In the twenty-first century, the widespread integration of computer technologies has brought text-based information into many facets of everyday life. This has caused an ever-growing interest in typography across many fields of visual communication, where text and letterforms play a central role in disseminating social trends and reflecting the spirit of the times.

Arabic Typography takes the reader through a comprehensive study of Arabic letterforms, starting with a concise historical overview of their development and styles, and proceeding to the latest design and technological advances. It attempts to establish the foundations for Arabic type design by drawing lessons from past practices and aesthetic conventions, in order to retain the enduring traits that are of relevance for improvement and innovation in future type design creations.

Going beyond the historical facts to discuss current design issues pertaining to the creation and production of letterforms, it presents Arabic typographic design as an essential communication tool that should marry functionality and legibility to aesthetic delight.

This book will serve as a valuable reference on Arabic typography, and as an educational guide for design students, professionals, and anyone who uses Arabic type and enjoys the visual appearance of this language and its letterforms.
Arabic typography
Huda Smitshuijzen AbiFares

Arabic typography
a comprehensive sourcebook

Saqi Books
To Edo Smithuijzen

for his relentless support,

advice and cooperation.
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Foreword & Acknowledgements

The educational book as a medium. The educational book is a medium rich and influential within the context of the Middle East. The first secular manuscripts revolved around the subjects of science and philosophy. The subject of this book is the visual aspect of type for use in communication—the design, production and typesetting of Arabic letters by mechanical and digital means of reproduction. The goal is to create an educational discussion around this visual aspect of Arabic culture, opening the way to further creative developments in the field of Arabic type design.

The tone of this book falls in line with the traditional role of Lebanon as an educational centre, where written communication has come to flourish through the ages and the various civilisations that have inhabited the Levant. That Lebanon should occupy such a position historically is due to many topographic and cultural factors that made it a welcoming environment for all seeking asylum and refuge from despotism. The origins of the book and the propagation of the written (and later printed) word have often been tightly related to religion, namely the Judeo-Christian and Islamic faiths. These religions and their holy scriptures were born in the Levant area, of which modern Lebanon is a part. Yet Lebanon has a long historical tradition of writing and education that precedes these religions. The Phoenician city of Byblos was the cradle of the first alphabet, and gave its name to the 'master books'—'bibles' or 'sacred books'. In that very same city, around 2000 BCE, schools were established where education was conducted in a multitude of languages—a custom still observed in Lebanon to this day. In Lebanon, each period has seen its share of inspiring educational institutions: the Roman Law School in Beirut, the Medico-Philosophical School in Tripoli during the Middle Ages, and the Ayn Warqa School in the 18th century where three levels of education were established (primary, secondary, and higher education). This long tradition led to the well known printing and publishing activities present in Lebanon today. The first to publish books, Lebanon was also the
first in the Arab world to print and bind them. This concern with books cannot of course be confined to just a concern for the quality of the content, but it should also extend to the quality of the representation of these texts, the visual excellence of their design and printing quality, and the important role that typography—namely Arabic typography—plays in this.

It is therefore by tracing the history of the hard-copied and printed book and through using the book as a medium, that I will attempt to introduce and highlight historical and technical developments, in an attempt to provide a condensed guidebook about Arabic typography and typefaces in use today. The aim is to go beyond stating mere facts in order to provide insight, guidelines, and suggestions for future creations. It is directed towards a younger generation of graphic and type designers, involved in the use and creation of Arabic fonts, who consider typography an integral part of their work.

The book begins by tracing the origins of the Arabic script and typography through a concise series of selective timelines that highlight the origins of the script, its development and refinement into a high form of calligraphic art; its modernisation and use in the mass propagation of knowledge through the art of printing; and finally its integration into contemporary means of reproduction and visual communication. The book also discusses in detail the structure of the Arabic writing system, the visual aspects of the letterforms and other symbols, and the way to design and produce Arabic typefaces and fonts today, ending with suggestions for the future and a display of the work of some contemporary typefoundries and type designers.

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1—Introduction

1.1. Writing is a potent power. Writing is the essence of human history. With the invention of writing the human race bridged the gap between the ephemeral world of matter and the spiritual world of eternity. It immortalised the fears, desires and stories of many civilisations, helping them survive the relentless progression of time. Regardless of the many graphic forms it took, in ancient times writing was considered a potent element of supernatural power and divinity. In the East, letters were considered the only worthy carriers of holy scriptures and divine revelation. They were the word of God materialised for human eyes to perceive. A separation between the visual appearance and the meaning of texts was unthinkable. Like the separation of the body from its soul. Those who transcribed the words of God had to be of high spiritual and moral standing, this status of the scribe in Islam remaining to this day a quintessential condition for copying the Quran.

Writing has taken various routes of development through the ages, and what prompted the invention of its many forms and functions, has been as varied as its respective production methods. Writing was born out of pragmatic needs for preserving information too important to lose. In the Sumerian civilisation writing was used to document complex administrative documents. In the Egyptian civilisation it was used for topographic reasons in order to keep track of borders after the seasonal flooding of the Nile. Born out of the complex social structures of the first cities known to mankind, and used to insure the integrity of divine revelation of holy scriptures, writing led to the creation of an elite profession. The profession of scribe has from the beginning been regarded as an honourable profession that combined wisdom and knowledge, art and spirituality. In some cultures the letters were shrouded with mysticism and supernatural power, as in the old Egyptian hieroglyphs (fr. Greek, meaning sacred words or glyphs), or the religious texts of the Semitic people (the Jews and the Arabs). The letters were not considered as mere carriers of clear information, but also as having as much
meaning in their visual appearance as in the content of their texts.

This book will limit the discussion of writing to alphabetic writing systems, the letters of the Arabic alphabet in particular; where they originated and for what purpose; what their relationship is to their ancestors and how much visual and structural resemblance to the latter they have retained; how the Arabic alphabet developed historically in terms of visual aesthetic styles and production techniques and what the purpose and effect of those developments were on its present representation.

This book attempts to establish the foundations for Arabic type design by drawing lessons from past practices and aesthetic conventions, in order to retain the enduring traits that are of relevance to improvement and innovation in future creations. It aims to go beyond mere historical facts by discussing current design issues pertaining to the creation and production of letterforms.

1.2. The distinction between Calligraphy and Typography: It is important to make a clear distinction between calligraphy and typography in order to avoid the confusion that results from the script nature of Arabic letterforms and the general reference to calligraphy when Arabic type is discussed.

The dictionary definitions:
—calligraphy: (kalā‘ī, fr. Gk. beautiful) beautiful or elegant handwriting.
—typography: (tayypa‘ī, fr. Gk. printing) style, arrangement, or appearance of typeset and printed letterforms.

For the sake of clarity I will differentiate between the two terms in this book, not by whether the letters are connected or separate (as has been the case in some radical discussions about modernising the Arabic script), but by considering all manual production (handwritten or hand-drawn letters) as calligraphy, and all machine-made production (letters set and produced by machines) as typography.

1.2.1. Forms of Arabic Calligraphy

1. Handwritten letterforms (whole words) in continuous strokes, whereby the means of production and purpose of the text are unified. They are an immediate manifestation of writing, with an emphasis on transmitting the message.

Such letterforms are:
1.1. written with ink on paper, fabric, parchment, leather, wood, pottery, etc., using brush or pen.
1.2. written with a sharp edge in clay, stone, bone, metal, wood, etc.

2. Hand-lettered script (carefully drawn letterforms and whole words), whereby each letter is constructed of more than one stroke and corrections on the drawn letters are possible. They are the careful labour of the skilled hands of scribes, calligraphers and craftsman. Such letterforms are:
2.1. drawn with ink on paper, fabric, parchment, leather, wood, pottery, etc., using brush or pen.
2.2. carved in clay, metal, wood, or stone, as ornaments.
2.3. drawn and later constructed of various materials (i.e. neon signs, freestanding metal letters for signage and environmental design purposes, or tiles used for architectural purposes).
1.2.2. Forms of Arabic typography

1. Machine-produced and typeset letterforms:
   1.1. Etched plates or woodblocks, for printing purposes.

1.2. Cast movable metal types for machine or handsetting, for printing purposes.

1.3. Hand-drawn, then photographically reproduced typefaces, for phototypesetting machines.

1.4. Digitally drawn, produced and typeset fonts, for computer software applications, used in printing and other reproduction purposes and media, on a wide variety of materials.

1.3. The role of the Arab typographer. It is generally accepted that type design and graphic design are two distinct professional fields. They are however intricately related and can exert great influence on each other; yet each requires different skills and talents from its respective practitioners. A good graphic designer need not necessarily be a good type designer and vice versa. On the other hand, a good typographer is simply someone who works between these two specialised fields, and who entertains a sensitive understanding of both. The role of the typographer is to create through typographic compositions the best visual result for communicating an idea, a feeling, or an image, marrying aesthetics to functionality, thus bridging the gap between art and the technical limitations of the various means of reproduction. To fulfill this role, the typographer must have an understanding of the historical, aesthetic and technical aspects of typography. This knowledge and sensitivity allows him to manipulate these elements, pushing the boundaries of each in search of new creative horizons.

Arab typographers are rare individuals, often working in isolation, and having little, if any, contact with each other. As a result, Arabic typography suffers from a general state of neglect and stagnation. The schism between craft and technological developments is alarming and the involvement of real designers is scarce. For Arabic typography to flourish in its own right, a break with the calligraphic past is inevitable. Most players in the Arabic type design field today are a curious mix of craftsmen (calligraphers and computer engineers) and intellectuals (historians and Arabists) with little design background, and with no established design framework to consult for pragmatic and/or qualitative reference.

Typography has always played an important role in the propagation of knowledge and ideas. It has been regarded throughout history as an influential representation of the prosperity and the political and cultural authority of a state. It is highly tempting with the technological possibilities available today, to keep on copying the past and to ignore issues of modernising Arabic type. Unfortunately, this is detrimental to the creative nature of typography. Typography is a fundamental part of modern life. It embodies modern trends, and is ever-changing in congruence with the developments of tools and communication needs. Like all the tools with which we surround ourselves, the way we perceive and make use of type is also constantly modified over time. It is not the exact copying of letters and aesthetic rules that needs to be retained from the glorious past of Arabic calligraphy, but rather the spirit of creative experimentation and the pragmatic design solutions that show affinity with materials and media. It is high time for Arab typographers to collectively assume the responsibility for shaping and promoting their script in a way that is suitable for modern design applications and communication technologies. As the Arab nations move into the third millennium, and as they fully embrace the new advancements in communication technologies, the need for serious professional involvement in visual communication is manifesting itself forcefully. New young Arab graphic designers are entering the field and the need to provide them with a solid design background and educate them in regards to Arabic type design is becoming a seriously pressing issue.
2. Historical Timelines

The reasons that determine the survival or extinction of a script can vary greatly. Contrary to logical assumption, its survival does not necessarily depend on the simplicity or on the efficiency of how the spoken language is represented. Some scripts have managed to survive for centuries being adapted and readapted by different cultures and for considerably different languages from the ones for which they were originally conceived. They have evolved in form over the centuries to almost untraceable shapes. When one compares two scripts that have shared the same origins, hardly any kinship between the two may be discernable. What is then the reason for the survival of some scripts, other than the cultural factors that have accompanied their conception and contributed to their propagation and use? Through historical facts we can safely conclude that political and economic power, religious and cultural values and the existence of scientific and literary works are all key factors that ensure the survival of a script.

Writing gives historical insight into the ideas and the spiritual and technological developments of human civilizations. This is inherent not only in the meanings carried by the words, but also in their visual aspects, in their style and craft, in their production techniques and in the materials used.

The Arabic alphabet, like most alphabetic writing systems in current use throughout the world, has its roots in the first developed alphabetic system invented around 1200 BCE by the Phoenicians. In order to best understand the nature of the Arabic script we must start by tracing its genealogical descent, its formal developments into today’s written form, and the historical and technological facts that have contributed to the structure and visual qualities of the currently used Arabic digital fonts.

2.1. Genealogy of the Arabic writing system.

3300 BCE—The Sumerian pictographic script was born in Mesopotamia. This first writing system in the world was logographic (representing a word) and ideographic (representing an idea) at the same time. The oldest sample of it was found on an administrative clay tablet in Uruk (the land of Sumer). It consisted of 300 to 400 signs and was first written from right to left in columns.

2800 BCE—The Sumerian cuneiforms evolved from the pictographic writing system. The number of signs was reduced dramatically to about 200 sign words with monosyllabic, bisyllabic and even trisyllabic phonetic values, out of which 300 signs were most commonly used. In the beginning these signs resembled their pictographic progenitors, but with time they evolved slowly into pure abstract shapes. They were read from left to right, and in columns from top to bottom, like western newspapers today. These signs were invented to simplify the reading process, and played an important role in the development of the written language, from mere administrative documents to literary works. Cuneiform signs were originally impressed in wet clay tablets, with a triangular reed stylus (occasionally made of metal or bone) later dried in the sun or baked. The stylus was trimmed in many ways to give a variety of ends from circular, pointed, flat or diagonal, with each shape having a particular function (i.e. for impressing numerals). The stylus could be oriented in any direction, but in fact a limited set of directions was used due to the comfort of the scribe holding the clay tablet, which later (3000 BCE) became a standard. This tool produced wedge-like marks which earned the script the name cuneiform (cuneus being Latin for wedge). By the end of the 3rd millennium BCE or the beginning of the 2nd millennium BCE, the evolution of the signs underwent a curious change of direction; they were turned 90° (laying horizontally on the page) and their original writing direction changed from right to left, into left to right, probably for more ease in writing. They were later also carved in stone, metal, ivory, glass,
and wax, but were never written with ink on papyrus.

2500 BCE—The Sumerian cuneiforms were used for writing the Semitic Akkadian language which (c. 2000 BCE) replaced Sumerian as the spoken language in Mesopotamia. This in turn was divided into two and became Assyrian in the north, and Babylonian in the south. Around 1400 BCE Babylonian became the lingua franca of the late Bronze Age, and was used from Egypt to Iran, and Anatolia to the island of Bahrain. This inevitably led to the spread of the cuneiform writing system all over the Near East and the coastal cities. This writing system became extinct in the 1st century AD, the last known inscription of which dates back to 55 AD.

3000 BCE—The Egyptian hieroglyphic script was developed in the valley of the Nile, the oldest sample of which is a stone tablet for King Narmer from 3000 BCE, commemorating the conquest of Lower Egypt by the Pharaoh Menes founder of the kingdom of Upper Egypt. It evolved from 700 signs at the beginning to 5000 in the Greco-Roman period, the majority of which were logograms, 84 signs being of a phonetic nature and representing consonants. These phonetic signs functioned according to the principle of rebuses. Each image represented the sound which resembles the word used to designate a particular object (i.e., in Egyptian, the word mouth is pronounced as ‘er, so its image will represent the consonant ‘r’). Some signs are determinative signs that help classify into which category or concept the sign should be grouped (i.e., a sign for indicating the concept of movement). All three types of signs were used simultaneously complementing each other in order to clarify whether a certain sign was being used for its ideographic or phonetic value. The term hieroglyph (fr. Greek, hieros meaning sacred, and glyphe meaning carving) meant sacred carving, a term coined by the Greeks to describe the Egyptians’ reference to their own writing system as ‘the words of the gods’. In spite of its sacred connotation, this script was also used for secular purposes. It was often engraved in stone and applied to grand monuments.

2500 BCE—From the Hieroglyphic writing system developed a cursive style for fast writing on papyrus, leather and fabric (rarely engraved), called Hieratic. It was used for commercial, administrative, literary, scientific and religious texts.

650 BCE—A new style evolved from the Hieratic called Demotic (fr. Greek demotika, meaning popular writing), and was an extremely cursive style where abbreviations and ligatures were abundant to the point of losing all figurative traits. This last style was strictly reserved for pragmatic everyday use and did not replace the older Hieroglyphic and Hieratic writing systems that were still reserved for sacred and official documents.

In all three Egyptian writing styles, there was an absence of capitals, punctuation and word breaks. The Hieroglyphic script was read in a number of directions—from left to right, from right to left or vertically. The direction was indicated by the figurative characters of people or animals (they always faced the beginning of the text). The Hieratic and Demotic scripts were always read from right to left. The Egyptian writing system became extinct in the 4th century AD. The last known inscription dates back to 394 AD, from the Island of Philae. Seven of the demotic characters have remained in the Coptic alphabet.

1500 BCE—The Proto-Sinaitic, also known as Proto-Canaanite script, was found at the temple of the Egyptian goddess Iushar in Serabit el-Khadem in the Sinai peninsula, and consisted of 30 hieroglyphic signs phonetically representing a Semitic language. Later, other inscriptions with a similar script were found in other cities of Canaan (modern Lebanon and Israel). These, although they have never been deciphered, are considered the first pictographic alphabet (like the phonetic signs in the Hieroglyphic writing system).
1400 BCE—The Ugaritic script, named after the Canaanite city of Ugarit (at the time, a cosmopolitan centre of commerce), was found at Ras Shamra (in 1929 AD) on the northern coast of Syria. It is a phonetic alphabet written in cuneiforms, representing the local Semitic language. However, its set of 30 signs bear no resemblance to the Babylonian cuneiforms.

1300 BCE—The Phoenician alphabet was born in the Phoenician city of Byblos. It consists of 22 consonantal phonetic signs, each representing a single sound, and written from right to left. The oldest sample of this was found in the form of an inscription on the sarcophagus of King Ahiram of Byblos (1200 BCE). This alphabet did not contain any capital letters. It did not denote the short vowels, because in Phoenician, as in all Semitic languages, only the consonantal roots of words can communicate the meanings of all possible related words originating from the same root-word. The exact meaning therefore emerges from the context, with all the pronunciation subtleties needed and provided by the non-written short vowels. Preceding this alphabet, a pseudo-hieroglyphic script was found dating back to around 1500 BCE, and consisted of some 202 signs found on a stele from Byblos. It reflected influences from Egyptian and Cretan hieroglyphs. It is believed to have been the pictographic origin of the later developed alphabet from the same city.

This writing system originated from a civilisation strategically placed between the two powerful civilisations of Mesopotamia and Egypt, and, under the influences of both these cultures, developed a simple and limited set of characters that were easy to learn and adapt to non-Phoenician languages. It spread westward to Europe via the Greeks and marked the beginning of writing in the West, and then spread eastward via the Arameans as far as India. It is the ancestor of all alphabets used in Semitic, Indo-European, and several other types of languages. The alphabetic writing system is a totally phonetic system wherein signs represent pure sound and are dissociated from any meaning. This system implied a certain democracy in its simplicity and flexibility in the way it facilitated the dissemination of knowledge equally to all people, by providing the possibility of adapting the signs to any language (the reason why it was adopted by many cultures and languages).

1000 BCE—The Aramaic alphabet of 22 consonantal signs, is written from right to left. It represents the language of the Arameans (people living in Syria and Mesopotamia around 2000 BCE, in a land called Aram cited in the Bible after the 5th son of Sem, father of the Semitic people). The oldest Aramaic inscription dating back to the 8th century BCE, strongly resem-
ables the Phoenician alphabet. Like the Phoenician alphabet, it did not contain any capital letters and was read from right to left. The Phoenician alphabetic writing system was adopted by the Arameans because of its simplicity in comparison to the cuneiform script. It was even used by Arameans who were under the Assyrian sovereignty. The Aramaic alphabet spread among the Semitic people of the Near East (with the exception of the Phoenicians) due to the Aramean scribes working for the Persian kings. The visual differences between the Phoenician and Aramaic alphabet got amplified with time, and were characterised by the opening up of the closed counters of the Aramaic letterforms, as attested by the inscriptions on papyri found in Egypt in the 3rd and 2nd centuries BCE.

The Nabatean script (from Petra, Jordan)

The Nabatean alphabet, was born in the Nabatean kingdom, a territory around the city of Petra north of the Red Sea (in modern Jordan). Gradually, it spread northward to Damascus and southward to include the city of Medina in northern Arabia. Having flourished following the decline of the Persian empire, and situated on the fringes of the Greek empire, the Nabatean kingdom preserved Aramaic as its official language, but transformed the Aramaic alphabet into a national cursive style mostly used for the fast documentation of commercial transactions. This explains the augmenting amount of ligatures, and the swashes at the end of final letters, which result from fast writing. The evolution of the alphabet towards the curvilinear and circular shapes of the letters was caused by the change in writing tools from the reed pen of the old Aramaic scribes to the brush.

The economic importance of the Nabatean kingdom (due to its intermediary position between the Fertile Arabia and the rest of the Mediterranean world) helped establish its political power until 106 AD when the Roman province of Arabia was created. This resulted in the extinction of the Nabatean script. Later inscriptions using the Nabatean alphabet were found in Sinai and Syria, where this alphabet was used to denote the Arabic languages of the local tribes. These show that the original letter-forms were preserved along with the rules of connecting the letters to one another. The oldest inscription, with the oldest known Arabic text was found on a tombstone at Umrn Al-Jimal and dates back to 250 AD.

The Syriac alphabet was born in Mesopotamia and was used for transcribing indigenous Aramaic literature, its alphabet is a variation on the Aramaic alphabet. The oldest form of it was known as Estrangelo (Gr. Greek, meaning evangelic writing) because it was used for transcribing the first Syriac Bible of the eastern church in the 3rd century AD. It evolved into two alphabets: the Nestorian, used by the Nestorians (a group of Syrian Christians who emigrated to Persia in the 5th century AD), and the Jacobite, later known as Syriac, used in Syria by the Jacobite Christian sect established in the city of Edessa (today's city of Urfa in Turkey, on the northern border of Syria). The Syriac alphabet (in both its oldest Estrangelo and later Jacobite variations) consists of 22 letters written from right to left. The originality of this alphabet lies in the abundance of ligatures whereby the same letter can have different shapes depending on its position within a word (whether or not it is isolated, and when connected depending on the letters it is attached to). This feature helped clearly identify the ending of words, and gave the alphabet a clear horizontal linear emphasis. It used a system of diacritic dots and vocalisation marks to differentiate certain letters, and to note the vowels and other vocal tonalities. It had only two kinds of punctuation marks, one for the middle, and one for the ending of sentences. The Syriac alphabet remains in use today by the Nestorians from Iranian Azerbaijan, and by the Maronites of modern Syria and Lebanon, but strictly for liturgical documents. Some Christian villages in Iraq still use the Syriac language. The use of the Syriac script in combination with Arabic in some manuscripts—before printing—is an important cultural indication of the development of the Semitic scripts and languages in the Levant, as they gradually evolved into modem day Arabic script.
2.2. Development of the Arabic alphabet.

The first men to become competent scribes were later to play an important role in the development and propagation of the Islamic faith. They became the first Caliphs known as Al-Khulafa’ Al Rashidun, one of them, Muawiyah ibn Abi Sufyan, founded the Umayyad Dynasty which governed the first Muslim empire. After the prophet’s death, religious wars took place in which many died, including the Umayyads. The victorious people were then called the Abbasids, who continued the Islamic empire.

As to the descent of the Arabic script, there are two differing opinions. The first is held by the English school, which claims that Arabic originated from the Nabatean script, the first found sample of which was from Al-Namara in the Huran area in Jordan, or the southern Syrian border, and dates back to 326 B.C. The second opinion, which is held by Arab and French historians, is that Arabic is derived from the Syriac script known as Estrangelo, by members of the Syriac tribe, from the region of al-Anbar in the south of Iraq. From there it was passed on to the city of al-Hira and then to Mecca at the end of the 6th century A.D. From Mecca it spread to other Arab cities passing first through Medina and then to the rest of the cities in Arabia. Currently, and due to the visual similarities between the Arabic and Syriac scripts (letters all sitting on the baseline) and the historical order (the 200 years hiatus between Nabatean and Arabic), it is most likely that Arabic was developed from the Syriac and not from the Nabatean script. Both of these scripts originated from the Aramaic alphabet, so it is safe to say that Arabic is a daughter of Aramaic through either the Nabatean or Syriac scripts.
a cultural and religious identity is also a known practice of other
religions (the Western Christian Church adopted Latin for its
script, whereas the Eastern Church adopted Greek or Cyrillic).
The Arabic script spread widely from the Far East to North
America. Some languages that were once written in the Arabic
script have abandoned Arabic for other scripts (i.e., Spanish,
Hausa, Swahili, Tamil, Malay/Indonesian, Bosnian and Turkish)
for political or practical linguistic reasons. Other non-Arabic
languages still using the Arabic script (albeit with some additional
diacritics to accommodate each respective language) are Persian
in Iran; Urdu in India, Pakistan and England; Kurdish in Iraq; and
Uyghur in China.

2.3. Development of the calligraphic styles.

According to the Arab philosopher Ibn Khaldun, calligraphy can
only flourish when a civilization is at the peak of its cultural
activities and prosperity. This statement is true of all the develop-
ments that took place in Arabic calligraphy. The first develop-
ment took place during the first Arab empire in the 7th century.
The script then flourished into a higher art form in the 10th cen-
tury in the eastern and western parts of the Arab empire. It later
reached another level of refinement under the Mamluk reign in
Egypt, and finally under the auspices of the Ottoman Sultans, it
reached its climax in the 18th century.

The fact that the Arabic script was initially developed to docu-
ment and represent the word of God led to a great concern for its
visual quality. The preoccupation of many calligraphers for cen-
turies in beautifying and perfecting the written script attests to
their concern for making it worthy of the holy message it was
meant to convey. From the 7th century until the 10th century, the
art of calligraphy soared in aesthetic quality and became the
core of Islamic art thereafter.

The first name given to the Arabic script was "Kufi." It was an
archaic and unrefined script characterized by its angularity, the
monotonously equal sizes of its letters, and the absence of any
diacritic signs. It was to influence all the calligraphic styles that
developed shortly after the introduction of this script in Arabia
in the early 6th century. Two cities played an important role
in developing the first archaic calligraphic styles in the 7th cen-
tury—Hira, which developed three main styles the "Mu"l, the
Mashq and the Nasikh styles (the latter becoming the ancestor of
all the cursive styles), and Kufa which developed the style called
Kufi which had a long-lasting influence on all the calligraphic
styles that followed. Kufi itself has survived in many variations
in different parts of the Arab world. All Arabic calligraphic styles
fall under two broad categories:

—The Muqawwar wa Mudaawwar (the curved and the rounded)
comprises all the cursive styles, starting with the archaic Nasikh
style.

—The Muall i wa Muntagim (the elongated and the straight-
angled) comprises the "Mu"l, the "Muashq, and all the Kufi styles,
with the exception of the Maghrebi style which has characteris-
tics that combine features from both categories.

The next major styles to be discussed are classified according to
five main stylistic groups: the "Mu"l, the Kufi, the Maghrebi,
the Cursive, and the non-Arab styles.
2.3.1. The Archaic styles

7th C. AD / Old Mo‘a‘—The Mo‘a‘ style, meaning the slanted, is one of the original calligraphic styles developed in the city of Hira. It is closest in form to the original Jazm script. It is characterised by the austerity of its overall look, the angular shapes of its letters, the slanted vertical strokes towards the right (against the flow of the writing direction), and the total absence of any diacritics. It fell out of use with the early reforms of the Arabic script.

7th C. AD / Masha‘—The Masha‘ style, meaning the extended, is one of the original calligraphic styles developed in the city of Hira. It is characterised by its exaggerated horizontality, its thick horizontal strokes and thin vertical strokes, its bold and rounded curves, its short ascenders and descenders, and the total absence of any diacritics. It later came to resemble the Kufi style so closely that they eventually merged.

7th C. AD / Old Nashk—The old Nashk style, meaning the scriptorial, is one of the original calligraphic styles developed in the city of Hira. It is characterised by its fluid cursive lines, its openness, its clarity of form, and the total absence of any diacritics. This style was to influence the later cursive styles and to eventually develop as an independent style with the same name. It was to grow in popularity and aesthetic development, and came to be adopted for various functions at various times. It is still generally considered as the simplest of all Arabic calligraphic styles.

2.3.2. The Kufi styles

The original Kufi style was the most refined Arabic script of its time. It reached a high level of formal perfection in the 8th century, which made it the unrivalled style worthy of transcribing the Quran—a tradition that persisted for the coming 500 years. In its original form, it was a rather austere style which grew more ornate as the Arab empire grew more prosperous. It developed in two main directions—the smoother cursive styles and the rigid angular styles. The smoother cursive style developed in the 10th century in concurrence with the highly cursive styles of the period. It took its form book in the geometric Eastern Kufi style. The smooth cursive styles were further developed in the western part of the Arabic empire. More ornate variations were developed in the 11th century by extending the letters into decorative endings that ranged from foliage and floral to arabesque motifs. The rigid styles further developed into the Square Kufi during the 12th and 13th centuries as a result of its extensive use for inscriptions in stone for architectural ornaments (sometimes this script covered whole facades of buildings). Today this style is experiencing a slow revival because of the simplicity of its design and its strong visual presence. Some of its major variations are described on the following pages.
2.3.2. The Eastern Kufi Style

10thC. AD / Eastern Kufi—The Eastern Kufi style was developed by the Persians. It carries characteristics that diverge considerably from those of the original Kufi style. Its tall ascender strokes remain vertical whereas its short vertical strokes are slanted towards the left following the writing direction—because of this feature it is sometimes called the Slanted Kufi. Its closed letterforms have less rounded shapes and are pointed at the top; it is more horizontally condensed; it displays a strong contrast between the thick and the thin strokes and it is overall lighter and more delicate than the original Kufi.

10thC. AD / Qarmatian Kufi—The Qarmatian Kufi was developed in eastern Persia as a variation of the Eastern Kufi style. The name derives from the Arabic expression qarmat fi al-khatt, which means making letters finer and ligatures tighter. It has lighter characters and tighter ligatures than the regular Kufi. Its highly ornate letters are often integrated into richly decorated backgrounds.

2.3.3. The Maghrebi Styles

The Maghrebi styles, as the name indicates, (Maghreb being the Arabic word for the west, or where the sun sets), is the general term attributed to all the calligraphic styles that developed in the western Arab empire—west of Libya from the Sub-Sahara and Northern Africa to Andalusia in Spain during the Middle Ages. All these styles developed from the original style called Western Kufi. Although these styles were Kufi in origin, they diverged from the Kufi style in many ways and some cursive characteristics were added to their features. The western part of the empire was autonomously governed and had little reason to comply with the artistic developments taking place in the eastern part. In the calligraphic tradition, the west was more conservative in its approach and did not follow any of the later changes that took place after the first structural rules were set for the use of cursive style. The western calligraphers did not adopt the calligraphic reform and standardisation devised by the vizier Abu Ali ibn Maqlah in the 10th century AD, nor did they use any of the later developed cursive styles. Instead, they created their own cursive variations of Western Kufi.

12thC. AD / Andalusian Kufi—The Andalusian Kufi style developed in Cordoba and spread throughout the whole of the Muslim Arab part of Spain in the 13th century AD. It is the most delicate of the Maghrebi styles. It is characterised by thin lines and small letterforms. It is compact and vocalised according to the western system of diacritics. In the early 13th century with the exodus of the Arabs from Spain into Morocco, the Andalusian Kufi style travelled with them. It merged later with the Farsi Kufi to form what became known as the Maghrebi style.
This hybrid style was later to represent the calligraphic style most favoured in Morocco (or Al-Maghrib as it is called in Arabic). A later development of this style was an ornamental version that was used for display type sizes and for inscriptions on stone. This decorative style was marked by long ascenders with the gaps in between filled with floral or arabesque motifs giving the overall composition a dense rectangular shape.

Ali Ibn Muqlah who gave the cursive styles standardised proportions and calligraphic rules. These changes put order and structure into the twenty or so calligraphic styles that were in use by the end of the 9th century AD. Further artistic achievements at the hands of a few talented calligraphers led to the establishment of six major cursive styles. These cursive styles came to rival the Kufi style for transcribing the Quran and eventually replaced it. The two famous calligraphers that contributed to beautifying and elevating the six major cursive styles to high artistic standards were: Ibn Al-Bawwab (known for his Nashl and Muhaqqaq styles), and Yaqut Al-Mustasimi (known for his Thuluth style).

The Cursive styles have their roots in the pre-Islamic era of the late 6th/early 7th centuries AD. These early cursive scripts were more akin to handwriting than to a calligraphic script per se. They were used strictly for secular non-official business and personal correspondence. Their development into calligraphic styles was heavily influenced by the structural and visual reform of the Kufi style. The Caliph Abdalmalek (687–705) was the first to legislate the use of cursive script for use in all official documents. His son, Caliph Walid Ibn Abdalmalek (705–715), became the first patron of the art of calligraphy and under his reign the two main cursive styles then, the Jali and the Tumar, were decreed as the scripts for official as well as religious texts. From the Tumar style other styles evolved with names relating to their proportions in relation to the Tumar and used the Aleph of the Tumar as the standard measurement unit. The Nisf (or 1/2 in Arabic) was approximately half the size of the Tumar, the Thuluth (or 1/3) is equal to one-third, and the ‘Thuluthkayn’ (or 2/3) is the equivalent of two-thirds. The level of cursiveness of these styles increased with the decrease of the size of letters. The size of the letters was related to the importance of the text, the more important the occasion, the larger the text. It was the vizier Abu
for transcribing the Quranic text. It is a fast and rounded cursive style easy to write and highly legible. It is characterised by short horizontal strokes, equal sized ascenders and descenders, full curves, and straight vertical strokes. The space between words is often generous. It is to this day the most widely used style for printed books and publications, and is fully integrated in mechanical and digital means of type reproduction.

**8thC. AD / Muhajjaq**—The Muhajjaq style (the name means the well-executed), is a cursive style that reached its perfected form under the influence of Ibn Al-Bawwab. It is a rounded style that developed with time into more cursive shapes that were easier to write. It became popular among scribes in the 9th century AD. Its features carry some resemblance to those of the Thuluth and Naskh styles. Its most characteristic features are its tall ascenders, its short horizontally inclined descenders, its slightly angular curves, its smooth flowing horizontal strokes, its compact word structures which create distinct word units that need little if any word space, and its smooth leftward slant which leads the eye in the right reading direction. It is used in different weight variations. Its compactness, clarity and elegance has acquired the Muhajjaq style a favoured position for use in large-sized Quran in the Islamic East—namely in Egypt, Iraq and Persia in the 13th and 14th centuries.

**8thC. AD / Rayhani**—The Rayhani style derives its name from that of its original creator, the calligrapher Ali bin Ubaid Allah Al-Rayhani. It developed in the 9th century and carries a combination of characteristics from the Thuluth, the Naskh and the Muhajjaq styles; its letter endings and swashes are similar to those of the Thuluth; its descenders are large and open like those of the Naskh, and its curves are angular and point horizontally towards the left like those of the Muhajjaq. Its unique characteristic is that its diacritical signs are always written with a considerably finer pen than the one used for writing the letter. It was popular for transcribing large Qurans in Persia in the 13th and 14th centuries.

**8thC. AD / Tawqi—**The Tawqi style was invented in the 9th century. It was declared by the Abbasid Caliphs as the official style for inscriptions carrying their names and titles. It did not develop into its final form until the 11th century. It has characteristics in common with Thuluth on the one hand and Ruqaa on the other. Its curves, though more rounded, resemble those of the Thuluth, and its line flow, though thinner, resembles that of the Ruqaa. Its unique characteristic is the fact that all its words are connected into a continuous line, whereby the final form of a letter within a word would end by a swash that links it to the initial letter of the following word. Tawqi is also characterised by its minimal use of vocalisation marks. Later in the 13th century, a heavier version of Tawqi was developed in Turkey where it became a popular style, and eventually developed its own decorative variations.

**8thC. AD / Ruqaa—**The Ruqaa style was an easy cursive style invented in the 9th century. It is governed by simple design rules. Its main characteristics are its rounded fluid curves; its densely structured words and ligatures; its short horizontal strokes, ascenders and descenders; its prominent thick baseline and its horizontal flatish letterforms (with the exception of the medial F and Q). Its rules were set by the calligrapher Mumtaz Beik under the rule of Sultan Abdul Majed. The Ruqa is the simpler style of everyday writing still favoured in the Eastern Arab world.
2.3.5. The Non-Arab styles

Other than the classical cursive styles, some Non-Arab calligraphic styles were developed in countries where the Arabic script was adopted for transcribing the native non-Arabic language as a sign of affiliation to the Islamic faith. Most of these languages developed their own new letter variations but few developed their own calligraphic styles. Among those that did, Persia and Turkey feature most prominently because of their ruling powers over the Arab-Islamic empire and prosperity at different historical periods. There are two major Turkish styles—the Diwani and the Diwani Al-Jali—and three major Persian styles—the Taaliq, the Nasta‘iliq and the Shikasteh—that have had a considerable influence on the development that took place further east in India and all the way to China.

15th C. AD / Diwani—The Diwani style was created in the 15th century in Turkey by the calligrapher Ibrahim Muradī. It was later modified and refined by the reputed Turkish calligrapher Sheikh Hamdullah. It was initially used for the official correspondence of the Turkish Sultans. It is a cursive style based on the Taaliq style, written on less dramatically hanging baseline, though its letter connections are vertical and slanted. Its ending swashes often extend below the following letters. It is written without vocalisation marks.

15th C. AD / Diwani Al-Jali—The Diwani Al-Jali style was developed as an ornamental variation on the Diwani style by the vizier Shaunala Basha, under the auspices of the Sultan Mustafa.

In addition to the features it shares with the Diwani style, its main distinctive characteristic is its overall geometric shape that is created by filling the gaps between letters and words with small delicate ornaments. It has the look and feel of lace with intricately interwoven letters and minute decorative motifs. It was used like signatures for the long names and titles of the Turkish sultans.

15th C. AD / Taaliq—The Taaliq style was invented in the 15th century in Persia. It was named in reference to its formal aspect (Taaliq means hanging in Arabic). It is an extremely fluid cursive style, characterised by its hanging letters (one above the other), which are slanted towards the right. It is thought to have evolved from an old, lesser known Arabic calligraphic style called Pishavar. With time it became more refined and incorporated some of the features of the latest cursive styles, Tawqī and Ragā, into its formal repertoire. Its basic rules were laid down by the Persian calligrapher Abd Al-Hayy. Like Ragā, it is characterised by its short ascenders and rounded, fluid, thick strokes, with minimal small teeth protruding upwards out of the horizontal strokes; the thin pointed ending of all its free-standing letters; its modulated strokes that change abruptly from very thin to very thick lines and its letters with circular shapes that have no counterpart but are instead filled-in loops. This style never became popular outside of Persia, Turkey and India.

15th C. AD / Nasta‘iliq—The Nasta‘iliq style derives its composite name from the two styles Naskh and Taaliq. It is stylistically a synthesis of both these styles with more elaborately fluid lines. It was developed in Iran by Hassan Al-Farsi at the end of the 15th century. It is a lighter and more elegant version of Taaliq.
It was later refined and standardized by the calligrapher, Mir Ali Sultan Al-Tabrizi. Originally employed in the Persian courts, it was later used for literary books of poetry and prose. It curiously appeared around the same time as the Al-Hurufiyah movement, which was a religious doctrine that accorded a certain mystical value to letters. In addition to the characteristics it shares with the Ta’liq style, it is often more densely spaced, creating intricately structured lines of text with hardly any word spaces, giving the feel of a seamlessly fluid line. Its frequent use of wide horizontal swashes creates a playful harmonious contrast to the other small compact letters. It is the national Persian style still used in Iran to this day.

15th C. AD / Shinatabe—The Shinatabe style (the name means broken) was derived from the Ta’liq and Nasta’liq styles. It is characterized by an exaggerated density of intricately woven ligatures, fluid almost continuous bold strokes, and acutely slanted ascenders. It is written without any vocalisation marks. It is used in Persian and Urdu secular texts.

14th C. AD / Behari—The Behari style was developed in India and Afghanistan in the 14th century AD. Its main characteristics are the heavy extended horizontal strokes which contrast dramatically with the thin delicate vertical strokes. It is widely and evenly spaced, with prominent open flat-curved swashes. In spite of its curvilinear swashes, it carries some of the angularity of the Kufi styles.
2.4. Development of Arabic printing types.

Printing has been the foundation stone of the specialised design field called Typography. Tracing back the history and the technological developments that led to printing as we know it today is important to this study. The invention of printing was no more than the convergence of a number of skills and techniques from different disciplines, taking them out of their original context and bringing them together for a completely new purpose. This invention rests on two distinct fields, namely printing with ink from a raised surface onto paper, and punchcutting, which was used in the metal-smithing and minting industry. The synthesis of these two unrelated fields was reappropriated to create a new flexible and economic concept for printing.

In 1450, around the same time as the invention of movable type, the technique of printing with ink from a raised surface was a common means for reproducing documents. However, the engraved blocks used were not cost effective; they were difficult to correct, could not be used for any other text than the one they were originally made for, and the fact that the original block was used did not allow for many impressions because it eventually got worn out, hence compromising the printing quality. The second important technique in the development of printing was borrowed from the metal-smithing craft where punchcutting was commonly used to create steel punches which were struck into metal to make coins; or to mark a name on a metallic product; or were impressed in wax to make seals. The invention of movable lead type was the foundation of commercial printing and typography. The idea of devising a flexible system for making individual letters was the crucial new element in this invention. The key element—which was probably Gutenberg's real invention—was to create adjustable moulds that allowed for easy removal of each cast letter. Making the metal type consisted of a long tedious process of cutting punches of each letter, striking the punches into matrices and casting as many identical copies of each letter at a standard height in a rectangular block that allowed for setting letters one next to the other to form lines of text and on top of each other to form columns. This invention made printing a far more practical and accessible enterprise that was to be continuously perfected throughout the centuries to this day.

The first printed Arabic books with movable Arabic types took place in Europe. This invention, which revolutionised printing, was not used in the Middle East until 300 years after its conception. The reasons behind this delay were due to the cultural, political and economic conflicts within the Ottoman Empire at the turn of the 18th century. The failure of the Crusades into the Levant created religious and cultural animosity between Western Christendom and Eastern Islam. It also instigated distrust and rejection of all Western inventions. This led to a cultural conflict within the Muslim Ottoman Empire between the conservative Ulama and the progressive intellectuals. The Ulama were anxious to protect their legal position within the state and their monopoly of intellectual and socio-political authority against the threat of the dissemination of knowledge through mass produced texts; whereas the progressive intellectuals endorsed the benefits of printing and welcomed the democratic modernisation it would bring to society.

The religious and political conflicts in Europe between the Catholics and the Protestants led to a competitive race to establish strong diplomatic ties with the Ottoman empire and to gain more Christian converts to their respective faiths. Both Catholics and Protestants invested considerable time and funds into the production of Arabic books. They soon discovered that their books failed to generate any interest in the East, where they were considered aesthetically inferior to the manuscripts produced by the numerous skilled Arab and Turkish calligraphers. Eventually, the Europeans concentrated their efforts on producing Arabic books for their own market; books for teaching the Arabic language, and for reproducing Arabic manuscripts of scientific and literary value.

In the 15th century the Maronites made a timely attempt at introducing printing into the Middle East. This attempt inevitably failed due to lack of funds and skilled craftsmen. It was not until the beginning of the 18th century that the Eastern Melkite Orthodox Christians succeeded in introducing printing with Arabic types into the Middle East with the support of their co-religionists in Eastern Europe. They established the first three printing presses in the Levant: one in Aleppo (1767 AD), one in Shuwair in Mount Lebanon (1754 AD), and one in Beirut (1753 AD). These were preceded by a Muslim press in Istanbul (1726 AD). The founding of these four presses sowed the seeds for the 19th century Arab presses that followed. These 19th century presses played a key role in disseminating knowledge that gave rise to the new perspectives of the Arab renaissance—Al-Nahda.
2.4.4 Early printing with Arabic types in Europe (15th—18th C AD)

15th to 16th centuries AD

The story of printing began in Europe with the Arabs introducing Chinese papermaking via their western provinces in Sicily and Andalucia in Spain.

15th century AD

By the end of the 15th century and the beginning of the 16th century, printing techniques using engraved wood blocks and metal plates were widespread. Thus, the first principles of printing using ink on paper were born.

1450—The first movable type was invented by Johannes Gutenberg of Mainz, Germany. This invention was to have a great influence on type design and the art of making and printing books. From its inception in Germany, the printing activity was to move to Italy where the most important typographic developments took place during the Renaissance.


1516—Kitaab al-Sawawri (Book of Hours) is the first Arabic book printed with movable metal type. It is a book on liturgical rites, created to be distributed among Middle Eastern Melkite Christians, with the intention of unifying the Eastern and Western Church. According to Miroslav Krek, it was printed in Venice—though attributed for legal and patency reasons, to the city of Fano—by the Venetian printer Gregorio de Gregori, and sponsored by Pope Julius II. The Italian typographer Francesco Griffo—the man responsible for cutting the first Italic for the printer Aldus Manutius—is assumed to be the author of these Arabic fonts. This assumption is based on the fact that Griffo had a professional relation with the printer who produced this book.
1520 to 1600—This period was so rich in the development of typographic material for Latin type, in quantity as well as in quality, that little was needed for another 100 years. But this richness was not to extend to Arabic type until 300 years later.

1528—The first book containing Arabic quotations, entitled Ornato de laudibus & utilitate trium linguarum Arabicae Chaldaicae & Hebraicae, was printed in London by Wynkyn de Worde.

1539—Master Géoffroy Tory, of Bourges, published his book entitled Le Champ Fleury, l'art et la science de la vraie proportion des lettres antiques et antiques autrement dites romaines, selon le cours et le visage humain. In this work, and among other issues, he inserted a woodcut Arabic alphabet with a transcription of the names of the letters.

1537 to 1558—The first Quran was printed in Venice by Alessandro Paganini. It was destined for export eastward to the Muslim populations who did not yet own printing presses. This venture of printing the holy Quran in Italy is an indication of the adventurous spirit of the Renaissance, particularly the dynamic and risk-taking entrepreneurial printing and publishing environment of Venice in the 16th century. This venture most certainly ended as a financial failure, considering the reserved attitude of the Muslims to printing with movable type, especially the Holy Quran. There remains one surviving copy of this book in Europe, recently unearthed, and safely locked away in the library of the Franciscan Friars of San Michele in Isola, in Venice.

1539—Guillaume Postel published the first printed Arabic book in Paris, Grammatica Arabica. He used woodcuts after having failed to purchase the Arabic printing types from Alessandro Paganini.

1564—The Jesuit father, Giambattista Eliano, was commissioned by Pope Pius IV to print a book of Catechism in Arabic for which he cut his own metal types. The famous Arabic fonts of the Jesuit press in Rome—the Tipografia del Collegio Romano—were thus born. These were famous for having surpassed in clarity of form and aesthetic quality all other Arabic fonts available in Europe at the time. They stayed in use for the following 20 years.

1580—Pope Gregory XIII and Cardinal Santoro set out to replace the worn-out Jesuit fonts. They hired the well-reputed Parisian type designer Robert Granjon, who had arrived in Rome in 1578, to cut the new Arabic types. Robert Granjon had travelled through Paris, Lyon, Frankfurt and Antwerp where he had worked for the famous Christoffel Plantin press. He cut his first small font following the style of the Jesuit Tipografia del Collegio Romano.

1582 to 1587—The first attempts at printing Arabic texts were made in Germany using woodblock printing; namely in 1582 an Arabic alphabet was cut by professor Jacob Christian in Neustadt, and in 1583 The Epistles of St. Paul by Rüdiger Spey was printed in Heidelberg by Mylius.

1583—Robert Granjon cut his second medium-size font with the same body size as his first font, but with larger x-height allowing it to be used for titles. The style of this font is clearly different from the Jesuit style, its calligraphic quality having a degree of affinity with Granjon’s Italic.
1584—The Stamperia Medicea was founded in Rome, under the sponsorship of Pope Gregory XIII, and was financed by the cardinal Ferdinando de Medici. This press made extensive use of the Granjon fonts and continued printing with them until its day of closure.

1584—The Maronite College, founded in Rome, was to later graduate a number of young Arabists who played key roles in the printing and production of printed Arabic books in Rome and Paris during the 17th century.

1588—Robert Granjon cut his third large-size font, the Arabica Grande, which was frequently used for headings. The punches are preserved at the Imprimerie Nationale in Paris, under the name Arabes des Quatre Évangiles: In this same year, the first secular Arabic book was printed in Rome by Domenico Basa. It was a treatise on cosmography entitled Kitab al-Bustan al-Awar al-Muqaddasa and it displayed for the first time the Arabica Grande font of Robert Granjon, where clarity and elegance of form were for the first time harmoniously combined in a design of Arabic printing types.

1590-1595—One year after the death of Robert Granjon in 1589, the Stamperia Medicea printed 1,500 copies of the Bible. A few years later by 1,500 copies of a second bilingual (Arabic and Latin) edition. These books used Granjon’s Arabica Grande for titles and his Arabic Picolina for body text. Many secular books were later printed using the Granjon fonts in three sizes: books on Arabic grammar, geology, physics, the medical treatise of Ibn Sina and a translation into Arabic of the treatise on geometry by Euclid. These illustrious books were printed by the Stamperia Medicea after the death of Granjon, and the man responsible for the typesetting and proofreading of these books was Yaqub Ibn Hilal, otherwise known as Giacomo Luna, a member of the first class of graduates from the Maronite College in Rome.

1593—The Arabic type specimen book, Specimen Characterum Arabicorum, was printed in Leiden in Holland by Franciscus Raphelengius. It introduced Arabic printing types which were intended for the press of the University of Leiden, and cut in 1591 by Jacobus Hondius. Franciscus Raphelengius started his career at the Christoffel Plantin press in Antwerp in 1564. In 1585, when Antwerp fell into the hands of the Spanish, he fled like other Protestants, and moved to Leiden where he set up a new branch of the Plantin press. He became the printer for the University of Leiden. The lack of good Arabic fonts in Holland
At the beginning of the 17th century, diplomatic relations between Europe and the Ottoman Empire were established after the failure of the Crusades. The end of hostilities marked the beginning of commercial relations between Europe and the Levant. During the 17th century, Germany and England joined Italy, Holland and France, in serious efforts in the production of Arabic fonts. The production of Arabic fonts was rapidly changed into a simpler task. This is highly evidenced in the originality and variety of fonts used in German publications of the period. The Dutch managed to create and market their own fonts which they sold to the English, who in turn eventually produced their own fonts. In Italy, after the dissolution of the Medici Press, three main presses emerged, each with its own set of fonts, namely, the Press of the Propaganda in Rome, the Press of the Ambrosian Library in Milan, and the Press of the Franciscan Order's Seminary in Padua. In France the Press of Oriental Languages was founded in Paris but experienced a rather short life. Aside from religious propaganda, the main subject of interest was the language itself, with works on the Quran considered as the best teaching source, and which led to the publication of many dictionaries and Arabic grammar books. The third subject was Arabic philosophy and existential wisdom. The Arabic metal types produced in the various foundries and presses in Europe were used for publishing and printing Arabic religious and secular books alike.

In Germany

1608 to 1616—Peter Kistron attempted to achieve what the Medici had done with Arabic type in Rome. Driven by his deep interest in medicine and the desire to study the manuscripts of Ibn Sina in their original version, he set out to study the Arabic language. He travelled from Germany to Holland, France and Rome, where he came across the Granjon fonts in the Stamperia Medicea's edition of Ibn Sina. He then undertook at his own personal expense the production of his own fonts inspired by those of Granjon. He published the first part of his Grammatica Arabicae in 1608, and in 1609, published a book of Ibn Sina's. In 1610 he went on to publish the 2nd and 3rd parts of his Grammatica Arabicae.

1599—The French punchcutter, Guillaume le Bé, cut the first legible and elegant Arabic metal types in France.

Italy, under the influence of the Catholic Church, was the first to take the trouble of producing a movable type of high quality and to manage to hire and maintain highly-skilled people to do this job, which was considered of significant political importance. However, the distribution of printed Arabic books in the Levant proved to be a rather unsuccessful enterprise, on both religious and financial levels. These books were primarily valued in Europe for their beauty and scientific content, whereas handwritten manuscripts remained the favourite means of book production in the Levant and the North African states.
1646—In Aldorf, the German professor Theodoricus Hackspan, published a book on his method of teaching the Arabic language, entitled *Muhammadan, fides et leges Mohammadis*. It was printed by the official printer of the University of Aldorf, Balthasar Schef. The Arabic types have their own original and peculiar style, with round bold shapes.

1649—The second Quran in Arabic type was printed and published by Hinckelmann in Hamburg. It was printed by two famous printers in Hamburg, Gottfried Schultze and Benjamin Schiller. The fonts used were fully vocalised according to the tradition of setting the Quran, and were most probably fashioned after the fonts from Leiden. That this attempt to publish the Quran in Europe took place in a Protestant country, shows the less aggressive attitude of the Protestants towards the Eastern cultures and the Islamic faith. Elsewhere, the Catholic Church was under attack from the Protestants in the North, and the Muslims in the East, and decided to fight back with religious propaganda, in an effort to win the support of eastern Christians under Ottoman rule by printing liturgical books and Bibles for them.

In The Netherlands

1649—Thomas Erpenius was appointed Chair to Arabic studies at the University of Leiden. He published a bilingual book in Latin and Arabic entitled *Grammatica Arabica*. It was printed by the Plantin-Plantegens press in Leiden, but the fonts are those of the author. That same year other books with excerpts from the Bible were printed by Raphelengius.

1649—Erpenius published a series of Arabic proverbs, *Kitab Al-Anbiya*, with their translation into Latin. The fonts used were the vocalised characters of Raphelengius. After this book he cut his own fonts and established his own press.
1615 to 1620—Eprenius dedicated himself to the translation and publishing of a pocket-size version of the New Testament in Arabic. His own fonts were smaller than Kaphelenchius’s and could accommodate this function more efficiently. In 1617, he published the 28th Surat of the Quran—the Story of Joseph—preceded by a specimen sheet of his own Arabic characters with full vocalisation. In 1620, he published a new grammar book entitled Rudiamenta Language Arabicae.

1624—Eprenius died at the height of his fame at 40 years of age. His work was highly valued for its scholarly quality and typographic achievements.

1628—A second edition of Eprenius’s Rudiamenta Language Arabicae was published and printed by the Elsevier Press in Leiden using Eprenius’s fonts.

1639—After Eprenius’s death, his former student, Jacques Golius, replaced him as Chair of Arabic studies at the University of Leiden. He edited a book on the life of Tamerlane, which was published by the Elsevier Press in 1636, using the non-vocalised fonts of Eprenius. In 1639, he edited a magnificent 2,925-page Arabic-Latin bilingual dictionary. It was printed in Leiden by Bonaventura & Abraham Elsevier.

1669—Jacques Golius died in 1669. His last book on astronomy, after Al-Farghani’s (a 9th century Arab astronomer) Kitab al-Harabat al-Samawiyyah, was published posthumously by Weyserstraut in Amsterdam. This book marked the end of the prosperous period of Arabic studies in The Netherlands.

In Italy

1647—The Doctrina Chritstiana, was published by the Jesuit cardinal, Robert Bellarmin, and translated into many languages. The Arabic version, destined for the Copts in Egypt, was translated by two Lebanese Catholic priests, Gilbini Ab-Sahluni (Gabriel Sionite) and Nasrallah Shawka (Vittorius Sciacca), former students of the Collegio Maronitarum in Rome. The book was set and printed at the Typographia Saravanzia by Stefano Paulino, who later changed his name to Etienne Paulin when he moved with the press to Paris in 1644. This book served as the basis for the edition of the Quran in Arabic and Latin at the Seminary in Padua, where he translated the Arabic Quran text offering a criticism of each Surat. It was printed in Padua using the Arabic fonts of the order’s seminary.

1653—The Stamperia Della Propaganda purchased the typographic material—rich in Syriac and Arabic fonts—of the Maronite College in Rome.

1657—The Franciscans in Padua published a grammar book, Flores Grammaticales Arabici Idiomatis, for use in their teaching of the Arabic language to their missionary recruits. It was printed using the Arabic fonts of the order’s seminary.

1658—Cardinal Gregorio Barbarigo, published a bilingual edition of the Quran in Arabic and Latin at the Seminary in Padua, where he translated the Arabic Quran text offering a criticism of each Surat. It was printed in Padua using the Arabic fonts of the order’s seminary.

1667—The Collegium Propagandae Fide (the Sacred Congregation for the Propagation of Faith) was founded by Pope Urban VIII. It published many Arabic linguistic books using its own fonts up until the end of the 17th century.
In France

1659—The first Oriental press was set up in France by François Savary de Brèves—the French ambassador to the Ottoman Sultan, from 1651 to 1664—who, following his attempt at setting up the Tipografia Savarina in Rome in 1651, was called back to Paris one year later by the French queen. He established at his own personal expense the Imprimerie des Langues Orientales at the heart of the College des Lombards in Paris, with Etienne Paulin as his printer, two Maronite priests Gabriel Siontie and Jean Hesnauth, and his Turkish friend Husein, as consultants for the Oriental languages.

1666—Etienne Paulin left the Imprimerie des Langues Orientales and returned to Rome.

1669—Due to political conflicts, the Imprimerie des Langues Orientales was forced to close down. The two Maronite priests were left with all the Savary de Brèves Arabic and Syriac fonts.

1645—Finally, the Polyglot Bible, a project initiated by Savary de Brèves in Rome 30 years earlier, was concluded in its ten volumes. It was printed by Antoine Vitray with the fully vocalised Arabic Savary fonts for the 5th volume.

In England

1634 to 1635—A number of substantial Arabic quotations and texts began to appear in books printed in England. Due to the scarcity of Arabic types, the Arabic quotations consisted of woodblocks of whole words inserted within the lines of text.

1635—Arabic metal type was first used to typeset John Selden's book entitled More Clavisum.

1637—Equipment and oriental characters, including Arabic, were purchased from Leiden by the Oxford University Press. The Arabic types were later modified in London and extra sorts were cut to accommodate Turkish texts. These types came to influence later Arabic typeface designs throughout England.

1648—The technical obstacles and typesetting defects were slowly resolved leading to substantial scholarly works published by Oxford Arabists.


1653 to 1657—The London Biblia Sacra Polyglotta—in Latin, Arabic, Hebrew, Syriac, Chaldean, Greek, Samaritan, Ethiopian and Persian—was published by Brian Walton in collaboration with Edward Pococke. It was printed by the king's printer and typographer of Oriental languages, Thomas Roycroft. The Arabic types were not in the style of the Oxford types; they were modeled after the Savary de Brèves types used in the Paris Polyglot (1645). These types were later used for printing other books in 17th century London.

1660—The Oxford University Press became fully operational.

1669—A dictionary of six languages entitled Lexicon Heptaglotton, was published by the Cambridge orientalist Edmund Castell as complimentary to the London Polyglot Bible. It had the same format and used the same types.

1670—The first Turkish grammar to be published in England was published by William Seaman and printed in Oxford.
18th—19th centuries AD

Printing with Arabic types and the strenuous production and printing of Arabic books continued in Europe during the 18th century. More European cities—like Vienna, Bucharest, Moscow, Madrid and Lisbon—joined the trend of publishing and printing Arabic books. The French revived their interest in the field and came to play an important role in exporting Arabic fonts to Cairo and Constantinople.

1702—A bilingual Book of Hours, containing the Byzantine Orthodox rites, was printed in Arabic and Greek in Bucharest. It was printed in black and red, with large non-vocalized Arabic fonts reminiscent of the first Book of Hours printed in Fano, Italy, in 1414. It was printed by Anthime Ibir who also cut the Arabic fonts. It was the second Book of Hours to be printed in Europe. It was printed in Bucharest instead of Rome because of the conflict between the Catholic Church and the Eastern Orthodox Church, which sought the support of the European Orthodox Christians in Bucharest. This mission was assigned to the Patriarch of Aleppo, Athanasius III Dabbas, who was to set up four years later the printing press in Aleppo.

1721 to 1722—William Caslon, the renowned English punchcutter, cut a completely new set of Arabic types in small ‘English’ size, which were modeled on Granjon’s 16th century types for the Medici Press. The types were executed under the guidance of Greek Orthodox Syrian scholar, Sulayman Al-Awad (Solomon Negri), who was a former student of the patriarch, Athanasius III Dabbas. These types were originally cut for printing the Psalms and the New Testament in Arabic; published by the Protestant Missionary Society in 1725. These became the standard Arabic types of the Caslon foundry and were supplied to both the Oxford and Cambridge University Presses.

1729 to 1740—The German orientalist and Protestant theologian, Johann Henri Callenberg, founded an institute in Halle, for the conversion of Jews and Muslims. He printed translations of religious books in Arabic, using his own vocalised Arabic fonts. His first printed book described his method for teaching spoken Arabic. It was entitled Al-Maqalah, Colloquia Arabicae Idiomatis Vulgariae, and was typeset by Solomon Negri.

In the second half of the 18th century the printed works doubled in quantity. The European orientalists concentrated their research mostly on scientific and literary Arabic works.

1775 to 1772—the Dutch orientalist, Albert Schulzmann, published in Frankfurt in 1771 three of the Majomat Al Hariri Al-Weer, authored by an Arab writer famous for his literary meetings. In 1793 he published the life of Saladin, Sultân Salâh Al-Dîn, printed in Leiden.

1792—the German professor of Arabic language at the University of Leipzig, Johann Jacob Keiske, a former student of Albert Schulzmann, published a serious treatise of a long poem, Majma’ul, of the pre-Islamic Jahlíyya poet, Tarafa Ibn Abdul-Baki.

1795—in Leipzig, Johann Jacob Keiske published parts of the work of the Arab poet, Al-Mutanabbi, in Arabic and German.


1775—the Arabic grammar book entitled Grammatica Arabico-Espanol Vulgar y Literal was printed in Madrid and edited by the Franciscan missionary, Francisco Cáñez, who had studied Arabic in Damascus.

1777—at Oxford University Press, John Richardson, a specialist in the Persian language, published a Persian–Arabic–English dictionary. The small Arabic types used were by William Caslon, and the larger ones were by Joseph Jackson, a former apprentice of Caslon.

1782—Under the orders of the Russian Empress Catherine II a Quran was printed in St Petersburg. The font used was an elegant imitation of the Granjon font of the Stamperia Medicea, which was used for printing the geography book of Al-Idrist.
1910—the Royal Academy of Sciences in Lisbon published and printed a book, Documentos Arábigos, 1507–1528, Para a Historia Portuguesa, by Joao de Sousa. This Portuguese historian was born in Damascus to Christian parents. He was raised by the Capuchin friars and encouraged to leave for Portugal where he played a diplomatic role of interpreter to the Portuguese King Joseph I in delegations to the King of Morocco.

1914 to 1800—William Martin, the first English ‘Oriental type founder’, and the printer William Balmor joined forces to collaborate on works that had great influence on British typography in the first half of the 19th century. Balmor became the main printer of the East India Company. The company commissioned Martin to cut a new Arabic font modeled after the Nashi calligraphic samples provided by the orientalist Charles Wilkins. The new Wilkins-Martin types were cut in two sizes and used in the sixth edition of Sir William Jones’s Grammar of the Persian Language (1804).

1920—in Vienna, the Patriarch, Anthis, of Jerusalem, published a beautiful folio of the Psalm. The font used was by the workshop of Joseph Ruschbik.

1930—a 20-page manuscript from the French Republic, entitled Adresse de la Convention Nationale au Peuple Français, was printed and translated into Arabic by the secretary of the French embassy in Istanbul. The French and Arabic texts were printed on facing pages. The Arabic fonts used were those of Savary de Bèvres. It was printed in red and black with a neo-Arabic frame around the text block.

1955—Bonaparte decided to have a printing press equipped to print in Arabic and Turkish, to accompany the French army into Egypt. Jean-Joseph Marcel, a former student of the famous French Arabist Sylveste de Sacy, was set up and run the press in Cairo, the Imprimerie de l'Armée Orientale. To train his typographers, he printed the Arabic, Persian and Turkish alphabets, a small French–Arabic vocabulary book and the Fables of Laugman. The printing press in Cairo also used the Savary de Bèvres Arabic fonts.

87th—Joseph Dacre Carlyle, Vicar of Newcastle upon Tyne, published an Arabic Bible intended for distribution in the Middle East. It was a remarkable work of Arabic typography, printed by Sarah Hodgson of Newcastle, using the Wilkins-Martin Arabic types.
2.4.2. Early printing with Arabic types in the Middle East (16th–17th century).

The 15th century is often referred to as the cradle of the printing arts, starting with Gutenberg's invention of movable type. Although it took some 300 years before printing with movable type was introduced to the Arab and Islamic nations, there is enough evidence to prove that printing was not alien to the Arabs. The precursory skill to printing, was acquired from the printing industry, which had been widespread in Arab cultures for many centuries. As far back as the 8th century—some 500 years before Gutenberg's invention—the Arabs were familiar with block-printing and with the art of papermaking (imported from the Chinese). Richard Bulliet advances the notion that block printing in the Middle East was an independent invention. However, unlike the Chinese who regarded the printing craft with high esteem, printing in the Muslim nations was confined to the underclass and ignored by the intellectual elite. The earliest examples of Arabic prints found in Egypt, dating back to the Fatimid period (9th–11th century), were primarily amulets of a popular religious and magical nature, of low aesthetic quality, printed on long strips of paper and enclosed in metal cylindrical containers. They were printed from cast metal plates known as tarnish. The plates were prepared by pouring molten metal on engraved clay moulds. Once worn down, the plates were melted and recast for further use. These amulets were sold to possibly illiterate members of society with limited means who could not afford the services of a calligrapher. The scarcity of evidence is due to the nature of the material that may have been regarded as not worth preserving in the same way that the beautifully copied and illuminated or illustrated manuscripts were. In the 13th century, under Mongol rule, bank notes, with Arabic and Chinese texts, were printed in Tabriz. Arabic block printing survived until the 13th century, and may have been suppressed by the Sufi masters, who believed, among other religious claims, in the holy act of writing amulets. With the suppression of this craft, one of the cleverest medieval Muslim inventions disappeared quietly, only to re-emerge as a borrowed Western invention in the 18th century.

From the 16th to 18th centuries in Europe, some Arab scholars became key assistants, translating Arabic texts, participating in Arabic typesetting and book printing, and supervising the production of Arabic movable types (see the previous section 2.4.1).
printing press in Aleppo, and between the years 1706 and its closing date in 1711, this press printed and published a number of religious books for the Eastern Orthodox Church. At the beginning of the 18th century, some members of the Orthodox Melkite Church converted to Catholicism under the influence of the Jesuits, and moved to Kesrewan in Mount Lebanon.

1706—The first book to be printed in Aleppo was a Book of Psalms, Kitāb al-Zahrūr Al-Shayrī, translated by Abdallah Ibn Al-Fadl Al-Antaiq, and printed by Abdallah Zakher.

1792—Abdallah Zakher was one of the ex-Melkites who had left Aleppo after his conversion to Catholicism. He was a skilful metalsmith and engraver who had designed and cut the fonts of the Melkite printing press in Aleppo. He moved to Mount Lebanon where he founded the Arabic press of the Catholic convent of St. John the Baptist in Shoufayr (in Mount Lebanon). This press was functional up until the 20th century and specialised in the printing of Christian religious works.

1795—The first Arabic book was published at the Arabic printing press of the convent of St John the Baptist in Shoufayr. The book entitled Kitāb al-Mīzàn az-Zamān (the book of the balance of time) was printed using Arabic movable type, designed by Abdallah Zakher.

1796—The Saint-Georges printing press was founded in Beirut.

1800—Typsetting in the Ottoman Empire became widespread resulting in some of the finest Nashī style fonts. The Nashī fonts designed by Ottoman masters such as Şemseddin Ağa had a high standard for later type design and production.
1798—Arabic printing and typesetting was introduced into Egypt during the Napoleonic French occupation, with two presses in Cairo and one in Alexandria. These presses printed political posters and announcements for the French military.

19th Century AD

The 19th century witnessed the Renaissance of Arab Culture, Al-Mahala. This cultural modernisation movement owed credit in some respect to the flourishing of the printing industry and the democratic spread of knowledge throughout the Arab world. Lebanon was to set the example with the publication of old and new texts of grammar, literature and science. In the second half of the 19th century, Lebanon became a publishing and printing haven in the Middle East. The subject matter of the books and periodicals varied considerably, ranging from religious, scientific, literary and philosophical works, to educational books and bilingual dictionaries.

1838—Printing started flourishing in Iran.

1822—An Arab printing press was set up in Bulaq (Egypt) by the Egyptian ruler, Muhammad Ali. This press marked the beginning of large-scale book printing in Egypt. It was to have a great influence on book printing and typography throughout the Arab world. It was supported by the state and was to set the example for other government presses by slowly forcing the conservative elements to accept and make use of the new printing techniques. It printed and published the first Arabic-Italian dictionary in 1822.

1827—The British missionaries founded a printing press in Malta. They had their Arabic types cast in London by Richard Watts. This British press produced, between 1825 and 1842, many religious, linguistic, scientific, educational and literary Arabic works of all kinds, some of which were written or edited by the famous Lebanese writer, Fares Al-Shidyaq.

1830—Printing first took place in Iraq.

1845—Printing was introduced to Morocco.

1846—Printing was introduced to Algeria and Palestine.

1834—The American Protestant missionaries of the ABCFM (the American Board of Commissioners for Foreign Missions) founded an Arabic printing press in Beirut. Though founded first in Malta in 1822, it did not acquire its Arabic fonts until 1829. Printing in Malta was restricted to the Greek, Italian, Armenian-Turkish languages, while Arabic printing only began after its relocation to Beirut in 1834.

1835—The first printer, George Percy, who had previously worked at the American Mission Press in Malta, arrived to Beirut. His immediate concern was to improve the defective Arabic types that were in use. After many attempts, and with the help of the American Mission Press in Izmir and the Hebrew Press in Safad (Palestine), he managed to acquire moulds and cast lead types based on calligraphic models from Turkey, Damascus, Aleppo and Cairo.


1836—A new printer, George Hunter, took the place of George Percy and remained in charge of the American Mission Press in Beirut until his retirement in 1864. He arrived at his post with the new ‘American Arabic’ types which were cast in Leipzig after matrices cut in Izmir by Herman Hollock.

1835 to 1842—A total of twenty nine books were published at the American Mission Press, ranging from religious and biblical texts, to Arabic spelling and grammar books, to arithmetic and medicin books. This press continued to produce religious and literary Arabic works well into the 20th century.
1848—The printing press, Imprimerie Catholique, was founded in Beirut by the Jesuit fathers. On a Christian propaganda and educational mission in Lebanon, they set out to provide educational and religious books for their students and for the training of their own professors. The press was set up in the Jesuit convent with a small letter press sent as a donation from Lyon, France. It later expanded and was housed in its own building adjacent to the convent, acquiring larger presses and its own type foundry. In 1863, it received Arabic matrices from Paris that were used for casting the metal types in-house.

The American Mission Press and the Imprimerie Catholique were the two rival printing establishments in 19th century Beirut. They set the standard for the printing establishments that followed at high speed all over Lebanon.

1832 to 1893—Many printing presses were established in Beirut and at various locations in Mount Lebanon. The list in Lebanon is long, giving a clear overview of the prosperity of this field at the beginning of the 19th century. In 1832 the lithographic printing press of Dayr El-Qamar was founded by Hanna Abu Saab. In 1837 the Imprimerie Syrienne was founded in Beirut by Michel Al-Khouri; in 1851 the Imprimerie Orientale was founded in Beirut by Ibrahim Al-Najjar; in 1859 the Imprimerie de Ehden was founded by Rumanus Yamnin; in 1861 the Imprimerie Umumiyah was founded in Beirut by Yusef Shalwan; in 1862 the Imprimerie de Beirut was founded; in 1865 the Imprimerie Mukhassasiyah and the Imprimerie Syriac were founded in Beirut (the latter was later transferred to Harat Al-Shurafah); in 1869 the Imprimerie Al-Maarrif was founded in Beirut by Butros Al-Bustani and Khalil Sarkis; in 1874 the Imprimerie Al-Majrur was founded in Beirut by Abdelqadir Al-Qasabi; in 1885 the Imprimerie de Beirut was founded by Muhammad Rashid Al-Dana. In this same year the official printing press of the Wilayat Beirut was founded; in 1890 the Imprimerie Al-Adab was founded by Antar and Khalil Al-Khouri; in 1891 the Imprimerie Al-Fawaid was founded by Khalil Al-Badawi. That same year the Imprimerie Ottomane was founded in Baabda; and in 1892 the Imprimerie Al-Ummiyah was founded by Salim Al-Unsi.

1860—The first printing took place in Tunisia.

1864—The lithographic printing press of Baghdad was brought from Iran by Karim Al-Tarbi. It published the book, Kitab Ithiq Al-Tawarikh, by Yaqoub Ibn Atalah Al-Rumi Al-Qurmani.
That same year, the official printing press of the Syrian Wilayat was founded in Damascus. It published the following year a treatise on logic by Umar Al-Attar.

1876—The first Arabic encyclopedia was published by Batos Al-Bustani, entitled Da‘īrät Al-Masāraf.

1877—Printing was first introduced in Yemen.

1881—Printing was first introduced in Sudan.

With the invention of lithography in the 19th century, many other smaller Arab presses adopted this new technique wholeheartedly. It resolved many of the obstacles that movable Arabic type presented for them—the slow and difficult handwriting process and the cost of metal fonts. Arabic books could be reproduced by marrying the readily available beautiful calligraphy—therefore retaining the essential calligraphic quality of the text—with the printing technique that provided fast and large quantities of identical reproductions. This method was especially popular in Morocco and the Eastern Islamic countries like Iran and India, where the complex scripts commonly used were difficult to set in typographic material. Printing in the Middle East did not merely influence the publishing and spread of Arabic books, but it also exerted a change in the visual conventions of book design. Title pages, where the name of printer and publisher with dates of publication were mentioned, began appearing in printed books (as had been the convention in Europe for some time). The introduction of typographic features began replacing the traditional scriptorial conventions, tables of content, chapter numbering, paragraph divisions, punctuation, running heads, footnotes, tables and engraved illustrations were manifested, whereas marginal notes and borders started being discarded. With the reduction in the cost of paper and its availability, made possible through mass production, line-spacing became more generous and the emphasis was put on clarity. New layouts and new fonts improved. Most fonts used were of Naskh style with the exception of the Maghribi font at the Bulaq Printing Press, the Nasta‘iliq font cast for the Ottoman government by the Armenian press at Ortaš, and fonts previously used in India. This concern for the clarity of text and its easy accessibility by a wider public prompted a serious deviation from the convention and resulted in the creation of new simplified ways of reproducing the written Arabic script. These reform projects were extensive and enduring.

1.4.3. Reform projects for Arabic type.

The first ever reform project for the Arabic script was carried out by the vizier, Aḥa Bīn Maqūl, in the 11th century AD, when he devised standardisation rules that helped unify and improve the quality of all cursive calligraphic styles. Ten centuries later, the independence of all Arab states from the Ottoman Empire assisted in propagating the printing industry under the growing demands for printed matter, and created an atmosphere of modernisation and progressive experimentation. The result of this atmosphere of change led to a re-evaluation of the classical Arabic language taking into account its structural, written and visual aspects.

1936—A conference was held at the Academy of the Arabic language in Cairo, with respect to the reform of the Arabic written script. It was initially triggered by the need for standardising the transliteration of non-Arabic names with Arabic letters. This was solved by adding new diacritic dots to certain existing Arabic letters in order to create new foreign letters (i.e., adding three diacritic dots above the letter F to create the letter Ḍ). Two years later in 1938, the Academy of the Arabic language launched a broader reform, in a campaign to confront illiteracy in the Arab world, with the goal of making the written Arabic script easier to read and write.

1947—After several rejected reform proposals considered unsuitable for their drastic break with the traditional script, the Academy initiated an open, worldwide competition. Some 200 projects were received within the following two years, a commission was appointed to review the entries.

1952—After long deliberations, none of the projects was awarded a prize, the commission concluding that no proposal satisfactorily fulfilled all the requirements of the competition. The commission, however, decided to classify the proposals into three main categories:

1. Projects that proposed a total break with the Arabic traditional written script using Latin letters.

2. Projects that proposed a total break with the Arabic traditional written script using Latin characters to represent Arabic letters.
2—projects that retained the traditional Arabic letters while adding to the alphabet the short vowels as extra letters.

3—projects that proposed a single letterform per letter with the use of vocalisation marks (short vowels and diphthongs).

1955 to 1959—The commission continued working along the lines of the third category of projects. It received another batch of proposals that it rejected in turn for reasons similar to their predecessors. The committee then decided that the reform was to be limited to printing types for typewriters and typesetting machines. A few basic rules were set for the reform and simplification of the Arabic script:

1—New diacritical dots were added to some Arabic letters, creating new letters for representing non-Arabic sounds. These letters were added to the standard Arabic character set.

2—The use of vocalisation marks was made obligatory for primary school books and educational books for foreigners.

3—The character set was reduced from 300 to 169 characters, consisting of the basic form variations per letter and the few indispensable ligatures.

In time the technological developments in the typesetting and type manufacturing industry rendered these efforts superfluous. However, the project of the Academy of the Arabic Language in Cairo did highlight some of the problems and resulted in some interesting experimental projects. Some projects were carried out as pragmatic solutions and have left their influence on the type design and manufacturing industry.

1942—The project of Nasir Khattar, New York.

The new Arabic writing system proposed by Nasir Khattar was called the Unified Arabic Type. It was believed to help in the learning and writing of the Arabic script. The design principle was heavily influenced by the Latin alphabet:

1—a single letter shape was assigned per letter.

2—the letterforms retained their traditional shape, though they were designed to have a clearly distinctive shape that would set them apart from the other letters.

Dedicated to the Cultural and Economic Advancement of One Seventh of the Human Race—The Readers of the Arabic Script

2.4.4. The unified Arabic proposal of Nasir Khattar for Arabic alphabet that uses one shape per letter.
1958—The project of Ahmad Lakhdas Ghazel, Morocco.

Like all the projects proposed to the Academy of the Arabic Language in Cairo, this one was also rejected. It was however adopted by the Moroccan government and prompted the establishment of the Institut d’Etudes et de Recherches pour l’Arabisation in 1960. The system devised by Professor Lakhdas was named asv−coda (Arabe Standard Voyelle − Codage Arabe). The goal of the project was to create a standard Arabic type that matched Latin type and that could be used on all modern media. The system was created in two versions: the Pure and the Total.

1—The Pure system consisted of three categories:

1.1. the regular letters of the alphabet with a single form per letter.

1.2. additional ending tails that could be annexed to particular letters to form the terminal shape of letters. These endings came in three shapes.

1.3. the vocalisation marks were treated as separate letters occupying a space after the consonantal letter (though still above or below the baseline). These vocalisation marks came attached with a connecting horizontal stroke for use in combination with connecting letters, and without the horizontal stroke for use after free-standing letters.

2—The Total system has two categories of characters in addition to the set of the Pure system:

2.1. the aesthetic characters for some letters in their traditional final form.

2.2. the foreign and phonetic characters for writing some non-Arabic and local Moroccan names.

2.3. The coda−vowel (Arabe Standard Voyelle − Codage Arabe) for standardisation of Arabic rendering system for typewritten and typewriting machines.

1—From right to left: Characters with foreign, characters for foreign names, and the Latin−Arabic biphone.

3.2—The regular character set is two ones.
1960 to early 1970s — The project of E.B. Plooij, Amsterdam.

The project of Dr. E.B. Plooij was long-term, individual research carried out at the University of Amsterdam in the Netherlands. Unlike the projects submitted to the Academy of the Arabic Language in Cairo, which attempted to simplify and/or modify the Arabic script by adapting it to the then modern typesetting techniques, his project was launched out of the reverse principle of adapting the typesetting machine to the traditional Arabic script. The goal of the project was to create a system whereby typewriters and photocomposers were able to handle setting complex traditional Arabic calligraphy (a principle reminiscent of the arguments on the benefits of printing the 16th century printer, Ibrahim Muteferrika, and his ability to manipulate the machine in order to preserve the beauty of the script).

Dr. Plooij's method was to break down the alphabet into parts that are interchangeable instead of following the traditional way of creating variations of shapes and ligatures and extra connecting lines. His method allowed for a wide range of variations using a relatively small set of units. The fact that he was designing for photocomposers allowed for overlapping certain parts of letters therefore simulating the smooth flow of the calligrapher's seamless line quality. In fact, the project extended beyond the design of letters; it involved the construction of metal Arabic types for the IIM Executive typewriter, and the invention of a special photocomposition machine.

His design principle, however, was later revived in the DecoType Nasîh font, designed as an integrated digital font for Microsoft's word processing software and for Adobe PageMaker. With the advent of digital technology, the personal computer in the early 1980s, many of the design complications inherent in the typesetting of the Arabic script became obsolete. The design possibilities are practically endless, the only limit being the type designer's imagination and know-how.

2.4.4 The 19th–20th century developments for Arabic typesetting and manufacturing.

By the late 19th century, type was being mass-produced and mechanically manufactured. Hand composition was replaced by mechanical typesetting. The skilled craftsmen, such as engravers and punchcutters, were slowly becoming a breed on the road to extinction.

1856 — The metal slugcasting and typesetting machine was invented by Ottmar Mergenthaler for Linotype. It was a faster method of typesetting than the hand setting of individual movable types. The disadvantage of this machine was that it did not allow for adjustable kerning, and therefore its fonts were designed to take this restriction into consideration.

1897 — The Monotype hot-metal mechanical typesetter was invented following the invention of Tolbert Lanston. With its
Typography is at the heart of graphic design. So with the invention of PostScript and its ability to handle typeface outlines, the graphic industry has reached higher quality type and has made great advances since the late 1980s. This ability to handle outlines and sensitive hinting has enhanced the possibilities for creating elegant Arabic typefaces that retain the fluidity and beauty of original calligraphic styles. Moreover, the continuous improvement in type production and type software with contextual analysis capabilities, has opened the way to complex type design solutions with a wide range of glyphs and special characters. Many small, independent typefoundries that created and distributed their own fonts via the internet have mushroomed all over the world. The Arabic market has yet to catch up with this phenomenal development, although there are some small but promising initiatives that are starting to manifest themselves (see page 207, TypeDesigners & Typefoundries).

1985—Esselle Letraset entered the desktop publishing market with their Ready-Set-Go type software application. This was followed by Diwan (a London-based software company) and released under the name Al-Nashir Al-Maktahi. It used a range of the Arabic fonts from Linotype as an integrated part of the type software (i.e. Yaqut and Badr). Later a new version was released also by Esselle Letraset as Design Studio which was Arabised as Al-Nashir Al-Sahafi.