortimer Wheeler's observation that "the crowning gift of the Roman Empire to architecture was magnitude."

Of the Temple of Jupiter's original 54 columns only these six giants have survived the assaults of time, nature and man.

South side of Temple of Bacchus looking toward the Lebanon Mountains.

# PHOENIX OF THE PLAIN

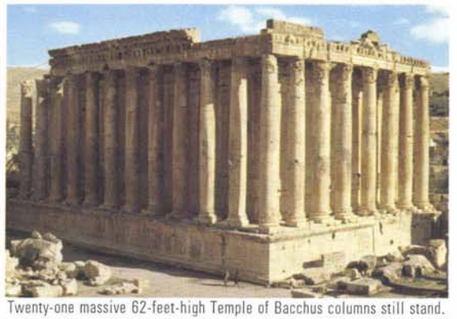
BY DANIEL DA CRUZ

Ancient Baalbek, lying in the shadows of the Cedars of Lebanon near the headwaters of the Leontes and Orontes rivers, bears a distinction few cities would dispute and none would envy: it has probably endured more devastation than any other city in the Middle East.

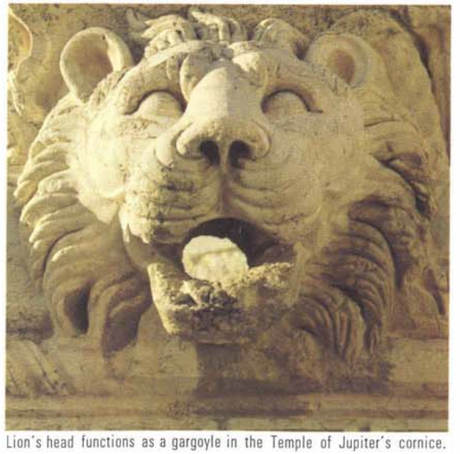
It has been repeatedly assaulted by fire, flood, earthquake, drought, pestilence, hunger, treason, the pillage of a long procession of savage hordes, and time's erosion through 2,000 years. Yet, like the mythical Egyptian bird said to live for 500 years, then to immolate itself on a pyre of aromatic woods, its hot ashes giving birth to a young phoenix, Baalbek, century after tragic century, regenerated itself on its own smoking ruins, and stoically awaited the next hammerblow of fate.

It was never far away. A fair sample of the misfortunes of this Lebanese city, for example, might include the outrage of Tughtakin, Emir of Damascus, on hearing the rumor that Baalbek was trading with his enemies, the Crusaders. He promptly set out at the head of his horsemen and in 1110 ground the walled city into submission. In 1136 his co-religionist Prince Zengi of Aleppo invested the city with a large army, brought up 14 powerful siege catapults, and bombarded the defenders day and night for three months with huge stone projectiles. The dazed survivors at last unlocked the city gates, yielded up their governor to be flayed alive for his obstinacy, and braced themselves for the orgy of rapine that was the price of surrender in those days of casual cruelty.

Still numb from the onslaught, Baalbek suffered a series of disastrous earthquakes in 1139, 1157 and 1170, in which thousands were entombed in their stone-and-mud dwellings. Exactly a decade before the third quake struck, Genghis Khan's grandson Hulagu swept in off the hot Syrian desert with his Mongol cavalry, battered down Baalbek's fortifications, and slew everything that breathed. Restored and repopulated two



Twenty-one massive 62-feet-high Temple of Bacchus columns still stand.



Lion's head functions as a gargoyle in the Temple of Jupiter's cornice.

decades later by the Mamluke ruler Qalun, it was flooded and almost washed away around 1320. Rounding out a century of misery, Baalbek was wiped out yet again in the year 1400 by Tamerlane the Conqueror, en route to burn Damascus and to construct a pyramid of 90,000 severed heads on the leveled site of Baghdad.

After such depredations of nature and man—and Baalbek was successively plundered or ruled by the Macedonians, Romans, Byzantine Greeks, Omayyads, Abbasids, Egyptian Toulounids, the Abbasids again, Fatamids, Crusaders, Mamelukes, the Mongols twice, Turks, Maanides, French, and finally the Lebanese themselves—a natural surmise would be that Baalbek today must be little more than a heap of dust and rubble.

Far from it. In fact, only a century after Tamerlane had done his worst, an Arab writer was able to describe Baalbek as a "city possessing a strong fortress with columns erected by Solomon, mosques, schools, fine streets, baths, gardens, rivers, all of which it would take too long to describe"—which he then proceeded to do. And today, Baalbek still possesses the most magnificent structures surviving the Roman Empire, unexcelled in size and elegance even by the remaining monuments in Rome itself.

Ironically, the massive grandeur of the ruins at Baalbek have all but obliterated their *raison d'être,* the greater glory of the pagan gods which had been worshipped on that spot beyond the memory of man. So little is known of the pre-Roman temple area on which the mighty Roman edifices stand that even the origin of the name "Baalbek" is a matter of lively footnote-war. Some scholars contend that Baalbek comes from the Phoenician words *baal*—Sun God or Lord (as in the name of the Carthaginian general Hannibal, "The Favor of the Lord") and *Beka'a*, the name of the high, fertile plateau between the Lebanon and Anti-Lebanon mountain ranges where it lies. Others maintain that *baal* has been united with *bek*, the Phoenician word for "city," which is precisely the translation the Greeks gave to the name Baalbek centuries later—Heliopolis.

Whether the ancients called it the "Lord of the Beka'a" or the "City of the Sun," Baalbek was doubtless the center of a cult built around the veneration of the Syrian god Baal-Hadad, whom the French antiquarian Dussand described as the "God of Thunder, Tempest, Torrential Rains ... who assures good crops and the perpetuity of springs." Baal-Hadad's consort was Atargatis, and according to the animistic beliefs of the people, who worshipped trees, hewn posts, animals and stone cairns as the "abode of the gods," the association of these male and female divinities was the source of all fecundity and life. The details of the pagan rituals are obscure, but there are indications that in early times human sacrifice was practiced, and ritual prostitution was certainly a feature of the pre-Christian cults.

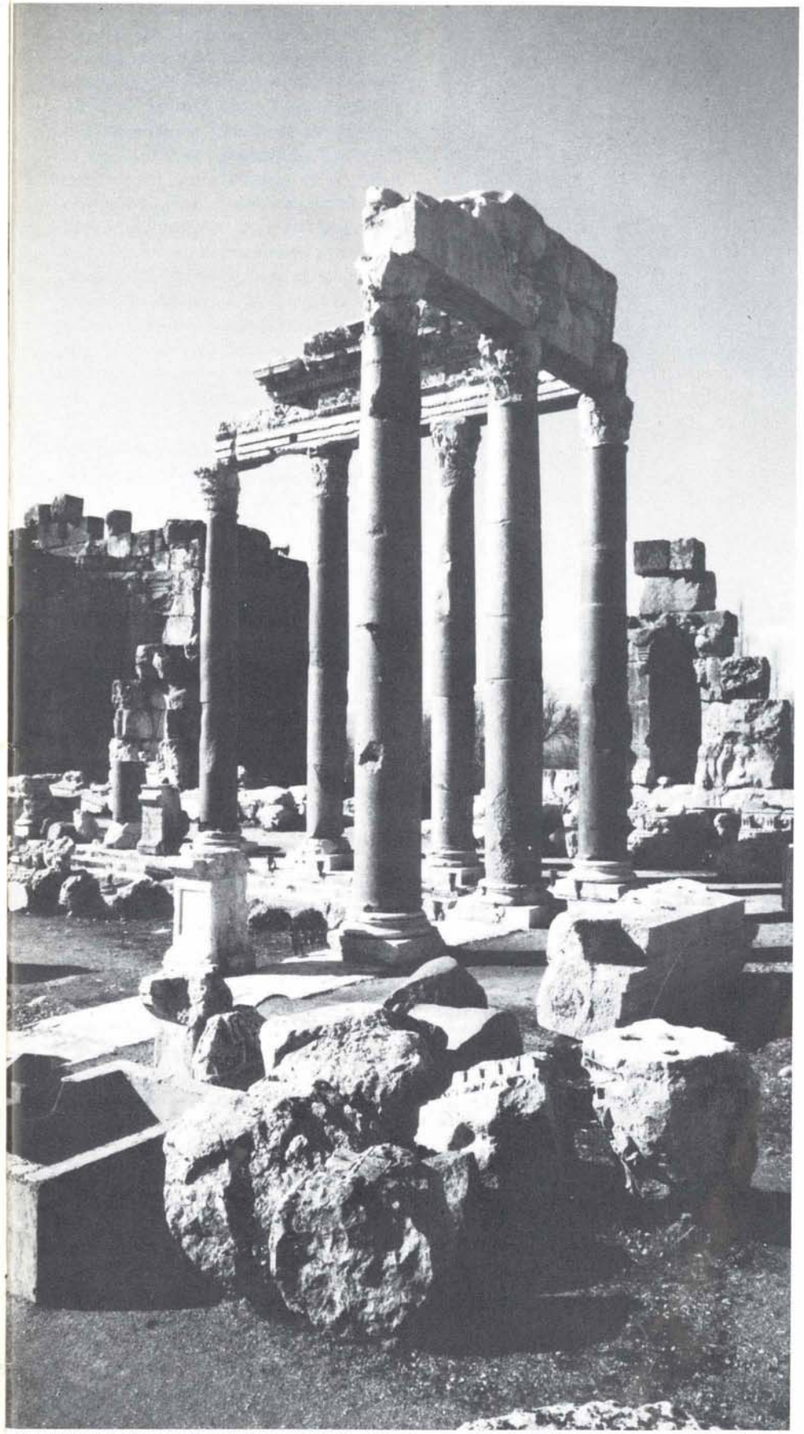
In the absence of any basis of solid fact on which to reconstruct Baalbek's pre-Roman past, a mass of plausible conjecture and outright guesswork have had to substitute for history. Yet repetition and

Typical Roman egg-and-dart pattern frames satyr's head.

their very longevity have given such speculations a certain specious authority, and until archeologists have burrowed deeper among the ruins, an aura of romantic inaccuracy will inevitably surround Baalbek's beginnings. According to one Arab legend, for instance, Baalbek was one of the world's earliest cities; the late Maronite Patriarch Istfan Doweihi likewise noted that "tradition states that the fortress of Baalbek is the most ancient building in the world. Cain, the son of Adam, built it in the year 133 of the creation, during a fit of raving madness. He gave it the name of his son Enoch and peopled it with giants who were punished for their iniquities by the Flood." This engaging story possibly influenced the Arab historian Zakaria El-Qazwini, who asserted that at Baalbek "one can find the castle of Solomon, a building dedicated to Abraham, and a convent of Saint Elijah."

If nothing else, such legends suggest Baalbek's great antiquity, but its history properly begins with its capture by Alexander the Great, on his way from Egypt to defeat King Darius of Persia on the plains of Gaugamela. Heliopolis, as the town was forthwith named, became after Alexander's death a provincial administrative center ruled in turn by the Ptolemies and the Seleucids, before being conquered by Pompey at the head of Roman legions in 63 B.C. The Romans restored the name Baalbek, and cannily traded on the pagan superstitions of the Syrians by recognizing and supporting the local dieties in return for peaceful submission to Roman rule. The names of the gods themselves, however, were subtly transformed by the Romans to correspond with those in the state religion of Rome: Baal-Hadad became Jupiter, the nature goddess Atargatis became Venus, and Mercury, who seems to have no local Semitic counterpart, was added to the Roman pantheon to complete what scholars have come to call the "Heliopolitan Triad."

The Baalbek of Roman times must have been a welcome haven to the battle-stained troops of Pompey. Sheltered from Mediterranean sea marauders by precipitous Mount Lebanon, from the chariot-mounted Persian hordes by the Anti-Lebanon mountains on the East, Baalbek under Roman administration was an island of peace and commerce at the northern tip of the Beka'a plateau. Being midway between the Mediterranean port of Beirut and the desert capital of Damascus, it dominated that vital east-west lifeline of commerce; in like manner did it straddle the north-south caravan routes, which swung up from the frankincense country of Saba (Biblical Sheba) through central Arabia, to Nabataean Petra in what is now Jordan, thence through Baalbek to Palmyra, Asia Minor and Europe. More than half a mile above sea level, the air in Baalbek was clean and crisp, mercifully free of that miasma which the ancients believed causes the dreaded malaria which decimated the selfsame legions in Egypt, Cyprus and Rome itself. At Baalbek was a perpetual spring, the Ras El-Ain, which could sustain the city through a siege, however protracted, and the valley—75 miles long and four



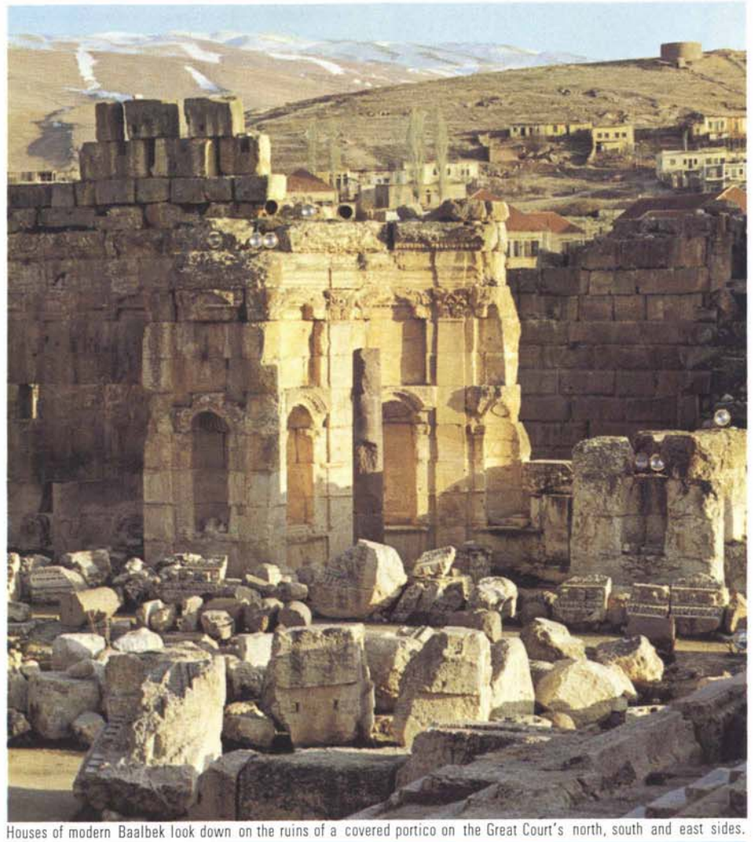
Six columns and a fragment of entablature stand in the northwest corner of the Great Court, site of a once-majestic colonnade.

to six miles wide—grew an abundance of fruit and grain for the city's large garrison. Only rarely did the Romans find a site more naturally adapted to their military, commercial and political designs, and they determined to make their conquest permanent by constructing there a religious center of such strength and majesty that it would be immune from the assaults of armed multitudes and infidels alike. They very nearly succeeded, and parts of the buildings they erected have outlived all their many conquerors.

Started at the beginning of the Christian era, when paganism was actually on the wane, the temples of Baalbek took more than three centuries to complete. The Emperors Hadrian, Trajan, Antoninus Pious, Septimus Severus, Gordianus, Caracalla—all these and others involved themselves in the construction of the temples, whose proportions were rivaled in ancient times only by the uninspiring, unimaginative bulk of the pyramids. Most of the building stone came from the environs of Baalbek itself, but some of the columns were apparently quarried on the Egyptian shores of the Red Sea, hauled by sledges to the Nile, transhipped from Alexandria to Lebanon, and dragged over the mountains to Baalbek.

Such logistical marvels are entirely consistent with the heroic dimensions of Baalbek. The Temple of Jupiter was under construction from A.D. 10 until 249, a period easily exceeding that of the United States' nationhood. The temple's main court stands some 70 feet above the surrounding plain, and is more than 380 feet on each side. The staircase to the temple itself is 175 feet wide and is built in three separate stages. Its Corinthian columns, which originally numbered 54, are made of three limestone drums which were held together by cores of iron or bronze set in lead; each is 7½ feet in diameter and 65 feet high from base to capital (by contrast, those of the Lincoln Memorial in Washington D.C. are but 44 feet high). On three sides of the temple is a terrace built of gigantic blocks of stone, three of which, called the "Trilithon" by awestruck provincials, comprise a single course of the west wall. Each measures 63 by 14 by 11 feet and weighs some 800 tons.

The buildings at Baalbek have moved Sir Mortimer Wheeler, one of the world's



Houses of modern Baalbek look down on the ruins of a covered portico on the Great Court's north, south and east sides.

Extending out of the massive walls that once encompassed the Great Court is one of four recessed "exedra" or sanctuaries.

foremost archeologists, to comment that: "The crowning gift of the Roman Empire to architecture was magnitude. The 'little' temple of the so-called acropolis of Roman Baalbek is bigger than the Pantheon in Rome. The temples of Baalbek owe nothing of their quality to such new-fangled aids as concrete. They stand passively upon the largest hewn stones in the world, and some of their columns are the tallest from antiquity." Sir Mortimer also praises the temple's "slender Corinthian columns carried up to an encrusted architrave, through two stages of niches with semi-circular and pedimental heads, frames for vanished statuary; its dramatic dais on which stood the figure of the deity beneath a baldachin that was certainly of equal splendor. Look too at the *quality* of all this finery, its superb carving, and the sensibility with which it is gently disciplined by the rigid frames and flutings. Here is a masterpiece. Baalbek remains one of the very great monuments in the history of European architecture."

The Temple of Jupiter, being the largest of Baalbek's buildings, has been the favored target of vandals down through the years. Some columns were pulled down by plunderers merely for the sake of the iron-and-bronze cores which held them together. Others were felled by earthquakes. But since an earthquake bowled over three of the columns in 1759 nothing—not even the heavy tremor of 1956 which wrecked scores of Lebanese homes—has been powerful enough to disturb the remaining six, which are so familiar a national institution that they even appear on the country's one-lira banknotes.

Luckier still has been the edifice usually called the "Temple of Bacchus," which archeologists believe was actually consecrated to Venus. Small only by comparison to the nearby Temple of Jupiter, the Temple of Bacchus measures 225 by 110 feet, has a portico bordered by 15 62-foot columns on the long sides and eight on the ends, and a monumental staircase of 33 steps which leads to one of the most gigantic portals ever built. Forty-two and a half feet high, the gate to the temple is carved on jamb and lintel with egg-and-dart designs, flowing patterns of geometrical figures, garlands, vines, and crowds of nymphs, pans, cupids, fawns and sprites in riotous bacchanal. On the high ceiling of the adjacent porticos are incised scenes from classical mythology: Vulcan with his hammer, Diana and her sheaf of arrows, Tyche with a cornucopia, Ceres with ears of corn, and Bacchus with a wreath of grapes. The figure of Bacchus also appears within the temple in the holy of holies, in two separate sculptured representations flanking the now-empty niche where the figure of the temple's god reposed. The presence of Bacchus' statues, together with the presumed removal of the divinity Venus, accounts for the temple being wrongly ascribed to Bacchus.

Further confusing the question of identification, there is another building called the Temple of Venus, quite different in character from Baalbek's other monuments, which stands near the entrance of the acropolis. It too has a monumental staircase, but the plan of the temple is round instead of rectangular, and unlike the rest, faces north instead of east. What remains is of modest dimensions, its curvilineal form certainly suggestive of a structure dedicated to a goddess rather than a god. Yet the argument for calling it the Temple of Venus is somewhat thin. As British archeologist G. Lankester Harding points out, the effaced figures have "been interpreted as being the dove of Venus, Venus rising from a shell and so on," but their damaged condition makes this interpretation doubtful, and in any case "the 'dove' really does look rather more like an eagle."

Considerably more puzzling than the identity of the structures that remain is the silence of history on Baalbek itself. Coins of the reign of Philip the Arab bear a representation of the Temple of Jupiter, and both John Malala of Antioch in the 6th century and Paschal the Chronicler in the 7th describe the city, but most other contemporary historians fail even to mention its name. Even Gibbon, in his 3,000-page masterpiece on the Roman decline and fall, which covers the period and area with unparalleled thoroughness, makes but one passing reference to Baalbek, in describing the progress of Tamerlane through Syria.

Aside from medieval war reportage, Baalbek was little noted nor long remembered until recent times. Church history informs us that the Temple of

From the hexagonal forecourt the ruins extend to the Great Court, center, and to the Temple of Jupiter with its famous row of six columns.

Venus (that of the "doves") was transformed into a church dedicated to St. Barbara by the first Christian Emperor of Rome, Constantine the Great. Somewhat later, the Emperor Theodosius ordered the systematic destruction of Baalbek and other pagan temples throughout the Roman Empire, but to what extent the present damage may be attributed to this edict, to earthquakes, and to later man-made havoc, no one can say. The Christian hegemony over Baalbek was, in any case, historically fleeting, lasting from 330 until Islam conquered the whole of Syria in 637. Churches at Baalbek were promptly converted to mosques, and even the red marble columns removed from Baalbek to adorn the Hagia Sophia by order of the Emperor Justinian, became Moslem property with the capture of Constantinople in 1453. The Moslem conquest deprived Baalbek of its significance as a religious center, for Islam's holy cities of Mecca, Medina and Jerusalem completely overshadowed it. Perhaps with a small sigh of relief, Baalbek settled down to the relative peace of a comfortable obscurity during the long (almost 500 years) reign of the Ottoman Turks.

It might still be all but forgotten had not an energetic group of Lebanese, determined to remind the world of its ancient glories, created an annual festival of music and drama among the ruins. Modest at first but increasingly ambitious, the Baalbek International Festival now attracts tourists as well as artists from five continents every summer. The program of 1964, which included in the same three-month season, the Comédie Française, the Royal Ballet — with Dame Margot Fonteyn and Rudolf Nureyev—and the Pittsburgh Symphony Orchestra is indicative of the variety of programming which is the Festival's special pride.

On festival evenings under the stars (it never rains in Baalbek during the summer), the road across the mountains from Beirut 53 miles away, is a sinuous ribbon of light as long lines of car speed to the Festival. Those who leave early enough sometimes stop briefly just before Baalbek to see the "Stone of the Pregnant Woman," so called because of its reputed power to confer fertility upon women who stand on it. The largest stone ever cut, it outweighs, at some 2,000 tons, World War II ocean-going destroyers. Because, apparently, its architects despaired of ever moving it, the stone lays forlornly where it was quarried. Plainly visible from the quarry are the six illuminated columns of the Temple of Jupiter rising out of the Beka'a plain, and the concert-goers hurry toward them through the gathering dusk of Baalbek in time to make the 8:30 curtain. Their steps take them through an eerie, dimly lit passageway 5¼ yards wide and 130 yards long, through which in pagan times sacrificial processions moved, to emerge in the temple area where the concerts and plays are presented.

Baalbek's monumental setting dwarfs the spectator, who cannot but reflect on the insubstantiality of his being and the brevity of his span, when confronted with the stone evidence of Baalbek's ageless endurance around him. The feeling is eerily fortified during the last scene of *Amphitryon* in which Jupiter, having through impersonation enjoyed both the life and the wife of Amphitryon, General of the Thebans, prepares to ascend once more to Mount Olympus. Scene x opens with a roll of thunder across the darkened Temple of Bacchus, whose stairway serves as a stage. Far away to the right, on the high wall of the Main Court, the figure of Jupiter suddenly appears in a burst of light, framed against the columns of the Temple of Jupiter in the distant background. His amplified voice booms out:

*"Arise from the dark sorrows that have engulfed your heart!*
*Let calming waters quench the fires seething within you ...*
*For I shall make you the envy of the world.*
*So boldly flatter yourself on your future good fortune;*
*The word of Jupiter is the decree of destiny!"*

Hearing such resounding sentiments, is it a wonder that the theatergoer insensibly imagines that they are addressed to indomitable Baalbek itself, or wistfully hopes that in some mysterious fashion they may possess the power of prophecy?

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*Daniel da Cruz, a correspondent and novelist, is a frequent contributor to* Aramco World.

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Brought to Saudi Arabia aboard the freighter Kandelfels, the huge steel cylinder was lowered onto the bed of a trailer-truck mounted on a barge and secured to the trailer. The barge was then towed ashore.



# NEW TRAP FOR SHEDGUM

PHOTOGRAPHY BY S. M. AMIN

Oilmen call it a high-pressure gas trap but as it inched downward from the deck of the freighter toward the squat barge below it looked like a missile on its way to Cape Kennedy.

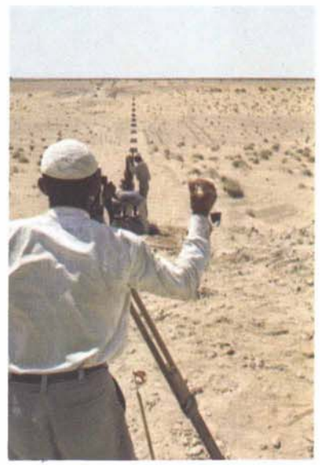
The trap had already had a long voyage, but there was still more ahead. From the pier at Ras Tanura on the Arabian Gulf it still had to go by trailer-truck to North Shedgum halfway between the towns of Abqaiq and Hofuf in the Ghawar oil field on the eastern coast of Saudi Arabia.

In North Shedgum not long ago the Arabian American Oil Company (Aramco) began to expand operations at its Gas-Oil Separation Plant, one of the famous GOSP's of oil literature. GOSP's are relatively simple plants, no more, really, than a series of huge steel cylinders through which petroleum from the oil fields flows on its way to be stored, stabilized or refined. At this stage, however, oil contains a large proportion of dissolved gas under high pressure. The gas must be separated from the oil and piped off. The separation is achieved by routing the flow into, first, what is called a "high-pressure trap," second, a "low-pressure trap" and, finally, a spheroid tank. At each stage the pressure is reduced and some gas released until the point is reached at which the oil can be moved along.

To expand this operation, Aramco recently imported and installed the new high-pressure and low-pressure tanks as shown on these pages.

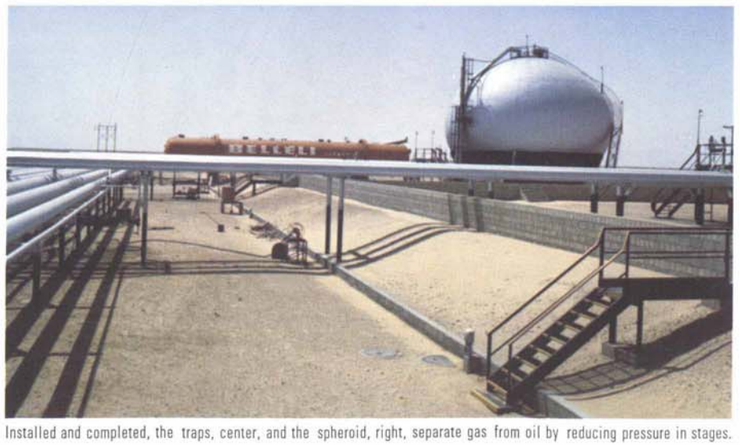

To enable the trailer truck to get ashore safely with the trap, Aramco experts built a special ramp on the Ras Tanura pier.

Two cranes lower the 175-ton cylinder down onto its foundations.



Workers set in supports for flow lines from wells.

Welders repair a trunk line that carries the separated oil to refinery.



Installed and completed, the traps, center, and the spheroid, right, separate gas from oil by reducing pressure in stages.

# FROM THE CLASSICS #1

*The desert strikes a chord in men. From Burton to Thesiger, from Doughty to Lawrence, the explorers of Arabia have been almost always moved to set down on paper the moods, thoughts, and feelings that the desert and its peoples seem inevitably to evoke in those who know them well. Many, indeed, have written so well that they have produced classics of observation, description and, occasionally, style. Many have become the basis of what the modern world knew and thought of Arabia and of the fascination that this land has exerted on man in all ages and in all places.*

*One of the most brilliant writers on Arabia was T.E. Lawrence, the controversial British colonel who participated so effectively in the Arab revolt of World War I. A born writer, he drew upon his experiences in the desert to write* Seven Pillars of Wisdom. *This book, one of the best ever written on Arabia, achieved levels of description that bordered on poetry. Whether plodding along on treks through endless sands or galloping to attack a Turkish outpost, Lawrence somehow managed to absorb the color, the detail, the mood of the moment and later recreate it in clear and lovely prose—such as this account of a raiding party's return to camp after a raid on the Hijaz Railroad...*

# MARCH TO WADI AISH

BY T. E. LAWRENCE

The day seemed to be hotter and hotter: the sun drew close, and scorched us without intervening air. The clean, sandy soil was so baked that my bare feet could not endure it, and I had to walk in sandals, to the amusement of the Juheina, whose thick soles were proof even against slow fire. As the afternoon passed on the light became dim, but the heat steadily increased with an oppression and sultriness which took me by surprise. I kept turning my head to see if some mass was not just behind me, shutting off the air.

There had been long rolls of thunder all morning in the hills, and the two peaks, Serd and Jasim, were wrapped in folds of dark blue and yellow vapour, which looked motionless and substantial. At last I saw that part of the yellow cloud off Serd was coming slowly against the wind in our direction, raising scores of dust devils before its feet.

The cloud was nearly as high as the hill. While it approached, two dust-spouts, tight and symmetrical chimneys, advanced, one on the right and one on the left of its front. Dakhil-Allah responsibly looked ahead and to each side for shelter, but saw none. He warned me that the storm would be heavy.

When it got near, the wind which had been scorching our faces with its hot breathlessness, changed suddenly; and, after waiting a moment, blew bitter cold and damp upon our backs. It also increased greatly in violence, and at the same time the sun disappeared, blotted out by thick rags of yellow air over our heads. We stood in a horrible light, ochreous and fitful. The brown wall of cloud from the hills was now very near, rushing changelessly upon us with a loud grinding sound. Three minutes later it struck, wrapping about us a blanket of dust and stinging grains of sand, twisting and turning in violent eddies, and yet advancing eastward at the speed of a strong gale.

We had put our camels' backs to the storm, to march before it: but these internal whirling winds tore our tightly-held cloaks from our hands, filled our eyes, and robbed us of all sense of direction by turning our camels right or left from their course. Sometimes they were blown completely round: once we clashed helplessly together in a vortex, while large bushes, tufts of grass, and even a small tree were torn up by the roots in dense waves of the soil about them, and driven against us, or blown over our heads with dangerous force. We were never blinded—it was always possible to see for seven or eight feet to each side—but it was risky to look out, as, in addition to the certain sand-blast, we never knew if we should not meet a flying tree, a rush of pebbles, or a spout of grass-laden dust.

This storm lasted for eighteen minutes, and then leaped forward from us as suddenly as it had come. Our party was scattered over a square mile or more, and before we could rally, while we, our clothes and our camels were yet smothered in dust, yellow and heavy with it from head to foot, down burst torrents of thick rain and mud-died us to the skin. The valley began to run in plashes of water, and Dakhil-Allah urged us across it quickly. The wind chopped once more, this time to the north, and the rain came driving before it in harsh sheets of spray. It beat through our wollen cloaks in a moment,

DRAWINGS BY MORAG ABOUL-HOSN



and moulded them and our shirts to our bodies, and chilled us to the bone....

At sunset we reached the northern limit of the ruined sandstone land, and rode up to a new level, sixty feet higher than the old, blue-black and volcanic, with a scattered covering of worn basalt-blocks, small as a man's hand, neatly bedded like cobble paving over a floor of fine, hard, black cinder-debris of themselves. The rain in its long pelting seemed to have been the agent of these stony surfaces by washing away the lighter dust from above and between, till the stones, set closely side by side and as level as a carpet, covered all the face of the plain and shielded from direct contact with weather the salty mud which filled the interstices of the lava flow beneath. It grew easier going, and Auda ventured to carry on after the light had failed, marching upon the Polar Star.

It was very dark; a pure night enough, but the black stone under-foot swallowed the light of the stars, and at seven o'clock, when at last we halted, only four of our party were with us. We had reached a gentle valley, with a yet damp, soft, sandy bed, full of thorny brush-wood, unhappily useless as camel food. We ran about tearing up these bitter bushes by the roots and heaping them in a great pyre, which Auda lit. When the fire grew hot a long black snake wormed slowly out into our group; we must have gathered it, torpid, with the twigs. The flames went shining across the dark flat, a beacon to the heavy camels which had lagged so much to-day that it was two hours before the last group arrived, the men singing their loudest, partly to encourage themselves and their hungry animals over the ghostly plain, partly so that we might know them friends. We wished their slowness slower, because of our warm fire.

In the night some of our camels strayed and our people had to go looking for them so long that it was nearly eight o'clock, and we had baked bread and eaten, before again we started. Our track lay across more lava-field, but to our morning strength the stones seemed rarer, and waves or hard surfaces of laid sand often drowned them smoothly with a covering as good to march on as a tennis court. We rode fast over this for six or seven miles, and then turned west of a low cinder-crater across the flat, dark, stony watershed which divided Jizil from the basin in which the railway ran. These great water systems up here at their springing were shallow, sandy beds, scoring involved yellow lines across the blue-black plain. From our height the lie of the land was patent for miles, with the main features coloured in layers, like a map.

We marched steadily till noon, and then sat out on the bare ground till three; an uneasy halt made necessary by our fear that the dejected camels, so long accustomed only to the sandy tracks of the coastal plain, might have their soft feet scorched by the sun-baked stones, and go lame with us on the road. After we mounted, the going became worse, and we had continually to avoid large fields of piled basalt, or deep yellow water-courses which cut through the crust into the soft stone beneath. After a while red sandstone again cropped out in crazy chimneys, from which the harder layers projected knife-sharp in level shelves beyond the soft, crumbling rock. At last these sandstone ruins became plentiful, in the manner of yesterday, and stood grouped about our road in similar chequered yards of light and shade. Again we marvelled at the sureness with which Auda guided our little party through the mazy rocks.

Between craters the basalt was strewn in small tetrahedra, with angles rubbed and rounded, stone tight to stone like tesseræ upon a bed of pink-yellow mud. The ways worn across such flats by the constant passage of camels were very evident, since the slouching tread had pushed the blocks to each side of the path, and the thin mud of wet weather had run into these hollows and now inlaid them palely against the blue. Less-used roads for hundred of yards were like narrow ladders across the stone-fields, for the tread of each foot was filled in with clean yellow mud, the ridges or bars of the blue-grey stone remained between each stepping place. After a stretch of such stone-laying would be a field of jet-black basalt cinders, firm as concrete in the sun-baked mud, and afterwards a valley of soft, black sand, with more crags of weathered sandstone rising from the blackness, or from waves of the wind-blown red and yellow grains of their own decay.

Nothing in the march was normal or reassuring. We felt we were in an omnious land, incapable of life, hostile even to the passing of life, except painfully along such sparse roads as time had laid across its face. We were forced into a single file of weary camels, picking a hesitant way step by step through the boulders for hour after hour. At last Auda pointed ahead to a fifty-foot ridge of large twisted blocks, lying coursed one upon the other as they had writhed and shrunk

in their cooling. There was the limit of lava; and he and I rode on together and saw in front of us an open rolling plain (Wadi Aish) of fine scrub and golden sand, with green bushes scattered here and there. It held a very little water in holes which someone had scooped after the rainstorm of three weeks ago. We camped by them and drove our unladen camels out till sunset, to graze for the first adequate time since Abu Raga.

"Anchors aweigh," said the Lieutenant and down the river they sailed—on the Navy's strangest adventure.

# THE CROOKEDEST RIVER WHAT IS

BY JOHN BRINTON

"Now this is the plot and I tell you it's got everything! There's this Navy officer, see, and he wants to explore this unknown river. But first he has to get permission from the ruler of this exotic country. Then he has to haul his ships across a whole range of mountains. All around there are armed tribesmen. But he makes it, see, and explores the river. Then he decides to visit this ancient city where they don't like strangers. His friends tell him it's dangerous, but he goes anyway. For a while it looks like a mob might tear him apart, but instead they welcome him. Later his men come down with a strange disease and he nurses them back to health. Then he goes home and writes a book about his adventures and it becomes a best seller. After that..."

The story line for a low-budget movie? The outline of a bad novel? No, it's history. Unlikely as it may sound, it is the story of an American naval lieutenant named W.F. Lynch who, in 1847, convinced the Secretary of the Navy that the United States owed it to the world to explore and chart the Jordan River in the Holy Land. Granted that permission, he sailed to Turkey, won the permission of the Sultan to travel in the Ottoman Empire, hauled his boats overland from the Mediterranean coast to the Sea of Galilee, explored and mapped the River Jordan and the Dead Sea. Later he returned to the United States and published an account of his adventures. The book was an instant success and went into several editions.

Not many Americans realize that their country's ties with the Muslim world go back so far. Actually, they go back even further, to 1784—just a year after the United States signed its peace treaty with England. A Moroccan warship cruising in the Atlantic spotted an American merchant brig called the *Betsey*, and the Moroccan captain, seeing the new American flag for the first time, quite naturally assumed that the *Betsey* was a potential enemy and thus a fair prize. He seized her, escorted her to Tangiers and soon the American captain found himself in the presence of the Emperor of Morocco.

That ruler, fortunately, was anxious to improve his country's trade. Thus instead of leading to conflict with the United States the brig's capture led to the beginning of diplomatic parleys. After six

PILLAR OF SALT AT USDUM

months, both countries signed and ratified a treaty of friendship and Morocco, an Arab state, became the first neutral power to officially recognize the existence of the United States of America.

America's subsequent dealings with the North African states were not always as fortunate. In spite of treaties, promises and presents, the infamous Barbary pirates from Morocco, Algiers, Tunis and Tripoli, plagued American ships for many years, until, as every schoolboy knows, Stephen Decatur, in 1815, finally blasted them from their lairs once and for all, thus making the Mediterranean safe for shipping.

Relations did not improve either when the Sultan of Turkey met his first American—under somewhat inauspicious circumstances. That honor went to Captain Bainbridge, commander of a ship called the *George Washington*, which the Dey of Algiers had commandeered while it was on an abortive peace mission in the early days of the struggle with the North African states. The Dey forced Captain Bainbridge to sail to Constantinople, taking with him the Dey's envoy to the Sultan of Turkey.

In 1800, however, the new republic's flag made its appearance off Seraglio Point, where it caused a mild sensation. And although diplomatic relations between Turkey and the United States developed slowly, an American consulate was opened in Smyrna in 1824, and a formal treaty was signed in 1831—a treaty that in effect, opened the vast domains of the Ottoman Empire to the new, young nation. Proud of its newly-won independence, proud of having borne the major share of clearing the Mediterranean of pirates, the United States, then, was, like Caesar's wife, "above suspicion." Thus began a friendly invasion of the oldest world extant by the newest nation to emerge in the world—an invasion by missionaries, proselytizing educators, explorers, scientific expeditions, and travelers, all intent on a new crusade to bring knowledge and Christianity to an area that had given birth to both. It was a crusade that brought many great and stimulating ideas with it, the results of which are visible to this day.

Among the Americans who were drawn toward the East there were few more adventurous than Lieutenant Lynch, an enterprising officer of strong religious feeling and a great interest in the Holy Land.

Lieutenant Lynch had learned that despite two recent attempts no one since the Romans had succeeded in navigating the Jordan River and exploring the Dead Sea, and that the two most recent attempts had failed.

Of those attempts the first had been made in 1835 by Christopher Costigan, and the second, in 1847, by Lieutenant Molyneaux of the Royal Navy. Although both men spent a short time on the Dead Sea, one was found by Bedouins dying upon the shore and the other died a few months after his return home from a fever contracted on its waters. They had accomplished very little, except possibly to reinforce the age-old belief of the Arabs that no one could venture upon the Dead Sea and live.

Lieutenant Lynch, determined to succeed where they had failed, somehow persuaded the Secretary of the Navy that it was to America's advantage to back such an expedition and soon received orders to make immediate preparations to depart. He assumed command of the U.S. store ship *Supply*, once appropriately named *Crusader*, and began to choose the crew. "I was very particular in selecting young, muscular, native-born Americans, of sober habits, from each of whom I exacted a pledge to abstain from all intoxicating drinks," he wrote, explaining that sobriety seemed essential for the preservation of good health under the "severe privations" and "severe exposure" which they would have to endure. He also chose two excellent draftsmen, Lieutenant Dale and Midshipman Aulick.

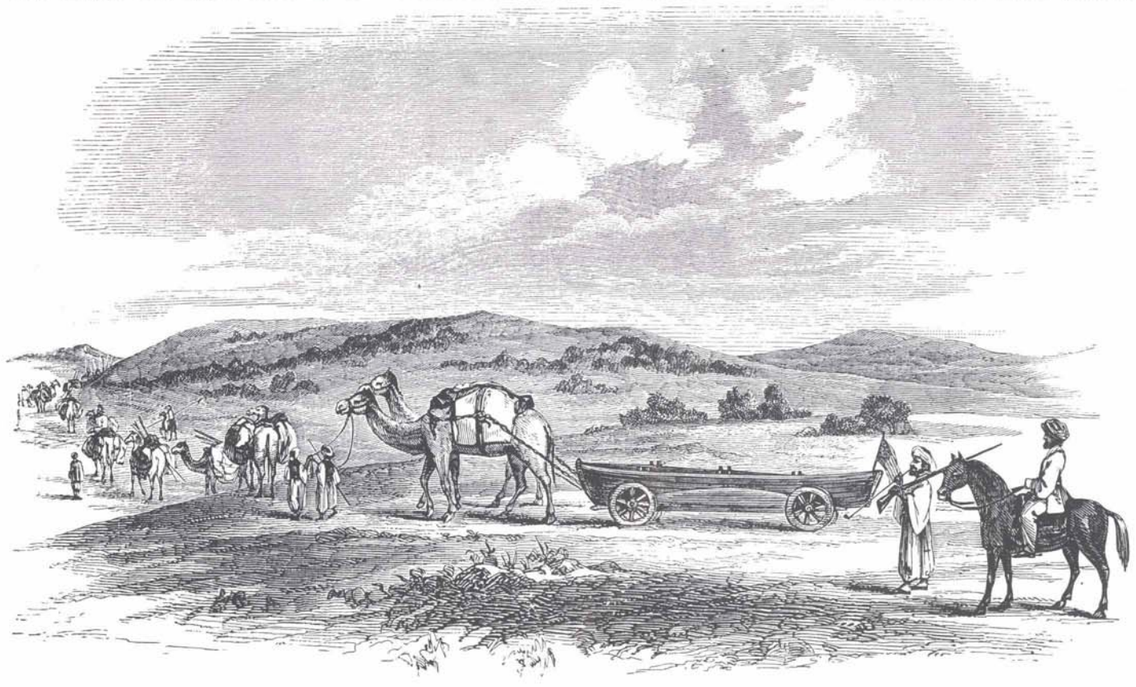
Supplies of all sorts were assembled: tents, sails, oars, flags, air-tight gum bags (which could be used as life preservers in emergencies), preserved meats and cooking utensils. The armory consisted of one blunderbuss, 14 carbines with long bayonets, 14 pistols, four revolving and 10 with bowie knife blades attached. Each officer was provided with a sword. And of course there were also the boats in which they hoped to sail down the Jordan, special vessels that Lieutenant Lynch designed and built himself—one of copper and one of galvanized iron, each mounted on low carts with wheels to facilitate overland transport from the Mediterranean to the Sea of Galilee.

Lieutenant Lynch and the *Supply* sailed on Friday, November 26, 1847, from New York and reached Smyrna on February 17, 1848. From Smyrna he and his two officers proceeded at once to Constantinople by commercial steamer hoping to obtain official permission from the Sultan for their expedition at once. There, they were to get their first taste of Middle Eastern ways—and the Ottoman Empire was to get its first taste of Lieutenant Lynch.

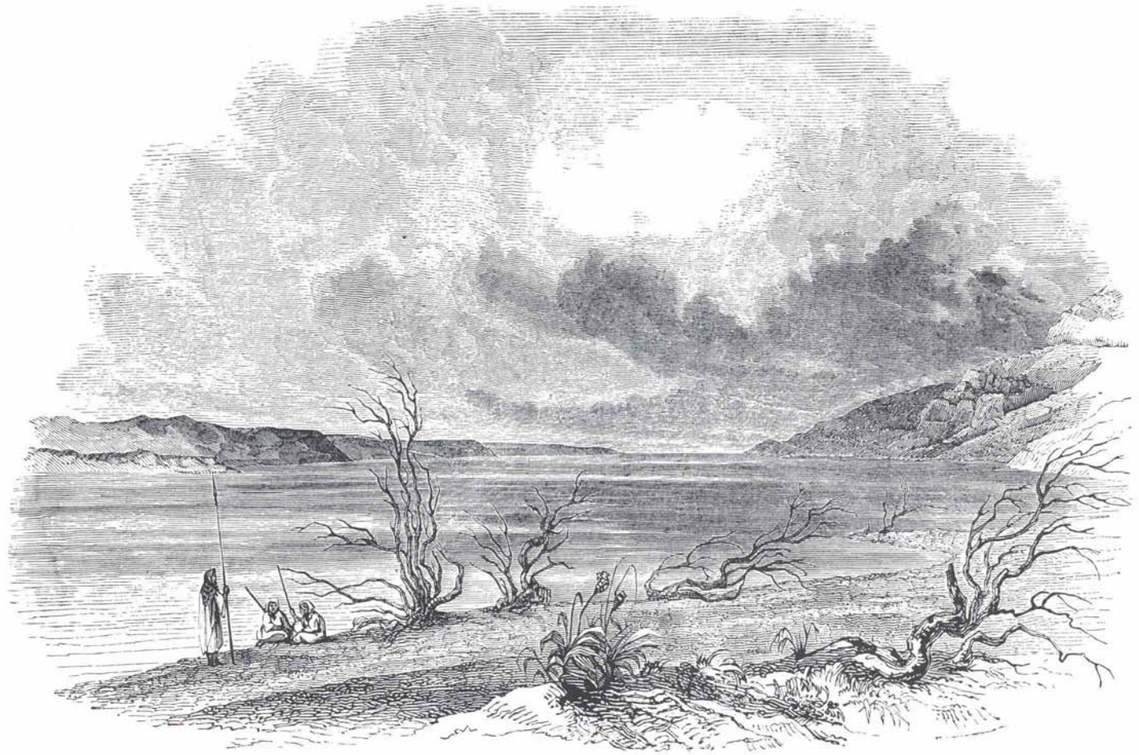
Although the Sublime Porte, as the center of the Ottoman Government was called, was friendly to the young American officers, it was not to be rushed. No matter what he did, Lieutenant Lynch was unable to hurry either the Sultan or his ministers. But at last the American minister intervened and obtained a private interview with the Sultan.

This, as it happened, was an unheard-of honor. Imagine then the horror of all concerned when, in an antechamber of the palace, the proud and stubborn Lieutenant Lynch flatly refused to surrender his sword. "But *no one* can see the Sultan wearing a weapon," he was told. That may be, he replied, but "no sword, no interview."

For a short time the palace quivered



CARAVAN OF THE EXPEDITION



SHORE OF THE DEAD SEA.

with shock and the expedition trembled on the brink of failure. Then the Sultan, Abdul Magid, a kindly man, apparently amused by the audacity of the impetuous young officer, not only granted the interview, but issued him a permit to travel the empire and explore it at will.

On the 25th of March, the *Supply*, having left Smyrna without delay, reached Beirut. There, Lieutenant Lynch persuaded one Dr. Anderson, a prominent physician and a geologist, to join the party and sailed on south to St. Jean d'Acre, where, in heavy surf, they unloaded their supplies and their boats. One boat was called the *Fannie Mason*, and the other the *Fannie Skinner*. From then on the little flotilla was referred to as "the Fannies."

Near St. Jean d'Acre they set up camp, posted guards and, as the lieutenant was to boast later, displayed "for the first time, perhaps, outside of the consular precincts, the American flag ... in the Holy Land." Not long after, the *Supply* sailed away, leaving the young lieutenant standing on the beach wondering, "Shall any of us live to tread her clean, familiar deck?"

Before the party was free to set out, of course, there were negotiations to be got through with local authorities, there were presents to be offered and last-minute problems to be solved. But at last they were ready and on a hot spring day they rode inland, the officers and crew on horses and donkeys, their boats mounted on carriages bouncing along behind braces of camels, the only beasts strong enough to get them across 30 miles of the hot trackless coastal plain and over a mountain trail some 1,500 feet high.

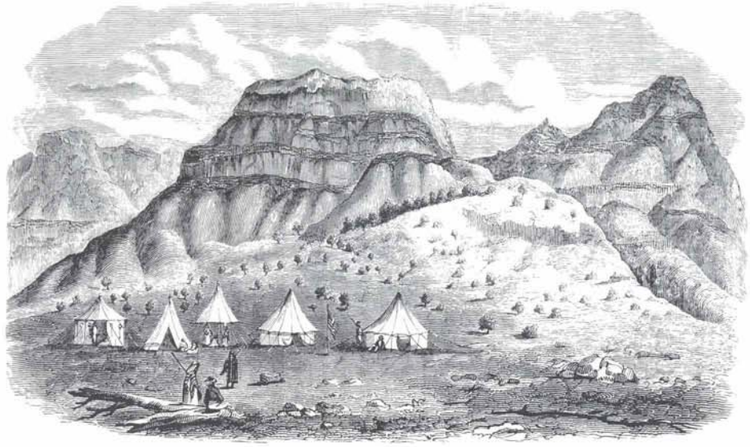
After a journey that Lieutenant Lynch later called "a nightmare"—four days to cover 30 miles—the two "Fannies" were at long last floated on the Sea of Galilee where Lynch and his party fired off a salute and retired to the town of Tiberias for a modest celebration. There they also bought the only wooden boat available as an auxiliary to their little flotilla. They christened her *Uncle Sam*.

The expedition was now divided into two sections. One, mounted on camels, was to travel overland to protect the river party in case of an attack by Bedouins, and the other, with Lieutenant Lynch in command, was to man the boats in the descent of the River Jordan.

On the 10th of April the two parties left Tiberias. The three boats were rowed slowly to the foot of the lake while the land party, made up of local Bedouins armed with rifles and long spears, followed the west bank of the Jordan.

Since no one in Tiberias had been able to give Lynch any information as to the water course of the Jordan, the flotilla was literally plunging into the unknown. Conditions turned out to be far worse than had been expected. A swift current sweeping them along at a steady four knots forbade the use of oars and there were so many rapids that most of the time the men stayed in the water, hauling the boats over the rapids or lowering them down with ropes. In places it was impossible to navigate the river at all and they were obliged to cut new channels to float through. The going was so difficult that in three days' time the wooden boat bought in Tiberias, was wrecked and her crew half drowned. At night the men camped ashore, immediately posting a guard and mounting the blunderbuss in the most prominent position. When possible, they were joined by the land party, but that was not very often. They lived on tinned food and Jordan water.

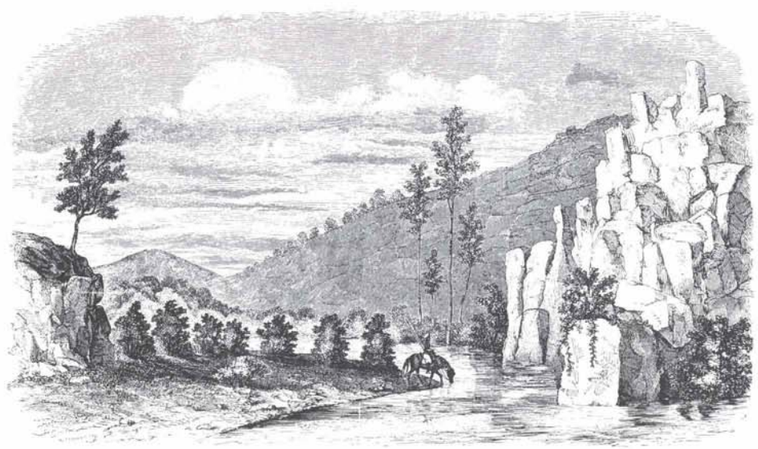
But there were compensations. The scenery was beautiful and wild life abounded. The river was full of fish—one sailor caught a trout—and birds of every description such as storks, ducks, swallows, pigeons and bulbuls flew about and herons left their nests in the reeds. They also saw wild boar and, at one spot, found the fresh tracks of a tiger where he had come to the water's edge to drink. One sailor killed an animal having "the form of a lobster, the head of a mouse, and the tail of a dog." The Arabs called it *kalb el mayya* (water dog), but it was probably a badger. Trees and oleander bushes grew along the banks in great profusion, and in places the scenery was almost tropical. Graceful willow trees dropped their shade over the boats as the little flotilla labored by and great tamarisk trees sighed in the wind. There were old ruins to inspect and small islands and picturesque streams emptying into the river.



AIN JIDY (ENGADDI).

The journey down the river took seven days. The last day on the river was spent at a place called "Pilgrim's Ford," not far from Jericho. Concerned that pilgrims out of a large party that had come from Jerusalem to be baptized might drown, the "Fannies" and their crew stood by to rescue them but were not needed.

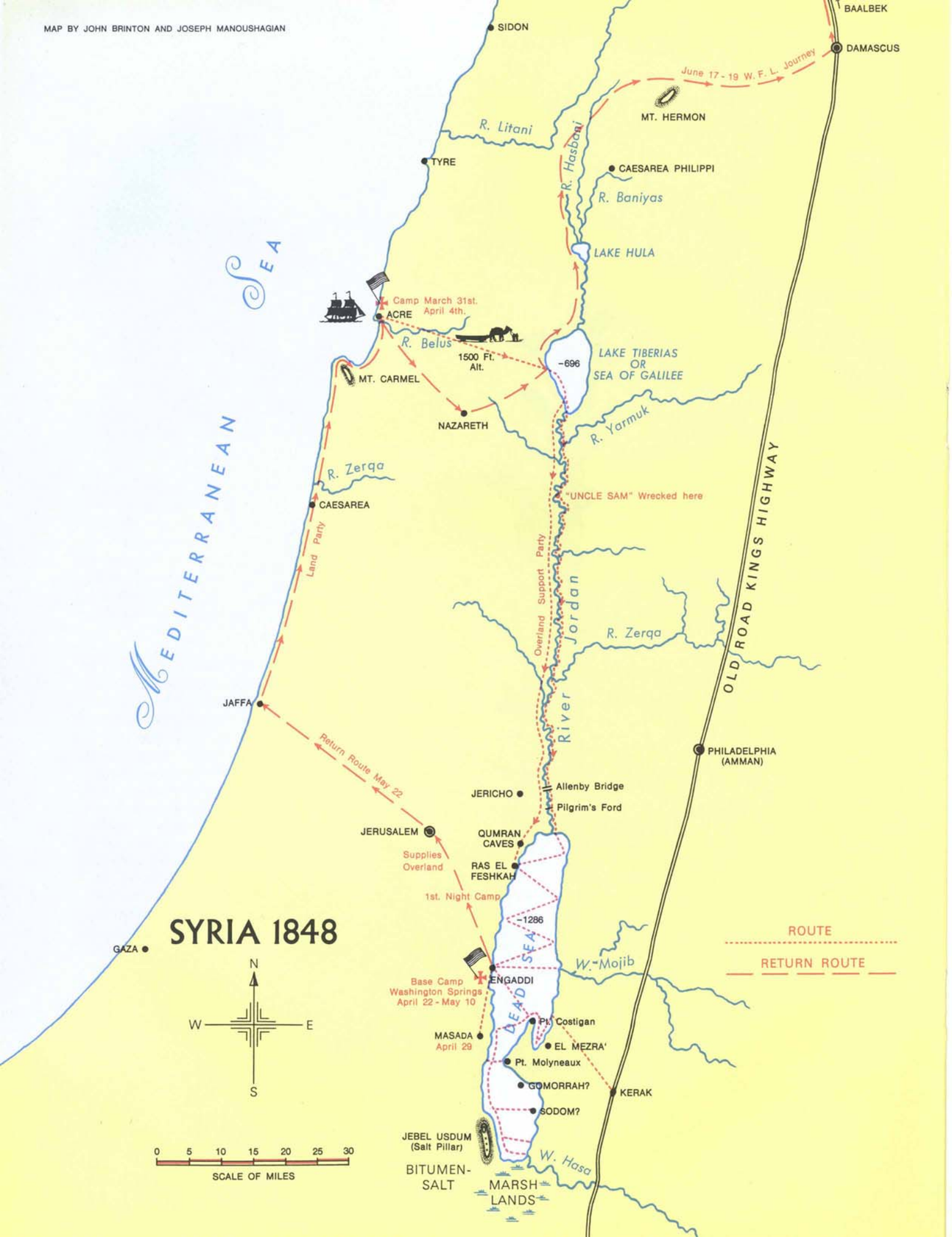
In his first report to the Secretary of the Navy, Lieutenant Lynch introduced a homely but forceful expression, "The Jordan is the crookedest river what is," adding that it was even more crooked than the Mississippi. In the space of only 65 miles latitude and four or five miles longitude the Jordan traverses 200 miles, one of the most tortuous courses in the world. The drop is nine to ten feet per mile with an average current speed of three to four knots. There are 27 rapids and countless whirlpools. The small party, however, made it to the end safely and a week after they had set out sailed onto the Dead Sea.



SOURCE OF THE JORDAN.

It should have been a great moment for them but suddenly a powerful wind began to blow. It was as if the wrath of the gods was suddenly let loose, perhaps to justify the old Arab belief that nothing could survive on the waters of Dead Sea. The first gusts nearly swamped the boats and minute by minute the wind velocity increased. The surface of the water turned into foaming brine and the spray covered everything with a layer of salt, blinding the crews. The heavily-laden boats struggled sluggishly and the salt-heavy waves hit the bows "like the sledge hammers of the Titans." In minutes the boats began to ship water and Lieutenant Lynch feared they would sink.

Suddenly, according to the commander, Providence intervened. Lieutenant Lynch kept exact records despite emergencies and he recorded that at 5:58 p.m. the wind instantly abated. Twenty minutes later the sea, "which threatened to engulf us," had suddenly become "a placid sheet of water," and the frightened, exhausted party rowed north toward Ain el Feshka, where they were to meet the land party. The northern shore




was a desolate mud flat, scattered with the debris of tree trunks and branches, blackened by asphalt or white with salt. It was dark when the party, wet and weary, arrived at Ain el Feshka, and although their landing place turned out to be a fetid marsh, the crews of the two boats collapsed on the ground and slept in their clothes. Thus they came to the Dead Sea.

In the morning Lynch dismissed his land escort, sent a party to Jerusalem to request the Pasha to send a few soldiers to guard their camp, and ordered the two "Fannies" to commence sounding operations in the northern end of the Dead Sea. The object of the expedition was to make detailed studies of the river and the sea. The party was to take systematic soundings, make topographical, astronomical and barometrical observations and sketch and chart the shores. As Lieutenant Lynch put it, "all hands must be occupied."

On the second day they moved on to Ain Jidi (Engaddi) which was to be their base. Lieutenant Lynch, indefatigably patriotic, named it "Camp Washington." Halfway between the deep northern end and the southern shallows, Ain Jidi was the most picturesque spot on the Dead Sea. It has a sweet water spring. Tamarisks and cane grew along the banks of the stream, as well as pink oleanders, yellow mignonette and rock roses. There were wild boar, duck and many birds.

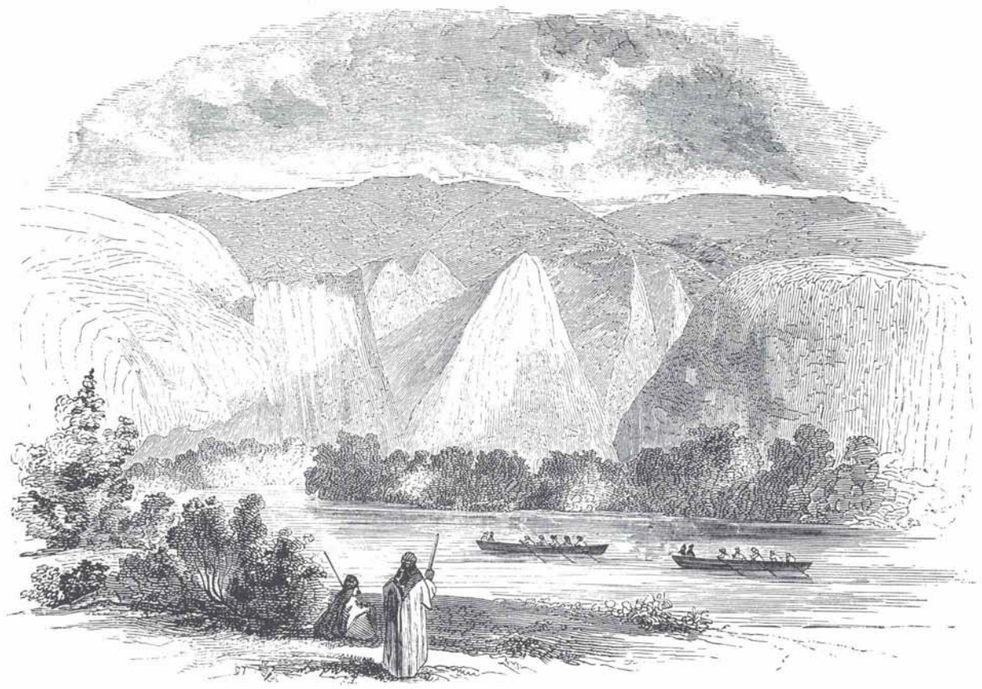
At Ain Jidi, fortunately, letters and supplies from America finally caught up with them. The party also made friends with local Bedouins who treated them to Arab dancing (in which some of the well-traveled American sailors detected a resemblance to the South Sea Islander's war dance.)

Meanwhile, the work went on. On April 25, after the survey of the northern end of the sea, the two boats started south to circumnavigate the southern end. This had never been done before and because there were rumors that Bedouin brigands controlled the southern coast, the crews fingered their arms nervously and mounted the formidable blunderbuss in the bow of the leading boat.

The landscape was infernal. Masses of scorched, calcinated rock, purple like "coagulated blood," rose on all sides of a salty, sickly sea; chunks of black asphalt, named by the Arabs "Moses' stone," floated on the surface, and the atmosphere stank of sulphur. Dr. Anderson, who acted as geologist, found traces of what he said were deposits of ore.

The expedition spent four days exploring the southern end of the sea. The first night the men slept on a dismal beach. Continuing south next morning they reached the extreme point of land where the Jabal Usdum, "the Great Salt Mountain," is situated. This mountain rests on a broad, flat, marshy delta coated with salt and asphalt. It is 350 feet high, seven miles long and a mile wide. It oozes salt into the Dead Sea. There, at the head of a deep chasm, they saw a great round pillar standing free. Intrigued, they waded ashore and scrambled to the top. To their amazement they found that the pillar was made of pure salt and that it was

PILGRIMS BATHING IN THE JORDAN.



SCENE ON THE JORDAN.

slowly crumbling to bits. (Several years later the French traveler Edouard Delesert remarked that the salt column could not be found. "Lot's wife" apparently had crumbled away. But this was usual—the landscape was volatile and always changing.)

As they rowed southwest, conditions worsened. The depth of the sea varied between two and three feet, too shallow to permit even the "Fannies" to get closer than 200 to 300 yards from shore. Once, in search of drinking water, the men had to wade through hot, salt muck to reach a small stream. The water was bitter, and so was a small wild melon they found growing on its banks.

By now, the crews were suffering from heat exhaustion, thirst and nausea caused by the stifling, fetid atmosphere. Lieutenant Dale had to walk across 300 yards of salt mud to the shore to take a bearing. He described it as "walking over live coals," and somehow concluded that it was here, under this slime, that the ill-fated cities of Sodom and Gomorrah must lie.

Then, suddenly, a wind, hotter and stronger than they had so far encountered, engulfed them and the temperature rose to 116 degrees. The metal boats became instruments of torture. Without water and in a state of almost utter collapse they headed for shore, landed and set up camp for the third night, wondering if they could make it back to Camp Washington.

The next morning they were lucky to find one of those extraordinary inlets of fresh water that trickle into the Dead Sea. It saved their lives. They drank, bathed, and filled their water bottles, and found a small tropical valley in which there were quail and partridge. They also stumbled across a party of hostile Bedouins who surrounded them, but took fright when confronted by the blunderbuss and quickly vanished.

It was tempting then to consider going back, but Lieutenant Lynch kept steadily to his course and thus completed the entire circuit of the Dead Sea for the first time in modern history. Their last night was spent on the Lisan peninsula on the opposite side of the shore from Camp Washington. Lynch named the two extremities of the peninsula in honor of Costigan and Molyneaux who had lost their lives in their attempts to explore the Dead Sea.

Their return to Camp Washington the following morning was a nightmare. The poisonous atmosphere had affected the men with a "terrible, almost irresistible drowsiness." They almost slept at their oars. But they persevered and soon arrived at Camp Washington with its cool shade, its sweet water and its safety.

By then most of their work was complete, and so the party began to prepare to depart. They took time out to mark the death of ex-President John Quincy Adams—by lowering the flag to half mast, and firing a salute—then continued their preparations. A collection of the flora and fauna was carefully packed, as well as many geological specimens and a supply of the famous "apples of Sodom," a strange fruit, "fair to the eye, but bitter to the taste." The fruit was brought in by Bedouins and four jars were sent to the Patent Office in Washington. The two sturdy little "Fannies" were dismantled and sent overland to Jerusalem.

On the 10th of May, after 22 days exploring the Dead Sea, the men plunged in for a last swim, pulled down the last traces of their camp and rode off to Jerusalem, where they spent a few days sightseeing. Then they moved on to Jaffa, hired a sloop and sailed to their starting point at St. Jean d'Acre. Here the party divided into two groups. One sailed on to Beirut with the boats and supplies. The other, headed by Lieutenant Lynch, set out on further exploration. The Lieutenant, anxious to trace the main source of the Jordan River, rode into the mountains. There he found a cavern from which, dramatically and beautifully, poured the foaming Hasbani River, in present-day Lebanon.

From there Lieutenant Lynch rode forth to one final adventure. He had wanted to visit Damascus officially but had been told that the inhabitants would mob him unless he were to go humbly on foot, as all Christians were required to do. The stubborn Lieutenant Lynch decided to go anyway. It must have been dangerous, but he passed unmolested and left safely.

After a visit to Baalbek—even then a must for tourists—he joined the main party in Beirut. That was on the 30th of June. He found most of his men sick with fever, apparently contracted on the Dead Sea. Working beside two missionary doctors in Beirut, Lynch helped save most of the men, but poor Lt. Dale succumbed, and was buried in the Beirut "Frank" (i.e. Christian) cemetery.

The rest of the story can be quickly told. Since the *Supply* had still not arrived to pick them up, Lieutenant Lynch and his men joined her in Malta, where they sailed at once for America. On his return Lieutenant Lynch submitted his official report to the Secretary of the Navy, and then requested permission to write a popular account of his journey. It was called *Narrative of the United States Expedition to the River Jordan and the Dead Sea*, and was an immediate success on both sides of the Atlantic and went into many editions. It was in fact a best seller, and justly so. The plot, after all, had everything.

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*John Brinton, an American businessman and long a resident of the Middle East, is a collector of old travel books and is presently engaged in preparing a bibliography of American travelers to the Arab world.*

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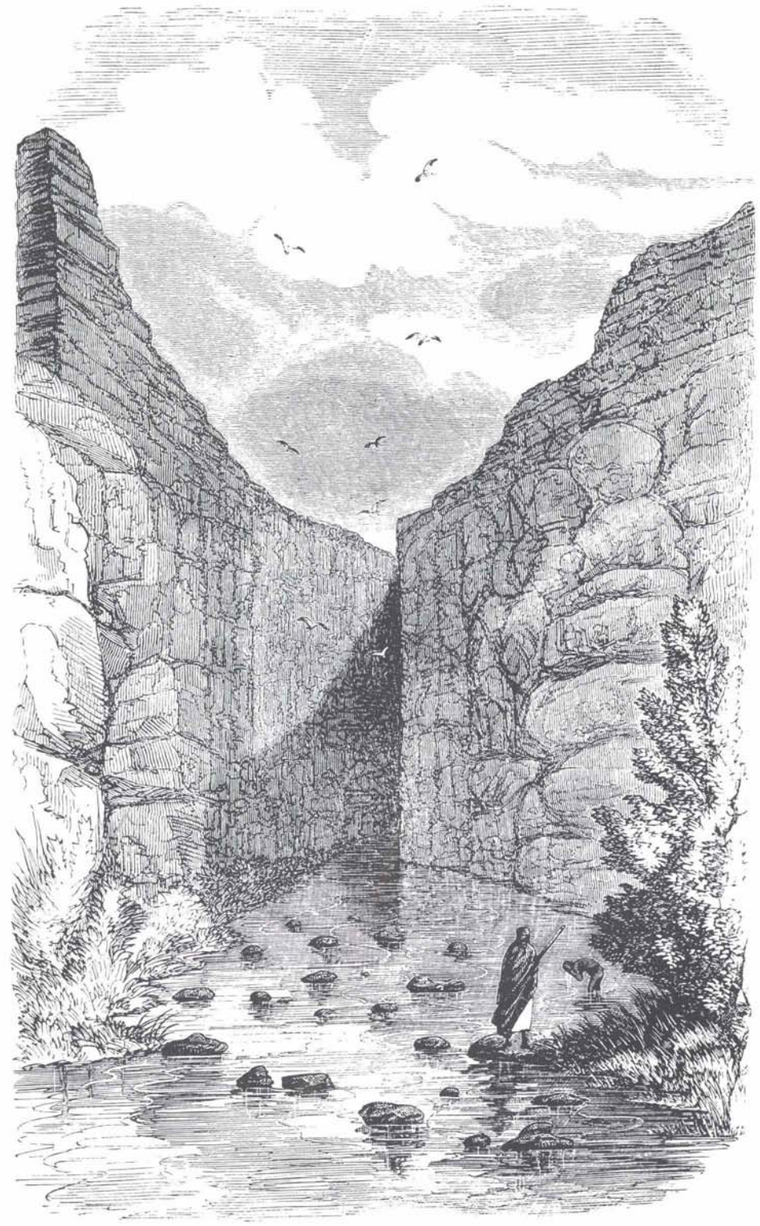


WADY MOJEB.

WOOD ENGRAVINGS BY MESSRS. GILBERT AND GIHON

PHOTOGRAPHY BY KHALIL ABOU EL-NASR

# DESERT ROAD

BY JAN VAN OS

The delicate pink flower stood in its innocence on the border line of two worlds. On the right was the desert—motionless and quiet. On the left was a road—a road where clouds of yellow dust billowed into the sky, where huge earth-movers clanked up the side of a small hill, where trucks roared off with great loads of sand and rock.

The scene was a few miles west of Badanah in northwest Saudi Arabia. The work underway was the reconstruction and surfacing of what is known as the "Tapline Road," a 17-year-old graded-earth and gravel road running from the Tapline (The Trans-Arabian Pipe Line Company) pumping station at Qaisumah to Turaif near the Saudi Arab-Jordan border—a distance of 514 miles.

The old road had come into existence during the years when Tapline was constructing its pipeline. In those days it was used exclusively by the mammoth trucks and trailers brought in to haul the enormous quantities of pipe and building materials up the line from Ras al-Mish'ab on the Arabian Gulf, the point where ships unloaded the materials. Later, Tapline maintenance crews and security patrols assigned by the Saudi Arab Government to protect the pipeline began to use it, too. Then, as word got around that the Tapline Road offered a new overland shortcut for the movement of goods from Lebanon, Syria and Jordan to Eastern and Central Arabia and to the Gulf states, big commercial trucks soon began to outnumber all Tapline and government traffic. In almost no time the road had developed into a major traffic artery. In 1963 the Saudi Arab Government, wishing to incorporate the road into its expanding highway system, made an agreement with Tapline under which Tapline would improve the whole road from Qaisumah to Turaif, surface it with asphalt, and make an annual payment for the upkeep of the road upon completion.

Upon the signing of the agreement Tapline, which had decided to supervise the work itself, immediately dispatched engineers to resurvey the road and began to recruit workers and draw up bid tenders for parts of the job that would be handled by Saudi Arab contractors. Within three months work was underway and within 10 months crews were applying asphalt to the Qaisumah end of the road. By the end of 1964 the rebuilt road had reached "kilometer 200" on the pipeline—which meant that 125 miles were ready—and by November 15, 1966 had reached kilometer 642. By this June if there are no unusual delays the project will be completed.

Roads, like housing, are necessities almost as old as mankind itself. The first ones were probably no more than foot paths or trails leading from places where man had found shelter, to other places where he could find food. Longer and wider roads developed when he discovered that goods available in one place were in demand somewhere else. Some of those roads later became famous trade routes—like the great caravan trails from South Arabia to Jordan, or the fantastic "Silk Route" which ran all the way from the Middle East to China. Roads as we know them today developed when man set out to conquer other lands and discovered he needed dependable tracks over which he could march his armies, swiftly carry his supplies and, if his venture were successful, send back the treasures, the prisoners and the slaves he had captured.

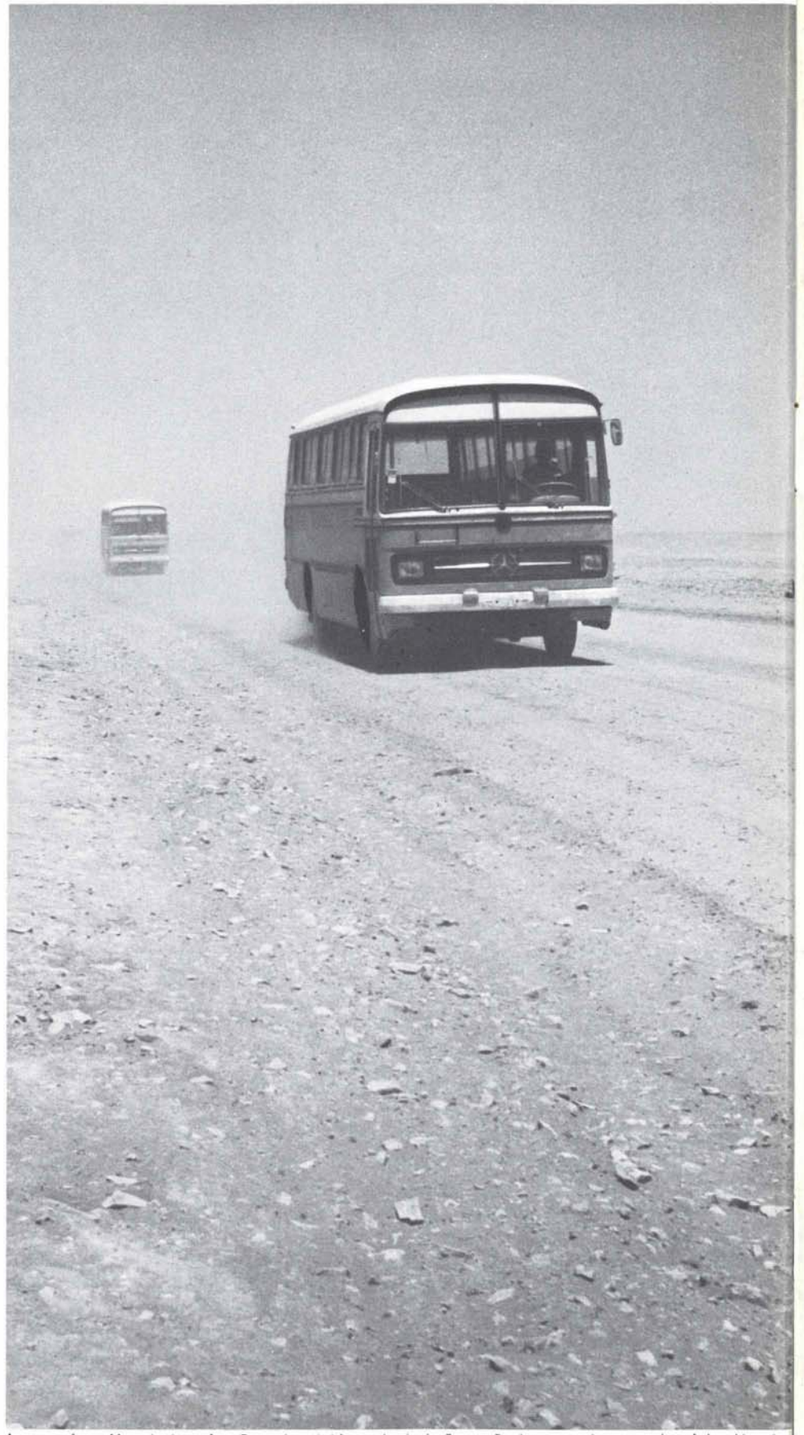
Some of the most famous roads are thousands of years old. The Egyptians spent 10 years building the road on which they carried the materials needed for the creation of the Great Pyramid at Gizeh. Traders some 4,500 years ago established a 1,755-mile-long trade route between Smyrna on the Aegean Sea and Susa in southwest Iran. In Europe the famous "Amber Road" or road system was built 2,000 years before Christ to haul precious amber from the Baltic Sea to Rome, Greece and Asia Minor. In Britain there was a "Tin Road" which started at Cornwall in the southwest and ended at

Across the sands it goes—Saudi Arabia's newest trade route to the Mediterranean.

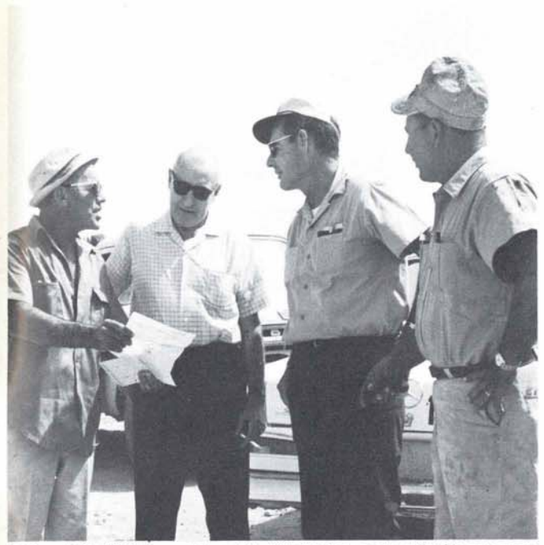
Colchester on the North Sea; in South America the Incas built roads across wild Andes Mountains from present-day Peru and Columbia to Chile. Probably the most famous road builders were the Romans. To link the distant points of their great empire they constructed a vast network of highways throughout Europe, Africa and the Middle East, roads so good that many exist to this day. Roman achievements in road building, in fact, went unchallenged right up to the beginning of the 20th century, when that revolutionary new means of transportation, the automobile, began to require a whole new network of roads. Since then, and especially since the 1920's, road construction has been going on at a tremendous pace almost everywhere. In World War II a number of long-distance highways were built for strategic purposes in North America—the Alcan Highway, for example—Africa, Asia and Australia, and today one can travel by bus from London to Calcutta or drive directly from Alaska almost to the tip of South America.

Compared to those giant undertakings, the Tapline Road is a relatively short one. But in proportion, its importance is enormous. Before it existed many vital goods going to the eastern and central section of the Arabian Peninsula, to Kuwait and the Arabian Gulf states, had to be transported by ship—a long slow trip from the Mediterranean to the Arabian Gulf—or had to be flown in at great cost. Even before its surfacing with asphalt, the Tapline Road had become the preferred route for many commodities. When surfacing is complete, the hearts of the truckers will be gladdened by this smoother, faster and more economical trade route from the shores of the Eastern Mediterranean.

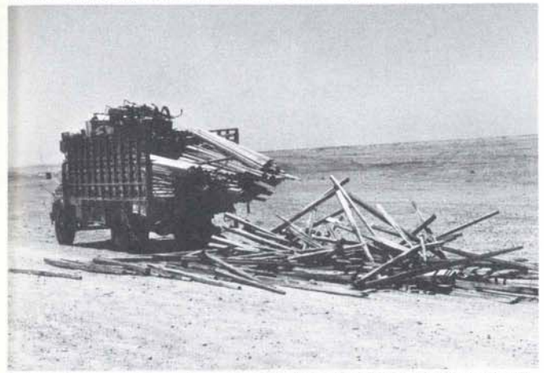
From the air, the Tapline Road, where finished, is a dark narrow strip alongside a long steel tube bolted to the desert floor—the pipeline that carries Saudi Arabia's oil to tankers in the Mediterranean. Like an endless strip of black carpet, it stretches out across arid ochre plains, never more than a few hundred feet from the pipeline, or from the markers in the sand that show where the pipeline runs underground. Sometimes it stretches off as straight as the shaft of an arrow; sometimes it curves and twists like a ribbon of black silk. Sometimes it comes to a sudden end at places where clouds of choking dust boiling high into the air



A convoy of new Mercedes buses from Europe intended for service in the Eastern Province roars along a section of the old road.



Tapliners F.W. (Bill) New and Elwood H. (Woody) Gray, center, talk with contractors.

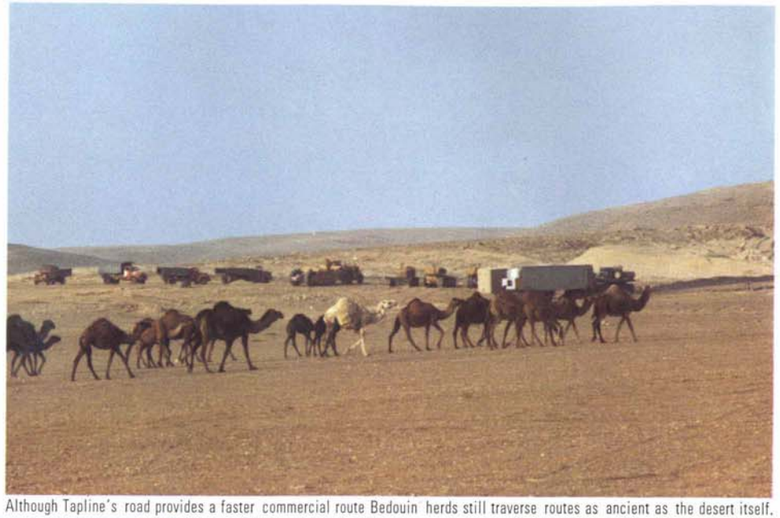


Its load strewn along the road, a truck stands deserted while the driver goes for help.

Truckers from Syria on their way to Riyadh, Saudi Arabia, stop right on the road for a hearty breakfast.

Most of the "old" Tapline Road is graded and leveled but in places the ground is so flat the road seems hundreds of yards wide and drivers can maintain high speeds with a minimum of attention.

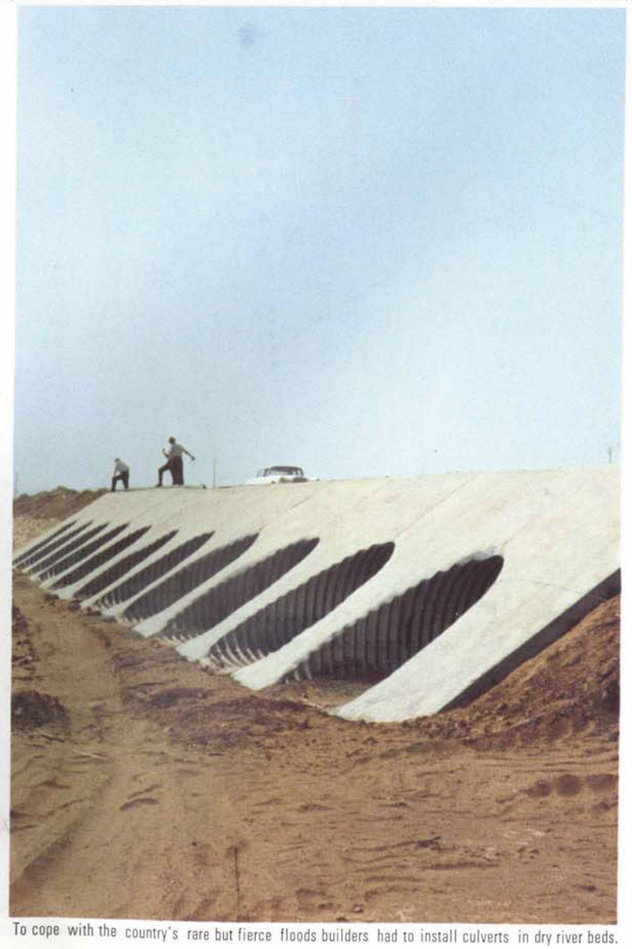
Crushed rock and second coat of asphalt make up first armor coat.



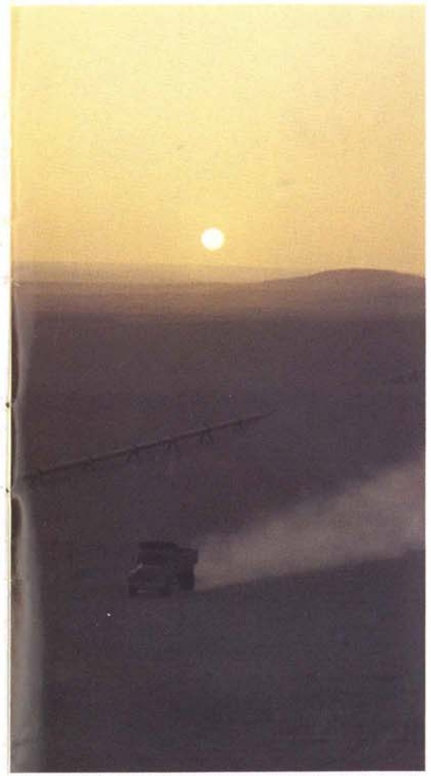
Although Tapline's road provides a faster commercial route Bedouin herds still traverse routes as ancient as the desert itself.

Nearing the final stages of construction builders spray asphalt over four inches of crushed rock.

To allow animals to cross the pipeline camel crossings have been built at regular intervals.



To cope with the country's rare but fierce floods builders had to install culverts in dry river beds.



On unfinished section of road a truck heads for home at day's end.

signal the presence of the men and machines who are rebuilding the road.

Reconstruction of the road has been done in five stages. The first stage was no more than a fast, but thorough, field survey to recheck the original road for any minor changes in design that might be required to accommodate the constantly increasing traffic. The second stage was carrying out the work after the survey. Earth-moving crews, with their six DW-20 earth-movers (each with a capacity of 18 cubic yards), their bulldozers and their motor graders, began to level hills, fill in low places and straighten sharp horizontal curves. By the time the whole project is finished, the earth-moving crews alone will have moved a staggering 2,350,000 cubic yards of earth.

In the third stage, layers of earth are dumped on the road, soaked with water, rolled, and then shaped and graded by a succession of bulldozers, graders and rollers. In the fourth stage, a layer of approximately four inches of crushed rock is spread, smoothed, watered, mixed, reshaped and then rolled with heavy rubber-tired rollers until it is ready for the first coat of hot asphalt, sprayed over the crushed material. This new coat is left to cure for a day or two, depending on the weather, and then is rolled with pneumatic rollers, until it can accommodate traffic.

The final stage is reached when the first armor coat is applied. It consists of a heavier grade of asphalt covered with a layer of crushed rock, which is then rolled, first with a heavy steel-wheeled roller and then with rubber-tired rollers. As a last step the road is tidied up by power brooms, which brush off excess chips, and then is opened to traffic.

A second armor coat will follow approximately 12 months after the first, to give an opportunity for traffic to expose any defects in the surface or subgrade, and for such defects to be repaired. Application of the second armor coat is identical with that of the first.

Since it was started, the reconstruction of the road has moved along at about 11 miles a month, a pace that has required skillful advance planning to insure a constant supply of marl, crushed rock, water, and asphalt. "Our asphalt comes from Aramco's refinery at Ras Tanura which is pretty far away," says Elwood ("Woody") H. Gray, Tapline's senior project engineer. "All our spare parts and other supplies are drawn from Tapline's central facilities at Turaif which, in turn, receive them from sources all over the

Earth-movers, bulldozers and motor graders all play noisy and spectacular roles in leveling hills, filling depressions and straightening potentially dangerous curves west of Badanah Pump Station.

world." ('Pretty far away' is a bit of an understatement. The average distance from Ras Tanura to the job site is just under 500 miles which is roughly the distance from Washington D.C. to Indianapolis, or from London to Zürich.)

But for the rest, according to Mr. Gray, the whole project is "a road material engineer's dream." Rock, for example, which is used for the final surfacing and armor coating of the road, is simply gathered in the desert and pushed by bulldozers to two movable rock-crushing plants, one with a capacity of 150 cubic yards per hour. (The crushed rock is stockpiled according to size and, when needed, hauled to the job site. A total of 800,000 cubic yards will be used by the time the road is finished.) Water, an essential element in any road construction, is provided by Tapline's own pumping station wells and augmented from some of the old wells drilled by Aramco during the first years of oil operations in Saudi Arabia. Huge quantities are needed: 288,000 gallons for the completion of each mile of road. The asphalt, hauled in bulk from Ras Tanura, is pumped into eight 6,000-gallon mobile storage tanker trailers near the job site, which, in turn, load distributor tank trucks. By last November when 400 miles were completed more than 4,400,000 U.S. gallons of asphalt had been used.

Working in the desert, however, has other advantages too. One is in design. The desert, with the exception of a few low hills and dry river beds, is flat. The prevailing soil is solid and strong. It hardly ever rains in the area and, best of all, there is an absolute absence of frost action—all of which adds up to fast construction and, as any Tapline engineer will be glad to testify, good results. "The first thing we did when our stretch, from Qaisumah to Rafha, was ready," reported one, "was to remove the sand tires from our automobiles and replace them with regular tires." Another old-timer commented: "You're driving along this new road and what do you feel? Nothing! Besides," he added, "it's a pleasant sensation to hear the old tires *sing* again."

As they will soon along the entire length of the Tapline Road.

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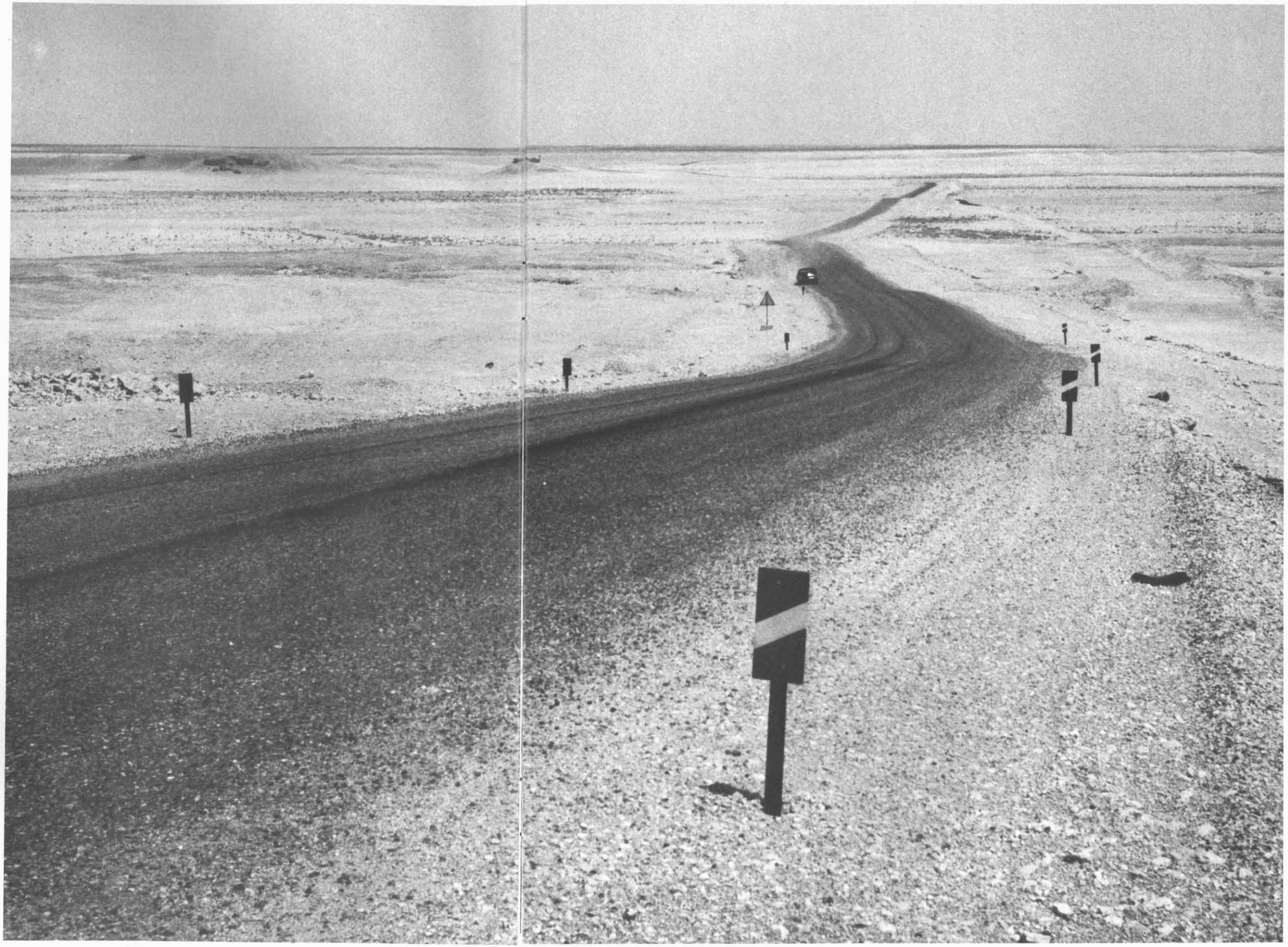
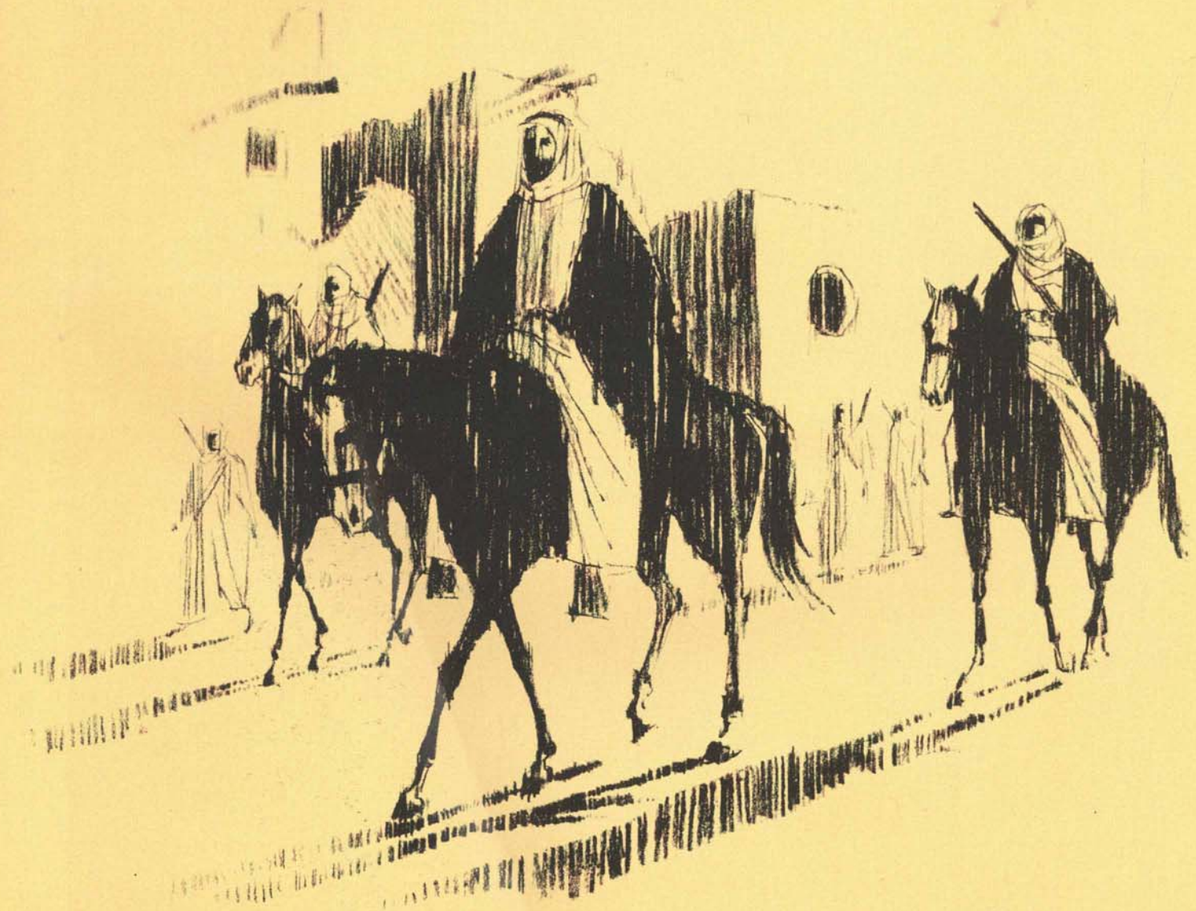
*Jan van Os, now working as a journalist in the Netherlands, is the former Assistant Editor of* Aramco World.



# MEMORIES OF OLD JIDDAH

BY DANIEL VAN DER MEULEN



**The siege was over and the Sultan of Najd had come. His name was 'Abd al-'Aziz Al Sa'ud.**



My memory has a curious quality. It mixes the grand with the trivial so inextricably that I can't really remember the one without also remembering the other. Perhaps it is because most memories are a blend of the small and the large. Or perhaps it is just my own way of remembering. Either way, that's how I remember Jiddah — as the grand and trivial together, a mixture of historic event and personal anecdote, a great king stepping into history and a frightened horse galloping in panic toward the Red Sea...

The first time I saw Jiddah it was half in ruins. That was at the beginning of 1926. King 'Ali ibn Husain had just fled, after a year under siege, leaving the city and his kingdom to the man who would soon begin to reshape the destinies of the Arabian Peninsula: 'Abd al-'Aziz Al Sa'ud, then merely the Sultan of Najd, later to be king of a new country to be called Saudi Arabia.

The siege had left its mark on Jiddah. Bombardment had wrecked parts of the city. The inhabitants themselves, when fuel became scarce, had destroyed other sections. Famine and disease had killed thousands and everyone was desperately short of water. Thus the people were more relieved that their ordeal was over than concerned that the enemy had won. They knew, of course, that the armies that had taken their city were Wahhabis, a Muslim sect that advocated a strict adherence to the codes of Islam, and that they would soon be expected to adhere to that stern code themselves. But to a city weary of war that was hardly a matter of urgent concern. As it was to turn out, the impact of Wahhabi discipline was philosophically accepted by the people of Jiddah, and deeply interested the foreign onlookers.

In those days I was the consul of the Netherlands in Jiddah. Being consul was not a position of spectacular importance but there were responsibilities of an important nature, one of which was tending to the welfare of pilgrims from what is now Indonesia, but was then the Duteh East Indies. It was a long way from the East Indies to Mecca, the Holy City of Islam, but since the islands were heavily and fervently Muslim and since Islam requires that all Muslims make a pilgrimage to Mecca once in their life, thousands of believers annually were making their way across the Indian Ocean to the shores of Arabia and thence to Mecca as the Prophet had commanded. Many, unfortunately, could not afford the return trip too and turned to our consulate for help. Thus from the moment of arrival, I was a more than ordinarily interested spectator to the birth of what is perhaps the last theocratic state in the world.

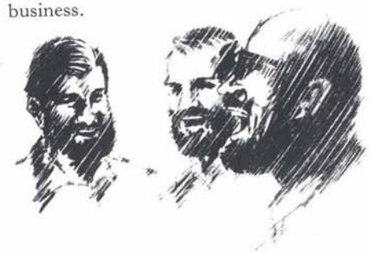
Prior to his capture of Jiddah and to his inauguration as King of *Najd wal Hijaz wa mulhakatiha*, the Twin Monarchy of Najd and the Hijaz and Dependencies, 'Abd al-'Aziz Al Sa'ud had demonstrated that he was a military leader of considerable skill and courage. But after his conquest and reorganization of the largest unified Arab state since the first days of Islam, he convinced an onlooking world that he was also a ruler and a statesman of no little ability, a man who could both introduce modern concepts into an ancient land yet uphold, in all sincerity, the strictest tenets of Islam.

In the early days, for example, after his last great conquests, when he had to raise money for his new kingdom, King 'Abd al-'Aziz instituted an immediate search for gold. He had learned from the Old Testament that during King Solomon's reign, gold from Arabia had been sent to Jerusalem. He was determined to find whence it came. With American technical help he located one of the mines of *Mahd adh-Dhahab*, "The Cradle of the Gold," not far from Medina. The return was disappointing as it happened, but it introduced the idea that the mineral wealth of the land ought to be sought and used—the first step toward the historic decision taken to permit what was to become the Arabian American Oil Company (Aramco) to search for oil.

One of the king's first moves was to encourage pilgrimage to Mecca, which had been cut off by World War I and then discouraged by bands of raiders, who lurked along the pilgrimage routes, demanding tribute from all who passed, and by corrupt administrators. Since this was a blow to Islam, 'Abd al-'Aziz immediately inaugurated a stern campaign to stamp out the brigands who infested the lonely roads to Mecca and Medina—so stern that the Westerners in Jiddah were sometimes disturbed. The king, however, was unmoved. "You believe that I am cruel," he said to me one day, "but you are wrong. I know how my Bedouins must be governed. I dealt out exemplary punishment in such a way that the rumor thereof spread to the furthermost areas of the desert. If Allah pleases I shall not have to do this again for a long time."

The king's restoration of order, however, was only the beginning. Now that the pilgrims were coming in greater numbers, the king realized, he would also have to cope with other problems. Thus he introduced motor vehicles, primitive and ramshackle though they were, to help transport pilgrims to Mecca from Jiddah. Thus he also called in medical and public health experts from the West to combat the epidemics that used to break out among the pilgrims whenever great masses of them congregated. In such ways, the king brought progress into his country while at the same time introducing a stricter observation of Islamic rules and teachings than most Muslims had ever known before.

The impact of the king's theocratic approach was felt almost at once in Jiddah. At the regular hours of prayer, as the *muezzin's* voice called the faithful to prayer, the devout Muslim immediately dropped whatever he was doing and hurried to the nearest mosque. At such moments, the streets and shops emptied as if an air raid siren had sounded. In banks, heaps of Maria Theresa thalers and stacks of gold coin stood untended and untouched during prayers. Teeming *suqs* fell silent, and in the *qahwas* where men of leisure tranquilly sipped coffee, the stimulating beverage cooled while worshippers forsook the day's pleasures to contemplate those of the morrow. The steady ryhthm of work was broken periodically during the day as customers —and shopkeepers—abruptly vanished in mid-sentence, to attend more pressing business.



Foreigners, of course, were not affected in any important way by the new, stricter rules, but they were affected. All men, for instance, were obliged to let their beards

grow: the Prophet himself had been bearded, had he not? It was a thin time for the barbers, for whoever shaved off a man's beard was rewarded with lusty strokes of the stick, as was the impious customer who sought the forbidden treatment. And although we Westerners, especially those among us who enjoyed consular privileges, were not subject to the new law, we did not relish walking about beardless in an otherwise wholly bearded society. So we decided to comply with the new custom voluntarily. A competition was organized to see who could grow the fullest beard in the shortest time. The redheads among us fared the worst. Not only are red beards rarely beautiful on a red, sunburned face, but some were spotted with dark and light patches. These men were the source of much merriment, to the Muslims as well as to us, and were thankful to be exempt from the country's laws. They were also first to return to the clean-shaven style. I myself soon grew a full black beard. The Arabs with whom I usually associated looked at me full of surprise, explaining: "It suits you! Now you are no longer a youth but a man. Come let me embrace you!"

Wahhabi teachings also frowned on music and on smoking. As a special concession, consuls were authorized to own record players (which in those days had to be cranked by hand and were called Gramophones) as long as the sound did not carry to the streets to beguile true believers, but smoking was another matter. Although the ban didn't apply to the foreigners (whose official standing had given Jiddah the nickname *Bilad al-Kanasil*—the Town of Consuls) most decided against taking advantage of the concession in public rather than risk a scene. And a scene almost certainly ensued if one encountered a policeman, who would commonly strike the cigarette from a smoker's lips without a word of warning, for how was he to know that a sin was no longer a sin when committed by a consul?

As I said, however, these were minor irritations, not to be compared with the opportunity of being an eyewitness to the development of a new country.

And there were personal compensations too. I, for example, was delighted to live in a country when I could ride again. This was in the time when prominent citizens of Jiddah—including some of us foreign consuls—still kept riding horses. I was a pretty good horseman and when I became Netherlands consul in Jiddah I was thrilled to think that I might be able to ride a horse from the country which raised the world's finest, and even more excited to learn that there was such a noble animal available in the stable of the consulate that my predecessor had left behind—a jet-black, high-spirited stallion called Aswad or "Blackie." I was delighted—at least until I tried him. Aswad was well-fed and in very fine condition when I came to Jiddah, but he needed exercise badly and was raring to go. I had to fight to even get into the saddle and the moment I was seated he tried to throw me. I held on but as we moved toward the Medina Gate, soldiers and onlookers respectfully and safely standing aside, he continued to buck and fight and I noticed that although the vice-consul, quietly seated on his fastest racer, was saying nothing, he was not impressed with my horsemanship.

Aswad's successor was a dapple-gray pure Arab mare called Marzuqa and from then on my afternoon rides in the desert became for a short while a joy. But then one day I ran into trouble.

On a certain afternoon I was riding through the low sand dunes that stretch out in a wide strip alongside the coast of the Red Sea. I was alone and I was many miles from Jiddah. It was utterly quiet and peaceful. I noticed some desert rats digging swiftly into the sand with their strongly-developed hind legs, saw a fox trotting by, and then, quite unexpectedly and rather close, a Bedouin camp. Suddenly a pack of hungry, half-wild dogs came storming out of the camp snarling and yelping with rage. Marzuqa reacted immediately and raced away toward the sea. At first the dogs were able to keep up and at one point we were surrounded. I could almost hit the nearest ones with my whip and I could see their long teeth flashing close to my stirrups. But slowly we pulled away from them, crossed the last dunes and sped out onto the beach. The dogs, exhausted, gave up and disappeared. But Marzuqa, still frantic with fright, recklessly raced on. Suddenly she dashed across a subterranean system of holes dug by the desert rats and the sand gave way. Her left front leg disappeared right down to the shoulder. At that speed there was no chance to stop and Marzuqa somersaulted twice and landed violently on her back. So did I, and the last thing I remembered was sailing through the air and landing many yards away with a terrific impact on my shoulder and back. I passed out and lay unconscious for a long time. When I came to I felt a terrible pain in my back. A little farther away lay my horse, completely motionless. I slowly moved my head, my limbs. Everything seemed to be all right. I tried to sit up. It hurt but I managed. After a while I cautiously stood up, and saw that Marzuqa was moving too. She turned around, tried to stand up, managed to do it, very carefully. We stared at one another with unseeing eyes, or so it seemed, then Marzuqa pointed her head in the direction of Jiddah and started to walk away, very slowly. I grabbed the reins just in time. Leaning heavily against her neck, I plodded back the long way home, frightened and exhausted.

It dawned on me how very lucky I had been after all. What would have happened if I had broken anything and if my horse had walked away without me? Where would my friends or servants have started to search for me when Marzuqa had come back alone? And what would have happened to me in the meantime?

So, wistfully, I decided to move along with the times and buy a car. It turned out to be a good decision and in my 1924-model automobile I made many long and sometimes quite adventurous trips in the desert around Jiddah—but that's another story.

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*Daniel van der Meulen, a Dutch diplomat, explorer, traveler, and lecturer is the author of* The Wells of Ibn Sa'ud, Faces in Shem, Aden to Hadhramaut *and other books.*

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DRAWINGS BY DONALD THOMPSON