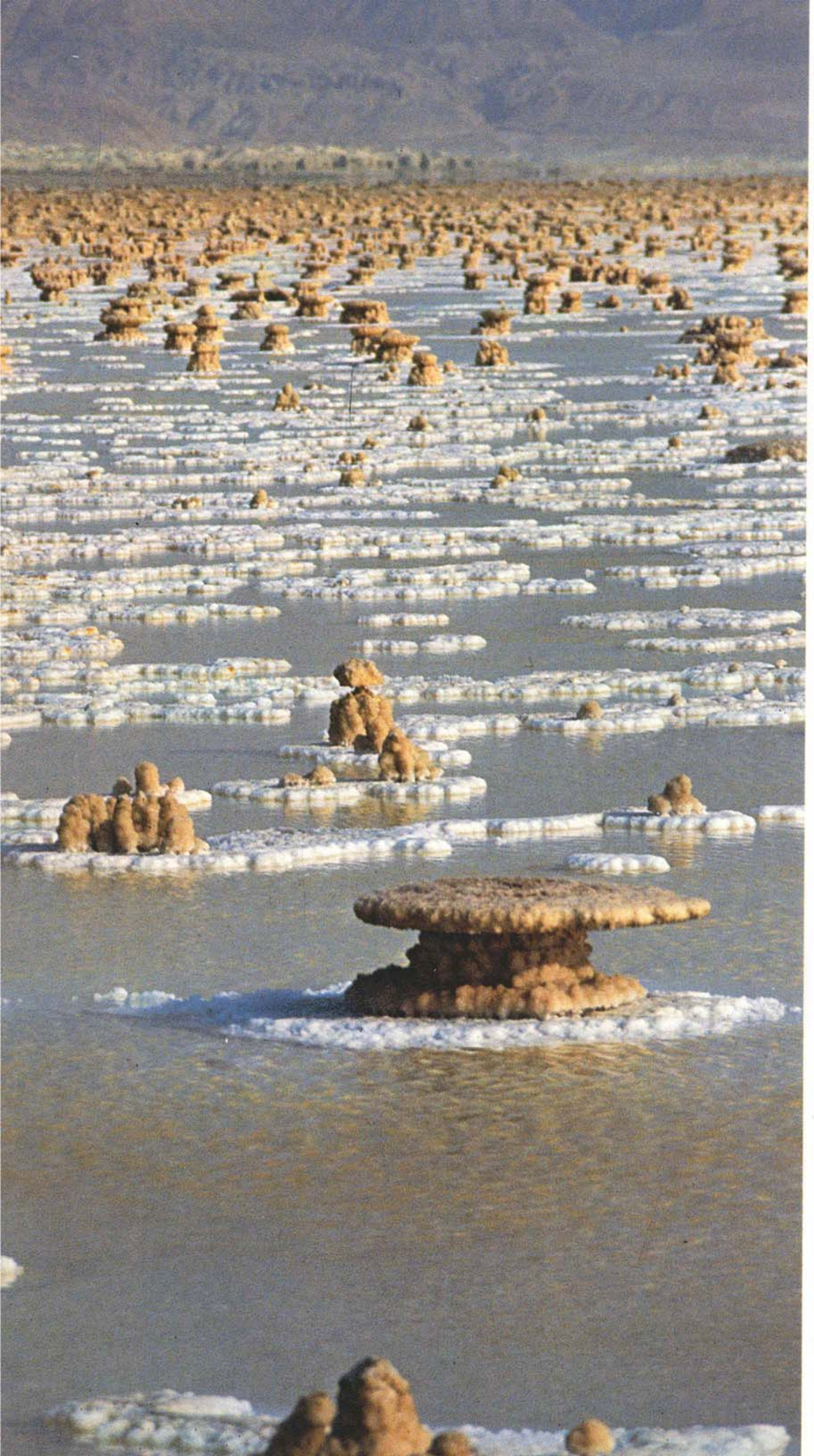

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KHALIFA AT THE BAT

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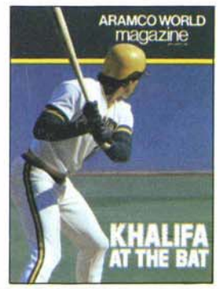
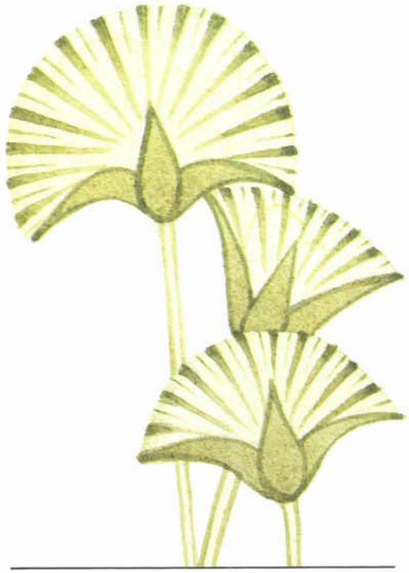


Cover: Though still a rookie, Sami Khalifa, the first Arab to make it to baseball's big leagues, has already won the respect of the Pittsburgh Pirates' players, coaches and fans. Plucked from Hawaii in 1985 when five other candidates for shortstop were sidelined, Khalifa joined the Pirates, impressed the fans and, while in spring training, was expecting to be in the lineup again. Photo by Brian Clark. Back Cover: "Salt mushrooms" one of the unique salt crystal formations shaped by nature in the Dead Sea.

◀ Suspended salt particles give the appearance of "surf" in the Dead Sea. They also form unique works of crystalline art below the surface.



NEW FUEL FOR RWANDA

WRITTEN BY ARTHUR CLARK
PHOTOGRAPHED BY MICHAEL JONES

Papyrus, the plant used by the Pharaohs' scribes, by Rome's bureaucrats and by Charlemagne's bookkeepers, may soon become an important source of fuel for Central African nations, according to engineers and botanists studying the tall, tufted reed in the far reaches of the Nile.

Using "briquetting" techniques developed in Ireland and Northern Europe to turn sedge plants into a fuel, those engineers and botanists – specialists assigned to Rwanda by the United Nations – have already developed a sample of saleable papyrus "bricks" that, they say, could be developed into a valuable fuel – at least in Central Africa where forests are being destroyed in a frantic search for firewood.

Harvested by hand – much as depicted on ancient Eygptian papyrus documents – the papyrus, in a $100,000 briquetting factory funded by the Irish government, can be chopped into straw-like pieces, compressed some 25 times and extruded in sausage-shaped briquettes for home cooking or heating purposes.

Though its use as a fuel is new, papyrus, in other ages, was once a vital substance. Papyrus was, in fact, the sole writing material in much of the world for more than 5,000 years; the Romans used papyrus so extensively that the failure of the Eygptian crop once brought commerce to a halt.

Papyrus was also used for shipbuilding in both Egypt and the Gulf. As Thor Heyerdahl wrote in *The Tigris Expedition*, reed-ships were depicted on the walls of caves in Palestine and on Hittite seals at Gaziantep on the Turkish-Syrian border. Heyerdahl himself, in 1970, crossed the South Atlantic in the wholly papyrus-built vessel *Ra*, made of 12 tons of the plant from Ethiopia's Lake Tana. Heyerdahl believes that cultivation of the plant was brought to the Canary Islands, off the Atlantic coast of Morocco, and some botanists think the papyrus-like giant sedge along the shore of the Gulf of Mexico may be evidence that the plant was introduced to the Americas by Mediterranean-based explorers.

As a writing material, papyrus, along with parchment and vellum, was replaced almost as soon as Islamic forces reached the Chinese border in 751 (See *Aramco World*, July-August 1985) and learned the secret of making paper; as a consequence papyrus plants along the Nile were eventually uprooted and replaced by other still useful crops.

Papyrus still grows on millions of hectares of swampland in the Sudd in The Sudan, along the edge of Lake Victoria and in the swamps and river valleys of Rwanda, Burundi, Uganda, Ethiopia, Kenya and Tanzania, but has had no commercial use for centuries. Though the techniques of processing papyrus were "rediscovered" by Egyptian Hassan Ragab in the early 1960's (See *Aramco World*, July-August 1973), the "paper" made from the reed has been sold mainly as conversation pieces and more often than not, the papyrus plant is considered a nuisance; large chunks of papyrus still break off Lake Victoria's shores and form floating islands that hinder navigation.

In the late 1970's, however, James Martin, an engineer with Ireland's Peat Board, was dispatched to Rwanda by the UN to survey the potential for peat production in the country's vast swamps and wide river valleys; partly carbonized vegetable matter similar to coal, peat is an important fuel in places like Ireland and Russia, and was reported to be plentiful in Rwanda.

Few better specialists could have been found for the job: Martin, now retired, calls himself the Peat Board's "idea man" – and peat itself generates a full quarter of Ireland's electricity.

With 5.1 million people, Rwanda, Africa's most densely populated country, was especially interested in peat because, Martin said in an *Aramco World* interview in Dublin, "the government had been told in Rwanda they were resting on a treasure chest of peat." It was when Martin arrived in Rwanda's capital, Kigali, in 1978, that he found that the peat was "by and large unrecoverable in any modern, mechanical way because the land was always flooded." On the other hand, Martin found that there were great quantities of papyrus available. "And when I chopped them up I turned out a darned fine briquette." To be sure his theory was practical Martin sent half a ton of papyrus to Europe to be tested under factory briquetting conditions and in 1980, satisfied, suggested an alternative to the Rwanda government: instead of destroying the papyrus to dig out the peat, why not utilize the papyrus?

In 1981, unfortunately, Martin, still investigating, ran into a snag. Dr. Michael Jones, professor of plant physiology in Dublin's Trinity College, who had already studied papyrus in Uganda and Kenya, warned that extensive use of papyrus required caution. "Overharvesting the

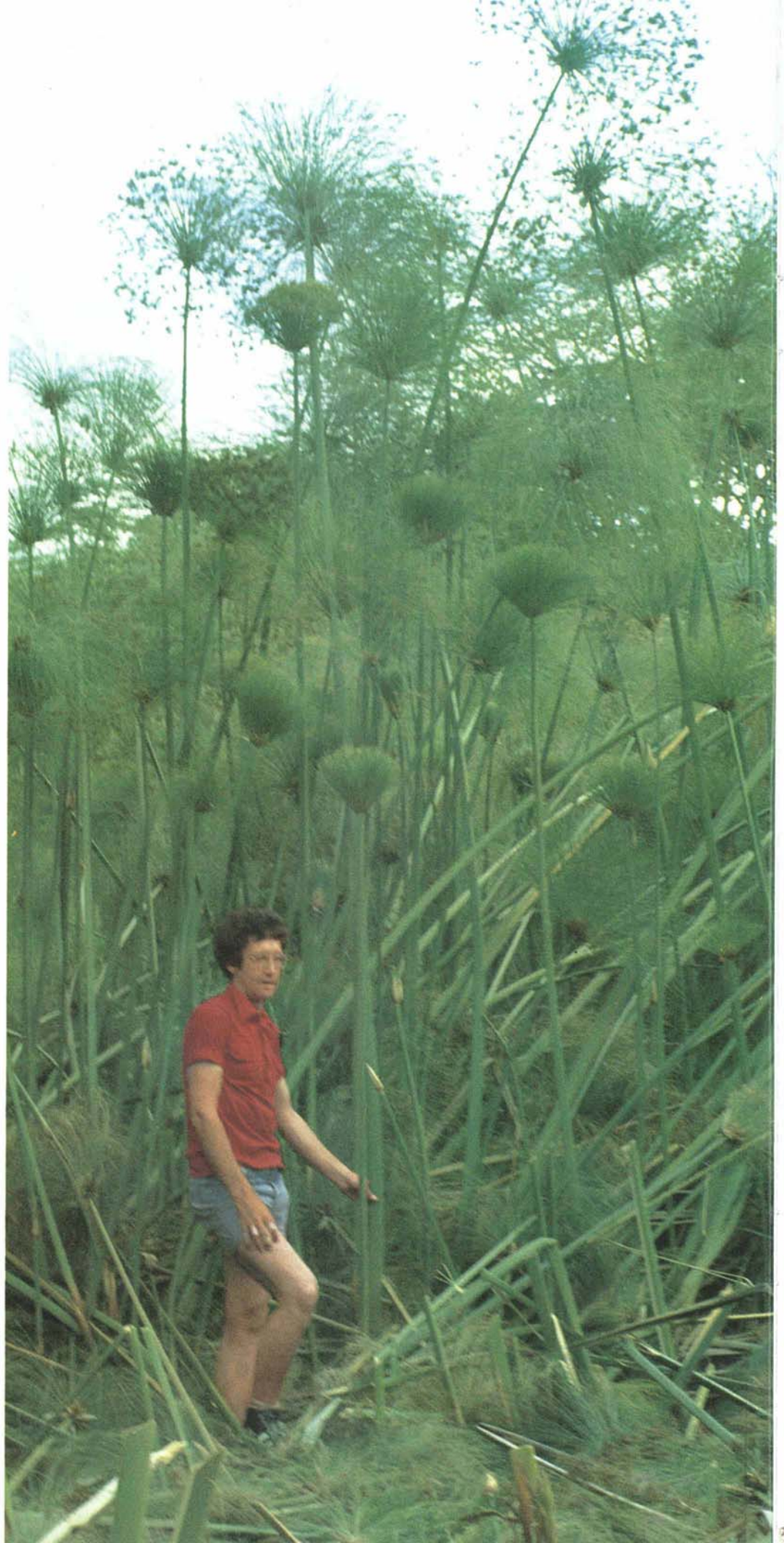
papyrus . . . could mean the destruction of an entire [plant] culture," Jones said in an interview. "Papyrus is a natural resource that needs to be protected as much as trees."

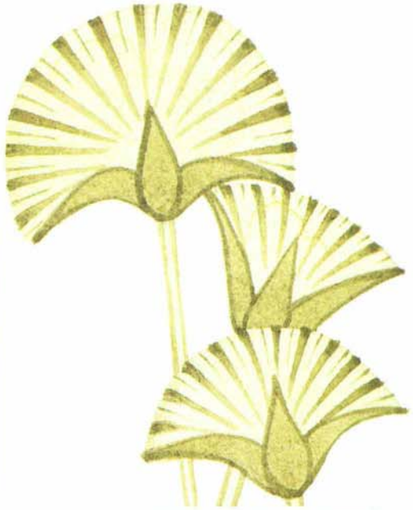
As a result, he said, the decision was made that while developing papyrus briquetting, botanical studies should be carried out as well. Jones brought papyrus seeds to Dublin, where, in Trinity's Botanical Gardens, they grow 1.5 meters (five feet) tall – pygmy size compared to their wild cousins, but not so bad in Ireland's cool climate. They also recorded that in its natural environment, papyrus can shoot up five centimeters (two inches) a day, reaching its 4.5 meter (15 feet) maturity in 50 days. The plant has a 150-day life cycle, meaning the natural community grows two "crops" a year. Furthermore, yields per hectare can be as high as 32 tons.

More to the point, the specialists decided that a papyrus-based fuel could become a paying proposition – not least in spots like heavily populated Kigali (90,000 residents) where, with proper development, briquetted papyrus might provide virtually the same amount of heat per kilogram as wood. Indeed, according to a study undertaken for the United States Agency for International Development, briquetted papyrus "burns like charcoal" within 15 minutes of lighting "with a steady, clean heat up to three hours without replenishment . . . outperforming both charcoal and wood."

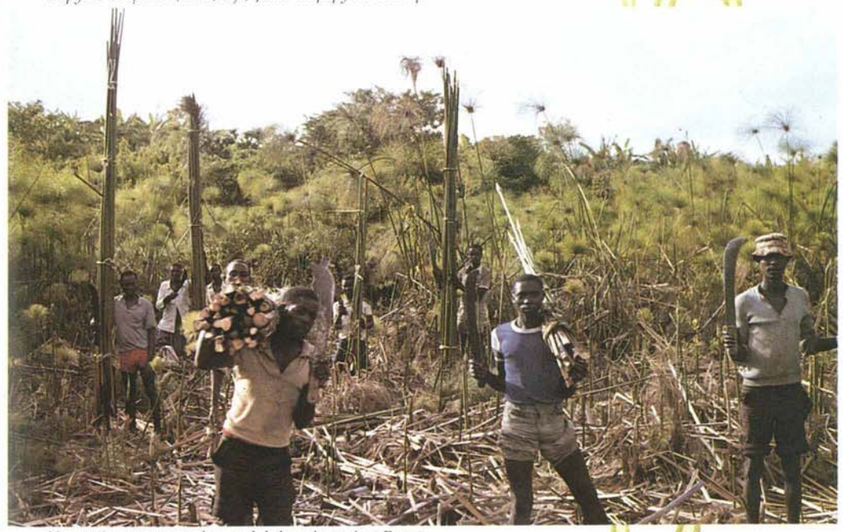
The fuel does have drawbacks: papyrus briquettes take longer to light than traditional fuels and can't be extinguished with water and then relit. Sales, therefore have been lower than had been hoped for. But in places like Rwanda, as in many African countries, charcoal and wood-fuel dealers are having to travel farther and farther in search of marketable material; around Kigali, for example, there is virtually "nothing left" of once large forests, said Jones.

Papyrus, in fact, could turn out to be an important addition to the world's fuel resources. Last July Edouard Saouma, director general of the Food and Agriculture Organization (FAO), told the Ninth World Forestry Congress in Mexico City that two billion people depend on wood for fuel and one billion of them are cutting down trees faster than the trees can be replanted and replaced. As a result, said FAO officials, some 11 million hectares of tropical forests (27 million acres) disappear every

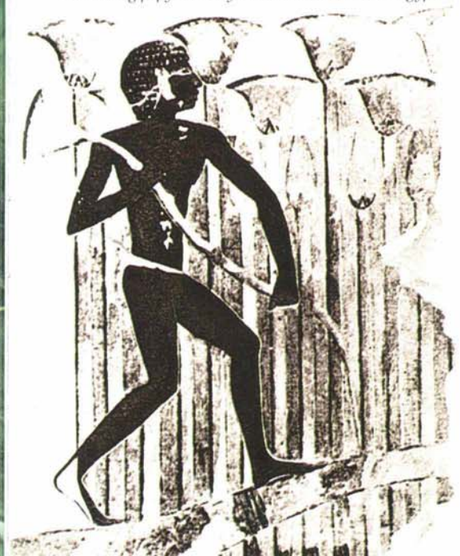




Papyrus briquettes, and, left, Jones in papyrus swamp.



Harvesting papyrus today, and, below, in ancient Egypt.



year. The forestry congress also called for the establishment of a world fund to safeguard and foster forest resources.

In Rwanda, such warnings are taken seriously – as is Jones' warning on overharvesting the papyrus plants. A 12-hectare (30 acres) river valley some 40 kilometers (25 miles) away from the capital is now being harvested in a planned biannual cutting – a less-than-maximum harvest to ensure that the plant community will not be environmentally harmed. The field is part of an estimated 20,000-hectare papyrus forest (50,000 acres), and the annual harvest of papyrus is expected to measure 25 tons per hectare (10 tons per acre) per year. Since Kigali's requirement for domestic fuel is estimated at 5-6,000 tons per year, the amount of fuel available should be "more than needed in the foreseeable future," noted Martin.

In fact, plans have already been drawn up to establish a *second* briquetting factory to supplement the initial half-ton-per-hour output of the first, and though the pilot plant went up on the industrial outskirts of the capital, the second is targeted to be built adjacent to the papyrus valley itself.

Meanwhile, Martin and Jones noted, research is under way at Zaza, 80 kilometers (50 miles) from Kigali, into the possibility of again making paper from papyrus. More work may make it economically feasible to truck briquetted papyrus from Rwanda or The Sudan to mills to produce a paper similar to recycled paper, possibly at a lower cost than imports from Europe.

Other uses for the chopped and pressed reed are to make softboard, hardboard (with the addition of necessary resins) and fuel for tin-smelting. A long-term vision is to use the plant as a gasified alternative to petroleum products to power vehicles.

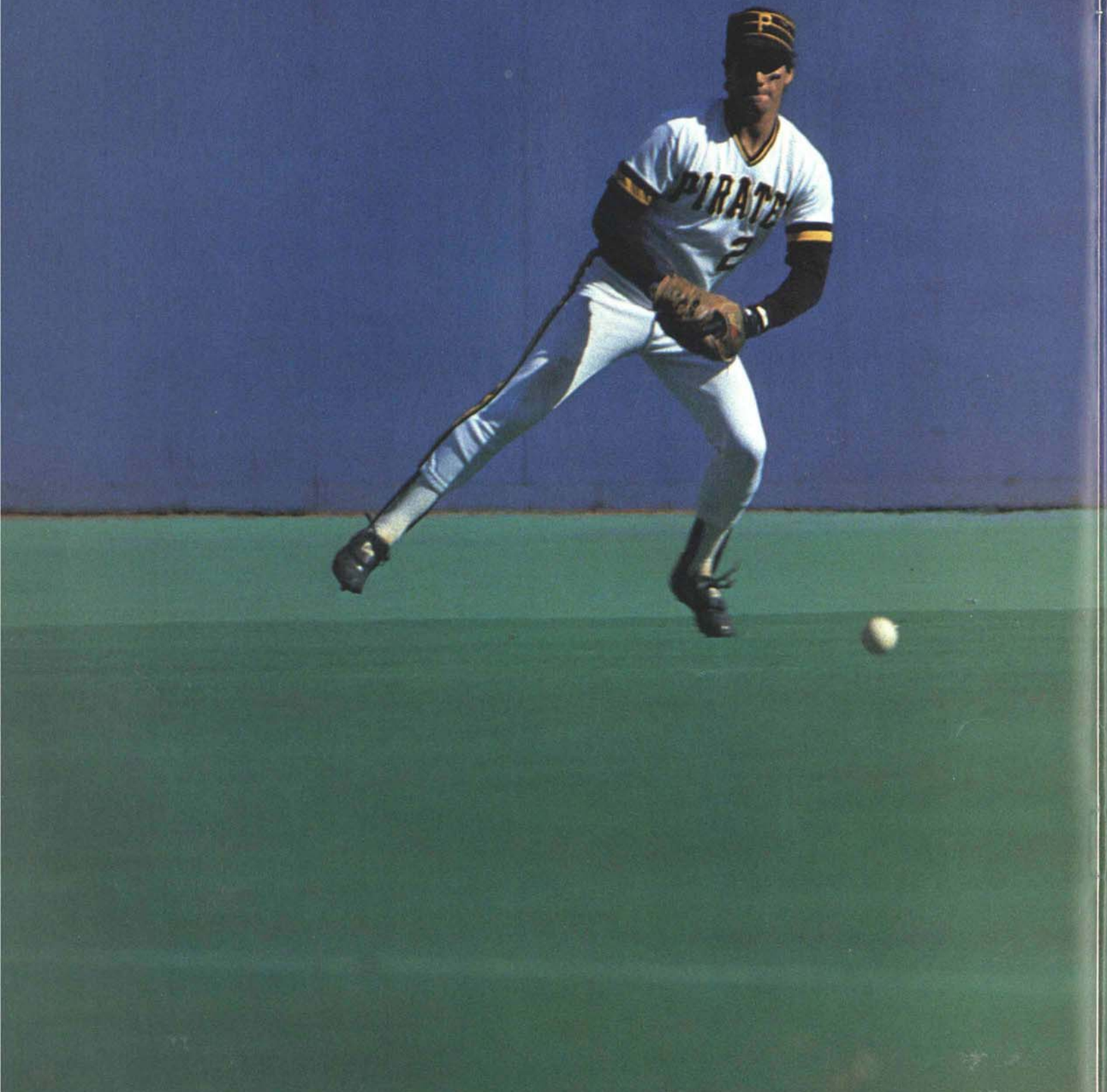
What's critically important about papyrus, is that it's a "renewable source of energy," noted Jones. "You can compare that with peat or oil or coal which, of course, are non-renewable."

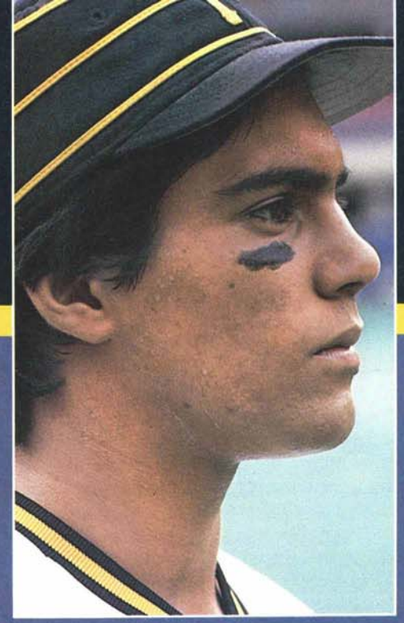
Thousands of years have passed since papyrus was a highly valued commodity. But it may not be long before the tufted giant will make a name for itself once more. This time, though, it won't be in the throne rooms and libraries of potentates; it will be in the kitchens and modest homes of those who might otherwise be without fuel to cook their food and warm themselves.

Arthur Clark is a regular contributor to Aramco World *magazine and a frequent visitor to Ireland.*

KHALIFA AT THE BAT

WRITTEN AND PHOTOGRAPHED BY BRIAN CLARK





In Pittsburgh last year, Pirates sportscasters dubbed him the "Cairo Kid," fellow players said he was one of the best young prospects around and Manager Chuck Tanner called him the team's "now and future shortstop." His name? Sami Khalifa, thought to be the first Arab ever to make it into baseball's major leagues.

Sami – or "Sammy," as he is to most people – was born in America, but his Arab heritage is still strong. He is the son of an Egyptian agricultural research scientist, Rashad Khalifa, who is a devout Muslim and an Islamic scholar, who has written five books on the Koran and on Islamic teachings and who encouraged U.S. football player Bobby Moore to become a Muslim. Sami himself speaks Arabic and says quite openly that his Islamic faith has helped in what is fast becoming an outstanding career in baseball.

To an extent, the handsome, rugged Khalifa lucked into the Pirates' shortstop position after starting the season with the Pirates' AAA team in Honolulu, Hawaii; in one of the most dismal, injury-plagued seasons ever, Johnny Le Master, the Pirates' *fifth* shortstop of the season, was sidelined with an ankle injury in mid-June and the Pirates brought up Khalifa.

But after that, luck had nothing to do with it. Fast and aggressive, Khalifa played in nearly every game for the rest of the seaon, hit .238 and typified what a Pirates spokesman called "the new attitude." He was, in fact, one of the few bright spots in a season that saw the Pirates lose 104 games, a far cry from the club's 1979 world championship performance.

To get to the big leagues, Sammy had to come a long way: from Fontana, California via Cairo, Egypt; St. Louis, Missouri; Tripoli, Libya and Tucson, Arizona.

Born in Fontana, while his father was studying for a doctorate in biochemistry at the University of California at Riverside, Sammy later lived in the Middle East – Egypt and Libya – when his father returned there to work.

An athlete himself — captain of the Ain Shams University swimming team – Rashad Khalifa had taught at Riverside for two years after getting his doctorate, but then accepted a job in Cairo with the Egyptian Ministry of Agriculture as head of horticultural research. Altogether the Khalifa's spent about three years in Egypt

– where Sammy learned to speak Arabic and came to know his grandparents who lived about 80 kilometers outside Cairo (50 miles). After his stint with the agricultural ministry, Rashad took his family from the banks of the Nile to the banks of the Mississippi in St. Louis, Missouri, where he became a senior research chemist at the world headquarters of Monsanto Company.

During the family's stay in St. Louis the senior Khalifa met a professional football player named Bobby Moore, a wide receiver with the Cardinals, and began to discuss the teachings of Islam with him. Moore, now a popular football commentator for NBC television, eventually began to attend Friday services at a mosque in St. Louis with the Khalifa's and finally, after tutelage from Sammy's father, embraced Islam. He also changed his name to Ahmad Rashad, choosing the surname Rashad as a token of esteem for his teacher.

Meanwhile, Sammy had begun to play soccer and baseball. But then, in 1974, the family returned to the Arab world again – when Sammy's father was hired by the United Nations to work as an agricultural adviser to Libya – and Sammy decided that that was the end of sports; though he had begun to show traces of the athletic ability that would propel him into the major leagues, his first look at the athletic grounds in Tripoli's international school disappointed him. There was little, if any, grass on the playing fields. "We figured there wouldn't be much going on in the way of baseball," Sammy's mother [Stephanie Khalifa of Tucson, Arizona] said, "but fortunately we were wrong. Baseball was very popular in the school and, furthermore, there was good, stiff competition among the teams."

During this time, Mrs. Khalifa – who had met Rashad when they were both students at the University of Arizona – was always in the stands rooting for her son. She called herself a "cheerleader mother" during a telephone interview with *Aramco World*, but added that Sammy didn't need much pushing once he developed an interest in athletics. "He had a lot of enthusiasm . . . He liked sports and always wanted to be a part of one team or another. He is also an excellent tennis player and was quarterback of his high school football team," she said.

Sammy's father is equally proud. "It's been a great thing, thank God, to watch him grow and see this. I can't say that he got his skill from me, though, for I was, how do you say it, a jack-of-all sports, but a master of none."

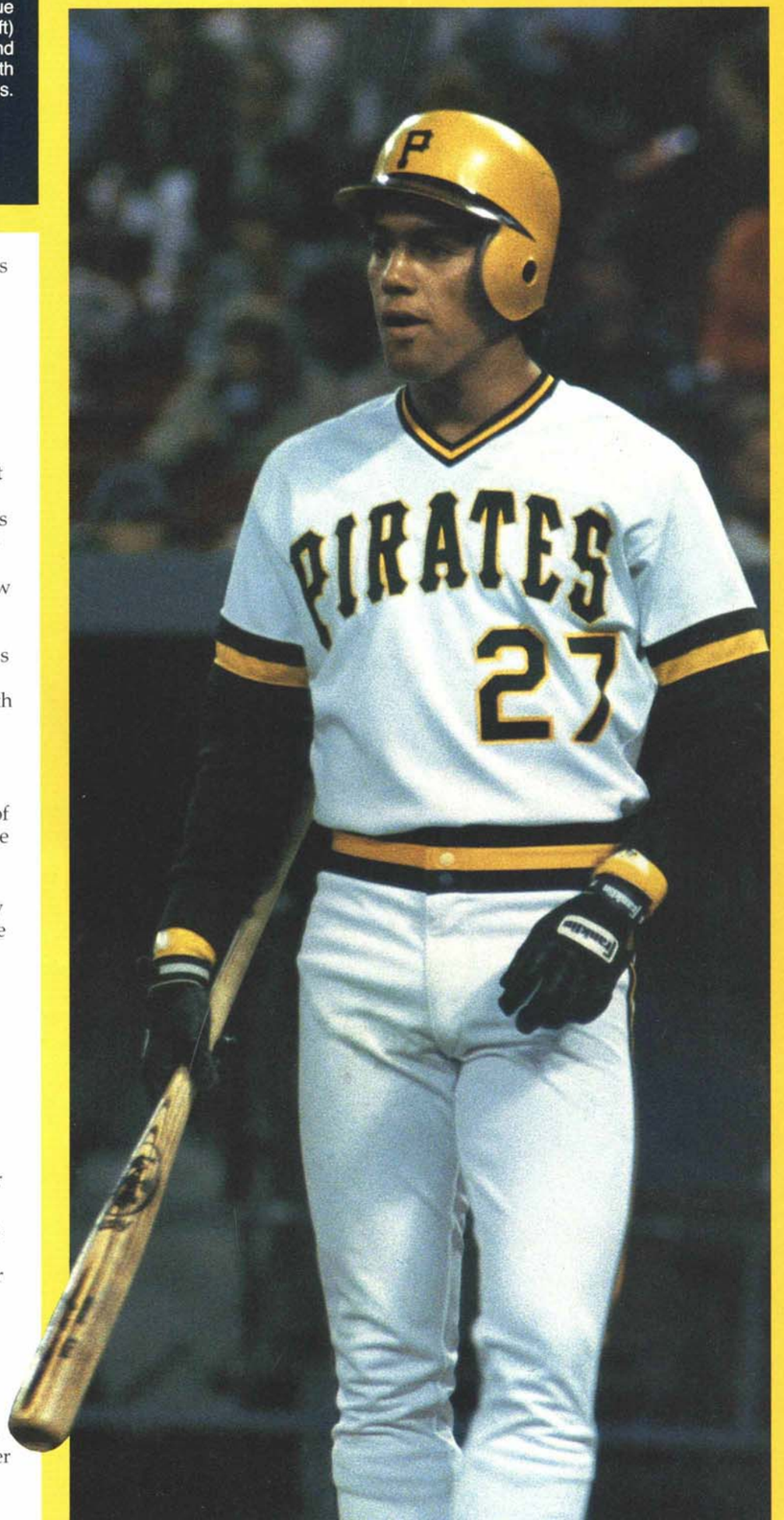
In Libya, the international school teams – the American facility was known as the "Oil Company School" – were a mixture of North Americans, Europeans and a few Arabs and Sammy thrived in a six-team league. He also learned some tricks that have aided him through the years. "It was an all-sand field and to get it ready for a game they soaked it and then rolled it with a steam roller. It made me learn to be aware of the ball. It makes artificial turf a breeze. You never really knew what the ball would do. Sometimes, it would just sink into the sand. In hindsight, it's sort of funny," said Sammy as he sat in the Pirate dugout, watching his fellow players take batting practice.

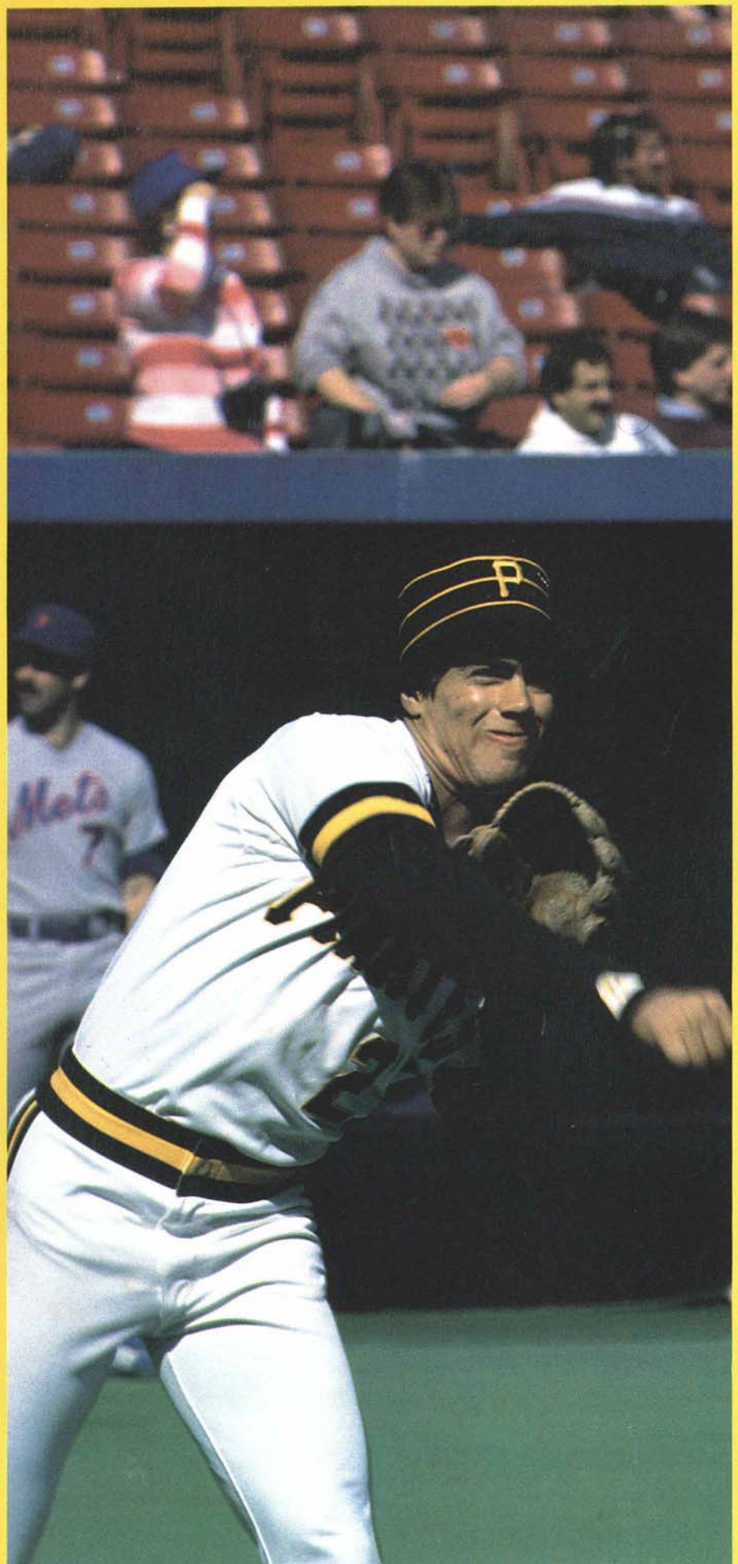
After a year in Libya, the Khalifa family returned to the United States again where Sammy enrolled in Sahuaro High School in Tucson and began to make a name for himself as an athlete. By the time he graduated in 1982, he had been named All-City, All-State, All-American and Arizona Player of the Year. For good measure, he was also picked as Tucson's All-City quarterback. Earlier, though he was a sophomore, he had begun to play shortstop on the varsity team – and to think he might be able to make it in major league baseball.

According to Sammy, success was due partly to his high school coach, Hal Eustice, "the man who has done more for me than any other coach. I owe him, and coach Jack Lehmku, a heck of a lot."

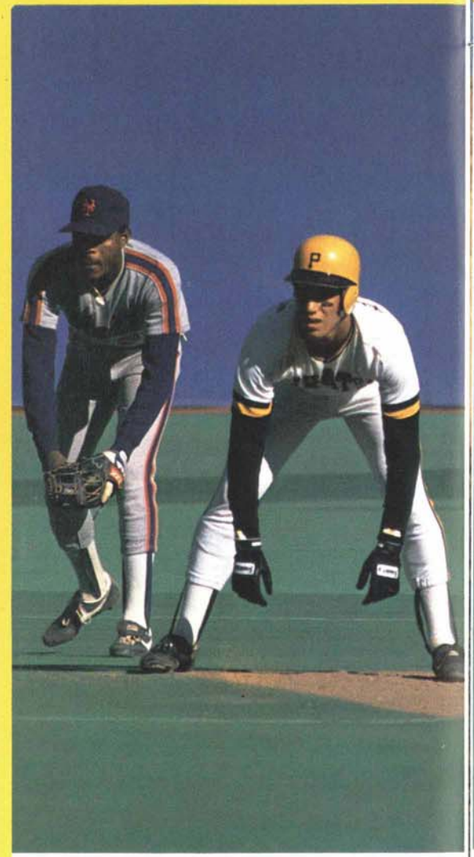
Eustice says it was the other way around. Khalifa, he says, "was a truly amazing kid and a fine young man. He's always paying attention, always intense, always asking questions, trying to figure out how to do things better . . . When other

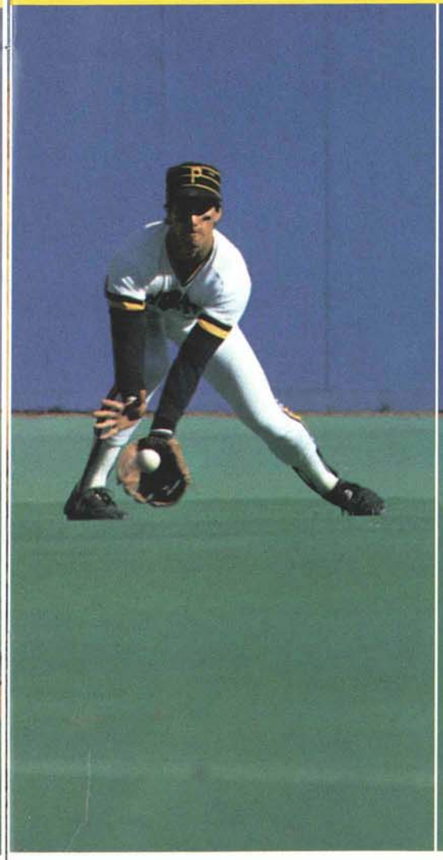
Sammy Khalifa, thought to be the first Arab in major league baseball, stands at attention (left) during the national anthem, and (right) waits for his turn at bat with the Pittsburgh Pirates.

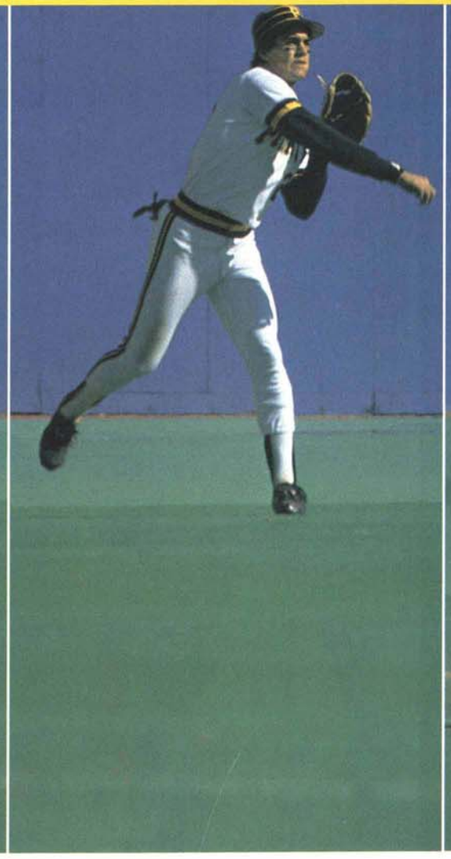


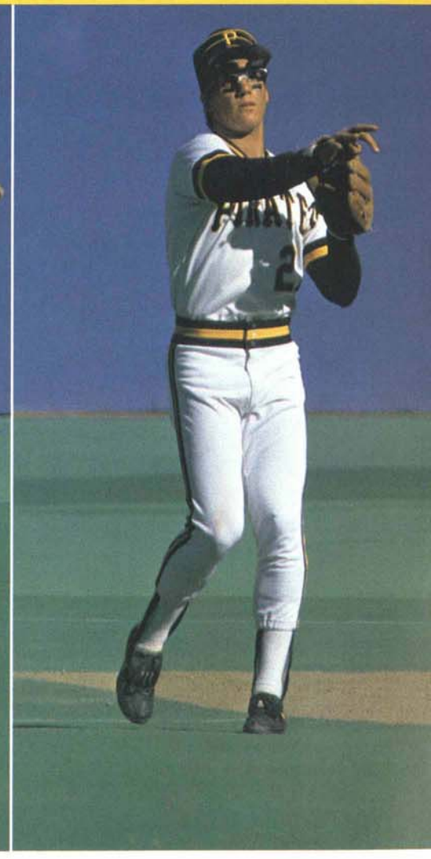


Khalifa, who won praise from Pirates' coaches in his first year with Pittsburgh, rifles a ball to first (left) and (below, l-r) reaches second, fields a grounder, and tries for a double play during a tense game with the Mets.









kids were fielding 100 balls a day, Sammy was fielding 200."

According to Eustice, Khalifa's experience as a tennis player helped him get a jump on the ball as it was leaving the bat. "I think he just had great instincts, and he built on them; he always wanted to know how to get the advantage in the game. I think he did darn good for his half season in the big leagues. I'm sure he'll keep improving. In my three years of coaching him, he was constantly amazing me," he said.

He apparently amazed the Pirates' scouts too. In 1982, right out of high school, Sammy was the number one draft pick of the Pirates organization and was immediately sent to the Rookie League in Florida. He was also offered a scholarship at Arizona State University, which, he said, his father would have liked him to take. But he went with his first love – baseball – and after a week the Pirates, realizing they had a hot prospect, moved him up to Class A ball, where he spent the rest of the summer and batted a strong .305. Later that season Sammy moved up to the Carolina League and hit a respectable .270. "It was good training for me. Of course, you've got to put up with long, tiring bus rides and little motels. But that's all part of paying your dues. Everyone has to do it to make it."

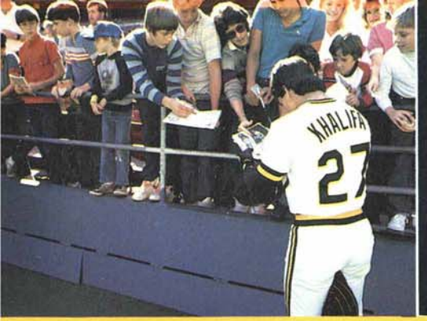
In 1984, the roof fell in: he was hit by a ball on the left wrist the last day of spring training. He remembers it as a high, inside pitch that stung him hard and as a result he had to spend the first six weeks of the season sitting on the bench mending a broken ulna.

Two months later, lightning struck again. In a freak accident, another high inside pitch struck him on the same spot and again he was sidelined, this time for the rest of the seaon.

Despite the injuries Khalifa continued to impress Pirate coaches. He was sent to the Florida instructional league and in October that year was sent to the Hawaii Islanders, a Class AAA team – where he immediately won praise from manager Tommy Sandt. "He has range, speed and a good arm. He's a player on his way to the big leagues."

Sandt was right. In 1985, while the Pirates were burning up a series of shortstops, Khalifa was posting a .281 average with 23 RBI's and one home run, a record that helped the Islanders win the first half of their season. No one was surprised, therefore, when the call from Pittsburgh came on June 25. "I was so excited. It was what I had worked almost all my life for."

In announcing that the Pirates were bringing up Khalifa, spokesman Ed Wade said that team officials had been impressed with the way Khalifa had bounced back from his broken wrist, and that Chuck Tanner had liked what he had seen in the Florida instructional league.



Khalifa, who batted .238 in his first season, looks over a pitch during another game with the Mets (below). Despite the team's dismal 1985 record, Pittsburgh fans clamored for Sammy's autograph (left) and even cheered him when he struck out and headed for the dugout.

Later Wade got even more enthusiastic. "He's a bright light for us in a dark and dismal season," He said. "We like his attitude, we like his hustle and the fans like him, too. He's fresh blood for a team that has needed some fresh blood. We hope he can do a lot more for us."

During his first game – against Montreal – Sammy very nearly did nothing whatever for the Pirates. Though he managed to force one runner at second base, he also missed a bouncing groundball that glanced off his mitt and rolled into center field and some fans, no doubt, began to wonder what the kid was doing out there with the big boys.

Then, at bat, Khalifa quickly won the fans back. In the sixth inning, he broke up a no-hitter with a grounder to left field that brought in two runs, in the seventh, he broke a bat hitting a blooper to center field, and in the ninth, with two out, he lined a ball into the outfield, a performance that won him player of the game honors, a watch and the praise of Tanner. "He's good. He's quick and he has the potential to be a major league shortstop for a lot of years."

His performance also won the praise of three fans from California: his father, mother and 16-year-old sister, Beth, who had flown from Arizona to see Sammy's big league debut. They saw him play twice more during the season, and in Los Angeles Sammy hit a homer for them.

For Khalifa, that first game in the big leagues was heady stuff – "the most exciting game of my life" – but the next night was even better: he hit two doubles in an 11-2 rout of the Expos, one of which sparked a six-run second inning. He even got cheered when he struck out.

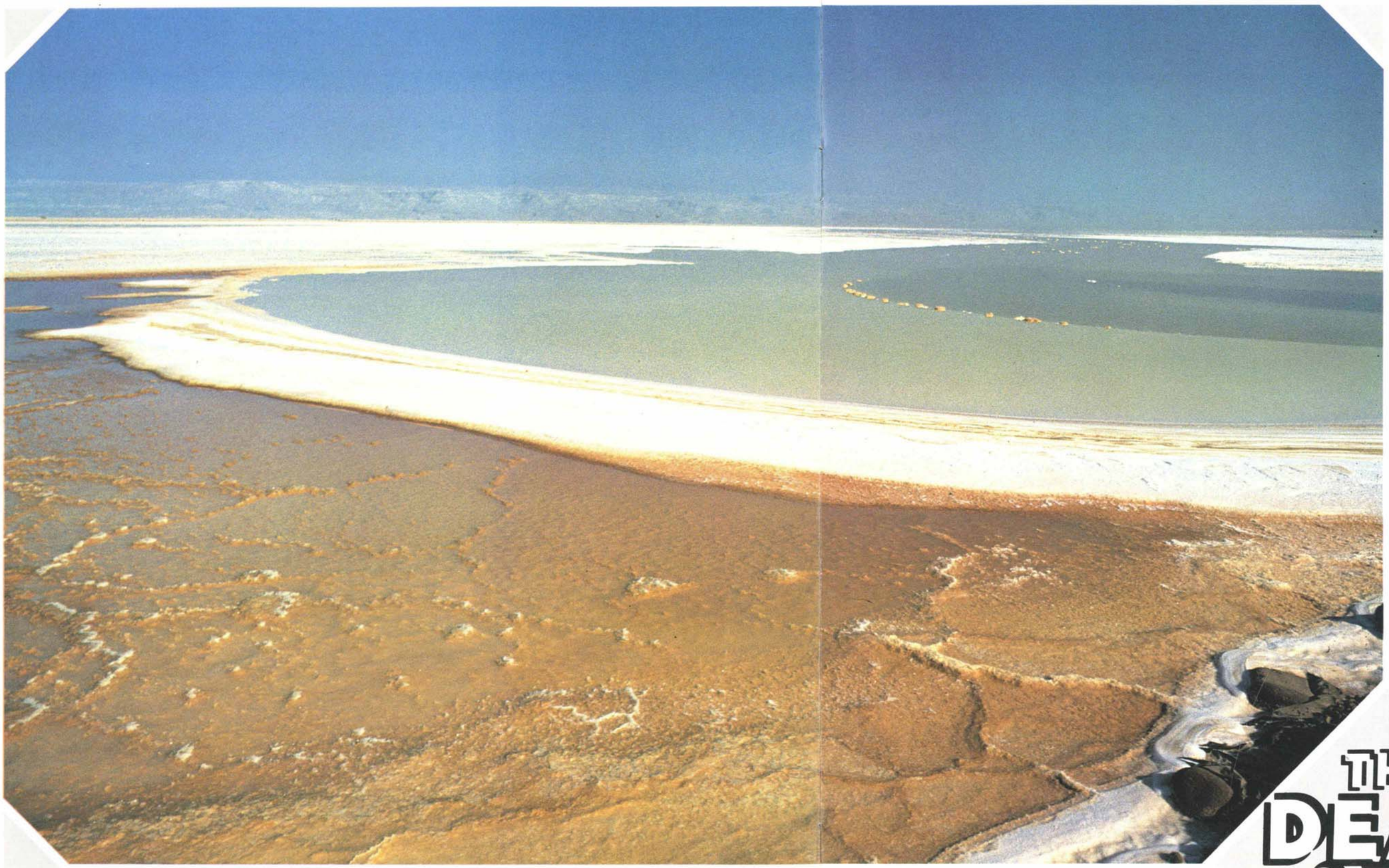
As the season was winding down last fall, Tanner still had the same high opinion of his new shortstop."He has done an outstanding job and he will keep getting better and better. He's a hard-nosed type of player and he's been giving us all he's got all season. He's got to refine some of his points, but what rookie doesn't? He's capable of playing on a championship club and I figure he'll be our shortstop again next year."

In retrospect, Khalifa said he believed he had improved during his first season, but made it clear that he hadn't done it all alone. He had special thanks for first base coach Willie Stargell, a member of the Pirates 1979 championship team. "Tanner and Willie Stargell took me aside when I got here and told me it was the same game I was playing back in Little League. That helped," he said.

In a sport where players of different races and nationalities mix freely, Sammy said, the fact that he has an Arab background has never been a problem. "Sure, there's always some clubhouse ribbing and I've been called 'the shaikh,' but it's been in fun. I never felt any prejudice in Arizona or anywhere else. People respect me for what I am and that's good."

No one knows what is going to happen this year, of course, but Sammy is optimistic. "I'm already excited. I can't wait."

Brian Clark covers sports and outdoor activities for Aramco World *magazine.*



Evaporation of the Dead Sea exposes salt-encrusted clay flats, and springs and streams flowing into it cause a white slick of aerated bubbles on the surface. The two shades of blue indicate different depths of water.

THE DEAD SEA CRYSTALS

WRITTEN BY ANNE COUNSELL. PHOTOGRAPHED BY BILL LYONS.

Visitors to the Dead Sea , the lowest place on earth – it is 395 meters below sea level (1,296 feet) – may not experience the same sense of achievement as those who climb to the summit of the world – Mount Everest – but the stark, almost lunar, environs of the Dead Sea and the echoes of human history from past eons evoke, nevertheless, a sense of awe and fascination.

Despite its name, the Dead Sea is not totally inert; under the influence of the atmosphere, fluctuations in temperature, evaporation, the flow of incoming water and, to an extent, human activity, it is in a state of chemical and geological flux.

The Dead Sea, which lies along a geo-suture (a sunken block between two geological faults), was formed when the land subsided and filled, some 10 million years ago, with water. This turned the entire Jordan Valley region into a continuous body of water – a large inland lake called Lake Lisan (*lisan* meaning "tongue" in Arabic). Later, the lake began to dry up and shrink, eventually breaking up into Lake Tiberius and the Dead Sea.

Because the Dead Sea, originally spring-fed, lies in a basin with no exit, salts have accumulated in the basin, sometimes by percolation through the surrounding earth. Gradually building up over the centuries, they give the Dead Sea its strongly saline character: higher concentrations of salts than any other large body of water. These salts include magnesium, potassium and bromide – which comprise about 13 percent of the ionic composition of the surface water and are largely responsible for the bitter taste and "greasy" feel of the water.

One result of this odd chemistry is the striking, but transient, salt crystal formations. Appearing – unexpectedly – in shallow lagoons at periodic intervals, these formations are natural works of art: billions of charged atoms in intricate geometrical formations shaped by nature into unique works of crystalline art.

During periods of high evaporation stratified laminae of rock salt appear as "giant serpents" coiled across the water dividing the salt lake into shallow lagoons. The rock salt contains a variety of weathered minerals, ions and trace elements.

The most impressive of these natural sculptures are the "salt mushrooms" which stand on their halite or rock salt stems in shallow pools near the shoreline. Their hoods are circular to elliptical and the mushroom cap can reach up to half a meter in diameter (20 inches). From afar they look like giant fungi sprouting from the water but closer inspection shows concentric rings of small, platy rectangular halite crystals with patchy crusts seated on hollow stalagmitic stems composed of what are called "pyramidical" crystals.

While many of the formations have clearly defined stems and caps, some of the "mushrooms" are less distinct; the two sections meld into inverted pyramidical shapes protruding from the water. Others, with no cap at all, give the impression that weathered columns from some submerged Roman city are surfacing from the depths of the sea.

Since the rates of formation for each mushroom vary, various stages of growth are evident in most of the formations; it looks as if an animal has wandered through the field nibbling at the fungi. And although not as striking as the finished article, the formative stages of the salt mushrooms are impressive in their own right and further emphasize the ephemeral quality of the Dead Sea's character. Mushrooms usually begin to form on cool mornings, after periods of intense evaporation when the shallow lagoons become covered with floating rectangular halite crystals. The crystals blanket the surface of the water with an opaque, exceptionally delicate coating; the most gentle breeze can break this sheet and when it breaks, parts of it sink and the crystals attach themselves to plant debris or pebbles. Gradually, as a result, a stem of halite crystals begins to grow upwards, eventually reaching the surface where other crystals adhere to it and form the cap.

Each stage of the process is delicate; a strong gust of wind, sudden rainfall, a rush of incoming water or temperature fluctuations can halt and sometimes destroy the stem. In the space of a day, the salt sculpture may totally disappear beneath the water.

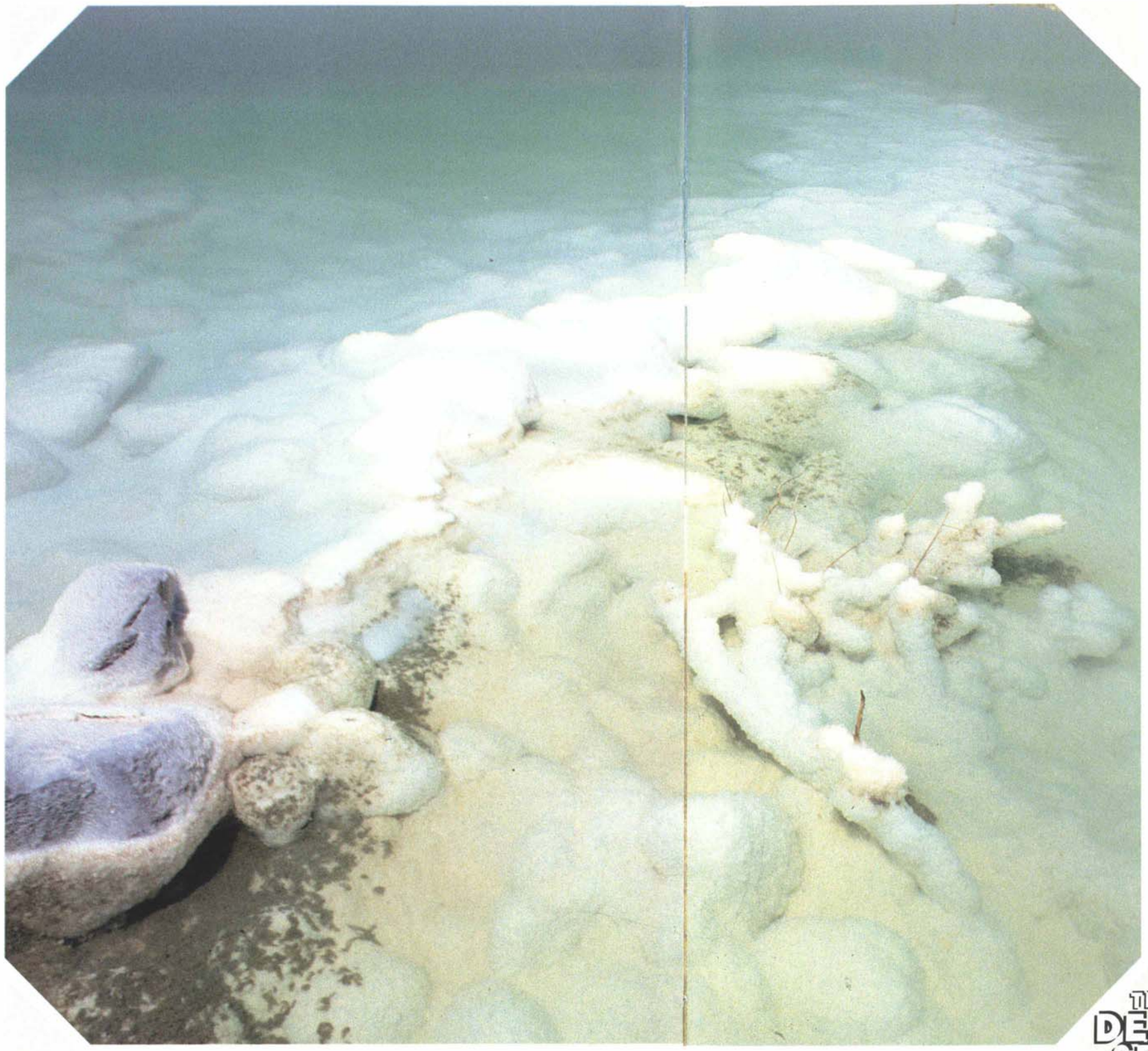
Because the ions and isotopes present in the water of the Dead Sea crystallize in different ways, there is a diverse array of natural formations. Hard, light-gray-to-brownish crusts of gypsum (hydrated calcium sulphate) can be seen on the keels of boats, on rocks, and on ropes left hanging in the water. The comparatively large, flat polygonal plates in gypsum crystals give rise to more crusty structures than those formed by clusters of calcite (crystalline calcium carbonate) which has crystals resembling small twinned needles; these needles lock together in forms resembling blossoms of white anemones. Along the shores of the Dead Sea variations in the forms depend on how ions are arranged within the structure and whether other ions or trace elements find their way into the lattice to substitute for particles with the same charge.

Even mundane aragonite (calcium carbonate), a common compound found in chalk and limestone, can take on a spectacular appearance when an increase in temperature, often at the end of summer, triggers mass precipitation; the result is a dramatic whitening of the water as snowy clouds of the compound slowly descend to the sea bed. Turbulence and wave motion prolong the deposition of aragonite and give the water a striking, nebulous quality.

On other occasions, the Dead Sea wears a different mantle: sheets of air bubbles foam like surf on the ocean; the froth is probably formed from the contact of hot or cold springs with the waters of the Dead Sea and is due to differences in temperature and density.

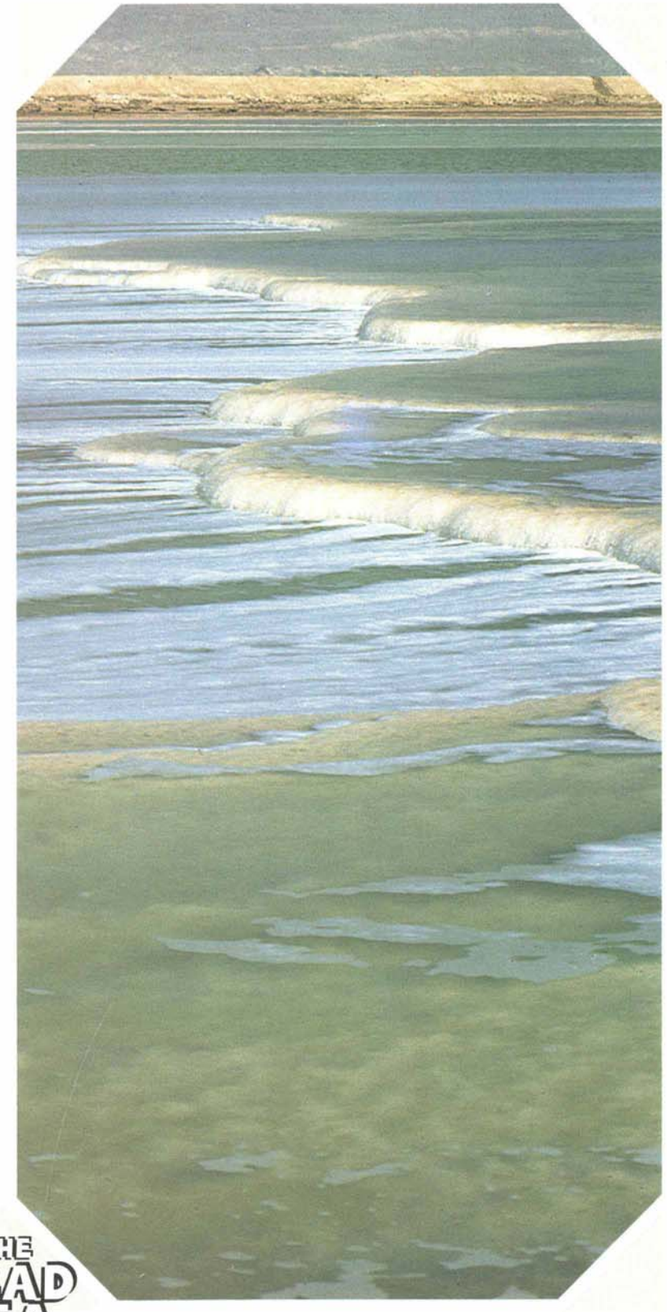
Although not particularly attractive, chips of asphalt also decorate the Dead Sea and evoke images of the past. For example, there is an episode in Genesis, chapter 14.2 and 3, in which the kings of five cities – Sodom, Gomorrah, Admah, Zeboiim and Bela (which is Zoar) – were defeated in battle and, while fleeing, fell into what seem to have been bitumen pits "in the Vale of Siddim which is the Salt Sea."

Since floating asphalt is only found after storms, wave activity probably dislodges



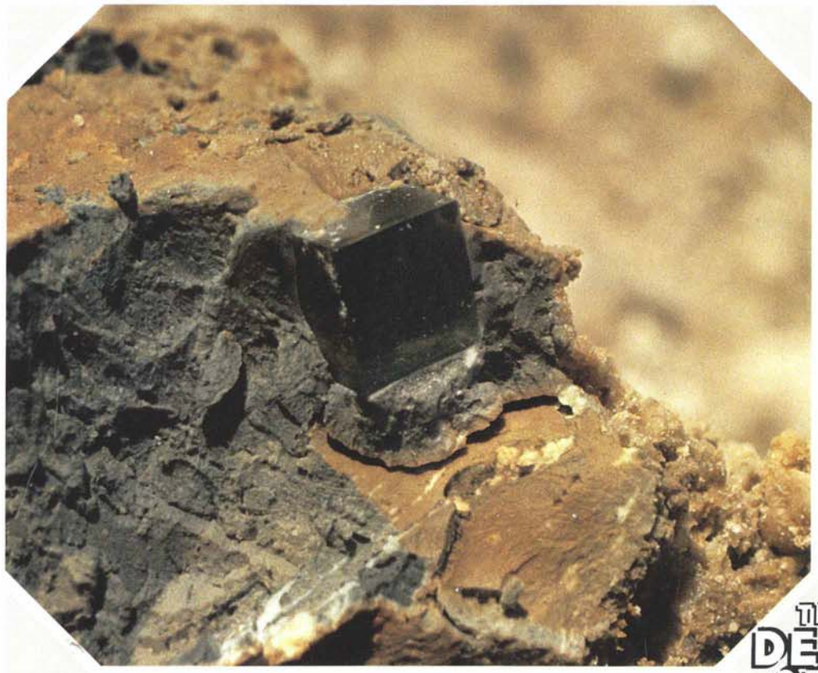
Precipitated calcium sinks to the sea bed, triggered by an increase in temperatures at the end of the summer. The mass deposition of these compounds is quite spectacular and gives the appearance that "snow" is falling from the surface of the water.

THE DEAD SEA CRYSTALS



Mud and clay flats are exposed when the water on the Dead Sea recedes due to evaporation, drought or reduced inflow of water. Some precipitates and sediments of calcium carbonate and gypsum may also be deposited and left behind on these flats.

Clusters of calcite resemble sea anemones or coral. Closer inspection (top right) reveals that the formations are in fact millions of tiny, twinned needles in irregular groups and with small protruding branches and nodes.



Large cuboid halite crystals, found after very hot periods, can have faces as big as sugar cubes. They are transparent but incorporate clay and silt sediments with dark and white laminae in the shape of a cross.

THE DEAD SEA CRYSTALS

it from the bottom; research, moreover, has indicated that seepages occur not deeper than 15 to 30 meters beneath the present lake level (49 to 98 feet) so they could be identified with the bitumen pits mentioned in the Bible. In addition, it is popularly believed that the cities of Sodom and Gomorrah, destroyed by fire and brimstone, are lost in the depths of the Dead Sea.

Today, the character of the Dead Sea is slowly changing and with the passage of time fewer of these natural formations and phenomena of the sea will remain. This is because the salty waters of the famous sea are gradually drying up as increasing amounts of water are drawn off from the streams and rivers flowing into the lake and used in agriculture, mining and industry. Already the evaporation rate exceeds the inflow rate and eventually the whole area will become mud flats. If political boundaries did not exist, in fact, it would soon be feasible to cross the Dead Sea at its narrowest point – the Lisan Strait – just as 19th-century camel caravans did. Already large halite crystals – cubes with up to 10-centimeter faces – can be picked up from areas exposed after periods of high evaporation.

Tourists, who generally come to the Dead Sea to experience its unique buoyancy and to have their photograph taken reading a newspaper while floating, are surprised and impressed when they chance upon such striking crystal formations; such phenomena are rarely mentioned in guidebooks and are seldom included as part of the Dead Sea's attractions because they are not in the area adjacent to the main tourist beach and facilities. And they may never be mentioned. Although scientists believe that it could take 1,000 years for the Dead Sea to dry up completely, many of the salt formations are already beginning to disappear – another facet of the ancient Middle East vanishing beneath the sands.

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MANHATTAN IN THE HADRAMAUT

WRITTEN AND PHOTOGRAPHED BY JEAN-FRANCOIS BRETON.

At the end of December 1984, UNESCO – the United Nations Education, Scientific and Cultural Organization – issued a plea to the world to save another national treasure from disintegration: the mud-brick "skyscrapers" in historic Hadramaut's Shibam in South Yemen. Two years earlier, an UNESCO-sponsored committee of experts had completed a study of the skyscrapers and added them and the Wadi Hadramaut to UNESCO's World Heritage list and early this year UNESCO, fearful for the future, was trying to raise an estimated $100 million to save this unique complex of very old houses, walls, gates and tombs as well as mud-brick buildings in Tarim, 48 kilometers to the east (30 miles).

As a member of the committee that hopes to safeguard Shibam and the Hadramaut, and as an archeologist – I have been director of the French Archeological Mission in South Yemen since 1978 – I can only endorse UNESCO's efforts. I have seen those regions at first hand and recently, to see what time and neglect have done to these treasures, I flew over the area again. The memory is with me still.

From Aden, the Hadramaut is about an hour's flight over vast tablelands of reddish brown limestone where flat-topped mountains stretch out like long wings, where the wadis cut deep horizontal lines into the earth and where narrow camel paths wind through unruffled, unchanging expanses. You're expecting to see the valley, of course, yet the precipitous canyon, appearing suddenly, still comes as a surprise: on both sides, its walls drop from altitudes of 1,000 meters to 730 meters (3,280 feet to 2,395 feet). Between green patches formed by the fields of *dhura*, maize and lucerne, lie the dark-green stripes of dategroves.

Then, almost at once, we arrive at Sayun, capital of the valley, with its new mud-brick airport, the ceilings decorated with green and pink stuccoes. Sayun lies at the foot of the mountain wall in the midst of palm trees and on the highest point stands the former sultan's palace, one of the best examples of Hadrami palace architecture.

Recently renovated, the palace now serves as an archeological museum in which are displayed inscribed slabs and figurines, bronze statuettes and pieces of pottery from such recently excavated sites as Raybun and Ba Qutfa. Since 1976, the Yemeni Center for Culture and Archeological Research has been making a laudable effort to preserve the antiquities of the valley and this is the first result.

Though the palace dominates the new commercial center of the town, several white minarets also rise above the clusters of houses in the city – a reminder that Sayun was once famous as a center of religion and learning – and surrounding the whole is a wide border of palmgroves dotted with white residences.

After Sayun, we fly over Ghurfah, Qaraw and al-Hazm and there, a white-topped gray mass suddenly rising out of the palmgroves, is Shibam, the so-called "New York" of the Hadramaut standing dramatically on a rocky spur that surges out of the bed of the wadi 725 meters below (2,378 feet). From the air it's a vast fortified trapezium running some 250 meters north to south (820 feet) and 380 meters east to west (1,245 feet), with the tall facades of contiguous houses forming a wall 20 to 25 meters high (65 to 82 feet). The only city of the Hadramaut with no gardens, Shibam is a city composed of a simple alignment of houses.

In the 19th and 20th centuries, travelers were struck by the height of these houses: five to six stories high. They wondered why and concluded – correctly – that since the city is situated along a border between two Sultanates, Ku'aiti and Kathiri, Shibam dwellers built their skyscrapers to be forts as well as homes; they sought refuge and protection in the height of the structures.

Rising towards the sky, these houses are also striking symbols of economic and political prestige. Since the 17th century a quarter of the population from this area has traveled abroad and Yemeni families once settled in parts of Southeast Asia and East Africa. In Singapore, Surabaya and Batavia, for example, a family named al-Tuwey owned enough land to accommodate 30 houses. In the 18th and 19th centuries, back in Shibam, these traders built the skyscrapers – partly to display their wealth, but also to save on the cost of land within the walls. According to W.H. Ingrams, Political Officer in the Hadramaut in 1936, a plot of land 25 meters long by 17 meters wide (82 feet by 56 feet) then cost

Shibam, so-called "New York" of the Hadramaut, stands dramatically atop a rocky spur that surges suddenly from the floor of a wadi, the facades of its contiguous houses forming a defensive outer wall 20 to 25 meters (65 to 82 feet) high.

Mud bricks drying in the sun at Sayun, capital of the Hadramaut and site of the former sultan's palace – top right.

Traditional Hadrami builders earn more than most house owners can afford so speeding deterioration of mud-brick homes.

more than $10,000 and a 30-meter high building (98 feet) cost more than $20,000, a staggering amount in today's dollars.

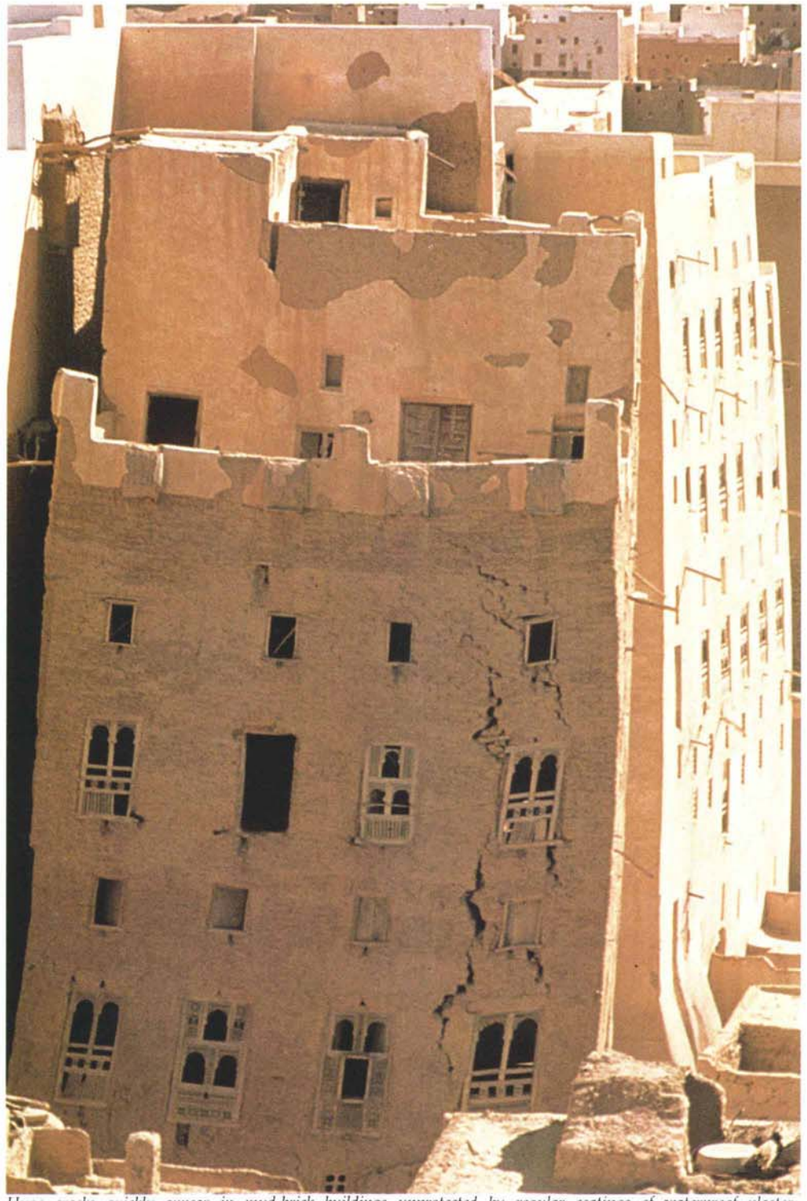
The origins of Shibam certainly go back to pre-Islamic times: ancient texts from Marib in North Yemen say that the city was destroyed by the Himyarites in the fourth century and nothing survives from this early period, though the Friday mosque and the castle date from the reign of Harun al-Rashid.

Floods often caused great damage to Shibam. In 1524, for example, a flood killed 15,000 people and reduced the city to half its former size and the city as it now stands dates back to that time, though the building boom between 1880 and 1930 – as traders returned from Asia – restored the size of the city somewhat. It now counts some 8,000 inhabitants in the walled city and more than 10,000 in the new suburb, al-Sahil, on the southern bank of the wadi.

Inside Shibam, the city is a strange labyrinth, the streets forming dark narrow tunnels between high, brown houses, with masonry drains in the street, and livestock running free amid a warren of hidden passageways and such odd juxtapositions as a white mosque squeezed in between two high houses. In the west are the wealthy districts of the city, where the doors and windows are of magnificent carved wood and the shops carry the latest in Western toys: television and push-button telephone sets, videos and tape recorders.

And yet the houses are still built in the same old way. Builders dig deep into the ground to find firm soil and, at the bottom of the trench, place a layer of animal droppings covered by a layer of salt. On this course they place timbers parallel to the walls, with stones packed in the interstices. In this manner, the builders construct a masonry wall of stone and lime up to street level. Then they pile sun-dried mud bricks up to the sixth floor, reducing the thickness of the walls as the building rises so that the internal dimensions seem to be constant and the external profile tapers slightly from ground to roof.

The houses are topped by flat roofs surrounded by parapets to form terraces. These terraces are waterproofed with an application of *ramad* – a plaster of lime, wood ashes and sand. "Two layers of *ramad* are supposed to last 50 years," says one of the oldest builders, "but it costs about 180 Yemeni dinars ($568) per three-by-five meter unit (10 by 16 feet). Of course, you can also coat the terraces with earth-and-straw plaster painted with lime – it only costs 80 dinars ($252) per unit – but that only lasts 15 years."

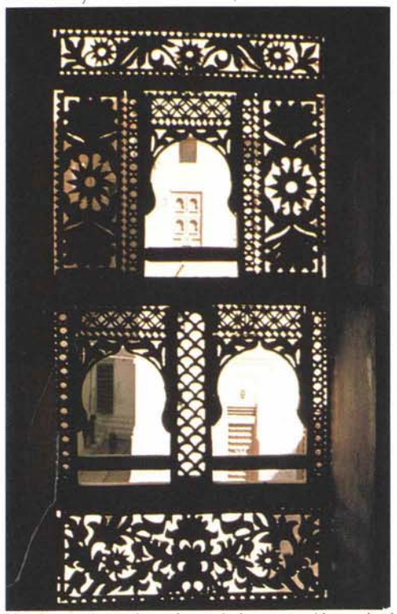


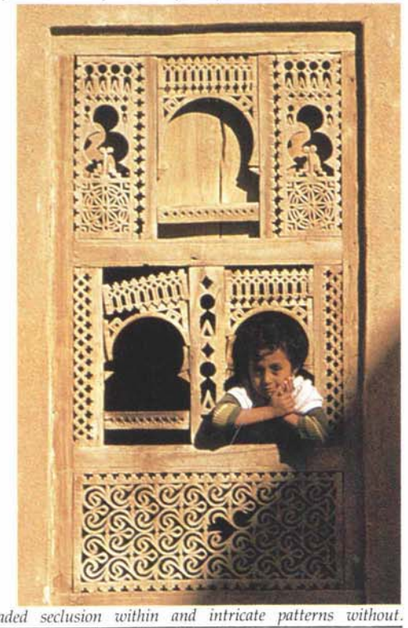
Huge cracks quickly appear in mud-brick buildings unprotected by regular coatings of waterproof plaster.

After visiting the Madrasa al-Hara, west of the city, I was invited by a man named Muhammad Ba Rashid to visit his five-floor house – called a *husn* (fortress). On the first floor are storerooms filled with bags of wheat, tools, car tires and, sometimes, livestock; on the second floor are the women's quarters; and on the third is the owner's *majlis* or *mafraj* where, over tea, he told me that the house was built about 100 years ago by his grandfather, a trader in Zanzibar and Mombasa.

The most pleasant rooms are on the fourth floor. One room has two wooden pillars, a wardrobe with fine carved doors and a *mashrabiya* (a handsome wooden screen) at the window. There is also a hidden staircase that leads to three upper terraces from which you can see all the surrounding villages. The closest is al-Qabusah where a big bronze lion's head was found in the 1940's. It is now in the Fitzwilliam Museum in Cambridge, England.

Built to be forts as well as homes, the tall brown houses of Shibam dwarf the courtyard of Harun al-Rashid mosque.





Handsome latticed-wooden windows provide cool shaded seclusion within and intricate patterns without.

As we inspected the Hadramaut, en route to Tarim some 48 kilometers (30 miles) east, we traveled through wheat fields, through groves of date palms – with some 700,000 trees – and through tracts of land that, in accommodating camels, goats and sheep, typify the agricultural and pastoral traditions of this valley. En route we also saw the still startling combination of yesterday's world with today's world: black-dressed women with high straw hats working in the alfalfa fields while new McCormick machines roar in the distance.

Another sign of today's world is a complex of water pumps; as rainfall is little more than 60 millimeters a year (2.36 inches) more than 2,500 pumps reach down to get water from depths varying from 100 meters to 150 meters (328 to 492 feet).

Tarim is hidden behind a mud-wall with gatehouses and turrets enclosing the town, its gardens and cemeteries and climbing up the mountain behind. Inside, small boys offer to guide visitors to the palaces and mosques of the city, but you soon learn that there are supposed to be up to 360 of them, one, the Sirjis mosque, dating back to the seventh century.

In Tarim too there is a soaring mosque with a minaret built from mud: this is the al-Muhdar mosque, crowned by a 46-meter-high mud minaret (150 feet), the highest in Yemen. All the great houses of Tarim are massive square buildings with regular rows of tall windows, the biggest belonging to the al-Qaf family, and the signs of the earlier international trade are obvious: doors from Singapore and Indian pinnacles. Tarim also boasts the great Awqaf Library where the city's founders have stored their memories: between 300 to 400 manuscripts believed to be unique in the Islamic world, according to the scholar Abd al-Qader Sabban.

Tarim was once famous for its musicians, and its builders, but since the prosperous days when Hadramis built hundreds of houses, palaces, mosques and *madrasas*, the economics of the Hadramaut have greatly changed. With the income from Southeast Asia and East Africa sharply reduced and the world economic slump affecting even the Hadramis, builders and farmers are unable to make much of a living anymore. The results are attested everywhere, particularly in the lovely Shibam skyscrapers; because owners have been unable to maintain them, 30-odd houses out of 500 are now virtual ruins and long stretches of the city-wall have collapsed.

The wall has been placed under further stress because of the poor system of drainage outwards through the wall; in 1976 and 1982 a breach in the Muza dam some three miles west of Shibam let flood waters flow down into the city, and extensive damage was done to some of the outer houses.

In Tarim, as in Shibam, many houses have not been repaired during the past decade because of the inability of their owners to cope with the extraordinarily rapid increase in building costs. The average daily wage is now 10 Yemeni Dinars ($31) for a worker and 16 Dinars ($50) for a builder. Up close, as a result, you can see that although the Manhattan of the Hadramaut is almost as striking as from the air, the disintegration is more shocking. Unique and lovely, it must be saved.

Jean-Francois Breton, director of the French Archeological Mission in Yemen since 1975, is a member of the International Committee for the Rescue of Shibam.

"EAST IS EAST, WEST IS WEST...

NEVER THE TWAIN...

WRITTEN BY DANIEL PAWLEY. ILLUSTRATED BY NORMAN MACDONALD.

The Middle East has often influenced the better writers of American literature. In the 1920's, for instance, Ernest Hemingway provided early sketches about the "magic" of the East for the *Toronto Daily Star*, and earlier a subtle Islamic influence affected the allegorical poem, *Al Aaraaf*, by Edgar Allan Poe (See *Aramco World*, March-April 1983). More recently we have Norman Mailer's Egyptian odyssey *Ancient Evenings*, and John Updike's humorously cynical Henry Bech sneering his way through the Holy Land.

Much more important, however, was the impact of the Middle East on the two acknowledged giants of American letters, Herman Melville and Mark Twain – giants because each contributed one novel which has a lasting place among the greatest novels ever written: Melville's *Moby Dick* and Twain's *Adventures of Huckleberry Finn*.

As an admirer of geographically vivid literature, I have frequently consulted – for pleasure and instruction – the Middle East accounts left by Melville and Twain: the daily journals of their travels and the published books based on their observations. One is Melville's book, *Clarel*, a tragic narrative poem that came out of his now-published diary, *Journal Up the Straits*, and the other is Twain's classic, *The Innocents Abroad*, which followed his jaunt through Europe and the Middle East. A look at the two writers' experiences provides an illuminating array of comparisons and contrasts.

Melville, the bearded, wavy-haired melancholic who embarked on his voyage in the fall of 1856, seemed to be traveling out of some degree of personal desperation. At 37, he was hardly an old man, yet in the manner of the child prodigy burnout he seemed "washed up" before his time. As a writer, his South Seas travel books, which had made him a literary force, were long behind him, and even his largely-ignored masterpiece, *Moby Dick*, lay in five years of accumulated dust. In addition, domestic disappointments had contributed to a deep depression that, one biographer suggested, might have affected his sanity. Nevertheless, Melville expressed excitement at the prospect of "this glorious Eastern jaunt":

> This afternoon... I sketched a plan for going down the Danube from Vienna to Constantinople; thence to Athens on the steamer; to Beyroot and Jerusalem and Alexandria and the Pyramids... Think of it!

Twain, 11 years later, was even more excited when he steamed out of New York City on a pleasure boat with 65 other passengers: doctors, military personnel and others, who had answered newspaper ads promoting "the great pleasure excursion" to Europe and the Middle East.

It was June 1867, and though Twain was only five years younger than Melville had been in 1856, he seemed far more a novice in terms of experience and achievement. Where Melville had already produced his best work, Twain, a moustached, Roman-nosed 32-year-old, had published but one small volume, a collection of humorous sketches. His masterpiece, *Adventures of Huckleberry Finn*, was still almost 20 years in the future and on the domestic side he was still unmarried.

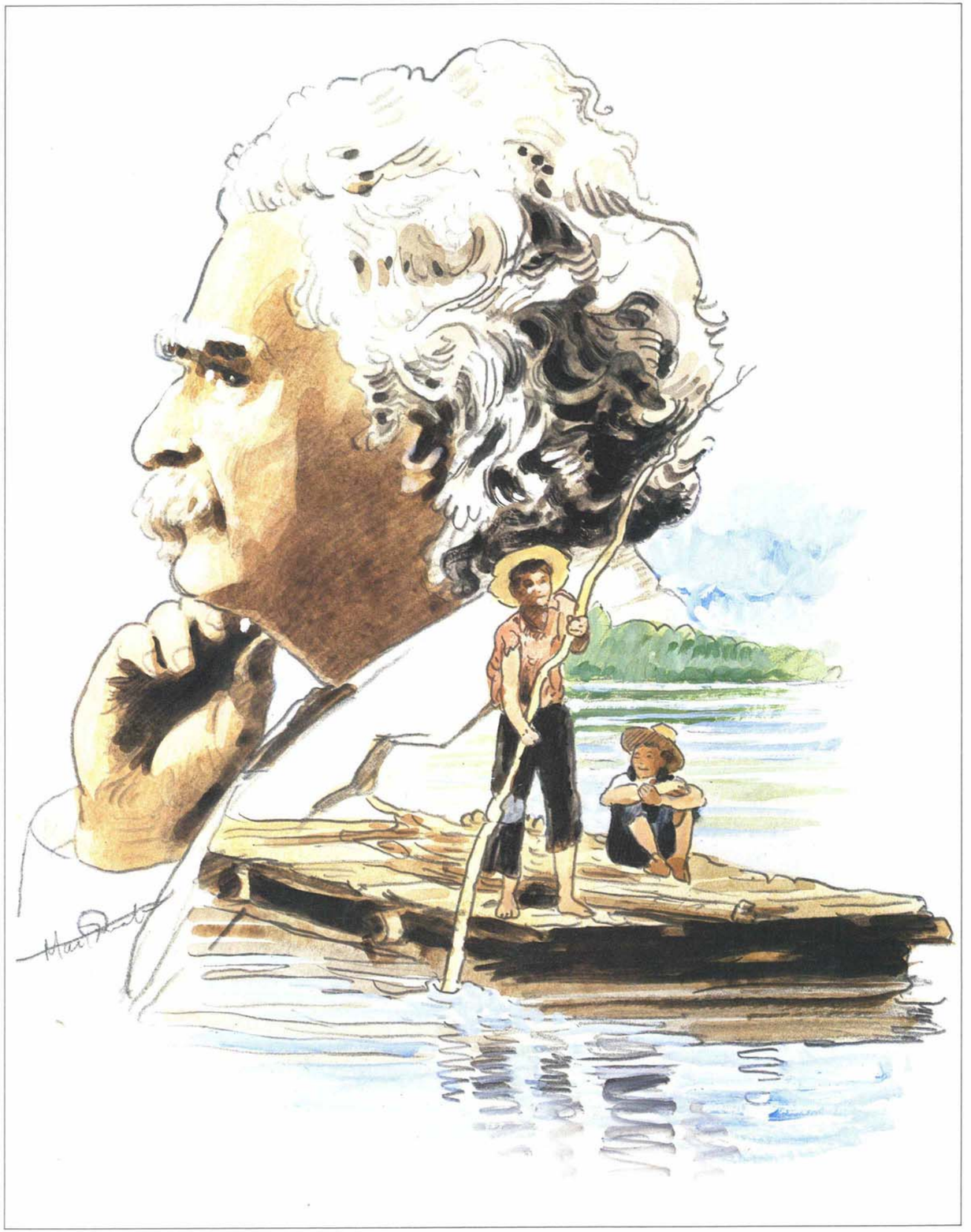
Thus, where Melville began his journey as the emotionally-askew yet worldly-wise veteran, Twain began his as the brash youngster. And where Melville can be seen as the experienced, if somewhat distraught, judge of people and culture, Twain can be viewed as the inexperienced, befuddled upstart sending out his befuddlement under the guises of humor, wry insight, causticity and gullibility.

It was Twain, for instance, who, upon arriving in Constantinople, complained about the streets in the old city as being "crooked, rudely and roughly paved, and as narrow as an ordinary staircase," adding that "the streets uniformly carry a man to any other place than the one he wants to go to, and surprise him by landing him in the most unexpected localities..." Already the humorous twist, the exaggerated spatial descriptions – elements that would become trademarks in Twain.

Melville, by contrast, had injected his characteristic melancholia into the same scene: intimations of personal despair, a sense that things were on the verge of closing in or falling apart, written in ungrammatical personal scribblings. "Intricacy of the streets. Started alone for Constantinople and after a terrible long walk, found myself back where I started. Just like getting lost in a wood. No plan to streets. Pocket compass. Perfect labyrinth. Narrow. Close, shut in. If one could but get up. Aloft, it would be easy to see one's way out. If you could get up into tree. Soar out of the maze. But no."

Melville, of course, did not intend to publish such journal entries in their raw form, but they reveal fragments of the crude poetic way his mind worked – and show an intrinsic alliterative flair in describing places and routine happenings. While crossing Turkey's Bosporus straits, for instance, he wrote: "You lie in the Boat's Bottom. Body Beneath the surface. A Boat Bed, Kaik (caique) a Sort of Carved Trencher or Tray. Fleet of Fishermen, at mouth of Golden Horn. Calm of water. Tiderips. Sun shining on Sultan's palaces. Sunrise opposite the Seraglio."

Twain, who, to the contrary, had little use for verse, drew out his geographical descriptions with a characteristic verbosity. A writer who would one day confess that he used "three words where one would suffice," Twain gave a preview of his later style in his description of Beirut:



> The rest of us had nothing to do but look at the beautiful city of Beirut, with its bright, new houses nestled among a wilderness of green shrubbery spread abroad over an upland that sloped gently down to the sea; and also at the mountains of Lebanon, that environ it, and likewise to bathe in the transparent blue water that rolled its billows about the ship…

Twain liked to sing glibly about landscapes, whether he was drifting past sloping banks on the Mississippi River or riding camel-back in the Syrian desert. He had a way of moving casually along, describing the commonplace and narrating the routine and then suddenly throwing out one of what the late novelist John Gardner once termed the revelatory insights that all writers long for. Twain's first look at beautiful Damascus seemed to provide such an inspiration:

> As the glare of the day mellowed into twilight we looked down upon … a level desert of yellow sand, smooth as velvet and threaded far away with fine lines that stand for roads, and dotted with creeping mites we know are camel trains and journeying men; right in the midst of the desert is spread a billowy expanse of green foliage; and nestling in its heart sits the great white city, like an island of pearls and opals gleaming out of a sea of emeralds. This is the picture you see spread far below you, with distance to soften it, the sun to glorify it, strong contrasts to heighten the effects, and over it and about it a drowsing air of repose to spiritualize it and make it seem rather a beautiful estray from the mysterious worlds we visit in dreams…

To some degree, Melville too shared in an intoxication of profuse descriptions. Steaming up the Bosporus he reveled in the "contest of beauty" waged by each shoreline, and described the scene as " a challenge of continents, whereby the successively alternate sweeps of the shores… seem to retire from every new proffer of beauty." In Cairo, he gushed over the glory of an Egyptian dawn, writing: "In morning, golden sun through foliage. Soft luxurious splendor of mornings. Dewy. Paradise melted and poured into the air. Soft intoxication…"

More often, though, Melville seemed predisposed to ascribe a kind of imaginatively generated anguish to geographical points of interest. In the same "luxurious" Cairo, he observed legions of flies as they collected around the eyes of the blind, evaluating the setting as "nature feeding on man." In the heat of the Egyptian desert, he agonized over what he interpreted as "too much light and no defense against it." He judged certain Cairo buildings as having a "dusty, cadaverous look." And while in Palestine, he took note of weeds growing on Mount Zion, bemoaning the scene with this lament: "The mind cannot [but] be sadly and suggestively affected with the indifference of Nature… to all that makes the spot sacred…"

Since Nathaniel Hawthorne once described Melville as one who could "neither believe nor be comfortable in his unbelief," the Holy Land probably exerted an ambiguous influence on him, and yet certain places in Palestine seemed to kindle his philosophical confusion over life-and-death matters. Of the shores of the Dead Sea, for instance, he wrote: "… foam on beach and pebbles like slaver of mad dog – smarting bitter of the water – carried the bitter in my mouth all day – bitterness of life – thought of all bitter things – Bitter it is to be poor and bitter to be reviled and O bitter are these waters of Death, thought I."

Granted, it has always been difficult for travelers to pass the Dead Sea without some thoughts on the desolation of the spirit, but Twain managed it – softening the region's biting visual impact with his usual levity: "…we were marching down a close, flaming, rugged, desolate defile, where no living creature could enjoy life except, perhaps, a salamander." Even Twain, though, succumbed to the harsh realities. "It is a scorching, arid, repulsive solitude. A silence broods over the scene that is depressing to the spirits."

Both Twain and Melville railed continually about the graffiti left by American and European travelers on structures of cultural importance in the Middle East. Melville grumbled when he noticed a Bostonian's name scribbled on the wall of a mosque in ancient Smyrna, and Twain, when he saw scribblings on the ruins of Baalbek in Lebanon, expressed a hope that one day such a monument would collapse on a pack of such engraving "reptiles." Captured by his first brush with Eastern culture, each writer resented its desecration by insensitive tourists.

Melville, especially, seemed taken with the grandness of Islamic monuments. He spoke admiringly of the arches, domes and cupolas which adorned various mosques and, always the analyst of forms, entertained the idea – incorrectly – that perhaps the mosque had descended directly from the tent.

Twain, who had frequently alluded to his boyhood appreciation of *The Arabian Nights*, viewed the mosques he visited in other terms. "These [walls], stained and dusty with age, dimly hint at a grandeur we have all been taught to regard as the princeliest ever seen on earth; and they call up pictures of a pageant that is familiar to all imaginations…"

Indeed, Twain seemed to be living out a kind of personal fantasy. From Constantinople and Damascus to Cairo and Algiers he carried his fascination like a boy wandering through an enchanted forest. And when harsh cultural realities intruded, he complained: "Travel and experience mar the grandest pictures and rob us of the most cherished traditions of our boyhood." As to such unpleasant scenes as poverty and hunger he simply ignored them, much preferring to dwell on the lighter side. He liked to talk about the peculiarities of donkeys and camels, the latter of which he claimed "would eat a tombstone if they could bite it."

Twain also commented on Eastern attire, which he admired for its dignity of appearance. "No Arab … uses an umbrella or anything to shade his eyes or his face," Twain wrote, "and he always looks comfortable and proper in the sun."

Melville, on the other hand, seemed drawn to scenes of poverty. Concerning animals, for instance, he saw misery where Twain saw humor. Of the stray dogs in Constantinople, he remarked somewhat stolidly: "Scavengers of the city. Terrible outcries at times … some much scarred, others mangy. See them lying amidst refuse, hardly tell them from it."

In the same city, Melville also wrote about "the horrible grimy tragic air of the streets." He seemed peculiarly at home in locations that heightened his sensitivity to civic defilement. It represented a weird sort of beauty to him, as he suggested in his journal: "Heaps of old traps, old capotes being cut up by beggars… Pile of old hoops rusting. Pile of old haversacks and belts and spoons and kettles. Grated windows look between the double galleries. Beautiful effect."

If Melville seemed preoccupied with negative aspects of Eastern culture at large, however, his appreciation of individuals seemed positive to the opposite degree. Most of his observations of Eastern men, for instance, were delightful. In Egypt he described the Arab guides as "tender" individuals whom he likened to "angels in flowing white mantels (sic.)" In Turkey he found himself impressed with qualities of steadfastness and humility. On a cold drizzly day, he met an elderly Turkish man and said, "Old Turk, this [weather] is very bad." The Turk answered, "God's will is good," and then, said Melville, he "smoked his pipe in cheerful resignation."

He also admired what he had interpreted as the dignity of Turkish and Arab women. While on board a ship off the Greek coast, he had observed "Turkish women among others. Went right aft on deck and spread their carpets. One prayed, bowing her head." There was a certain posture of humility that captured Melville's compassionate eye. In Constantinople he had observed a woman standing over the grave of a loved one and wrote: "Such abandonment of misery!

Called to the dead, put her head down as close to it as possible; as if calling down a hatchway... 'Why don't you speak to me? It is I!'"

The beauty of such women had also impressed Melville. "Ugly" faces were a rarity in the Middle East, he suggested in his journal, adding: "...these races exceed ours in this respect. Out of every other window look faces... which in England or America would be a cynosure in a ballroom."

He seemed prone at times to draw comparisons between Eastern and Western values – and to agree with the unspoken maxim: "East is East, West is West, and never the twain shall meet." In the bustle of Constantinople, for instance, he wrote: "Curious to stand amid these millions of fellow beings, some of whom seem not unwilling to accept our civilization, but with one consent rejecting much of our morality and all of our religion." This caution toward Western ways seemed continually to intrigue Melville.

Twain, on the other hand, less mature and more volatile, was often irritated. In Turkey, for example, he felt unwelcome – the Turks thought of America and Americans as "insignificant" in those days – and grumbled about it. "It hurts my vanity," he growled. But he could change his mind suddenly and be just as gracious with compliments. In Damascus he blazed away at the Syrians, but later wrote that "these people are naturally goodhearted and intelligent..."

Twain also shared Melville's appreciation for the beauty of Eastern women, praised the efficiency and stamina of the Arab guides who accompanied his group through Syria, Lebanon and Palestine, and expressed admiration for Bedouins. Twain, moreover, voiced his anger at the carelessness and insensitivity he found among the Americans who entered a mosque and "broke specimens from the walls, though they had to touch and step upon the 'praying carpets' to do it... To step rudely upon the sacred praying mats with booted feet – a thing not done by any Arab – was to inflict pain..."

Like Melville, Twain seemed to have a compassionate awareness of the elderly and those whom he judged as dispossessed. He also was quick to appreciate compassion. On the journey through Palestine, for instance, he presented a moving portrait of the Mar Saba hermits, who lived with a Spartan-like steadfastness in a desolate, isolated region. "They knew we were foreigners..." he wrote. "But their large charity was above considering such things. They simply saw in us men who were hungry and thirsty and

...AND NEVER THE TWAIN SHALL MEET"

tired, and that was sufficient. They opened their doors and gave us welcome. They asked no questions, and they made no self-righteous display of their hospitality..."

One of the most enlightening comparisons of the region's influences on Twain and Melville concerns their reactions to the unfamiliarity of antiquity. As natives of a country that was not yet even a century old, each writer carried twin senses of naiveté and boyish wonder on his sleeve. They theorized, compared, analyzed, explicated and ruminated over this, their first authentic gaze into the backward chasm of history.

Twain, for instance, seemed captivated by the Sphinx. And though contemporary analyses suggest that he was being jocular, his comments on the Sphinx echo with a sense of wonder. "The Sphinx," he wrote, had "a dignity not of earth in its mien," and went on, in admittedly purplish prose, to ponder its meaning:

> If ever an image of stone thought, it was thinking. It was looking toward the verge of the landscape, yet looking at nothing – nothing but distance and vacancy. It was looking over and beyond everything of the present and far into the past. It was gazing out over the ocean of Time – over lines of century waves which, further and further receding, closed nearer and nearer together, and blended at last into one unbroken tide, away toward the horizon of remote antiquity.

Similarly, the older and wiser Melville seemed stilled by trying to put the ancient into clear English. "[Their] simplicity confounds you," he wrote about the pyramids. "[They] refuse to be studied or adequately comprehended."

Intentionally or unintentionally, Melville and Twain each found this ungraspable antiquity a stimulation for his imagination. Each tangible reality produced an intangible imagining, and therein lies perhaps the greatest single effect of the region's influence on Twain and Melville.

Melville, for instance, always pursuing the rudiments of good and evil, seems to have been ultimately moved, and in an odd way fulfilled, by the Pyramids of Giza. Once again, perhaps, he could be the creator of a force such as the terrible Moby Dick – but drawing his imaginative force from the Egyptian desert, rather than the vast oceans. "Pyramids still loom before me – something vast, indefinite, incomprehensible, and awful," he concluded. "Line of desert and verdure, plain as line between good and evil. An instant collision of alien elements. A long billow of desert forever hovers as in act of breaking, upon the verdure of Egypt."

And Twain, the local-color realist who needed but a push to enter a mystical realm of reflective judgment, continued to be stimulated by the Sphinx. It was "grand in its loneliness," he said, and "imposing in its magnitude; it is impressive in the mystery that hangs over its story. And there is that in the overshadowing majesty of this eternal figure of stone, with its accusing memory of the deeds of all ages, which reveals to one something of what he shall feel when he shall stand at last in the presence of God."

Like Melville, Twain had expressed midway through his journey the difficulties a 19th-century American faced in trying to grasp history. "I cannot comprehend this," he said. "The gods of my understanding have always been hidden in clouds and very far away."

In their unique ways, both writers set about trying to probe such "clouds," but where the experience seemed to expand the rapidly-maturing Twain, it appeared more as a thoughtful reminder to Melville that, even amid the waves of his turbulent mind, a measure of security existed, and he could rest, if he so desired, in the solidification of his knowledge.

Much, regarding Twain's and Melville's travels in the Middle East, remains open to debate, of course, yet each journey must be viewed as a positive experience, Twain returning to America on the verge of immense literary success and Melville, biographers feel, to a healing of sorts despite a growing obscurity.

A year later, in any case, Twain felt that the trip had been valuable. "Broad, wholesome, charitable views of men and things," he said, "cannot be acquired by vegetating in one little corner of the earth all one's lifetime." It was a truism that Melville knew well, and one that Twain was still learning. And in this sense, the Middle East – its people, land, history and culture – provided a most satisfying classroom for the two outstanding authors that America has produced.

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