

SAUDI ARAMCO
World



Word 2012

"I put my trust in God" ("Tawakkaltu 'ala 'illah")
—Arabic calligraphy in nasta'liq script on an ivy leaf

Gregorian and Hijri Calendars

Geometry of the Spirit

WRITTEN BY DAVID JAMES

Calligraphy is without doubt the most original contribution of Islam to the visual arts. For Muslim calligraphers, the act of writing—particularly the act of writing the Qur’an—is primarily a religious experience. Most western non-Muslims, on the other hand, appreciate the line, form, flow and shape of the Arabic words. Many recognize that what they see is more than a display of skill: Calligraphy is a geometry of the spirit.

The sacred nature of the Qur’an as the revealed word of God gave initial impetus to the great creative outburst of calligraphy that began at the start of the Islamic era in the seventh century CE and has continued to the present.

Calligraphy is found in all sizes, from colossal to minute, and in all media, from paper to ceramics, metal, textiles and architecture. It commenced with the writing down of the Qur’an in a script derived from that of the Nabataeans. The early scripts were bold, simple and sometimes rough. The scripts used from the seventh to the 11th century had origins in the Hijaz, the region of Makkah and Madinah in western Saudi Arabia. Historians group these into three main script families: *hijazi*, Kufic, and Persian Kufic.

Hijazi is regarded as the prototypical Qur’anic script. It is a large, thin variety with ungainly vertical strokes. Kufic developed in the eighth century, and of all the early scripts, it is the most majestic—a reflection of the stability and confidence of the early classical period of Islam. It was much used through the 14th century from Islamic Spain all the way to Iran, where around the 10th century calligraphers developed Persian Kufic. The system of marking Arabic’s normally implied short vowels and employing distinguishing dots, or points, is essentially that used today in modern standard Arabic.

Western scholars and students have often used the term “cursive” to distinguish later, less angular scripts. However, medieval Muslim writers on calligraphy and the development of writing classified scripts other than Kufic into categories based not only on shape, but also on function: *murattab*, meaning curvilinear, primarily comprised scripts for courtly and secular uses, including *thulth*, *tawqi’* and *riqa’*; *yabis*, or rectilinear scripts, comprised styles for Qur’anic and other sacred calligraphy, including *muhaqqaq*, *naskh* and *rayhan*. These are often regarded as the six major “hands” of classical Arabic calligraphy.

Cover: Before gilding this ivy leaf with a mixture of gold ink and gum arabic, the anonymous calligrapher painstakingly removed its dermal tissue until only the leaf’s skeleton remained. Dating to the 19th century, this piece is from Ottoman Turkey and measures 12.8 x 12.5 centimeters (5"x4 7/8"). Photo courtesy of the Nasser D. Khalili Collection of Islamic Art.

As well, there were regional varieties. From Kufic, Islamic Spain and North Africa developed *andalusi* and *maghribi*, respectively. Iran and Ottoman Turkey both produced varieties of scripts, and these gained acceptance far beyond their places of origin. Perhaps the most important was *nasta’liq*, which was developed in 15th-century Iran and reached a zenith of perfection in the 16th century. Unlike all earlier hands, *nasta’liq* was devised to write Persian, not Arabic.

In the 19th century, during the Qajar Dynasty, Iranian calligraphers developed from *nasta’liq* the highly ornamental *shikastah*, in which the script became incredibly complex, convoluted and largely illegible to the inexperienced eye.

The Ottomans devised at least one local style that became widely used: the extremely complex *diwani*, which was well suited to expressing a complex language like Ottoman Turkish, itself a hybrid of Turkish, Arabic and Persian. It was used much in official chancery documents and *firman*s, or decrees, which often began with the most imposingly ornate calligraphic invention of the Ottoman chancery, the imperial *tugra*, or monogram.

We do not know when the idea of a freestanding composition based on a word, phrase or letter first arose. The first separate such calligraphic composition was perhaps the phrase *bismillah al-rahman al-rahim* (“In the Name of God, the Compassionate, the Merciful”), which begins every chapter of the Qur’an but one. Due to the imbalance of the letters, this turns out to be an awkward phrase to write well, and to this day can be a test of the calligrapher’s skill. The separate calligraphic composition reached its ultimate development in the 18th and 19th centuries, at the hands of Iranian and especially Ottoman calligraphers.

Such calligraphic composition became particularly important when calligraphy departed from paper to appear on functional objects. Some of the finest examples of this occurred on 10th-century ceramics from the Samarkand area. Simple inscriptions in classical Kufic, always in Arabic, were applied to the rims of plates and dishes, usually pure white in color. The results, to western eyes at least, represent some of the most esthetically pleasing and exciting examples of applied calligraphy.

But perhaps the most important application of calligraphy to objects is in architecture. Throughout the Islamic world,

few are the buildings that lack calligraphy as ornament. Usually these inscriptions were first written on paper and then transferred to ceramic tiles for firing and glazing, or they were copied onto stone and carved by masons. In Turkey and Persia they were often signed by the master, but in most other places we rarely know who produced them.

We do know that such masters of calligraphy were often born to it. Once a young man’s potential was recognized, he would be apprenticed to perfect the basic hands, learn ink-making and perhaps study paper-making and illuminating. When he was considered good enough to work on his own, he would receive an *ijazah*, or license. Although in Europe the scribal profession disappeared soon after the arrival of the printing press at the end of the 15th century, in the Middle East printing did not become firmly established until the 19th century, and thus the profession of the calligrapher largely endured until then.

Today, calligraphy continues as a religious and artistic practice. Outstanding calligraphers live throughout the world, and their works bring the attention of the global public to the supreme art of Islamic calligraphy. 🌍

(Adapted and edited from “The Geometry of the Spirit,” by David James, originally published in *Aramco World*, September/October 1989.)



CALLIGRAPHY SAMPLES BY MOHAMMED ZAKARIYA, REPRINTED FROM THE ART OF THE PEN (LONDON, 1996), COURTESY OF THE NOUR FOUNDATION

Patterns of Moon, Patterns of Sun

WRITTEN BY PAUL LUNDE

The Hijri calendar

In 638 CE, six years after the death of the Prophet Muhammad, Islam's second caliph, 'Umar, recognized the necessity of a calendar to govern the affairs of Muslims. This was first of all a practical matter. Correspondence with military and civilian officials in the newly conquered lands had to be dated. But Persia used a different calendar from Syria, where the caliphate was based; Egypt used yet another. Each of these calendars had a different starting point, or epoch. The Sasanids, the ruling dynasty of Persia, used June 16, 632 CE, the date of the accession of the last Sasanid monarch, Yazdagird III. Syria, which until the Muslim conquest was part of the Byzantine Empire, used a form of the Roman "Julian" calendar, with an epoch of October 1, 312 BCE. Egypt used the Coptic calendar, with an epoch of August 29, 284 CE. Although all were solar calendars, and hence geared to the seasons and containing 365 days, each also had a different system for periodically adding days to compensate for the fact that the true length of the solar year is not 365 but 365.2422 days.

In pre-Islamic Arabia, various other systems of measuring time had been used. In South Arabia, some calendars apparently were lunar, while others were lunisolar, using months based on the phases of the moon but intercalating days outside the lunar cycle to synchronize the calendar with the seasons. On the eve of Islam, the Himyarites appear to have used a calendar based on the Julian form, but with an epoch of 110 BCE. In central Arabia, the course of the year was charted by the position of the stars relative to the horizon at sunset or sunrise, dividing the ecliptic into 28 equal parts corresponding to the location of the moon on each successive night of the month. The names of the months in that calendar have continued in the Islamic calendar to this day and would seem to indicate that, before Islam, some sort of lunisolar calendar was in use, though it is not known to have had an epoch other than memorable local events.

There were two other reasons 'Umar rejected existing solar calendars. The Qur'an, in Chapter 10, Verse 5, states that time should be reckoned by the moon. Not only that, calendars used by the Persians, Syrians and Egyptians were identified with other religions and cultures. He therefore decided to create a calendar specifically for the Muslim community. It would be lunar, and it would have 12 months, each with 29 or 30 days.

This gives the lunar year 354 days, 11 days fewer than the solar year. 'Umar chose as the epoch for the new Muslim calendar the *hijra*, the emigration of the Prophet Muhammad and 70 Muslims from Makkah to Madinah, where Muslims first attained religious and political autonomy. The *hijra* thus occurred on 1 Muharram of the year 1 according to the Islamic calendar, which was named "*hijri*" after its epoch. (This date corresponds to July 16, 622 CE on the Gregorian calendar.) Today in the West, it is customary, when writing *hijri* dates, to use the abbreviation AH, which stands for the Latin *anno hegirae*, "year of the *hijra*."

Because the Islamic lunar calendar is 11 days shorter than the solar, it is therefore not synchronized to the seasons. Its festivals, which fall on the same days of the same lunar months each year, make the round of the seasons every 33 solar years. This 11-day difference between the lunar and the solar year accounts for the difficulty of converting dates from one system to the other.

The Gregorian calendar

The early calendar of the Roman Empire was lunisolar, containing 355 days divided into 12 months beginning on January 1. To keep it more or less in accord with the actual solar year, a month was added every two years. The system for doing so was complex, and cumulative errors gradually misaligned it with the seasons. By 46 BCE, it was some three months out of alignment, and Julius Caesar oversaw its reform. Consulting Greek astronomers in Alexandria,

It is he who made the sun to be a shining glory, and the moon to be a light (of beauty), and measured out stages for her, that ye might know the number of years and the count (of time). —The Qur'an, Chapter 10 ("Yunus"), Verse 5

he created a solar calendar in which one day was added to February every fourth year, effectively compensating for the solar year's length of 365.2422 days. This Julian calendar was used throughout Europe until 1582 CE.

In the Middle Ages, the Christian liturgical calendar was grafted onto the Julian one, and the computation of lunar festivals like Easter, which falls on the first Sunday after the first full moon after the spring equinox, exercised some of the best minds in Christendom. The use of the epoch 1 CE dates from the sixth century, but did not become common until the 10th.

The Julian year was nonetheless 11 minutes and 14 seconds too long. By the early 16th century, due to the accumulated error, the spring equinox

was falling on March 11 rather than where it should, on March 21. Copernicus, Christophorus Clavius and the physician Aloysius Lilius provided the calculations, and in 1582 Pope Gregory XIII ordered that Thursday, October 4, 1582 would be followed by Friday, October 15, 1582. Most Catholic countries accepted the new "Gregorian" calendar, but it was not adopted in England and the Americas until the 18th century. Its use is now almost universal worldwide. The Gregorian year is nonetheless 25.96 seconds ahead of the solar year, which by the year 4909 will add up to an extra day. 🌐

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Though they share 12 lunar cycles—months—per solar year, the *hijri* calendar uses actual moon phases to mark them, whereas the Gregorian calendar adjusts its nearly lunar months to synchronize with the sun.

Converting Dates

The following equations convert roughly from Gregorian to *hijri* and vice versa. However, the results can be slightly misleading: They tell you only the year in which the other calendar's year *begins*. For example, 2012 Gregorian begins and ends in Safar, the second month, of Hijri 1433 and 1434, respectively.

$$\text{Gregorian year} = [(32 \times \text{hijri year}) \div 33] + 622$$

$$\text{Hijri year} = [(\text{Gregorian year} - 622) \times 33] \div 32$$

Alternatively, there are more precise calculators available on the Internet: Try www.rabiah.com/convert/ and www.ori.unizh.ch/hegira.html.

JANUARY

SAFAR—RABI' I 1433

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 7	2 8	3 9	4 10	5 11	6 12	7 13
8 14	9 15	10 16	11 17	12 18	13 19	14 20
15 21	16 22	17 23	18 24	19 25	20 26	21 27
22 28	23 29	24 1	25 2	26 3	27 4	28 5
29 6	30 7	31 8				



Heading for Sura 32 of the Qur'an
Possibly Iraq
Ninth century
Vellum, 21.8 x 32.3 cm (8½" x 13")
Courtesy of the Chester Beatty Library

Early calligraphers of the Qur'an often worked on pages set horizontally, and for writing the Word of God, the most durable material was vellum (calfskin). Illumination and decorative motifs were usually reserved for frontispieces, colophons and sura (chapter) headings, such as this one, which elegantly marks the start of Sura 32, *al-Sajda* ("The Prostration"). Because a Qur'an written in this manner required a great many pages, most were bound into a series of folios, and 30 folios was a popular number because it facilitated the recitation of one on each night during Ramadan.

FEBRUARY

RABI' I — RABI' II 1433

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 9	2 10	3 11	4 12
5 13	6 14	7 15	8 16	9 17	10 18	11 19
12 20	13 21	14 22	15 23	16 24	17 25	18 26
19 27	20 28	21 29	22 30	23 1	24 2	25 3
26 4	27 5	28 6	29 7			



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
 أَلَمْ نَكْتُبْكَ لَارِيبٍ فِيهِ
 مُدَىٰ لِلْمُتَّقِينَ ۝ الَّذِينَ يُؤْمِنُونَ
 بِالْغَيْبِ وَيُقِيمُونَ الصَّلَاةَ وَمِمَّا
 رَزَقْنَاهُمْ يُنْفِقُونَ ۝ وَالَّذِينَ
 يُؤْمِنُونَ بِمَا أُنزِلَ إِلَيْكَ وَمَا أُنزِلَ مِنْ

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
 الْحَمْدُ لِلَّهِ رَبِّ الْعَالَمِينَ ۝ الرَّحْمَنِ
 الرَّحِيمِ ۝ مَالِكِ يَوْمِ الدِّينِ ۝ إِيَّاكَ نَعْبُدُ
 وَإِيَّاكَ نَسْتَعِينُ ۝ اهْدِنَا الصِّرَاطَ
 الْمُسْتَقِيمَ ۝ صِرَاطَ الَّذِينَ أَنْعَمْتَ عَلَيْهِمْ
 غَيْرِ الْمَغْضُوبِ عَلَيْهِمْ وَلَا الضَّالِّينَ

MARCH

RABI' II — JUMADA I 1433

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 8	2 9	3 10
4 11	5 12	6 13	7 14	8 15	9 16	10 17
11 18	12 19	13 20	14 21	15 22	16 23	17 24
18 25	19 26	20 27	21 28	22 29	23 30	24 1
25 2	26 3	27 4	28 5	29 6	30 7	31 8



APRIL

JUMADA I—JUMADA II 1433

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 9	2 10	3 11	4 12	5 13	6 14	7 15
8 16 Easter	9 17	10 18	11 19	12 20	13 21	14 22
15 23	16 24	17 25	18 26	19 27	20 28	21 29
22 1	23 2	24 3	25 4	26 5	27 6	28 7
29 8	30 9					



MAY

JUMADA II – RAJAB 1433

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 10	2 11	3 12	4 13	5 14
6 15	7 16	8 17	9 18	10 19	11 20	12 21
13 22	14 23	15 24	16 25	17 26	18 27	19 28
20 29	21 30	22 1	23 2	24 3	25 4	26 5
27 6	28 7	29 8	30 9	31 10		



JUNE

RAJAB — SHA'ABAN 1433

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 11	2 12
3 13	4 14	5 15	6 16	7 17	8 18	9 19
10 20	11 21	12 22	13 23	14 24	15 25	16 26
17 27	18 28	19 29	20 30	21 1	22 2	23 3
24 4	25 5	26 6	27 7	28 8	29 9	30 10

عِبَادِهِ وَخَسِرَ هُنَالِكَ الْمَافِرُونَ

سَوَّيْتُمْ السَّجْدَ تِلْكَ وَهِيَ أَرْبَعٌ وَخَمْسُونَ آيَةً

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

حَمْدٌ تَزِيدُ مِنَ الرَّحْمَنِ الرَّحِيمِ الْكِتَابِ



JULY

SHA'ABAN – RAMADAN 1433

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 11	2 12	3 13	4 14	5 15	6 16	7 17
8 18	9 19	10 20	11 21	12 22	13 23	14 24
15 25	16 26	17 27	18 28	19 29	20 1	21 2
22 3	23 4	24 5	25 6	26 7	27 8	28 9
29 10	30 11	31 12				
						



AUGUST

RAMADAN — SHAWWAL 1433

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 13	2 14	3 15	4 16
5 17	6 18	7 19	8 20	9 21	10 22	11 23
12 24	13 25	14 26	15 27	16 28	17 29	18 30
19 1	20 2	21 3	22 4	23 5	24 6	25 7
'Id al-Fitr						
26 8	27 9	28 10	29 11	30 12	31 13	



SEPTEMBER

SHAWWAL – DHU AL-QA'DAH 1433

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 14
2 15	3 16	4 17	5 18	6 19	7 20	8 21
9 22	10 23	11 24	12 25	13 26	14 27	15 28
16 29	17 1	18 2	19 3	20 4	21 5	22 6
23 7	24 8	25 9	26 10	27 11	28 12	29 13
30 14						



OCTOBER

DHU AL-QA'DAH — DHU AL-HIJJAH 1433

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 15	2 16	3 17	4 18	5 19	6 20
7 21	8 22	9 23	10 24	11 25	12 26	13 27
14 28	15 29	16 30	17 1	18 2	19 3	20 4
21 5	22 6	23 7	24 8	25 9 'Id al-Adha	26 10	27 11
28 12	29 13	30 14	31 15			

NOVEMBER

DHU AL-HIJJAH 1432 – MUHARRAM 1434

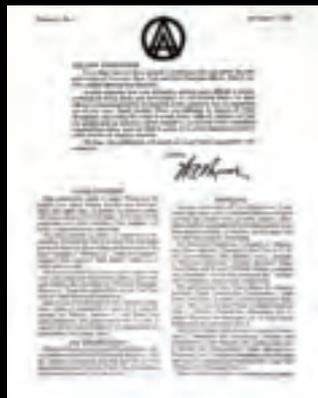
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				1 16	2 17	3 18
4 19	5 20	6 21	7 22	8 23	9 24	10 25
11 26	12 27	13 28	14 29	15 1	16 2	17 3
18 4	19 5	20 6	21 7	22 8	23 9	24 10
25 11	26 12	27 13	28 14	29 15	30 16	

حضرت سلطان محمد
ایک حج و عمرہ کا
استانافحسنا
ایک فوج کا
ایک ماکان
ایک سپہ
اولیٰ شہ دین پروک احکامی
مشرق محمد زکریا ۱۲۳۲

DECEMBER

MUHARRAM — SAFAR 1434

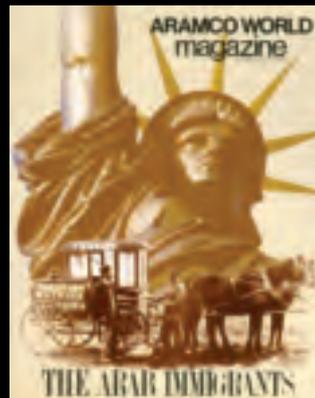
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 17
2 18	3 19	4 20	5 21	6 22	7 23	8 24
9 25	10 26	11 27	12 28	13 29	14 1	15 2
16 3	17 4	18 5	19 6	20 7	21 8	22 9
23 10	24 11	25 12 Christmas	26 13	27 14	28 15	29 16
30 17	31 18					



1949



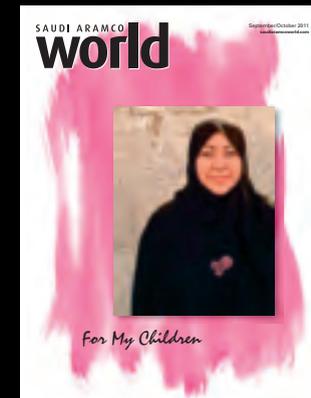
1952



1986



1992



2011

In November 1949, the Arabian American Oil Company (Aramco) launched an interoffice newsletter named *Aramco World*. Over the next two decades, as the number of Americans working with Saudi colleagues in Dhahran grew into the tens of thousands, *Aramco World* grew into a bimonthly educational magazine whose historical, geographical and cultural articles helped the American employees and their families appreciate an unfamiliar land.

The magazine is now published by Aramco Services Company in Houston, Texas on behalf of Saudi Aramco, which succeeded Aramco in 1988 as the national oil company of Saudi Arabia. In 2000, *Aramco World* changed its name to *Saudi Aramco World* to reflect this relationship.

Today, *Saudi Aramco World's* orientation is still toward education, the fostering of cooperation and the building of mutual appreciation between East and West, but for the last four decades the magazine has been aimed primarily at readers outside the company, worldwide, as well as at internal readers. Its articles have spanned the Arab and Muslim worlds, past and present, with special attention to their connections with the cultures of the West.

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