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ARAMCO WORLD
magazine

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JULY-AUGUST 1983

Gilgamesh - by Gardner

ARAMCO WORLD magazine

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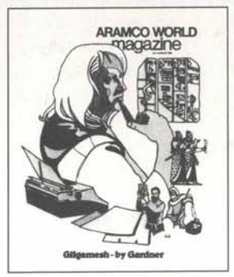


Cover: Illustrator Michael Grimsdale captures and melds the varied strands in the work of the late John Gardner, the novelist, whose interest in the ancient and medieval epic led him to collaborate with John Maier and Assyriologist Richard Henshaw on a new translation of The Epic of Gilgamesh – the oldest surviving work of literature. Back Cover: The screen of the Arwri computer displays Arabic words in a high-tech approach to language learning.

◄ The carpenter in this painting from the tomb of Nebamun and Ipuky at Qurna is using a technique and a saw unchanged to this day.

THE FIRST MUEZZIN

WRITTEN BY BARRY HOBERMAN
ILLUSTRATED BY MICHAEL GRIMSDALE

One of the most characteristic – and stirringly evocative – symbols of Islam is the *adhan,* the Arabic call to prayer, dramatically intoned by a muezzin from high atop a lofty minaret. Heard once, it is never forgotten.

The use of the *adhan* goes back to the lifetime of the Prophet Muhammad, and is mentioned once in the Koran, in connection with the Friday assembly:

> O believers, when proclamation is made for prayer on the Day of Congregation, hasten to God's remembrance and leave trafficking aside; that is better for you, did you but know. – Sura 62:9

Muslim tradition supplies the story of how the *adhan* came to be used to announce the times of the five daily prayers. After the emigration of Muhammad and his followers from Makkah (Mecca) to Medina – which is called the *Hijra* – a believer named 'Abd Allah ibn Zaid had a vision in which he tried to buy a wooden clapper to summon people to prayer. But the man who had the clapper advised him to call out to the people instead and to cry:

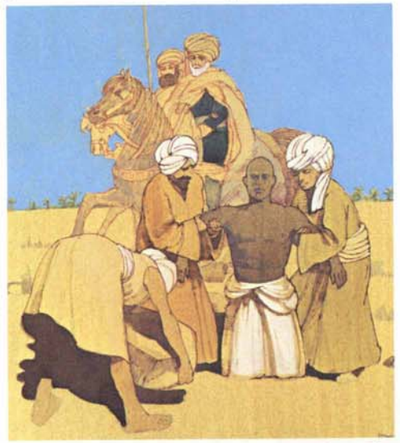
> God is most great! God is most great!
> I testify that there is no god but God.
> I testify that Muhammad is the Apostle of God.
> Come to prayer! Come to prayer!
> Come to salvation! Come to salvation!
> God is most great! God is most great!
> There is no god but God.

According to Ibn Ishaq, the eighth-century biographer of the Prophet, Ibn Zaid went to Muhammad with his story and Muhammad, approving, told him to ask an Ethiopian named Bilal, who had a marvelous voice, to call the Muslims to prayer. As Ibn Ishaq told the story (in Albert Guillaume's translation):

> When the Apostle was told of this he said that it was a true vision if God so willed it, and that he should go to Bilal and communicate it to him so that he might call to prayer thus, for he had a more penetrating voice. When Bilal acted as muezzin, 'Umar I, who later became the second caliph, heard him in his house and came to the Apostle…saying that he had seen precisely the same vision. The Apostle said 'God be praised for that!'

Though slightly different versions of the story exist, all agree that Islam's first muezzin was Bilal. But who was this man whom the sources credit with such a key role in the nascent Muslim community?

Actually, very little is known. Bilal ibn Rabah, an Ethiopian, was born in Makkah sometime in the late sixth century, of very humble parentage, and was one of the first inhabitants of Makkah to accept the religion that a local merchant named Muhammad – the Prophet – began to preach there around the year 610.



According to Ibn Ishaq, Bilal suffered for his immediate acceptance of Muhammad's message. In fact Bilal's master, Umayya ibn Khalaf reportedly, "would bring him out at the hottest part of the day and throw him on his back in the open valley and have a great rock put on his chest; then he would say to him, 'You will stay here till you die or deny Muhammad and worship al-Lat and al-'Uzza" (pre-Islamic goddesses).

Bilal, however, would not renounce Islam and eventually Abu Bakr, later the most distinguished of the Prophet's Companions and the first Caliph, rescued him.

In 622, the year of the *Hijra,* Bilal also migrated to Medina and over the next decade accompanied the Prophet on all military expeditions, serving, tradition says, as the Prophet's mace-bearer and steward, but also as a muezzin revered by Muslims for his majestically sonorous renditions of the *adhan* .

Bilal's finest hour came in January, 630, on an occasion regarded as one of the most hallowed moments in Islamic history. After the Muslim forces had captured Makkah, the Prophet's muezzin ascended to the top of the Ka'ba to call the believers to prayer – the first time the call to prayer was heard within Islam's holiest city.

There is confusion about what happened to Bilal after the death of the Prophet in 632. Abu Bakr succeeded the Prophet as head of the Muslim community, and some sources say that Bilal acted as Abu Bakr's muezzin but subsequently declined to serve his successor, 'Umar ibn al-Khattab, in the same capacity. Other authors say the Prophet's death signaled the end of Bilal's career as a muezzin, and that he called the faithful to prayer only twice more in his life – once in Syria, to honor the visiting 'Umar, and a second time, in Medina, when he was specifically asked to do so by the Prophet's grandsons.

What seems clear is that at some point Bilal accompanied the Muslim armies to Syria and that he died there between 638 and 642, though the exact date of death and place of burial are disputed.

Yet if there is some disagreement concerning the hard facts of Bilal's life and death, his importance on a number of levels is incontestable. Muezzin guilds, especially those in Turkey and Africa, have traditionally venerated the original practitioner of their noble profession, and African Muslims as a whole feel a special closeness and kinship to him; he was an Ethiopian, after all, who had been exceptionally close to the Prophet, and is a model of steadfastness and devotion to the faith. The story of Bilal, in fact, remains the classic and most frequently cited demonstration that in the Prophet's eyes, the measure of a man was neither nationality nor social status, but piety.

Barry Hoberman studied Islam at Harvard and Indiana Universities.

Gilgamesh - by Gardner

WRITTEN BY JOHN R. MAIER

Novelist John Gardner, like his creation Peter Mickelsson, in *Mickelsson's Ghosts*, often fled from the confinement of Binghamton, New York to the Endless Mountains of Pennsylvania where, Gardner wrote, a "peculiar calm came over Mickelsson ... as he moved into the hug of the mountains rising immediately to his left and, more distantly, across the narrow valley, to his right, comforting shapes as much felt as seen..."

Those mountains were an integral part of the pastoral world that John Gardner called home: the world of rural Vermont and Wisconsin, upstate New York, where Gardner grew up, and the Endless Mountains where, on September 14, 1982, he lost control of his motorcycle and was killed, at the age of 49.

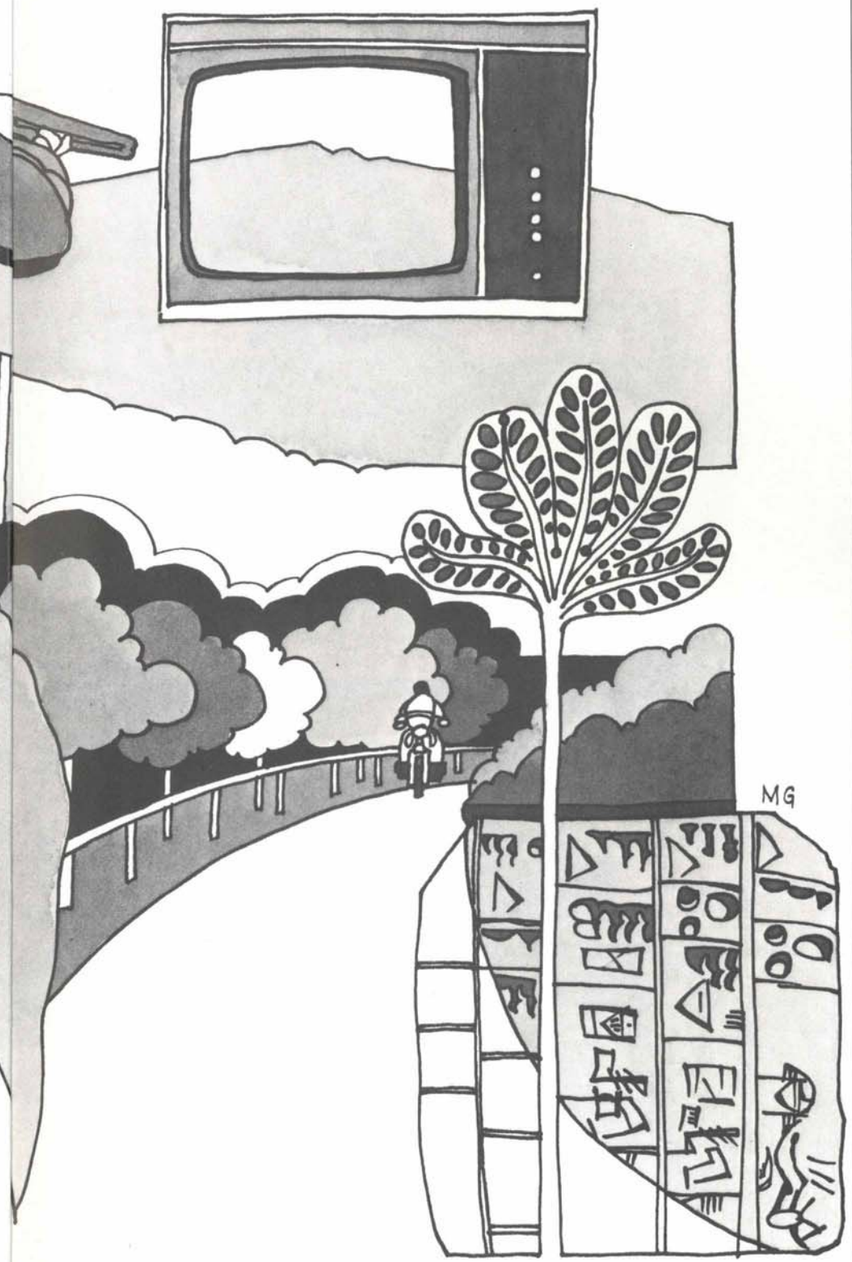
To John Gardner this countrified, small town world of 20th-century America was both home and source of a lifestyle that he, more than any writer of recent times, celebrated in novel after novel. Batavia, New York, for example, was the scene of both *The Resurrection* (1966) and the work that will probably stand longer than any of his fiction: *The Sunlight Dialogues* (1972), in which he brought the turbulent political and social issues of the 1960's to earth – through a mad idealist who paints the word *love* in "large, white, official-looking letters across two lanes of Oak Street, just short of the New York State Thruway."

Which is why it may be startling to learn that Gardner, an American pastoralist, was working day and night just before his death to translate what is probably the most purely Middle Eastern work of fiction we possess: *The Epic of Gilgamesh.*

At first sight, Gilgamesh may seem an unlikely choice for Gardner's attention. Gardner, after all, focused on slow, loving descriptions of American landscapes and small-town country people like the eccentric old Vermonter James Page in *October Light*; Page first blasts his sister's television set with a shotgun, then deepens into a richly individualized human being. Nevertheless, at the time he died, Gardner, Professor Richard Henshaw and I were working hard to complete a new translation of an ancient epic that was inscribed on cuneiform tablets and then lost for millennia.

The Gilgamesh stories are ancient indeed. The earliest was written – in the Sumerian language of what is now southern Iraq – just after Gilgamesh was supposedly king of the city-state of Uruk – about 2600 B.C. But the epic itself is a late combination of different Gilgamesh stories written in Akkadian, a Semitic language spoken in ancient Iraq.

ILLUSTRATED BY MICHAEL GRIMSDALE



The development of the *Epic of Gilgamesh* is thought to be a product of the Old Babylonian Period (ca 2000-1600 B.C.), but the cuneiform tablets that best present the version we now have come from a Middle Babylonian author Sin-leqi-unninni, who, in about 1400 B.C., made decisive changes in the epic. It was largely his version that George Smith discovered in Nineveh a century ago (See *Aramco World,* January-February 1971), and though Gardner was fascinated with the older version, only fragments of which have surfaced, the version that guided us in our final translation was that of Sin-leqi-unninni.

No outline of *The Epic of Gilgamesh* can capture the work's richness and evocative power, but we can perhaps give a sense of the story. Gilgamesh is a king of Uruk (modern Warka), famous for having built the massive walls of the city – shown by modern excavators to have been six miles around. But when he oppresses his people they cry out to the gods for relief, and the gods create a double for Gilgamesh: Enkidu. Though he matches the strength of Gilgamesh, Enkidu differs in one important respect: while Gilgamesh is "two-thirds divine, one-third human," Enkidu is brought up with the animals of the wild.

Gilgamesh, moreover, is pre-eminently the man of the city – when the city was considered the abode of the goddess, Ishtar – while Enkidu is a man of the wild, ignorant even of prepared food and drink. Enkidu does not become fully human until a woman of Ishtar's temple teaches him the ways of civilized people and opens his heart to that most powerful of human feelings: friendship. In fact, *The Epic of Gilgamesh,* an adventure story complete with battles with monsters and a detailed account of the Flood, is mainly the story of a friendship – of a friendship that begins with a fight and survives even death.

Together, Gilgamesh and his double undertake heroic challenges. Gilgamesh, for example, fights the monster Humbaba, guardian of the Cedar Forest, with the approval of the sun-god and the help of Enkidu. The two heroes survive the battle and briefly enjoy a moment of fulfillment, when Gilgamesh, because he fought so well against Humbaba, wins the love of Ishtar, goddess of the city of Uruk – and rejects it. Though Ishtar offers Gilgamesh gold and power and the riches of the earth to become her lover, Gilgamesh, in a biting speech, calls her:

a cooking fire that goes out in the cold,

«...the story of a friendship that survives even death.»

«...the kind of art that beats back the monsters...»

a back door that keeps out neither wind nor storm,
a palace that crushes the brave ones defending it,
a well whose lid collapses,
pitch that defiles the one carrying it,
a waterskin that soaks the one who lifts it,
limestone that crumbles in the stone wall,
a battering ram that shatters in the land of the enemy,
a shoe that bites the owner's foot!

Ishtar, not one to take such insults lightly, arranges to have the Bull of Heaven sent against the heroes, but again the heroes triumph, and this time, Enkidu joins Gilgamesh in insulting Ishtar. This episode is a shocking example of arrogance of the type the Greeks would later call *hubris.*

For a moment, the heroes revel in their victories. They ride in triumph through the streets of Uruk. They hold a great celebration. And for the only time in the story they enjoy a moment of joy and rest.

But only for a moment. As the sixth tablet (of 12) comes to an end, Enkidu's sleep is disturbed by a dream in which the gods, because Gilgamesh and Enkidu have killed Humbaba and the Bull of Heaven, decree that Enkidu must die.

Up to this point, *Gilgamesh* doesn't seem to have any relationship whatsoever with John Gardner's fiction. But Gardner, a literary critic as well as a writer, believed in and defended publicly a concept he called "moral fiction," and thought *Gilgamesh* one of the few works in world literature which satisfied the demands of "moral fiction."

This commitment can be seen in virtually all of Gardner's work; even his most realistic fiction contained metaphors of knights and dragons, demons and heroes – reminders that Gardner was trained as a medievalist. In fact, Gardner wrote about Old English and Middle English literature in articles and book-length studies, translated the works of the unknown author of *Sir Gawain and the Green Knight.* and wrote extensively about the finest of English medieval story-tellers: Geoffrey Chaucer.

In Gardner's work, these knights and demons show up in fiction like *Freddy's Book,* in his children's books and in many of the short stories collected in *The King's Indian* and *The Art of Living.* And reflecting Gardner's lifelong fascination with figures from medieval romance is *Grendel,* a startling philosophical tale that transforms the Old English epic, *Beowulf,* into a strangely universal story of ethical decisions – another example of his commitment to "moral fiction."

Gardner also studied the classics, as *The Wreckage of Agathon,* a novel, and *Jason and Medea,* a verse translation of the *Argonautica* attest. He was so committed that at the State University of New York at Binghamton, where he had been hired to develop the Creative Writing Program, he volunteered to develop and teach an extra undergraduate course on the Epic; he taught the course with two other Binghamton professors, Mario Di Cesare and Susan Strehle, and worked night and day in August and early September of 1982 to finish *Gilgamesh* so his students in the course could use our translation.

(As part of his presentation he planned to use slides from Michael Spencer's "The Marsh Arabs Revisited" [See *Aramco World,* March-April 1982] to illustrate his lectures on Sumerian and Akkadian literature. He thought that conditions in southern Iraq might still provide insights into life in Sumerian times, since fishing in the marshes, *mushhuf*-boats and reed houses could, Gardner believed, be documented in the literature and cylinder-seal depictions of life 4,000 years ago.)

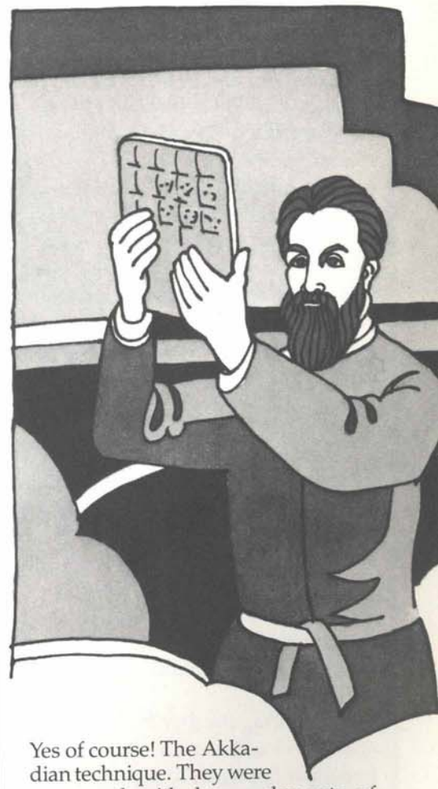
Like C.G. Jung and theologian John S. Dunne, and numerous others, Gardner was fascinated with *The Epic of Gilgamesh.*

In fact his massive novel, *The Sunlight Dialogues* (1972) – set entirely in Batavia and upstate New York – is pervaded by Mesopotamian thought; startling though it may seem, the monologues delivered by the main character, Taggert Hodge, the Sunlight Man, to Police Chief Fred Clumly contain Mesopotamian wisdom, which Gardner contrasts with the dominant Greco-Roman traditions.

In "The Dialogue of the Dead", for example, Gardner's character, the Sunlight Man, in a discussion of freedom and responsibility, abruptly turns to *Gilgamesh:*

> Are you familiar with the epic of Gilgamesh? A splendid epic, but very obscure, difficult for people like us – undramatic, one thinks at first glance. A technique made up of careful segmentation, with elaborate echoing, repeating and counterpointing, with texture enriched still more by rare and artificial words. You understand me, I take it? A kind of poetry naturally suited to elaborate description and oration and hymnic address, symbolic dreams, and armings. Needless to say, its poetry is not suited to dramatic actions which move the story forward. Lifeless, people call it.

By 1976, Gardner had decided to translate the epic, but was delayed by a bout with cancer until the tissue was removed, and Gardner was declared completely recovered. And by the time he completed his part of the project, the "undramatic" and "lifeless" qualities of the epic (i.e. the qualities unlike those of a Gardner novel) were more than balanced by what the Sunlight Man had also seen in it:

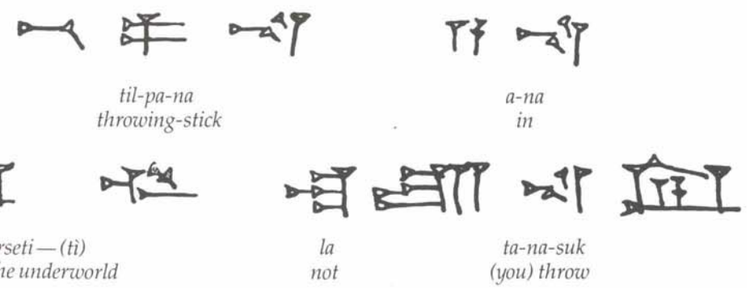


Yes of course! The Akkadian technique. They were concerned with larger elements of form. They played scene against scene, speech against speech. Lovely! It makes you want to march!

It is the second half of the story that most impressed John Gardner – the half in which Enkidu dies and Gilgamesh delivers one of the most moving elegies in ancient literature:

"Now what is this sleep that has taken hold of you?
You've become dark. You can't hear me."

THE WEDGE-TRANSLATION



til-pa-na
throwing-stick

a-na
in

erseti — (ti)
the underworld

la
not

ta-na-suk
(you) throw

To translate a line like the above — Gilgamesh's advice to Enkidu, "Do not throw the throwing-stick in the underworld," — requires a knowledge of the cuneiform ("wedge-shaped") signs originally pressed into clay by a stylus, a transliteration of each of the 11 signs in the line into the syllables of Akkadian words, and a feel for the "contours" of Akkadian poetry.

Unlike alphabets, whose easily mastered 25-30 signs represent the sounds ("phonemes") of a language, cuneiform writing, a sort of picture language, includes nearly 600 basic signs plus numerous combinations of those signs. As a result, mastering cuneiform took years of practice in the scribal schools.

Fortunately for John Gardner and myself, when we decided to make a new translation of The Epic of Gilgamesh, *Richard Henshaw, an Assyriologist, was available to help. Thus, with him guiding us, we were able, in examining the hand copies of the cuneiform signs from the 12 tablets of Gilgamesh, to pick out and understand lines like the above — which is fairly typical of a line of cuneiform in which the signs are clear.*

In this line, the first five signs are Akkadian syllables — although theoretically, they might be read in hundreds of ways. The first sign, for example, is a very simple figure of only two wedges, and though it reads here as til, *it could represent 17 other syllables (as different as* be, mid, zis, sun *and* git), *or stand by itself for as many as 16 different Akkadian* words, *with a great variety of meanings. In various combinations, moreover, it could mean many other things as well.*

Another example is the sixth sign, (ki), *which, when followed by a phonetic indicator* (ti), *tells us that among many possibilities the sign represents the Akkadian word* ersetu, *"underworld." One sign stands by itself for the Akkadian negative,* (la), *and the last group of three signs spells out the specific form of the Akkadian verb,* nasaku.

At any point in the line, a change in the interpretation of a sign, or its value in Akkadian, will transform the meaning of the entire line — though in this case there has been quite a bit of agreement on reading the signs since the tablet was first deciphered by George Smith in the 1870's.

Though John Gardner was gifted in languages, he had not studied Akkadian, nor mastered cuneiform writing. His approach was to listen to the way each Akkadian line read aloud. Though the complexity of the system kept cuneiform from becoming widespread in the culture, syllabic *writing, nevertheless, allowed scribes of different languages to sound out the lines of text and read them aloud. And today, scholars are in a far better position to hear the* sound *of cuneiform Akkadian than the languages of the ancient world written in alphabets.*

According to his fiancee, Susan Thornton, Gardner's intense interest in the sound of Gilgamesh *led to a very bizarre incident. Working furiously to finish the translation, one night, he suddenly had an uncanny intuition — like a flash of inspiration — that he could understand the passage as if it were his native language. The experience unnerved him, and he decided he'd better put the translation away for a few days. Sadly, he died before he could see if his intuition was right.*

GRENDEL

JOHN GARDNER

And he – he does not lift his head.
I touched his heart, it does not beat."
He covered the friend's face like a bride's.
"Like an eagle I circled over him."
Like a lioness whose whelps are lost he paces back and forth.
He tears and messes up his rolls of hair.
He tears off and throws down his fine clothes like things unclean.

The second half of the epic also relates how Gilgamesh wildly searches the universe for an answer to the meaning of death. At each turn he is told that his search is futile, but he pursues his wearying journey through darkness, to the garden of the gods, and to the dwelling place of Siduri at the very edge of habitation – and even crosses the Waters of Death itself, seeking the answer from the final source of wisdom: Utnapishtim.

In Mesopotamian thought, the sage Utnapishtim was the one human who had been saved from the condition of mortality; it was a reward for saving mankind during the great Flood. If anyone should have the answer, it is Utnapishtim – and he does:

Do we build a house forever? Do we seal a contract for all time?
Do brothers divide shares forever?
Does hostility last forever between enemies?
Does the river forever rise higher, bringing on floods?

Gilgamesh is at first crushed by the secret of the gods revealed by Utnapishtim, but by the end of the 11th tablet is prepared to return to Uruk – and to the goddess Ishtar – to rule the living. He has learned that there is no "answer" to the fact of death, only a concern for the living.

On the same tablet there are other remarkable passages. One, that stunned England when George Smith translated it in 1872, was the story of the Flood. Another touches on a description of Uruk; after inspecting the city of Uruk, Gilgamesh describes it as the "house of Ishtar," saying, "one part is city, one part is orchards, and one part clay pits. Three parts including the clay pits make up Uruk."

Gardner was much taken by this simple sequence, with its emphasis on "clay pits." The inhabited part – the city proper with its temple complex at its center – is one; the orchard, which sustains the population, humans and gods, is a second. But the clay pits? The source of the clay for building the walls? Yes. The source of clay for the writing of tablets? Yes. But is it not also a reminder that man himself is common clay? At one stroke, Gardner thought, the poet found the perfect image to bring home the complex themes of the work.

Gilgamesh does not end with the 11th tablet, and the one remaining section caused one translator so much trouble that he simply replaced the 12th tablet with another Gilgamesh story entirely. We decided, however, to try to restore the puzzling tablet to its proper place; indeed, it was our primary goal, and thus was the first section we completed. (It was also the first to appear – this April – in *MSS*, (Vol. 2, Spring, 1983), a journal edited by Gardner and poet Liz Rosenberg.)

One reason we focused on the 12th tablet is that it is the most solemn of the tales and is the displaced center of the epic. Since it narrates a very different story of Enkidu's death, it has offended the modern sense of consistency. In its texture, though, this tablet, like a coda in a musical composition, includes motifs that have woven themselves through the first 11 tablets. It is a direct translation of a Sumerian original, and it contains brief speeches that are not only expressive but magical as well. In it Gilgamesh offers advice on harrowing hell, complete with the magical "song of the dead," so that Enkidu will be able to return to him.

Do not put on a clean garment:
It will mark you as a foreigner.
Do not smooth your skin with sweet-smelling oil from the bowl:
They will swarm and settle all around you.
Do not throw the throwing-stick in the underworld:
Those the throwing-stick hits will return, unharmed, and menace you.
Do not carry a staff of power in your hands:
The shades will besmut you with a dark curse.
Make no bellow in the place of the cry-out-of-the-earth.
Kiss not your beloved wife, nor strike the wife you hated;
Kiss not your beloved child, nor strike the child you hated.
The song of the dead will snap around you:
She who sleeps, she who sleeps, the Mother of Birth and Death, who sleeps,
Her clean shoulders no garment covers, Her breast like a stone bowl does not give suck.

Mesopotamian literature, however, is nothing if not ironic, so Enkidu does exactly the opposite of what he is supposed to do – and remains trapped in the land of the dead. The best Gilgamesh can do is to plead with the gods for some contact with his friend, and the god Ea creates a hole in the earth through which the ghost of Enkidu issues "like a dream."

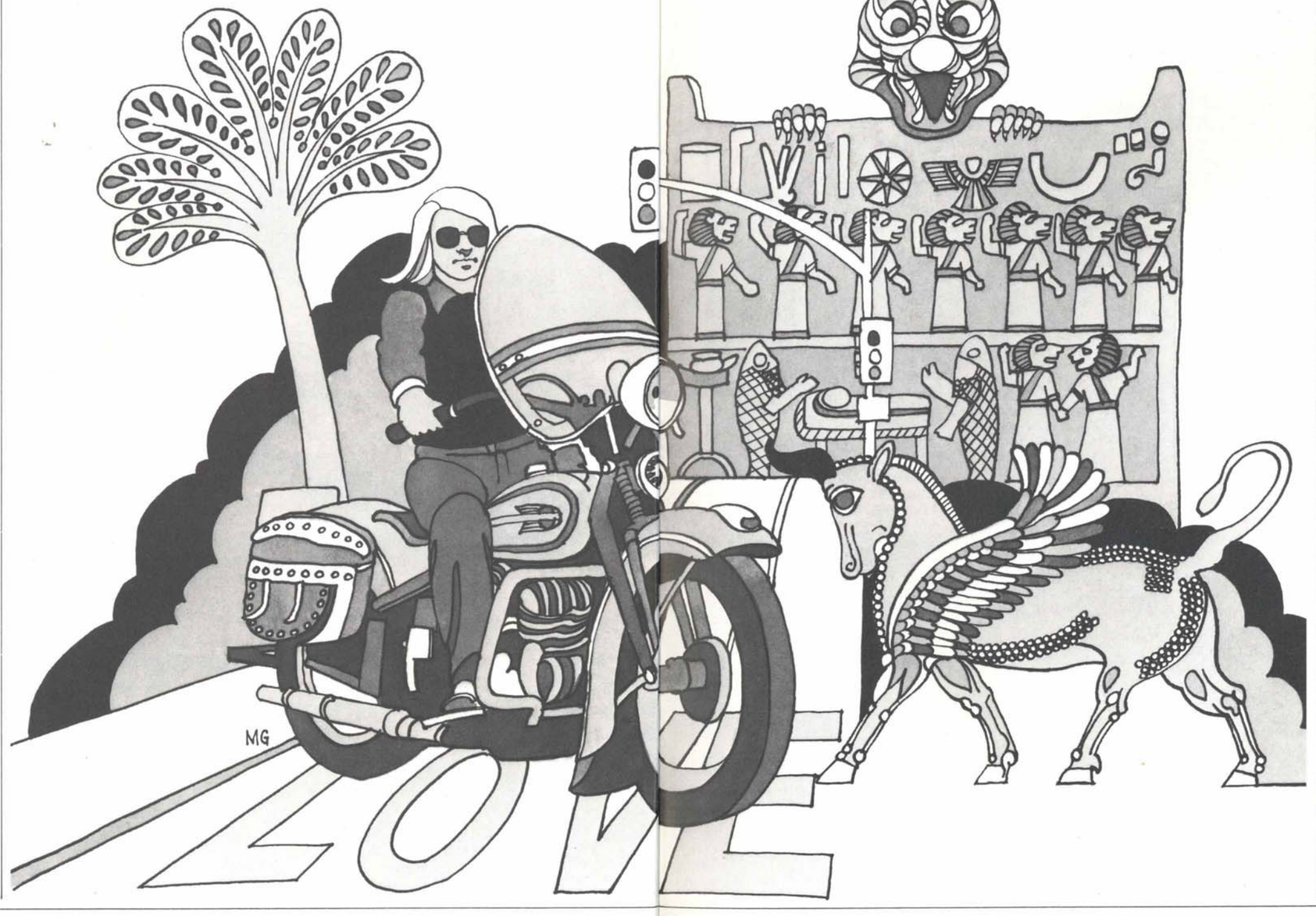
The story ends with Enkidu giving a doleful account of life among the dead. He says that the worst fate is reserved for the one "whose spirit has no one left alive to love him," and makes it clear that those who remain alive must keep up the memory of the beloved – and can in some ways alleviate the pain of those in the nether world.

Though *The Epic of Gilgamesh* is steeped in the ancient culture and thought of the Middle East, John Gardner found it remarkably modern; he even found the final tablet uplifting. This was part of his belief that his contemporaries had betrayed the very basis of authentic art – its moral purpose – and his opposition to writers in the West who were getting by, he thought, with flashy technique and hollow dehumanizing pessimism.

Gardner believed strongly in the traditional view that true art should seek to improve life, not debase it. As he put it, "I do not deny that art, like criticism, may legitimately celebrate the trifling, but trivial art has no value except in the shadow of more serious art, the kind of art that beats back the monsters and, if you will, makes the world safe for triviality. Art which tends toward destruction, the art of nihilists and cynics, is not proper art at all. Art is essentially serious and beneficial, a game played against chaos and death, against entropy."

Thus *The Epic of Gilgamesh*, which would seem far removed from the upstate New York landscapes and the peculiarly American characters that crowd John Gardner's writings, is, in fact, concerned with the same great themes of literature, the ultimate concerns of art, and the deeply moral purpose that "beats back the monsters." For John Gardner, it became his supreme fiction.

John R. Maier, an English instructor at Brockport College, the State University of New York, has studied ancient Sumerian and Akkadian literature and, in 1979-1980, was a Fulbright Lecturer at the universities of Aleppo and Jordan. He is now working on contemporary Arabic fiction.



ARABIC AND ARWRI

WRITTEN BY BARBARA PAULSEN
PHOTOGRAPHED BY STEVE EARLEY

The way John Wilson saw it, the hard part was still to come. Sure, he had spent four painstaking years preparing for the U.S. State Department's Foreign Service exam, one of the most comprehensive achievement tests given. Sure, he had passed the exam – and had been accepted for a diplomatic assignment in Cairo. But there was still a catch. At some point he had to learn Arabic.

Because of that, John, enrolling in Arabic at the University of Texas, was apprehensive. Recollections of his high school Spanish class loomed before him: daily homework, irregular verbs, memorization and, worse, those terrible moments in class when his cheeks would redden as he sputtered out the unfamiliar sounds.

For Americans, it seems, learning any foreign language is difficult, and mastering Arabic is virtually impossible. Because Arabic uses a totally different writing system and because the sounds are unfamiliar and the alphabet complex, learning to write the Arabic script demands years of hard work, endless patience and determination. All but six of Arabic's 28 letters have three or four forms, depending on their position in a word and with the addition of six diacritics – symbols written above or below a letter, three of which give the effect of a vowel – just learning Arabic script becomes a horrendous challenge; it normally takes 30-36 hours just to master the Arabic alphabet, let alone starting on vocabulary and reading.

He never gets upset... never makes them wait for corrected papers...

Mastering Arabic also requires one more factor: an exceptional instructor. That's important because success at the early stages of the language learning process is largely dependent upon the number of teacher-student interactions that occur during instruction – interactions that, in turn, require endless patience.

Fortunately for John Wilson, there *was* such an exceptional instructor at the University of Texas. The instructor is called Arwri and students who learn Arabic from Arwri rave about the course. Arwri, they say, doesn't get upset if asked to repeat a pronunciation or review a lesson more than a dozen times. Arwri never makes them wait overnight for corrected papers, and not only tolerates their mistakes, but gives hints about the correct answer. Best of all, students learn the Arabic writing and sound system in one-fifth the time it takes using conventional teaching methods.

What is so unconventional about this teacher? Arwri is a computer – whose point graphics cathode-ray tube (CRT), typewriter keyboard and audio unit transform the tedious task of learning Arabic characters into a rather enjoyable challenge that requires only six to eight hours.

When John Wilson, for example, goes to class, he simply enters the language lab, puts on headphones and types "ARWRI" (Arabic Writing) plus his identification number on the typewriter keyboard, and immediately the lesson begins:

"Hello, John. Glad you could come."

Arwri knows exactly which lesson the student needs to work on, whether he is on the writing and sound program or the vocabulary and reading comprehension program. Arabic script dances across the CRT screen from right to left while the sounds of the letters or words are given by audio messages through the headphones. John pronounces words that appear in phosphorescent green as he traces the letters with a grease pen on the face of the CRT and responds to a question by typing his answer on the keyboard.

"Nope, that's not the one."

The student tries again.

"Slow down, John. Look carefully at..."

The lesson continues, progressing through a basic text, questions on the text, sentence generation, matching parts of sentences and, finally, the test. The entire unit should take one to one-and-a-half hours at the computer and the program's format is varied to reduce fatigue and sustain interest. At his request, or when he fails to meet certain standards in tests, the student is directed either to remedial exercises or to a review. But if he scores a 90 or above on the final test, he is automatically moved on to the next lesson.

Arwri monitors the progress of each individual student, keeping track of his or her test performance, the lesson level and the time spent on each unit, as well as the response time to specific questions.

A frame-change key also enables the student to transfer to another part of the lesson – backtracking to re-examine the basic text, for example, or calling up the dictionary to check words he has forgotten (except during tests).

In the course of an hour, the computer will interact with the student 50-60 times. This is 10 times the number of interactions a student gets with a teacher in the average classroom. Reinforcement accelerates and strengthens the process of habit formation essential to language learning.

Using computers in education is by no means new. It goes back to the 1960's, a period of heavy investment in research and development in educational technology. But the first effort to design computer-assisted instruction – CAI, as these programs came to be called – was generally thought to have been a failure, because few concrete programs resulted.

is tolerant of their answers... and gives hints about the correct answers.

The idea for the CAI program in Arabic – the first of its kind in the world – began gestating in 1969, when Victorine Abboud, a woman who had no experience with computers *or* teaching Arabic, needed a topic for her linguistics dissertation at the University of Texas at Austin.

Previously director of the mathematics department at the American College for Girls in Cairo, Mrs. Abboud had moved to Texas with her husband, Peter, who was working on his doctorate in linguisitics. Though she already had degrees in mathematics and in educational psychology, Mrs. Abboud decided to earn another, this one in linguistics, like her husband. To do so, she had to prepare a dissertation and she was not enthusiastic. Mrs. Abboud saw linguistics as overly theoretical and confining. She preferred a more practical, problem-solving approach to language.

It wasn't long before she got her chance. Because of her background in mathematics and educational psychology, the chairman of the linguistics department suggested that she enroll in a computer course to see what she could do with computer-assisted instruction. Although Mrs. Abboud rebelled against that idea at first, she struggled through the computer course, and soon recognized the possibilities of CAI with respect to teaching Arabic, her native language.

Her first step was to consult her husband, author of *Modern Standard Arabic*. What, she asked, are the greatest difficulties an American student faces in learning Arabic?

"The first stages," he told her. "The fact that they have to learn a new script with all its intricacies and rules. The students get tired of spending six weeks, six hours a day, to do calligraphy. It has a psychological impact on the students and many drop out after the first few weeks. If you could somehow speed up the process and keep them interested, that's the best contribution you could make."

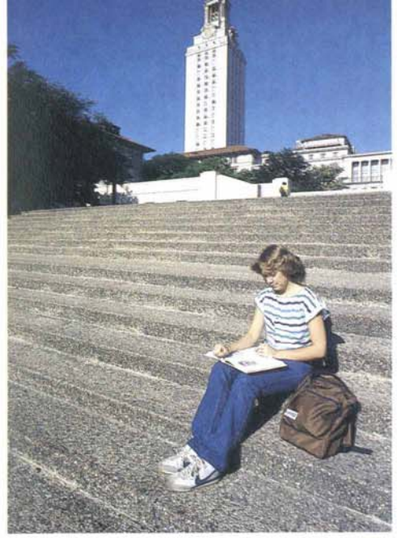
Victorine Abboud said she would try, but most of her colleagues were skeptical. "You can't do it," they said. "You're just dreaming."

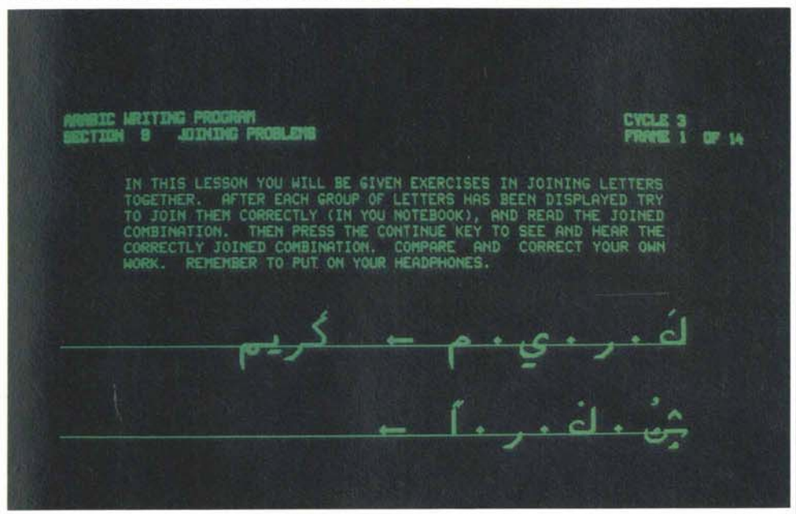
During the following months, Mrs. Abboud began to think her colleagues were right: the obstacles were formidable. First, computers normally operate from left to right, and Arabic is written from right to left. Second, no graphic pattern existed for transferring Arabic script into computer language.

Another problem was that working out these difficulties required a great deal of time at the computer – and computer time costs money. So before she could really move, Mrs. Abboud had to seek a grant; she got it – from the Ford Foundation and the National Science Foundation – and eventually succeeded in making the computer function from right to left.

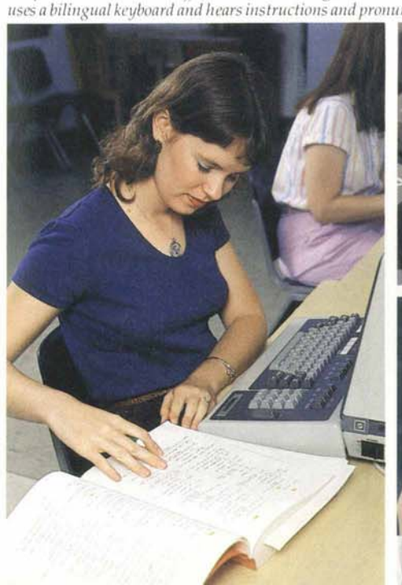
Next, she had to go through the tedious process of making the computer produce the delicate Arabic script, which means that every Arabic letter – in all its forms – had to be carefully drawn on IBM instructional system graphic coding forms. Since there are 28 letters in the Arabic alphabet, 22 of which have three or four forms, this proved impossible, since no more than 64 graphics can be programmed in one course design. Compounding this problem was the fact that some complex letters required more than one graphic.

To reduce the number of graphics, Mrs. Abboud searched for redundancy in the shapes of parts of different letters, and then drew a number of dots, dashes and inverted v's on the graphic coding forms which could be superimposed on the same shape. Through this overlay technique several more letters could be





Above: University of Texas campus at Austin, where Dr. Victorine Abboud developed Arwri for teaching Arabic by computer. Center: Arwri offers directions in English, and displays Arabic script. Below, clockwise from left: A student uses a bilingual keyboard and hears instructions and pronunciation over headphones.



created without exceeding the 64-graphic limit.

Last, she had to design course materials so that students could learn more quickly and with more interest. She did so by adding sound and animation to the routine drills and the practice exercises necessary at the initial stages – the stages her husband had warned about. "I didn't want to make the computer a page-turning device," Mrs. Abboud said. "I didn't want to just take the book and put it on the screen, but to make a creative design . . . to make the program different."

Realizing that drills and practice can be extremely effective if applied imaginatively, Mrs. Abboud designed her course to provide active participation, individualized attention, frequent interaction and rapid feedback, and what she came up with was a program that will not allow a student to sit through class, answering questions only when he is called on. John Wilson, for example, quickly found that he could not remain passive; he *had* to respond before he could move on.in the lesson. He also found that Arwri adjusted itself to his individual problems. If, for example, he repeated the same error again and again, the computer stored the word and continually quizzed him on it in subsequent exercises.

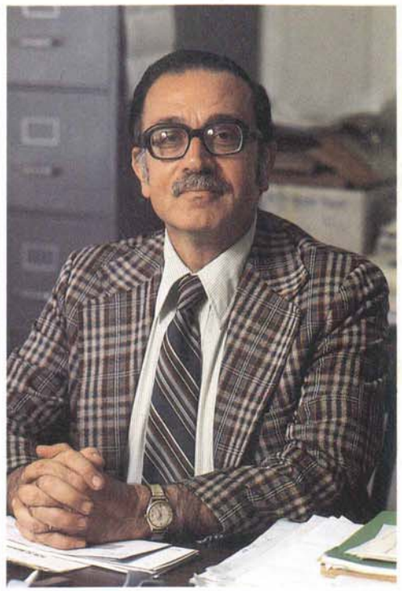
The result is a system that is thorough, yet flexible. A student is able to repeat segments that he has not learned completely, ensuring that he will never go on to a lesson before he has assimilated the previous one. On the other hand, students who have mastered the lesson are encouraged to go on to the next one, thereby removing some of the tedium associated with repeating set after set of already mastered materials, as so often happens with textbooks. These features allow students to spend their drill time more effectively.

More important, for someone like John Wilson, who cringes at the thought of making a fool of himself in front of classmates, Arwri offers a private, non-critical environment in which to speak Arabic aloud. Making mistakes in front of a classroom "audience" can intimidate students, yet it is important that a student make mistakes freely – so that they can be instantly corrected. The computer can provide the right answer or the correct pronunciation rapidly or reinforce correct responses without embarrassing anyone.

"Sometimes when I'm back in the lab, I can hear a student practicing a sound over and over again. The student can't do that in class because he would be ridiculed," Mrs. Abboud said.

The first CAI program was offered in 1971 and was an instant hit. By the end of the six-hour program, the students were able to read and write down Arabic words, even though they did not yet comprehend the words' meanings. More to the point, CAI was exceptionally effective. In a comparative test, students of first-year Arabic courses at the University of Texas, Georgetown University in Washington, D.C., and the University of Michigan in Ann Arbor – each using different teaching methods – were checked to see how well they had learned Arabic writing and sound systems. The results were dramatic: students taught by the CAI program had a much higher mean score (91.5) on the writing portion of the test than those taught by programmed instruction (79.3) or the audio-lingual method (68.2). The range of grades for the CAI group was also much narrower, indicating that most students earned scores close to the mean.

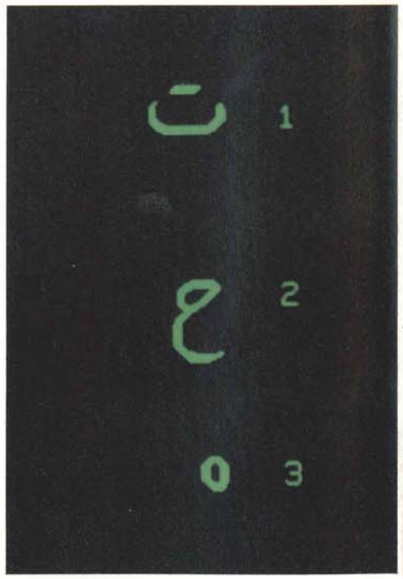
By 1980, Mrs. Abboud and her staff had developed a second CAI program which emphasizes vocabulary and comprehension of elementary modern



Dr. Peter Abboud, Linguistics specialist.

standard Arabic, covering three semesters' worth of material in two semesters. The purpose of this second program is to help students retain and understand a vocabulary of about 800 to 1,000 words and encourage them to read Arabic for the gist of a particular passage instead of word-for-word comprehension.

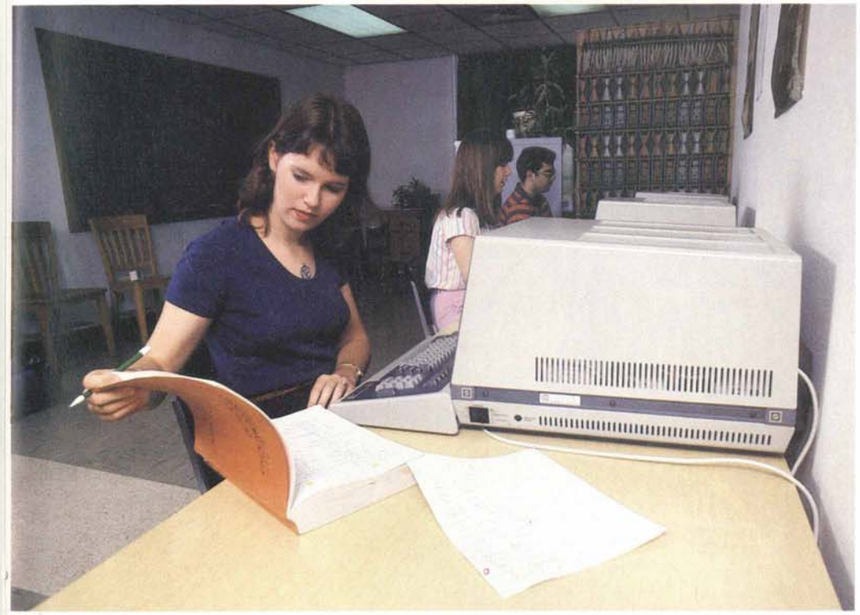
Work on a third CAI program is underway, funded by a $228,957 grant from the National Endowment for the Humanities that Mrs. Abboud received in September, 1981. This intermediate



vocabulary and comprehension program will increase students' vocabularies to about 2,500 words in the same time.

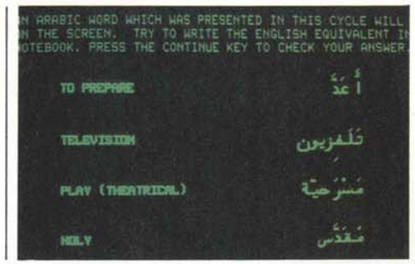
Mrs. Abboud and her staff also hope to transfer the CAI program from the university's computer system to an IBM personal computer that has a special graphics board providing a resolution of 700 horizontal by 350 vertical dots per inch. The computer must have a high resolution – a large number of dots per inch – for the Arabic script to be produced on the CRT screen with all its graceful curves and smooth lines intact. "To have beautiful Arabic handwriting you must have a screen with a very fine mesh. It's like embroidering a rose on a very rough canvas or a fine linen. The threads need to be very close together," Mrs. Abboud explained. Once the program is transferred to the personal computer, it will be ready to be sold to businesses, schools and government bodies.

The development of the CAI program comes at a felicitous time. The number of people who are learning Arabic today has



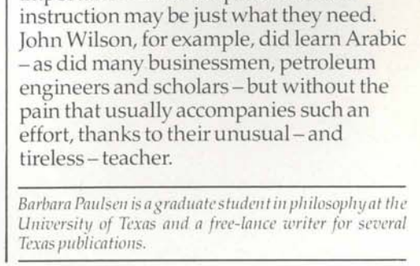
increased significantly. The Modern Language Association reports that enrollment in Arabic in two- and four-year colleges in the United States increased by a third between 1974 and 1977 and numbers continue to escalate.

American students have been struggling with Arabic since 1841 when Yale University began to offer Arabic, but not in significant numbers until Arabic was recognized as a critical language



under the National Defense Education Act of 1958; this led to the establishment of National Defense Language and Area Centers in American universities.

Nevertheless, most communication between the West and the Arab world continues to be in either French or English, – a lack for those in the diplomatic corps and other areas of government dealing with the Arab world, since officials serving in the Middle East should know at least some Arabic – the language of more than 100 million people living in an area of



geographic, economic and strategic importance – and computer-assisted instruction may be just what they need. John Wilson, for example, did learn Arabic – as did many businessmen, petroleum engineers and scholars – but without the pain that usually accompanies such an effort, thanks to their unusual – and tireless – teacher.

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IN THE ALPS OF ARABIA

WRITTEN BY TORBEN B. LARSEN AND JOHN WOOD.
PHOTOGRAPHED BY TORBEN B. LARSEN

Guarding the flanks of Arabia are two main mountain ranges, both reaching higher than 3,000 meters in places (9,800 feet). One stretches south from Taif in Saudi Arabia to Yemen, the other curves from the Musandam peninsula of Oman, through the United Arab Emirates to southern Oman.

Both ranges are imposingly steep – indicating their relative youth in geological terms (10-30 million years or so) – and are the end product of collisions between land masses floating on molten lava. These collisions could be described as the final adjustments in the continental drift which started to break up the super-continent called "Panagaea" some 200 million years ago; at that time Panagaea included all the land masses we know as continents today, and the Arabian peninsula was still attached to Africa.

Mountains they most certainly are – and very impressive ones at that. But are they really "alps"? In a strict sense – mountains with permanent snow – no. While it does snow from time to time, the snow melts immediately. But in the general sense – high rugged mountains – they certainly are "alps" – at least if you consider the flora – and fauna.

Among the flora and fauna of Arabia are desert-adapted species which botanists classify as Saharo-Sindian, or Saharo-Arabian, and which zoologists classify as eremic. Mostly of African origin, these species have adapted to a climate which is essentially hostile to flora and fauna, in that they are at the mercy of highly irregular rainfall. As a result, many of these plants are now so specialized that they cannot live outside of the true desert regions in southern Arabia: from Jiddah to Aden and from Aden to northern Oman.

Most of these species, which originated in the dry tropics of Africa, do not exist in Europe at all. But in the high mountains of Arabia – 2,000 to 2,500 meters (6,560 to 8,200 feet) – a very different group of plants and animals occurs, whose origins lie in the temperate zone of Europe and Asia, the so-called Palaearctic region. Here, in splendid isolation, they continue to exist, though often separated from their usual home by thousands of kilometers.

All told, some 3,000 plants are found in Arabia, of which perhaps a quarter have their origin in the temperate zone. Nearly half of these are weeds whose status is doubtful; they may have been introduced by man. One example is the common European Dandelion *(Taraxacum officinale)* which has been found in only one locality in Arabia: the lawn of the British embassy in Sanaa. But that still leaves a hard core of some 300 plants which came originally from temperate zones and which are identical to those of Europe and Asia; other species have developed into distinctly Arabian species, such as the Arabian Thyme *(Thymus laevigatus)*, undoubtedly a distinct species but also representative of a large group otherwise found only in Europe and Asia.

Why are these temperate plants found deep within the desert and the tropical zone?

A subalpine meadow on Jabal Subr, Above Ta'izz in the Yemen Arab Republic, where plants like Botta's Mullein (Verbascum Bottae), opposite, can be found.

There are two main possibilities. First, they might have invaded these regions during a cool period of the ice ages, some 250,000 years ago, and might then have been trapped by a rise in temperature. Or they might be the survivors of an ancient stock dating back millions of years to a time when the world's climate was very different from that of today.

In the Yemen/Asir mountains, for example, many plants show signs of being immigrants that have maintained direct contact with the main range of the species until quite recently. Examples include the Giant Fennel *(Ferula communis)* and the lovely White Iris *(Iris albicans)*, which differ in no way from the Mediterranean examples. But nearby there are also species which can hardly be recent immigrants. A typical example is the Ethiopian Rose *(Rosa abyssinica)*. A plant obviously derived from the temperate roses, the Ethiopian Rose – common in both Ethiopia and southwestern Arabia – probably developed into a distinct species before Arabia broke away from Africa some nine million years ago.

In Oman, the temperate flora show every sign of having been linked at some point with those of the Zagros mountains in Iran; at levels above 2,000 meters (6,560 feet), the flora are largely composed of temperate plants such as the large Star Thistle *(Centaurea S.P.)*. Indeed, the first botanist to climb in the Musandam mountains region was overheard muttering, in effect, "I don't believe this isn't Iran."

There is, in fact, evidence that there *was* a land connection between the Zagros and Oman near Bandar Abbas as recently as 90,000 years ago, when climatic conditions would have permitted the interchange of such plants. And there may have been older affinities as well. Oman, for example, has a quite distinct Oleander

They're mountains, yes, but are they alps?

An Arabian bower, clockwise from top, left: Forsskaals Pink (Dianthus Uniflorus) is a near relative of the Alpine Pinks of Europe, while Willow Herb (Epilobium Hirsutum) is known in England as 'Codlins and Cream'. The White Iris (Iris Albicans) is often planted on graves, while the Plantain (Plantago Lanceolata) is a common weed that probably entered Arabia with food grains. Center: The Pomegranate (Punica Granatum) is probably of Arabian origin. Opposite page: The Star Thistle, (Centaurea S.P.)

Below: Arabian Thyme (Thymus Laevigatus). Right: Oman Oleander (Nerium Mascatense) and Arabian Primrose (Primula Vertisolata), the Hairy Vetch (Vicia Vilosa) and Water Crowfoot (Ranunculus Rionii) which grace the Arabian meadowlands. Center: The Ethiopian Rose (Rosa Abyssinica) commonly found in the high mountains of Yemen.

(Nerium mascatense), allied to, but not identical with, the Mediterranean Oleander.

On the other hand, there are enigmas as well. The Carob *(Ceratonia siliqua)* is recognized by botanists as an extremely ancient plant from the Mediterranean region; it is mentioned in the Bible on several occasions. Its long flat pods are eaten in times of famine, and the weight of the seeds is the origin of the term "carat," now used as a weight measure of precious stones. It was long thought to be the only species in the genus *Ceratonia,* but in 1975 another species was discovered in Oman by the first Oman Flora and Fauna Survey. This connection between Oman and the Mediterranean must be very old indeed, dating back into the mists of pre-history. It may even be that the Mediterranean Carob descended from an ancient Arab stock. Another example is the Pomegranate *(Punica granatum),* widely cultivated in the Middle East and Arabia. There are only two species, one of which is endemic to Socotra Island. Was the Pomegranate also Arabian in origin?

In southwestern Arabia, the drier mountains of the Asir and Yemen have the highest proportion of temperate plants. On the barren summit of the Jabal al-Nabi Shu'aib near Sanaa, at 3,600 meters (11,800 feet), the highest in all Arabia, some 37 plants have been recorded including the Alpine Cress *(Arabis alpina)*; the most genuinely alpine of Arabian plants, it is also found in the tundras of the USSR and the high mountains of Europe.

Also present are the Arabian Thyme *(Thymus laevigatus),* whose aromatic leaves make an excellent herb for cooking, and Forsskaal's Pink *(Dianthus uniflorus),* endemic to southwestern Arabia and closely related to the Alpine pinks of Europe. First found by Swedish botanist Petrus Forsskaal, a member of the Danish-sponsored scientific expedition to Yemen in 1761-62, Forsskaal's Pink does not have the delightful scent of many garden varieties. Another temperate species on Jabal al-Nabi Shu'aib is Botta's Chicory *(Cichoricum bottae)*, which can be used as a coffee substitute. It was first discovered near Taif in Saudi Arabia by the Paul-Émile Botta, the rich 19th-century amateur scientist who unearthed the palace of the Assyrian king, Sargon II.

In the lush and well-watered southern provinces of Yemen, the situation changes as temperate plants become less dominant than they are farther north. Looking at the green summit of Jabal Subr above Taiz, this seems paradoxical, but there is a good reason: ample rainfall allows the survival of plants of African origin which cannot cope with the arid mountains north of the Jabal Sumara.

Temperate species are represented, however. One example is Botta's mullein *(Verbascum bottae)*, found by Botta almost certainly on the Jabal Subr. There are more than 100 species of mullein in Europe, Turkey and the Middle East, a few in southwestern Arabia, one in Oman and one – only – in the mountains of East Africa.

Among the most spectacular of the temperate plants in Arabia is the Arabian Primrose *(Primula vertisolata),* another of the plants found only in southwestern Arabia and Ethiopia. It is a moisture-loving plant, often clinging to cliff-sides from which fresh water oozes forth. Another is the Hairy Vetch *(Vicia vilosa),* a Mediterranean plant also present in the Asir and Yemen.

Writing about Jabal Subr, Carsten Niebuhr, of the Danish expedition to Arabia, said that the "exuberant fertility of Mount Subr affords, according to the accounts of the Arabs, plants of every species that is to be found anywhere else in the world."

In the gardens and fields of the high Arabian mountains, another group of temperate plants predominates. Those are the weeds which have developed in close association with the agricultural activities of man, and which are now almost exclusively found in artificial habitats. Whether they were present in ancient times is a moot point; man has spread weeds together with his crops since time immemorial. What is certain is that they are now firmly entrenched, often reaching pest proportions. One, for example, is the Water Crowfoot *(Ranunculus rionii),* a relative of the buttercup; it can clog watering streams and ponds with its beautiful white flowers. Another is the Plantain *(Plantago),* species of which are among the most cosmopolitan of all weeds, some surviving at lower levels in the tropics than most other temperate plants.

The distribution patterns of temperate plants are closely mirrored in the fauna. About 10 percent of the butterflies in the high Arabian mountains, for example, are of undoubted temperate origin, and among non-migratory birds we find the European Jay *(Pica pica asirensis)* in splendid isolation in the juniper forests of the high Asir; it has developed into a separate subspecies differing from the closest populations of the European sub-species in Turkey, more than 1,500 kilometers farther north (932 miles).

Technically speaking then, the high Arabian mountains may not really be "alps." But their flora and fauna are heavily influenced by those temperate regions in Europe and Asia, and when the cool sub-alpine zones of the summits are viewed from the shimmering heat of Asir's Tihama or Oman's Batina coast can't a slight exaggeration be justified?

Torben B. Larsen and John Wood are specialists in the flora and fauna on the Arabian Peninsula.

FROM NUBIA-THE LAND OF KUSH-A LANGUAGE LOST IN HISTORY

THE MEROITIC MYSTERY

WRITTEN AND PHOTOGRAPHED BY KRZYSZTOF GRZYMSKI

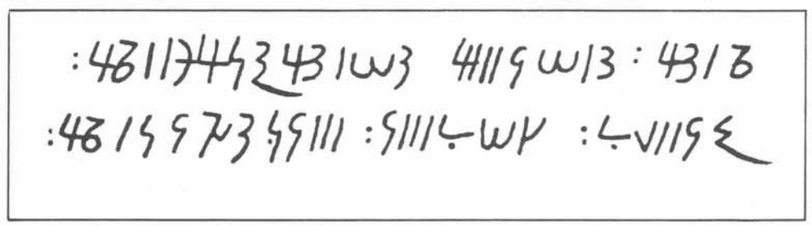
The Sudan, with a written history beginning as early as the third millennium B.C., is archeologically one of the richest countries in the world. Its monuments include Islamic mosques, Christian monasteries, Egyptian fortresses and temples – and the towns and pyramids of a culture called Kushitic, oldest of the indigenous Sudanese empires.

The Kushitic culture, also called Nubian, came to prominence near Kerma, south of the Third Cataract, and reached its peak in the 16th century B.C. Then the Egyptians occupied Kush as far south as the Fourth Cataract, and governed it through an official called the "Son of Kush"; one of the pharaoh's ranking officials, he had to supply gold from the Nubian gold mines.

By 1000 B.C., Kush had won its independence, and by 750 B.C., under King Piye (or Piankhi), not only ruled Egypt, but became, in Egyptian history, the 25th – or "Kushitic" – Dynasty.

Spanning more than 1000 years, the Kushitic civilization had two important centers: Napata, an important religious center, and Meroe – which gave its name to the whole country. Modern scholars, indeed, tend to speak about the "Meroitic Kingdom" and "Meroitic culture," rather than using the Egyptian name "Kush," since "Kush" or "Kushitic" may also be applied to earlier Sudanese civilizations.

Thanks to the exhibition organized in 1979 in the Brooklyn Museum, and later presented in Seattle, New Orleans and The Hague (See *Aramco World*, July-August 1979), the hitherto unknown art of the Meroites is now better known. But the Meroites' contributions to civilization didn't stop there. They also developed a system of writing.



Apart from Egyptian hieroglyphics, the Meroitic writing system was the oldest in Africa. It was also in many ways superior to the Egyptian system. The people of Meroe reduced the multitude of hieroglyphic signs to 23 basic signs – an alphabet. Again, unlike the Egyptian system, this alphabet also included vowel sounds, a great improvement over the hieroglyphic system, as well as including a sign marking the division of words, an uncommon feature in ancient writing.

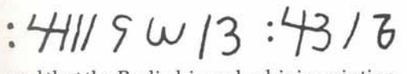
There are two kinds of Meroitic script: hieroglyphs, apparently adapted from Egypt's system, and the so-called "cursive" or demotic writing, which seems to be a distinctive Meroitic invention, though it may have been influenced by the Egyptian demotic.

The first person to publish Meroitic inscriptions was the French architect Gau, who visited Nubia in 1819, but it was not until the middle of the 19th century that serious interest in this mysterious script was aroused; at that time the German scholar Lepsius published a large number of Meroitic inscriptions in a major work called *Denkmäler aus Ägypten und Äthiopen.*

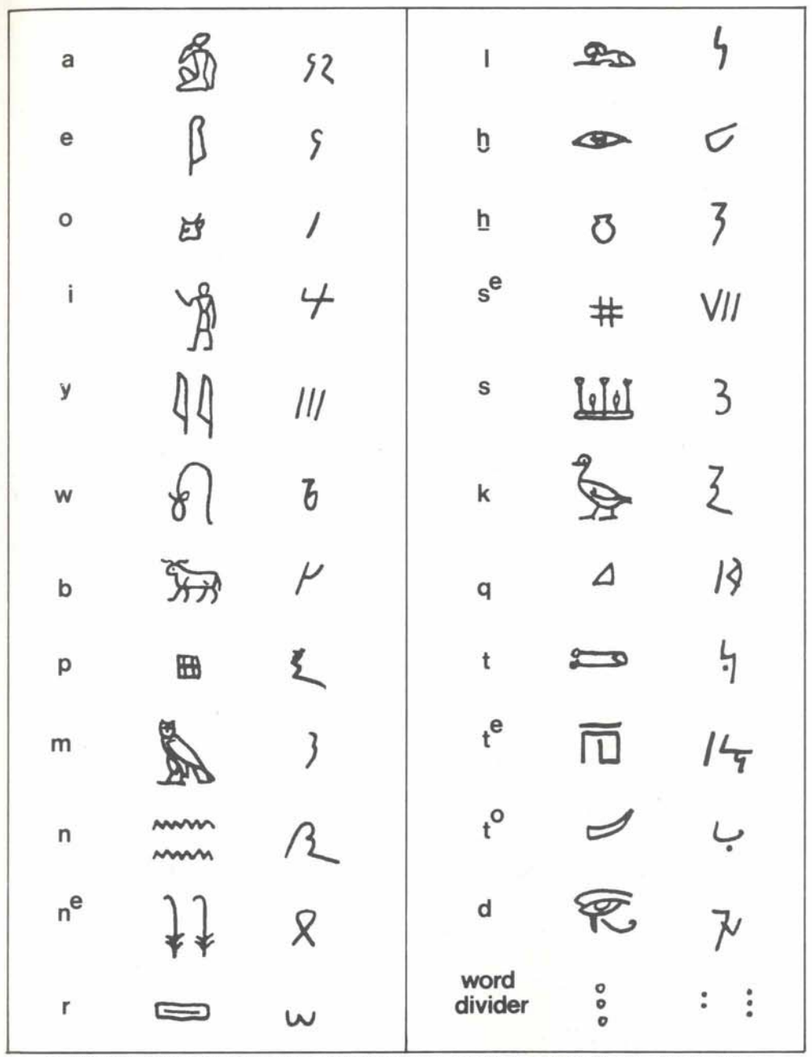
Although Lepsius predicted that decipherment would be easy, he was totally wrong. In 1982 – 139 years after his prediction – scholars were still baffled by the Meroitic mystery. Even distinguished scholars have gone astray seeking to decipher Meroitic. Two eminent scholars, one in 1887 and another in 1910, published articles in which they claimed to have deciphered Meroitic language, only to be proven wrong; and one Egyptologist, in an otherwise enlightening article, read the inscriptions in the wrong direction, apparently because Meroitic hieroglyphs, unlike their Egyptian counterparts, must be read in the direction in which the figures face.

In 1909, Francis Llewellyn Griffith, an Egyptologist from Oxford University, recorded one breakthrough while with the University of Pennsylvania Expedition to Nubia. Led by two British archeologists – Leonard Woolley, later immortalized by his excavations in Ur, and David Randall-MacIver, who later gained fame for his work in Italy and Zimbabwe – this expedition found a number of Meroitic funerary-offering tables and stelae. By careful analysis, Griffith was able to identify 23 signs of the Meroitic cursive script.

His next step was to compare them with Meroitic hieroglyphic characters – known mostly from the inscriptions written on temple walls and columns – and with an unpublished funerary inscription in hieroglyphics that Lepsius had brought to Berlin. This was important because funerary texts usually repeated certain formulae at the beginning and end of each inscription. When Griffith compared what he had with Lepsius's find, he noticed that his cursive texts began invariably with the following cursive signs:



and that the Berlin hieroglyphic inscription also began with two words:



The Meroitic alphabet, in modern transcription (1st column) of the hieroglyphic (2nd) and "cursive" (3rd).

In comparing the two clusters, Griffith immediately realized that both the *number* of hieroglyphic signs and their *order* exactly paralleled the cursive text; by analyzing other groups of words, he was able to develop a list of cursive characters and their hieroglyphic equivalents – in sum, a short dictionary. This equivalency of individual signs as well as whole words also proved that he dealt with two different forms of script – but only one language.

Griffith's next step was to try and identify the phonetic value of each sign. He was helped in this task by another inscription discovered by Lepsius at Wad ben Naga, a site near Meroe. This inscription included the names of a king and a queen, written in both Egyptian and in Meroitic hieroglyphs, and Griffith, moving step by step, was able to compile a list of signs and their phonetic values. Noting a number of borrowings from Egyptian, he successfully identified several priestly and administrative titles, such as "envoy" or "ambassador," from the Meroitic "apote" or Egyptian "wpwtj."

Unfortunately, the number of loan words recognizable in Meroitic was quite small, as was the number of Meroitic words surviving in Nubian, a language still spoken in the middle Nile Valley. So, after Griffith died in 1934, this field of study was largely neglected for over 20 years.

In the 50's, however, the international campaign to safeguard the monuments of Nubia reawakened interest in the Meroitic problem. The thrill of working on a still undeciphered language, in fact, fostered a sudden growth of Meroistics; in 1980, during a Meroitic conference in Berlin, some 80 scholars presented papers dealing with various aspects of Meroitic art, archeology and language. Today – in addition to traditional centers of Meroitic research like France, East Germany, Canada and The Sudan – representatives from the U.S.A., Saudi Arabia, Egypt and European countries are making substantial efforts in the field of Meroitic research.

What is needed, of course, is another Rosetta Stone, the bilingual tablet in three scripts found in Egypt; it enabled scholars to match a known language – Greek – with the undecipherable hieroglyphics, and the demotic script of Egypt. Professor Peter Shinnie, who for many years co-directed a joint Calgary-Khartoum expedition to Meroe, hopes that such an inscription will be found among the ruins of the ancient capital city. Another group of researchers has programmed an IBM computer in Paris to analyze all texts, as far as this can be done with an undeciphered language, and a professor in Berlin recently published a Meroitic grammar.

Until now, however, the solution to the Meroitic Mystery has eluded all the experts. Although the Meroitic scripts can be read, the language they are written in is still unknown, and until a related language is discovered, or an extensive bilingual inscription, progress will be slow. The challenge of the language of Meroe is still open.

Krzysztof Grzymski, an archeologist, was born in Poland and has degrees from universities in Warsaw and Calgary.

MIRRORS OF THE PAST

WRITTEN AND PHOTOGRAPHED BY ANN STEWART ANDERSON

"...if the present is known from the past...
in Egypt the past is known from the present."

Inside, you can see how they did it in the ancient past: how they tilled the fields and harvested wheat; how they slaughtered animals, baked bread, fished the Delta and made bricks. And outside, in the sun, like mirrors of the past, you can see how they do it now...

Walking barefoot in the warm black earth, a farmer coaxes his oxen to pull at the plow as it etches out even furrows under the bright blue sky, urging them forward with a swift stroke of a whip made from leather strips wrapped around a stick. At the far edge of the field, his wife gossips and chatters with friends as they glide across the stony path, jars of fresh water balanced serenely on their heads.

Above, plowing at Fayyum, 1975, Below, the Tomb of Nefer, Saqqara, CA. 2500 B.C.

The scene is not particularly unusual. Even in an age of advanced technology, much of the agricultural production in the world rests on methods ranging from traditional to primitive. But this is happening in Egypt, where, no more than 600 meters away (1,970 feet), in a rectangular room carved into a sandstone ridge, an artist painted exactly the same scene on the walls of his patron Nefer's tomb, about 2500 B.C. His picture records a farming process which has been repeated in exactly the same field near Saqqara for nearly 45 centuries.

Ancient Egyptians believed that the next life would be a mirror of all that is best in the present life. They cherished the bounty and

beauty of their Nile Valley and could not envision anything that would be much different. So, when they designed their tombs, they insisted that the artists include scenes of familiar everyday life, and the result is an extraordinarily complete account of life in Egypt thousands of years ago – and an uncannily accurate depiction of some activities in Egypt at the end of this century as well.

In one tomb, for example, Sennejem and his wife, who lived under the 19th Dynasty (1320-1200 B.C.), are shown plowing and planting the field and subsequently harvesting wheat and flax in a way some Egyptian farmers closely follow to this day. In the Delta, for instance, the farmer walks behind his wife as she scatters seed from a hand-woven basket, just as Sennejem – and perhaps even *his* ancestors – did, an echo, perhaps, of the old belief in the importance of the female's participation in ensuring the fertility of the fields.

Near Nahia, a linen-producing village close to Giza, an inquiry about the dates of the flax harvest was made by showing two farmers a tourist's postcard printed with a scene from the tomb of Sennejem. "Come back in one month," they advised. By then the harvesters were busily grasping the waist-high stalks in their arms, gathering them to their chests, and twisting them from the earth – exactly like Sennejem. Elsewhere in Nahia, the flax stalks were being soaked, pounded, combed and spun in a process mirroring scenes in other tombs.

Because the Nile has supplied an unending source of water and for centuries renewed the soil with its annual inundations, farming has always been a primary occupation for the Egyptians. According to Biblical accounts, Joseph's brothers came to Egypt to get grain, and during Roman times Egypt was regarded as the breadbasket for the empire's army. So it is not surprising that the tombs of both the Old Kingdom (c.2686-2160 B.C.) and the New Kingdom (1570-1085 B.C.) are filled with scenes of tilling, harvesting and gathering.

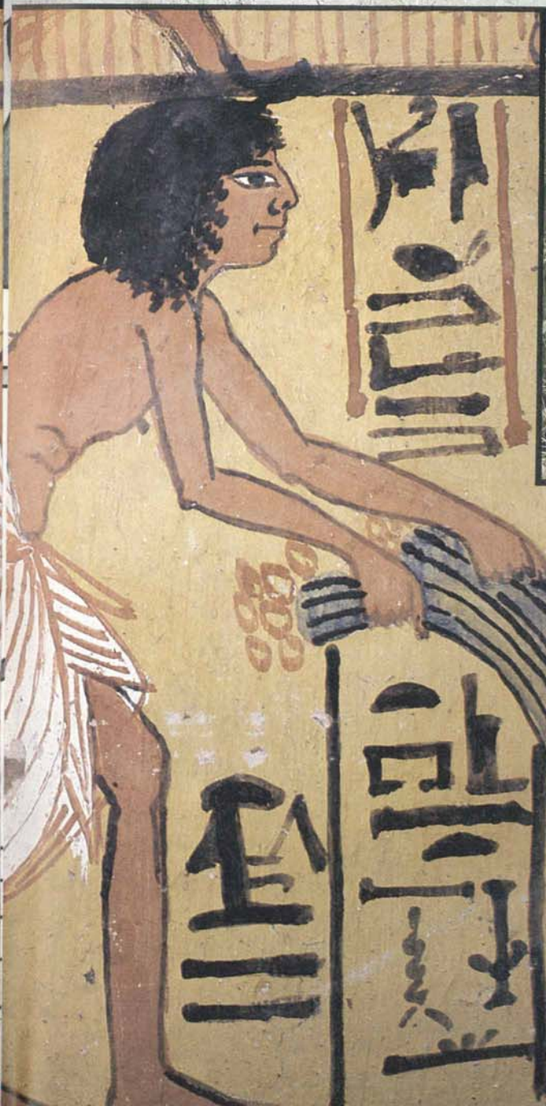
Menna was a land steward of the king during the middle of the 18th Dynasty (1570-1320 B.C.), and the walls of his tomb are adorned with detailed depictions of the wheat harvest. The fields are measured by surveyors and a young boy carries a curious device made from a number of ears of wheat woven together. A balding man with a pot belly leans on his staff while two obviously younger and more agile fellows stack the sheaves with wooden forks.

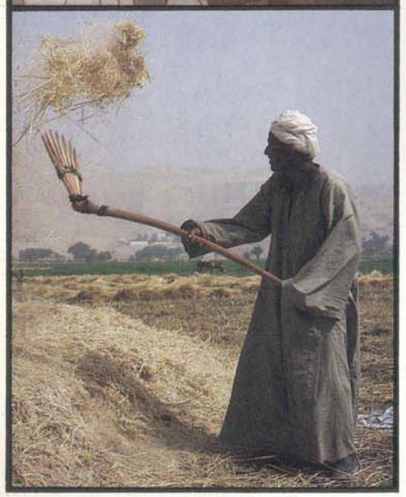
Last April, outside this tomb in the fields of an Upper Egyptian village, a similar scene was enacted during the harvesting of the wheat. When the first wheat is formed, and while it is still green, Egyptians weave several heads together to make an *'arusa,* or "bride of the wheat," from the first fruits of the crop. It is a symbol of bounty and is hung over the doorways of every village home. Later, when the ripe grain is ready, the men go into the fields with short handled sickles, called *mingal,* which are identical to those used in the New Kingdom.

One difference is that Menna's workers cut the wheat just below the ear, whereas now the stalk is cut at its base. Otherwise it is the same scene, complete with children working beside older men.

There are changes, of course. Where the tombs show the ancient farmers threshing wheat by driving animals over the threshing floor, today's farmers use a post-pharaonic device called the *nurag.* But there are more similarities than differences. The fellahin, for instance, still rely on the spring winds to assist in winnowing; like their ancient forebears, they toss the threshed wheat into the air, allowing the lightweight chaff to separate from the grain and be

Above right: Cutting wheat with a hand scythe at Qurna, echoing a scene from the walls of the nearby New Kingdom tomb of Menna. Below: Winnowing method remains unchanged after 3,000 years. Center: Harvesters pull flax sheaves from the soil and a modern flax farmer performs the same operation.





carried across the fields on the breeze. Subsequently, the wheat is scooped into a bucketlike container, called the *kalah*, a measuring device duplicating the one used by Menna in the tomb painting.

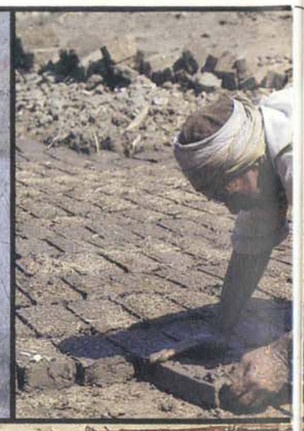
Does this remarkable similarity mean that Egypt is backward? That Egypt is totally unaware of tractors and fertilizers and threshing machines? No, say experts, it does not. Egyptians are fully aware of the need to modernize many of their methods of agriculture and manufacturing – and they are actively studying available technology. However, they view new methods judiciously, with a careful eye for what will, and what will not, work best in their particular situation; for although many modern techniques are being adopted, where appropriate, the Egyptian farmer of today often sticks to the methods of antiquity deliberately, because in some cases they are still the most appropriate for Egypt's climate and topography.

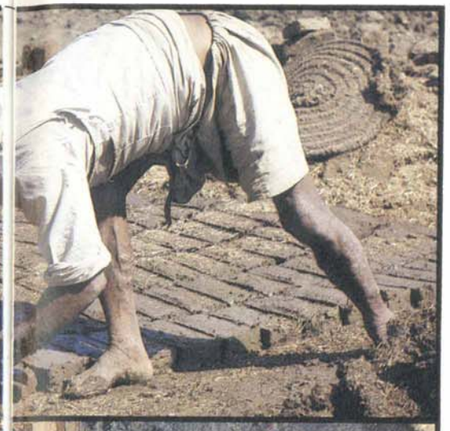
Poverty, of course, is also a factor; it often precludes big investments in modern equipment. But it is also true that the ancient wooden plow cuts a shallow furrow whereas sophisticated equipment from technologically advanced nations cuts deep – and the deeper cut can rapidly dry out the topsoil.

There are similarities too in ancient and modern foods. In the ancient Egyptian Book of the Dead, the supplicant asks: "May there be placed for me offerings of food in my presence like the followers of Horus," and from the early days of the Old Kingdom, tomb artists depicted the slaughter of cattle, the dressing of fish and fowl, baking bread, preparing vegetables, cooking and roasting.

Men haul nets from the coast as they did in the relief carved on the walls of Mereruka's tomb.

Right: Brickmakers at work in the New Kingdom tomb of Rekhmire, Qurna, and in modern Fayyum. Below: Gold is weighed on scales in the tomb of Nebamun and Ipuky, even as it is in Cairo's gold bazaar today.





Offering tables, painted in the tombs, piled high with cucumbers, melon, squash, turnips and lentils look astonishingly like the laden carts in Cairo's markets. There is also celery, used as a vegetable, but in antiquity, also woven into funerary necklaces whose pungent odor would revive the deceased in the afterlife. Lettuce was prized both as a salad and as an aphrodisiac. In Cairo's Agricultural Museum raisins from the tomb of Tutankhamen (1361-1352 B.C.) are exhibited near some 3,000-year-old broad beans which resemble those used to make *ful,* the national dish of modern Egypt.

In ancient Egypt, of course, some food was obtained by hunting; on one wall of Menna's tomb, for example, the deceased is shown standing in a small skiff, hurling a boomerang across the top of a thick marsh, felling wild ducks. Today, the procurement of fowl is more prosaic. Most ducks and geese are raised domestically, next to village houses, or are shipped in quantity to the city from large poultry farms. But the manner of preparing and cooking the fowl remains remarkably unchanged. After the bird has been slaughtered, its feathers are deftly plucked, and it is cooked on a spit. Often the heat from the roasting embers is intensified by the use of a turkey feather fan. Like their ancestors, street vendors in Cairo fan their roasting corn, and chickens served in a popular restaurant are broiled over coals fanned by the chef.

Not all dishes can be prepared this way. Stews and soups must be simmered in enormous pots, a method as common now as in antiquity. In some parts of Egypt small clay structures support the cauldrons – exactly duplicating the practice shown in the tombs.

The similarities are endless. Both the Nile and its hundreds of irrigation canals provide a source for fresh water fish, and in the Delta area, fishermen use elegant triangular nets attached to long poles which are similar to those depicted in the Sixth Dynasty tomb of Princess Idut at Saqqara. Along the Mediterranean coast, teams of men haul nets which have been placed in the harbor from small boats, strapping the nets to their waists – as do the men carved in Mereruka's tomb.

When Herodotus visited Egypt in the Fifth Century B.C. and proclaimed that the country is a "Gift of the Nile," he was referring not only to the highly developed system of irrigation and the important source of fish. The river has also been the primary artery for transportation and communication. Even today many Egyptians travel it by boat, hauling cotton from Middle Egypt, stones from ancient quarries in Aswan and Tura, and livestock, food and human passengers from countless towns and villages along its banks. The Nile boats are broad beamed, with great triangular sails set to maximize the usefulness of the prevailing winds.

Although the ancient Egyptians apparently did not venture too far from the mouth of their great river, they did ply the Nile from the first cataract in Aswan to the Mediterranean. The ability to sail with the current going north, and with the winds going south, for the approximately 500 miles between the sea and Aswan was an important factor in the formation of Egypt's early sense of national identity. Using cedars imported from the mountains of Lebanon, they built ships in many ways

Above: Ship builders at work on the walls of Ti's tomb at Saqqara, Old Kingdom and a modern boatyard at Alexandria.

identical to those made today in Alexandria, where workers crawl under wooden hulls, hammering and caulking with hemp rope, just as in Ti's Old Kingdom tomb in Saqqara.

In the tomb of Rekhmire, governor of Thebes and vizier during the reigns of

Tuthmose III (1504-1450 B.C.) and Amenophis II (1450-1425 B.C.), are scenes from the temple workshops: goldsmiths, leather workers and rope-makers, carpenters and cabinet makers, brick makers and masons. Like the farmers and cooks, ancient artisans established systems for creating wares, some of which continue to be used by modern Egyptians. Today, in the area called Fayyum, for example, a brick maker gathers sticky mud in his hands, pats it into a rectangular wooden mold, then puts it in the sun to dry – exactly as a bricklayer did in Rekhmire's tomb. These unfired bricks were also used, only a decade or so ago, by architect Hassan Fathy in the model village he built in New Qurna, to show that traditional construction methods were still useful. And in spite of official policy, ordinary fellahin still use sun-dried mud bricks for mending and enlarging their own homes.

Carrying water for drinking, washing and construction from its source at the river or a canal has been a problem for Egyptians since prehistoric times – and the solutions then and now are similar. The tombs show women balancing jars on their heads, as is done today, and men both then and now carry pots on their shoulders or suspend them from a yoke.

In the tanneries of Cairo, workers scrape the hair from the skins, soak the hides in vats and stretch them to dry, using essentially the same tools and equipment shown in Rekhmire's tomb. And, at the potteries near the 'Amr Ibn al-'As Mosque, workers prepare the clay, throw pots on kick wheels and fire them in fodder-fueled clay brick kilns, using ancient methods to create jars which have been common household items from the earliest days to the present.

Rekhmire's men could easily find employment as metal workers in Cairo's Khan el-Khalili, for they would be completely familiar with today's techniques. Like the ancients, modern men work in pairs, pouring the molten metal into molds. And in one workshop an artisan carefully engraves a design on a copper vase similar in shape to one on the wall of Rekhmire's tomb.

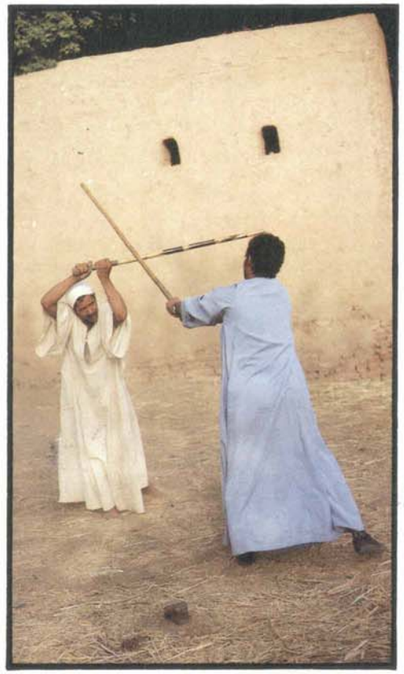
A few streets away, craftsmen in the gold market shape delicate bracelets and earrings, tapping the precious metal with tiny hammers, just as their pharaonic ancestors did. They even compute the price by weighing it in a balance scale, similar to that shown on the wall of Mereruka's tomb.

On the sidewalks near the American University in Cairo, men saw, hammer, shape and varnish furniture in a way reminiscent of the exquisite paintings on the wall of the shared tomb of Nebamun and Ipouky; tomb painters of the 18th Dynasty (1570-1320 B.C.) captured men gluing parts of the tomb furniture, sawing a board held in the vertical position and applying paints, by using tools and methods not unfamiliar today.

What is the explanation for the many 5,000-year-old traditions which are still alive in contemporary Egyptian culture?

Some men, as noted, hesitate to change the millennia-old systems by which Egypt came to control and manage the annual inundations of the Nile, redirecting it with large canals and spreading its water to irrigate distant fields by an ingenious system of minute streams.

But does this also explain the seeming conservatism of other craftsmen? The baker? The fisherman? The mason?



Above, boys battle with staffs in modern Qurna, as their ancestors jousted in a relief from the nearby Tomb of Khereuf, New Kingdom (right).

In a sense, it does, for they, like the fellahin, have been shaped by the remarkably regular cycles of nature and the unchanging rituals of a placid lifestyle. And though they will, no doubt, eagerly accept the advantages of modernization, they will also be reluctant to change drastically or rapidly. As in all Third World countries, farmers and craftsmen are immensely conservative. Even in sophisticated Cairo, for example, residents still delight in their village roots. Urban dwellers continue to herd their sheep among cars caught in monstrous traffic jams, – just as they did in ultra-modern Beirut for years after modernization began.

Such traditionalism affects the national life style and permits the continuation of a way of life developed during antiquity. But choice is involved too, at least to some extent. As in the United States recently, traditional systems – such as the use of the wood stove – are suddenly being re-evaluated. Thus some methods conceived and developed in pharaonic Egypt are thought to be *best* for modern Egypt. This is exemplified by the wooden scaffolding which is not nailed or bolted, but is lashed together by strong hemp ropes. It may seem crude, but in a land where hardwood is scarce the planks may be used again and again.

Sometimes Egyptians are unaware that they are emulating their ancestors. One doubts that the woman who follows the line of relatives and friends bearing the deceased man's body to the grave in a village realizes that some of her rituals are exact duplicates of mourning practices in ancient funeral processions. And surely the old man who washes his white garment in a small tub is unaware that he looks just like the bald fellow doing his laundry in the nearby tomb of Ipuy (New Kingdom).

On the other hand, many Egyptians are not only aware of their traditions, but are *proud* of them. One man, watching construction workers carry earth from the excavation site in woven baskets placed on their shoulders, remarked, "Just like Ramses the Great."

Another man added still another explanation. Egypt has millions upon millions of surplus laborers, so to introduce "labor saving machinery" would be pointless, since in many cases manual labor is cheaper – and in many cases faster.

In Upper Egyptian villages today, two strong young men often face each other with their long walking staffs and engage in *tahtib* – a stick fight – consciously re-enacting activities shown on the walls of Medinet Habu, the funerary temple of Ramses III (1198-1166 B.C.) and the 18th Dynasty tomb of Khereuf. In today's *tahtib* the combatants kneel, crouch, swing their poles and try to dodge the touch of the opponents in postures so like those drawn in antiquity that it would be possible to choreograph the entire game simply by studying the ancient reliefs – illustrating, I think, that if the present is known from the past, then surely in Egypt the past is equally known from the present.

Ann Stewart Anderson once taught the history of Egyptian art at the Chicago Art Institute and has written for the Encyclopaedia Britannica *and the* Louisville Courier Journal. *She photographed this comparison of ancient and modern life in Egypt under a grant from Wellesley College and with the help of the Egyptian government.*