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To my father

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Preface

At the end of the ancient world and at the early medieval times two great powers, Byzantium and the Arab-Islamic states, were engaged in a constant struggle. Nevertheless, in spite of the continuous warfare between these two superpowers we can glimpse frequent mutual interferences in various aspects of their civilizations. It is the aim of this paper first to offer a general background of the Byzantine and Arab empires designed to place each of them in a meaningful context and facilitate an understanding of their historical significance. The perspective in this part, as in the whole paper, is not from the Western viewpoint or indeed from any other. The perspective is to present the course of historical events as it ebbs and flows over centuries in a balanced way. Wars and military matters are necessarily treated but there is a definite tilt towards socio-economic aspects. Actually the cause of undertaking the topic of “Byzantium and the Arabs: Rivalry and Reconciliation” is to discuss a case of international interdisciplinary subject. It is for this purpose that the focus of this paper, after a broad introduction, is to emphasize the cultural relations between Byzantium and the Arabs at the time an unceasing struggle between these two superpowers was taking place.

The most important cultural interchanges in literature, art, maritime technology and commerce will be discussed. On the one hand, a bird’s eye view of the above aspects is given, and on the other some new elements are presented. Among them a discussion of the Kufic or Pseudo-Kufic decorations in the church of Hosios Loukas in Greece and the aniconic images of some Byzantine churches on the island of Naxos.

A short account of the most salient characteristics of both the Byzantine and Arab-Islamic civilizations will be presented before the discussion of the cultural interchanges.

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1. Introduction

The Byzantine Empire, a conventional name given by modern scholars, was the continuation of the Roman Empire. Its dominance lasted about eleven centuries, from the fourth to the middle of the fifteenth century. During this long process a great civilization was created, rich in arts and letters. However, it had to face many difficulties and among all the most important was to maintain the Empire by fighting many enemies. The attempts by numerous enemies to conquer the entire Empire or even parts of it were unlimited. The most aggressive and persistent enemies were the Goths, Visigoths, Persians and Arabs.

The term Arab is extremely difficult to be defined since there have been enormous disagreements among scholars and researchers about their origin and their first habitat (Hainthaler 2012, 29-34; Robin 2010, 85-86). In general, the starting point of the Arab Islamic world is considered to be the middle of the seventh century, when the Arabs were united under the banner of Islam. The following centuries reflect a brilliant course and a rapid development of the Arab Empire. The Arabs, who in pre-Islamic times were divided into numerous self-sustained tribal units, managed by the middle of the seventh century to unite and create a solid state. Moreover, following an aggressive policy, they intruded into the Byzantine Empire and started a continuous struggle against it marked by a great number of battles and quarrels. For seven centuries these two super powers of the time co-existed and were in a constant interaction.

The conflicts of these two powers have been researched and analyzed by many scholars. A lot of ink has been spilled on the study of the bellicose mood of the Byzantines and Arabs, of the battles and wars, of the resources used, etc. Unfortunately, a question which is seldom raised is: “Were the relations between the two great forces solely hostile?"

The interactions between the two rivaling forces were continuous and numerous. Whether in wartime or in peacetime, and thus they were in constant contact. Consequently a fertile ground for cultural exchanges was gradually created.

In this research the Byzantine and Arab cultural exchanges which developed in spite of their warfare are being examined. The sub questions that arise immediately are:

- In which fields do these exchanges appear?
- What are the salient characteristics of Byzantine and Arab empires in order to undertake a detailed comparison of them?
- What are the mutual interactions in literature, arts and navigation?
- What are the most important similarities and differences between these two civilizations?
- How important is the topic of this research?
- What is the contribution of this research to the field?

The aim of this paper is to attempt to answer all the above questions clearly and thoroughly.

Initially, the historical background of the Byzantines and the Arabs will be presented briefly in order for the reader to be adequately introduced to the subject. Certain relevant aspects of the literature of both cultures are examined, i.e. the Byzantine romance epic of Digenis Akritas in connection with two similar Arab narrations, "Umar" and "Delhema", which were created on the Arab-Byzantine frontier of the East. It is to be noted that these Greek and Arabic narrations mirror on the one hand, the antagonism of the two great powers and on the other, their peaceful co-existence.

The second chapter will follow with a special reference to navigation, one of the main key cards of the two powers. The trade routes in the Mediterranean, the Red Sea and the ships that used to sail there will be described, as well as the reasons for constructing such ships will be discussed.

In the Indian Ocean it is not known whether the Byzantine ships were constructed according to the local tradition or to the Byzantine. In the Mediterranean the Arab

ships were initially constructed mainly in Egypt according to the Byzantine tradition and later they were enriched with the Chinese maritime technology.

The Byzantine naval technology will be discussed in detail, i.e. types of merchant ships and warships and naval weapons. Furthermore, the urgent need for the Arabs to create a navy will be explained and the development of their own merchant and warships.

The discussion will end with concluding remarks concerning the common characteristics and differences between the Byzantine and Arab warships, i.e. mainly the *dromon* and *shīni* (*shalandi*).

More difficult is the research in the field of art about which few works have been written. Nevertheless, there is no doubt that certain Kufic and Pseudo-Kufic designs appeared in a large number of Byzantine churches. Most probably certain Byzantine artistic depictions betray Islamic influence, i.e. depictions of sphinxes on the reliefs of Church of Gorgoepicoos in Athens as well as on other monuments. Likewise, as it is well known, the famous mosque of Damascus bears obvious Byzantine influences. Less known are certain Islamic influences on Byzantine iconography such as certain designs of Byzantine Bibles and possibly on the frescoes of the church of St. Kyriaki on the island of Naxos.

2. Historical Introduction

2.1 The Byzantine Empire

2.1.1 The Emerging of the Byzantine Empire. Chronology

The exact chronology of the beginning of the Byzantine Empire has remained a controversial problem. The period between the fourth – sixth centuries has been labeled either Late Antiquity or Early Byzantine (Mango 1981, 48-57; Vavrinek 1985). Undoubtedly Constantinople perched on the shores of the straits between Europe and Asia is located in a highly strategic location, strongly defensible from both land and sea (Mango and Dagron 1995).

The geographic extent of the Byzantine Empire was fluctuating at the time of the emperor Justinian (r. 527-565). It included Asia Minor, the Greek peninsula and part of the Balkans, Western Europe from the Italian peninsula to Spain, the Near East from Egypt to the borders of Persia (present Iran) and the whole of North Africa above the Sahara. By the year 700 AD after the first Arab conquests, all the Near Eastern provinces and North Africa were lost while in the West Byzantium retained Sicily and part of southern Italy.

The Byzantine Empire detached from the Roman Empire was not a Latin entity but a hybrid that steadily drew apart from the Italian Latin Western world. After the eighth century the main language of the Byzantine people was Greek and most of the literary works were written in Greek. Byzantine scholars studied the literature, philosophy, and science of Greece while Latin was used for Law. Christianity became the official religion of the empire and religion dominated the everyday life of the people. While the patriarch of Constantinople was the head of the Byzantine Church, a system known as “Caesaropapism” enabled the emperor to interfere in the Church. Most emperors constantly interfered in the religious conflicts. Actually the great religious controversy over the icons, known as iconoclasm, was motivated by the emperors of the Isaurian dynasty, especially Leo III (717-741).

Over the centuries many differences developed between the Byzantine Church whose language was Greek and the Roman Church that used Latin. The pope resisted domination by the Byzantine emperor and the Byzantines would not accept the pope as head of all Christians. The final break came in 1054 and the Christian Church split in the Roman Catholic in the West and the Eastern Orthodox in the East (Dvornick's 1948). The Byzantines transmitted their religion to Russia and the Eastern Slavs were converted to Byzantium's Christian Orthodox Church.

The Byzantine Empire reached its peak during the Macedonian Dynasty (843-1056). Under the emperors of the Macedonian dynasty Byzantium counterattacked the Arabs and advanced into Syria and Palestine short of Jerusalem. Simultaneously they reestablished their dominion in southern Italy and dominated the neighboring Lombard duchies until after the advent of the Normans in the early eleventh century. It was at that time that the international trade of the Byzantines was highly developed. Byzantine merchants crisscrossed the Eastern Mediterranean and freely visited the Syrian and Egyptian ports. Underwater archaeology demonstrates the intense trade relations between Byzantium and the Moslem Arabs (Bass 2004; Dimitroukas 2007, 56-57)

It was also at the time of the Macedonian dynasty that the Bulgarians were converted to Christianity and Orthodox Christianity was spread to the Russians and other Slavic peoples of eastern and southern Europe (Sorlin 1961, 313-360; 447-475; Browning 1975).

By end of the Macedonian dynasty we notice the roots of decadence because of internal changes and external enemies. The lords of the large estates acquired great power and developed into semi-feudalistic rulers suppressing the tenants and acquired military power. The Normans occupied Bari in 1071 and threw out the Byzantines from the Italian peninsula (Ahmad 1975, 49). In the same year the Seljuk Turks defeated the Byzantines in Manzikert in Armenia (Nicolle 1999, 20-21). This was the beginning of the penetration of the Turks into Asia Minor who established their capital in Nikaia. At the end of the Macedonian dynasty the Arabs, mortal

enemies of the Byzantines, were restrained, and the Bulgarians who, in spite of their Christian conversion, constantly harassed the Byzantines, were also restrained. Basil II in the year 1014 captured 14000 Bulgarian prisoners and subdued Bulgaria which was ruled as a conquered province.

While the Byzantines managed to arrest the onslaught of the Muslim Arabs in Asia Minor by the time of Nicephorus Phocas (r. 963-969), a new Islamic power, the Seljuk Turks, appeared in the East. They inflicted a humiliating defeat on the Byzantines in Manzikert (1071) and opened the way to Asia Minor. In spite of the desperate efforts of the Comnenoi emperors (1081-1118), Asia Minor was doomed to be lost forever. The Seljuk Turks, who occupied Jerusalem in 1077 and consequently most of the Near East, were defeated by the crusaders who captured Jerusalem in 1099 and established there their new kingdom. It is beyond the scope of the present work to describe the complex relations between the Byzantines, the Seljuk Turks and the crusaders. Suffice it to mention that the crusaders occupied Constantinople in 1204 and that after the reestablishment of the Byzantine Empire in 1261 a long period of decadence followed. Constantinople and the entire Byzantine Empire were destined to be conquered by another Muslim Turkish power, the Ottomans (Inalcik 1973). In 1453 the Ottoman Turks broke through Constantinople's great walls. The last Byzantine emperor Constantine Palaiologos was killed and Muhammad II (Mehmed the conqueror) moved the capital of the Ottoman Empire to Constantinople (Bosworth 2007, 184).

Finally, it is worth mentioning that at the time the crusaders were fighting against the Arabs under Ṣalāḥ al-Dīn, who recaptured Jerusalem in 1187, the Byzantines had developed friendly relations with the Arabs as reflected in the historical sources and in the Arab romance epic "'Antar", which will be discussed further in this work.

2.1.2 General Remarks

Our knowledge of family life in the Byzantine Empire comes largely from the upper classes, as is usual for pre-modern history. Beginning in the eighth century, after the

early Arab conquests, the reduction of the territory increased the homogeneity of the people who concentrated mainly in Asia Minor, the Greek peninsula and the islands.

Orthodox Christianity became the official and prevailing religion. The Christian faith gave the tottering Byzantine Empire a new cast of thought and a system of morality and ethics that challenged the old beliefs. Although often familiar with the ancient Greek literary texts, the fathers of the Byzantine Church preached the Christian doctrine shifting the focus to the afterlife.

Greek became the common people's language, but the vernacular of the people was usually restricted to hagiographical works and the educated scholars continued to write in the ancient Greek style, though simplified. In Byzantium various literary genres emerged, i.e. chronography, epistolography, epigram, religious and secular poetry often by unknown authors, which in general could not be matched to the achievements of the ancient Greek world, but still they were remarkable. Folk literature in Greek vernacular appears only after the ninth century AD restricted to the cycle known as the "Akritic" (Beck 1993; Kazhdan 2006).

To sum up the salient characteristics of the Early Byzantine Empire are the reduction of its territory after the early Arab conquest in the middle of the seventh century, which strengthened its homogeneity, the acceptance of the Christian religion by almost all its inhabitants and the rise of the Greek language as an official language and as a language of communication. Imitation of classical Greek literature and language by Byzantine literary people was common and the demotic language was restricted to few works.

Through the long period of its history (4th century – 1453), Byzantium confronted numerous enemies. From the numerous enemies, against whom the Byzantines fought, the Muslim Arabs were the most dangerous until the twelfth century. Their main characteristics are presented in the next section 2.2, "The Arab Islamic World".

2.2 The Arab – Islamic World

The second civilization to arise after Rome's fall was based on the vital new religion of Islam, which emerged in the seventh century among the Arabs of the Arabian Peninsula (Grohmann 1960, 524-527). Islam, which means in Arabic "submission [to God's will and rule"], is strictly a monotheistic religion. Its founder was Muhammad, a prosperous merchant born in about 570 AD in Mecca of Arabia (Cook 1996, 42-44), which was largely inhabited by nomadic tribes, each under its own chief. Muhammad belonged to a patriarchal Meccan clan, the sons of Hāshim (the Hashemides) and he was a member of the Quraysh tribe. This tribe was consisted of a number of leading clans that constituted the *mala* (assembly of notables), who governed the city of Mecca (Chabbi 2010, 103). Originally nomadic, the Quraysh tribe was established in the city of Mecca just a few generations before Islam. In addition to a multitude of nomadic tribes, Pre-Islamic Arabia contained a considerable number of town dwellers not only in the holy cities of Mecca and Medina but also in Najran of Yemen and other areas as the archaeological and epigraphic evidence confirms. It was in these towns that Christianity and Judaism penetrated, replacing paganism which prevailed in the nomadic areas (Robin 2010, 83-89; Beaucamp et al. 2010).

When Muhammad was about forty, he believed that he was visited by the angel Gabriel who ordered him to "recite in the name of the Lord". Rejecting the many deities of tribal religions, Muhammad offered the Arabs a new monotheistic faith. Islamic standards of morality and rules governing daily life are set by the Koran, which Muslims believe contains the words of Allah as revealed to Muhammad (Cook 2000, 143-145). Muhammad was keenly aware of the intense rivalry between the two great powers of the time, Persia and the Byzantine Empire. He was familiar with Christianity and Judaism; his information must have been derived from observations during his caravan journeys and from conversations with Christians and Jews. Muslims view Muhammad as the last and greatest of the prophets and see him as entirely human.

The demands of Islam were not severe and could be easily followed by those converted to Islam: five times a day of praying, facing towards Mecca, fasting in the sacred months of Ramaḍān, giving alms to the poor and if possible a pilgrimage (hajj) to the sacred city of Mecca. The rest were social regulations. Polygamy, which was practiced widely in pre-Islamic times, was restricted to only four women, but not encouraged. The conditions of women and slaves were markedly improved by the new laws restricting certain pre-Islamic institutions, as for example the killing of redundant newborn girls.

In a little more than two decades Muhammad united the often-feuding Arabian tribes into a powerful community (umma). Islam was more than a religion; it was also a system of government, society and law, and theoretically bound its adherents in an all encompassing community. The idea of an international society governed by the Koran has been deeply embedded in the minds of the Muslims until the present day although the differences of countries with various political peculiarities created almost insurmountable obstacles.

After Muhammad's death in 632, in less than a half of century the Muslims, in a stunning successful round of military expansion, conquered the whole Near East and North Africa by 700 AD, bringing Sasanid Persia and parts of the Byzantine Empire into their orbit (Donner 1981).

Following the first four Muslim leaders known as Orthodox caliphs who ruled from 632-661, the Arabs were ruled by the first dynasty known as the Umayyad dynasty from 661-750. During the Umayyad period the capital of the Arab Empire was Damascus and most of the early conquests were achieved (Hitti 2002, 189).

The Arabs had overrun a vast collection of diverse peoples with various customs. During the Umayyad period the Arabs brought their new religion and their language to the peoples they conquered but simultaneously they were strongly influenced by the Graeco-Roman culture as it was adopted in the Near East and North Africa by native populations. The Arabic language had to be learned by everyone who wanted

to learn the Koran since it was forbidden for believers to translate the Book. While many inhabitants embraced Islam for the practical purpose of acquiring political power, a large number of Christians still retained their religion. Christians and Muslims felt themselves to be members of religions that were parallel in many respects, in their attitude towards creation, human history and the Last Judgment.

During the Umayyad period we notice strong religion disagreements. The Shia sect originated as a party exclusively supporting the appointment of Ali (d. 661 AD), the son-in-law and cousin of the Prophet Muhammad, and his descendants as the only legitimate ones of Muhammad. The enemies of the Shiites (meaning "partisans") called themselves Sunnites ("traditionalists" / "Orthodox"). The Shiites were more fanatic against the non-believers and celebrated the martyrdom of Ali's son Husayn who was killed in 680 in Karbala. Southern Iraq was the stronghold of the Shiites' strength although in modern time Iran (Persia) has become the only state almost exclusively Shiite.

By 750 AD the Umayyad rulers, known as caliphs, not only faced the resistance of the Shia faction but also the discontent of the conquered peoples throughout their empire. A rebellion in Persia brought the Umayyad dynasty to its end. Most members of the ruling family were murdered and one of the few princes, 'Abd al-Raḥmān, who escaped to Spain, created the Andalusian state with Cordoba as its capital.

The new rulers established the dynasty of the Abbasids (750-1258) and moved the capital of the Islamic state to Baghdad. Instead of conquering new lands, the Abbasids largely contented themselves with the task of organizing a well-administered empire. The new rulers relied heavily on Persian techniques of statecraft. Simultaneously Muslim science, philosophy and mathematics drew many elements from the achievements of ancient Greeks in addition to other sources, i.e. the Indian and Persian.

The peak of the Abbasid dynasty came during the reign of Caliph Hārūn al-Rashīd (786-809). The Abbasid Empire after the tenth century started disintegrating and

parts of it became semi-independent, only nominally accepting the rule of the Abbasid caliphs. Petty dynasties were created of which the most important was that of the Aghlabids (800-909) who, having their center in Qayrawān, succeeded in conquering Sicily in 902. The worst dismembering of the Abbasid dynasty came from the Fatimid caliphate, the only major Shiite one in Islam which was established in Tunisia in 909 and lasted until 1171 (Hitti 2002, 617).

The worst blow came from Seljuk Turks who had taken Asia Minor from the Byzantines and also had conquered Arabic lands of Syria, Palestine and much of Persia. Although the Abbasid caliphs remained the religious and cultural leaders of Islam, political power was exercised by the Seljuk sultans during the last caliphs' reign. In the thirteenth century the Mongols under Genghis Khan devastated the Muslim lands and in 1258 they conquered and ruined Baghdad ending thus the rule of the Abbasids.

The Arab civilization continued after the thirteenth century mainly in Egypt and Syria which were ruled by foreigners, primarily Turks known as Mamluks. The Mamluks applied a military semi-feudal rule over Egypt and Syria. The military nature of the Mamluk rule did not deprive their state of intellectual and artistic activities with an impressive extraordinary architectural productiveness (Bahnasi and Torky 2001, 49-63).

The state of the Mamluks was finally conquered by the Ottoman Turks in 1517 that became the leading Islamic power in the Near East and almost in the whole of North Africa (Vatikiotis 1991, 22).

During all these centuries, numerous wars took place between the Muslim Arabs and the Christian Byzantines, whose description lies beyond the scope of the present work. Suffice it to mention that the Byzantine Empire never faced a united Islamic combined front of all Arab states. It was to the Ottoman Turks that it finally succumbed in 1453.

While during the Abbasid period no great wars took place between the Arabs and Byzantium in contrast to the Umayyad period, during which twice the Arabs sieged Constantinople, in ca. 670 and 715-717, a continuous multitude of skirmishes took place on the Arab-Byzantine front of Asia Minor between the ninth and eleventh centuries.

The question which is raised in the next section is whether any literary exchanges existed between Byzantines and Arabs during their hostile confrontations.

3. Arab-Byzantine Literary Exchanges.

As it is well known, the Arabs were fond of the ancient Greek philosophy and sciences. Hellenism became the most vital of all foreign influences in Arab culture (Hitti 2002, 254-256). Especially at the early time of the Abbasid caliphs (750-900), a large number of mainly Greek philosophical and medical books were translated. It should be noted that some books of Galenos, which are now lost, have been preserved only in Arabic translations

In contrast, the Arabs in general did not show any interest in Byzantine literature and made little effort to translate any Byzantine source. The only Byzantine works which were translated were a number of hagiographical works translated by Christian Arabs into Syriac and/or Arabic (Monferrer Sala 2007, 140-141). An exception was the translation of the nautical military treatise of Leo VI (886-912), known as *Naumachica (*Christides 1995, 83-96; Serikoff 1992, 57-61). This was a practical military manual with concrete instructions concerning naval warfare. Of course, the translation was made solely for military purposes. It was not always accurate because the unknown author, who wrote it probably in the tenth century, was more interested in conveying the technical details useful for naval warfare than transmitting the proper nuances of each Greek word.

The only literary interchanges between the Byzantines and the Arabs appear in some popular epic romances composed at the end of the tenth century by both Byzantines and Arabs. They clearly show close similarities betraying mutual borrowings. Their interrelationship can be explained as results of oral transmission of a great number of literary themes that were floating between the Byzantine and Arab worlds (Pinault 1992, 5). The most conspicuous case is that of two epic novels, the Arabic *ʻUmār al-Nuʻmān* and the Byzantine *Digenis Akritas*. Both were created at the time the Arab-Byzantine intensive warfare had abated and a spirit of reconciliation emerged at the turn of the eleventh century (Oikonomides 1979, 375ff). They reflect a new spiritual attitude of the Byzantine and Arab empires which both suffered from

internal disturbances while in the West new powers were emerging threatening both the Byzantine and the Arab worlds.

It is to be noticed that in another Arab popular epic novel, *'Antar*, written later at the time of the Crusades, the Arab author dreams of a unification of the Arab and Byzantine powers to resist the rising of the Western powers (Al- Fadel 1997, 102-105).

The epic romance of Digenis Akritas is a long poem which has been preserved in a number of various versions most of them expressed in vernacular Greek language (Alexiou 1997, 153). The general frame in which the story develops is the intrusion in the Byzantine Asia Minor of a fierce Arab warrior, an emir from Syria, who captured a young Christian girl. After the Byzantines persecuted him, he converted to Christianity, married the Byzantine girl and settled permanently in the Byzantine territory, following only a short visit to his mother in Syria. The epic contains a long text describing the birth and adventures of the Emir's son, called Digenis (born of two races) Akritas. His numerous adventures are irrelevant to the Arab-Byzantine struggle. Instead Digenis Akritas' heroic adventures are against wild animals and robbers. Of particular interest is his duel with an Amazon who was disguised as a warrior (Alexiou 1990, 41-45).

The content of the epic romance of *Digenis Akritas* undoubtedly includes literary pillaging from previous Byzantine works, but simultaneously it reveals an author well familiar not only with the topography of the Byzantine frontier area in Asia Minor but also with that of the Arab Empire mainly at the time of the peak of the Abbasids (10^{th} c. – 12^{th} c.). Of the Arab topographical names it is worth mentioning the reference to "το κάστρον του Ραχέ" (the castle town of Raqqah of Syria), which was the Emir's home (Alexiou 1990, 113, v. 527). Raqqah was the key city situated near Euphrates from where Harūn al- Rashīd (786-809) started his expedition against the Byzantines. This castle was built by Hārūn in the eighth century and it is considered a beautiful sample of Arab architecture (Rice 1994, 30).

Another Arab castle city mentioned in *Digenis Akritas'* text is the "κάστρον του Παστρά", which is Bostra (Buṣra) in Syria where there was also a famous castle. More interesting is the mention of the Syrian city Hims, called "Εμέκ" (Alexiou 1990, 105, v. 246). This city appears in a letter sent by the emir's mother in whom she tried to persuade him to renounce Christianity and return to Islam. Otherwise his relatives, called "Κασίσοι", who resided in Hims, would be enraged with him (Alexiou 1990, 105, v. 245). According to Alexiou, by the term "Κασίσοι" we can understand those Muslims of the Ismailite sect, known as "Assassins" of Syria, called in Arabic "hashīshiyyun", those addicted to the use of hashīsh, hemp. A description of this sect "occurs in the report of an envoy sent to Egypt and Syria in 1175 by Emperor Frederick Barbarossa" (Lewis 2003, 2). Nevertheless, this identification is conjectural.

A few more terms obviously correspond to actual geographical places of the Abbasid Arab Empire, i.e. "Μάγε" for Mecca, "Παδά» for Baghdad and "Χάλεπε" for Aleppo (Ḥalab) (Alexiou 1990, 107, v. 288; 105, v. 232; 105, v. 236).

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While the above geographical names found in the text of Digenis Akritas can be easily identified, some modern scholars' identification of the so-called historical personalities in the text is conjectural. Above all, the Armenian theory should be rejected. Adontz's view that the Epic prose of Digenis Akritas was inspired by an Armenian narration "David from Sasun" and the identification of certain heroes of the epic with the Armenian ones cannot be sustained. Similarly H. Bartikian's attempt to recognize Armenian heroes in the epic romance of Digenis Akritas is imaginative (Alexiou 1990, 77).

An effort by some modern historians to show that an episode reported by the late ninth century Arab author Ṭabari, which is reflected in the epic novel of Digenis Akritas, also seems improbable. Ṭabari mentions that when Ḥārūn al-Rashīd conquered the town of Heraklion in Asia Minor, he captured a beautiful Byzantine lady who was to become the bride of the son of the Byzantine emperor Nicephorus I

(802-811). After Nicephorus' request for her release, Hārūn returned the captured Byzantine girl along with valuable gifts. Nicephorus returned the gifts along with 50,000 gold coins and other valuables (Alexiou 1990, 75-76).

To sum up the epic romance of Digenis Akritas cannot be considered as a historical romance reflecting historical realities but it is a composition in which in the general frame of the Arab-Byzantine struggle in Asia Minor there is an obvious spirit of reconciliation between the Byzantines and the Arabs in spite of some references to military conflicts in the first part. Such a spirit also appears in the Arabic epic romance called *'Umar al-Nu'mān*, which was composed by an unknown author (Christides 1979, 94-109). In this epic novel there are not any historical allusions but it consists of a frame theme similar to that of Digenis Akritas.

In both narrations the general frame consists of two conspicuous elements: an introduction in which the main hero ferociously invades the enemy country and abducts a woman (the Emir in Digenis Akritas' narration abducts Eudokia, Sharkan in *'Umar al-Nu'mān* abducts Abriza), and a second part in which conversion and marriage bring a happy end (the Emir becomes a Christian and marries Eudokia and Abriza becomes a Muslim and marries Sharkan).

Of course there is a striking difference in the structure between the Greek and Arabic epic romances. The Arabic epic romance of '*Umar al-Nu mān* follows the general pattern of all Arab folk novels which are constructed by a collection of numerous episodes loosely connected in breathtaking episodes to keep the listeners and/or readers in constant agonizing attention (Frolova 1993, 22). It is only in a section of this lengthy Arabic epic that there is a narration of the adventure of Sharkan, the brave hero corresponding to Digenis, with Abriza. In addition to the common general frames, there are also some scattered folkloristic elements in '*Umar al-Nu mān* which are similar to Digenis' narration. The most important is the form of the legend of the "Amazons". This legend is widely spread in ancient and Medieval Greek literature and it appears in various forms. In both of these epic romances there is a similar description of a duel between the main heroes, i.e. Digenis and Sharkan,

against an Amazon. Both the Arab and Byzantine heroes appear as horse riding knights, similarly armed and acting in a chivalrous way towards their armed women rivals (Frolova 1993, 22).

The most important element to be noticed – as it was briefly mentioned above- is the new spirit which emerged in both the Greek and Arabic literatures. From the appearance of the Arab-Islamic state (7th c.), in both literatures a spirit of hostility prevailed. Especially in the Byzantine sources, the Muslim Arabs are described negatively. The Byzantine authors have nothing good to say about any of the Arab cultural achievements. Numerous Byzantine ambassadors visited Damascus and Baghdad but they never reported the famous mosque of Damascus or the palaces of Baghdad. For all Byzantine authors the image of the Arabs is that of the Enemy with a capital E and the Byzantines' views of Muslim Arabs were strongly coloured by the religious differences. Until the eleventh century in the Byzantine sources, especially in the hagiographical works of the early period, the Muslim Arabs are described with the same virulent expressions as "Barbaroi", "murderous" and other, and even "cannibals" in *The Narrations of Nilus Sinaiticus* (Koutrakou 1993, 221-224; Christides 2012, 9-18; Tsames 2003, 390).

However in the later literary works (late 11th century) and especially in the epic romance of Digenis Akritas, the Arabs are beautified and appear as dear friends. Likewise while in the earlier Arabic sources the Byzantines appear as evil creatures, in the later epic of 'Antar they are presented as dear friends too.

It should be noted that the spirit of reconciliation between Byzantines and Arabs appears in a more intensive way in the Arabic epic romance of *"Antar*. It was written a little later than the epic romance of 'Umar al-Nu'man. *"Antar* was inspired by the crusades which proved to be equally damaging to the Byzantines and the Arabs. This romance, where again there are an innumerable number of criss-crossing episodes, describes an imaginary alliance between Byzantines and Arabs against the crusaders (Fadel 2007, 65-73). The main hero ''Antar married a Byzantine woman and the Byzantine emperor received him majestically in his luxurious palace.

3.1 Conclusion

There are no direct written literary exchanges between the two above-mentioned Arab and Byzantine popular epic romances. Instead through oral transmission a number of folk motives float between the Byzantine and the Arab worlds. The most conspicuous case is that of the Amazon theme, which appears in the same form- duel of the main hero with an Amazon disguised as knight-warrior. Created in the eleventh – twelfth century, the two romances reflect the new spirit of reconciliation and co-existence between Byzantines and Arabs. Actually after the eleventh century, the sea trade relations between Byzantium and the Arabs were intensified and the Byzantines freely visited the Arab ports and vice versa. Moreover, the cultural exchanges in sciences and art multiplied (Koutrakou 2007, 93-100).

To sum up, while the Arabs were very fond of the ancient Greek philosophy and sciences and many of the Greek works were translated into Arabic, they showed little interest in the Byzantine literary products. Actually, there were three limited areas in which they expressed their interest for translation.

(a)The Christian hagiographical works

A considerable number of Byzantine hagiographical works of saints and/ or martyrs were translated into Syriac, Coptic and Arabic, especially in the monasteries of Jerusalem and Sinai.

(b)War manuals. Naval treatises

The Arabs had translated at least one nautical manual, the tenth century "Naumachica" of Leo VI, which was part of the *Taktika* of the same author. Its translation has been preserved by the fourteenth century author Ibn al-Manqali. Obviously, the Arabic translation of "Naumachica" was undertaken by Ibn al-Manqali, a military man, who was not interested in the linguistic nuances of its words, but tried to understand its actual military meaning and use.

(c) Epic romances

The third field in which we notice a literary exchange is that of the popular epic romances. There is a Greek epic romance known as *Digenis Akritas*, probably originally composed orally before it was written later in two versions, demotic and puristic Greek. The main character, as its name "Digenis" shows, was born in two races, the Arab and Byzantine, since his father was Arab and his mother was Byzantine. The content of this romance reveals an author well familiar not only with the topography of the Arab-Byzantine frontier in Asia Minor but also with that of the Arab Empire of the Abbasids. Geographical places of the Abbasid Empire in the epic correspond to actual towns, i.e. Μάγε (=Mecca), Πάδα (=Baghdad), etc. While the activities of the main hero Digenis reflect an actual military and social milieu, there is not any indication that the author used any literary Arabic epic romances.

Certain similarities of the epic romance of Digenis with the Arabic epic romance *'Umar al-Nu'man* betray only that both literary works transmitted oral motives, common to both Byzantines and Arabs, circulating in the area of the Arab-Byzantine frontier of Asia Minor. It was the product of a mixed population residing in this area.

It should be noted that in both of these epic romances there is a spirit of reconciliation.

In another Arabic epic romance, ‘‘*Antar*, by an unknown Arab author, the hero, ‘‘Antar, allied with the Byzantines to fight the crusaders. This epic romance marks a turning point in the Arab-Byzantine cultural relations reflecting the new spirit of reconciliation caused by their common hostility against the crusaders.

This spirit is also reflected in the sea trade relations and the maritime activities between Byzantium and the Arabs, which were intensified between the end of the tenth century and the first part of the eleventh. This was the peak of their most fruitful relations.

4. Maritime Activities, Hostilities and Reconciliation in the Mediterranean

The Mediterranean Sea, through ages has been the natural link for the cities and the societies that flourished around its coastline. The travel routes had been well established, ever since antiquity, and continued through a long tradition of strong bonds among the Mediterranean core. Even at the time when the initial activities of mutual understanding in the countries around the Mediterranean Sea became more complex, a strong bond had been preserved among them. Consequently, the Mediterranean countries managed to create a closely connected unity with a centre around which they evolved. By coming across it more widely, one could realize that it was in fact a subsystem in a number of regions within a more extended linked international system of trade and exchange connecting Europe to Asia via sea and land. The geographical location of the Mediterranean is situated in the middle of the continents, Europe and Asia. On the west and north it connects the Italian centers and through them the rest of Europe. On the east it connects through an overland direction from the Levant to Baghdad, which came across the overland route from Constantinople to China through the so called route of silk, by traversing Asia and passing through the Indian Ocean. Each major Mediterranean power, i.e. the Roman and Byzantine Empire and the Arab Empire, kept its local political and religious autonomy on the one hand, and on the other it tried to expand it towards countries beyond the Mediterranean, i.e. India and China.

In Late Antiquity (4^{th} – 7^{th} century) the unity of the Mediterranean was somewhat shattered with the emergence of Islam, but gradually a modus vivendi prevailed in this area which was the cradle of so many civilizations. Following the early Islamic conquests of the seventh – eighth centuries during which the whole of the Near East fell under the rule of the Arabs, the Arab-Byzantine antagonism in land was limited mainly to Asia Minor. However the naval warfare between the Byzantines and Arabs continued in the Mediterranean, especially at the time of the Umayyads (661-750). The major Arab Islamic states, the Empire of the Abbasids (750-1258) and its offshoot, the caliphate of the Fatimids (909-1171), developed into important naval

powers. In contrast to the Umayyads, they abandoned any plan of conquering Constantinople. Most of the Arab-Byzantine conflicts in the sea were related to the land wars (Ahreweiler 1962, 1-32).

The tenth to the eleventh centuries mark an impressive intercommunication in trade and diplomacy through the entire Mediterranean, especially between the Byzantines and the Arabs. At that time the main powers which dominated the Mediterranean were the Andalusian Islamic state of Spain in the West, the Byzantine Empire in the East, while the Fatimids (909-1171) expanded into most of North Africa and managed to conquer Egypt and established Cairo as their capital in 973. In addition, the Fatimids' territory expanded into the Arabian Peninsula. It was at that period that Sicily, which initially was taken by the Arabs at the turn of the ninth century, was conquered by the Normans (1091) and a Christian-Islamic civilization flourished.

From the tenth to the twelfth century the interaction in this region became more intensive. Those who played the main roles were the Fatimids, the Byzantines, the Normans and the Umayyads in Spain and the Normans who interfered in the Arab-Byzantine struggle in Sicily, which they occupied by 1091. Each was trying to promote its own literary, artistic, scientific and commercial centers, without anyone dominating over anyone. It was mainly diplomacy and commerce applied in order to resolve issues deriving from the energetic competition than armed conflicts. This situation was very ephemeral and was depended on a thin line, in which everyone achieved to co-exist and create a balance of power in order for the continuous traffic of people and goods, the exchange of gifts and the trade to be able to continue uninterruptedly. A mixed population, in ethnic and religious means, resided in every center and in most cases it retained networks of trading partners all around. This interchange of course does not automatically refer to uniformity. It functioned in dissimilar levels of force and within several political, social and cultural networks and limits. A good illustration of the reconciliation and cooperation of Christians and Muslims at this period is demonstrated in the work of the great Arab geographer Idrīsi (d. 1166), whose famous world map was created with the cooperation of Christians and Muslims.

The objects coming from far away were considered of greater worth than the local production and furthermore the objects deriving from the “Eastern” empires were more valuable.For example, imported silk, ivory, precious stones or jewelry were of high prestige. On the whole though, the materials were imported in order to be used locally and produce work that would be speculated as exotic and eastern. The fact that a common terminology of luxury existed among the court was practical. Finally, it should be noted that the spirit of reconciliation between Muslims and Christian and their efforts to establish a modus vivendi appears in the exchange of embassies and trade-peace treaties signed between the Byzantines and the Arabs (Roldan 1988, 263-283), followed by similar exchanges between the Italian maritime cities, especially Pisa and Genoa, with the Muslims (Al-Hajji 2007, 93-97). Thus, diplomacy and trade served both as a continuous link of communication and understanding between Byzantines and Arabs.

4.1 Advanced Arab-Byzantine Trade Relations at the end of the tenth century

The emergence of Islam in the middle of the seventh century did not arrest trade in general but diverted the trade routes. Mecca, the center of pilgrimage, becomes the magnetic center attracting thousands of Muslim pilgrims for the “hajj” to Allah’s house and simultaneously facilitating trade among Muslims of various countries (Crone 1987).

On the other hand, the upheaval that followed the Arab conquest of Egypt (completed by 645 AD) and of the Syro-Palestinian ports created a vacuum in the Eastern Mediterranean. Although it is not possible to speak of a state of a complete isolation between the Christian and the Islamic world, undoubtedly temporary trade stagnation between the Byzantines and the Arabs prevailed at the time of the Early Umayyad period (661-750). At that time it has been noticed that the main coastal towns of Syro-Palestine, i.e. Tripoli and Latakia, famous for their ports, lost their active trade and were partly devastated by the Byzantine continuous attacks (Pryor and Jeffreys 2006, 33). Damietta (Dimyāt) (Cheira 1947), situated at the end of the eastern mouth of the Nile, became the target of repeated Byzantine attacks (Pryor and

Jeffreys 2006, 33). Moreover, the first caliphs of the Umayyads concentrated their efforts on establishing security in these coastal towns. They constructed military bases for both defense and attack, neglecting their trade installations (Amikam 1982, 155; Khalilieh 1999, 212-225).

The situation drastically changed when the Abbasids became the rulers of the Arab Empire (750-1258). Their capital Baghdad became the glorious city and immense wealth was concentrated in it. Markets played a prominent part in Baghdad and were a great incentive to commerce and a banking system was established. (Bosworth 2007, 32-35) Of particular interest is a list of rare commodities imported from Byzantium which has been preserved in an Arabic trade book written by an unknown author: "From the Byzantines: silver and gold vessels, brocades…engineers and marble workers…" Thus, we learn from this list that not only rare commodities but also workers were transferred from Byzantium to the Abbasid Caliphate.

The sea trade was especially intensive between Byzantium and the Shiite Caliphate of the Fatimids (909-1160), and extended mainly into Maghrib, Egypt and Syria as the Geniza documents extensively report (Goitein 1991, 987-989). By the eleventh century the Byzantine merchant ships freely visited the Syrian port of Tripoli while the Fatimid ships used to easily sail to Constantinople (Lev 2009, 121-125). The eleventh century Persian author, Nāṣir-i-Khusraw, reports that the Byzantines freely visited the Syrian port of Tripoli (Schefer 1970, 41-42).

The lively commercial intercourses between the Byzantines and the Arabs, which reached their peak in the eleventh century, were diminished with the emergence of the maritime states of Italy, Genoa and Venice (Balbi 2002). The first Crusades temporarily interrupted the expansion of Arab trade towards the West, but gradually close trade relations developed between Muslim and Western merchants, and special trade treaties were concluded between Western and Muslim commercial organizations (Khalilieh 2006, 219). It should be noted that, according to the Sharī'a (Islamic religious sacred law), a non-Muslim merchant could enter and trade in the land of the Muslims provided that he was equipped with a document of *amān* (safe

conduct). In the treaty of 1192, Ṣalāḥ al-Dīn guaranteed the Christian merchants free trade in all his lands and simultaneously in Acre the Muslim merchants were left free to trade (Daum 2008, 12-13).

Byzantium also served as a vehicle for the transportation of Islamic goods to the West, often produced in Arabia and beyond. The Arabian Peninsula bordered by three seas – the Persian Gulf, the Arabian Sea and the Red Sea- has been for centuries a well- recognized center for trade with the Mediterranean and the Indian Ocean. The rich provinces of Yemen and Ḥaḍramawt, Oman and Al-Bahrayn, were all significant centers for the exchange of goods and technological innovations (Agius 2008, 37). The Byzantine Empire was an alternative resource of supply for lavish cloth, and almost anything could be brought to Constantinople. Therefore, it is very likely that several Islamic goods reached the West through Byzantium. A relevant example is the great stylistic resemblances between Byzantine and Islamic silks, which are very hard to identify. Scholars find samples of them in Western Europe imported from Spain, Sicily, Egypt, Syria or Greece (Agius, Hitchcock 1994, 4). On the other hand, Egypt was an important exporter of alum (a chemical compound for styptic and antiseptic uses) to the West. In addition, it was a significant source of cotton, much of which was from India and was transported through Egypt (Agius, Hitchcock 1994, 6). The most secure route from Italy towards the Levant, (safer for navigation and immune from Muslim attacks), was the one running round southern Greece, occasionally ships diverted from southern Crete and beside the island chain to Rhodes, southern Turkey or Cyprus and the shore of Syria. Occasionally ships diverted from southern Crete straight to the Nile Delta, but a small number followed the shoreline of Tripolitania and Cyrenaica, where there were unsafe sandbanks (Agius, Hitchcock 1994,8). Muslim and European commodities and ships were often transposable due to the regularity with which they were obtained, either through warfare or through trade (Agius 2008, 347).

The Arab and Byzantine commerce declined at the turn of the 12th century and the Venetians gradually overtook the East to West trade. Nevertheless, it should be noted that the Muslim Mongols managed to create a new long trade route between East and

West in the thirteenth century from Mongol Iran to Tashkent in southern Russia (present day Uzbekistan) (Kadoi, 2011: 20-21).

In general, the tenth to eleventh centuries mark an impressive intercommunication in trade and diplomacy through the entire Mediterranean, especially between the Arabs and Byzantines. At that time the Mediterranean was dominated in the West by the Andalusian Islamic caliphate, the Byzantine Empire in the East, while the Fatimids (909-1171) expanded into most of North Africa and managed to conquer Egypt and established Cairo as their capital in 973. The Western naval powers, i.e. Spain, Venice and Genoa, were still on their threshold. The capitals of the Byzantines and Arabs, i.e. Constantinople, Baghdad and Cairo, became centers of immense wealth and transitional stations of international trade.

The sea trade was especially intense between Byzantium and the Shiite Caliphate of the Fatimids (909-1171), which extended mainly into Maghrib, Egypt and Syria. The Arab and Byzantine sea commerce declined at the turn of the twelfth century when the Western coastal cities of Italy, especially Venice and Genoa, intensified their sea trade activities and dominated the Mediterranean. Meanwhile the Arabs continued their activities in the Red Sea and the Indian Ocean until the fourteenth century, when the Portuguese expelled them from both of them.

It should be noted that navigation in the Red Sea was different from that in the Mediterranean, although certain common elements were shared, as it will be seen in the next part.

4.2 Navigation in the Red Sea- Indian Ocean and the Mediterranean Sea: General remarks

Navigation in Late Antiquity and Early Medieval times is divided into two different areas, i.e. the Red Sea – Indian Ocean on the one hand, and the Mediterranean on the other. The Byzantine continued the Graeco-Roman naval tradition while the Arabs continued an ancient tradition solely in the Red Sea.

Arab navigation has been considered by a number of modern scholars (Nied 1995, 29-43; Panhol 2000) as almost non-existent. They believe that the Arabs remained camel drivers who never learnt how to sail, save for piratical hit and run sea raids (Christides 2007, 263-268). It is true that the Arabs, at the time of their early conquests of Egypt and Palestine (turn of the 7th century AD), did not possess a single ship in the Mediterranean, but gradually, as it will be seen; they developed formidable merchant and war ships. Still even in the pre-Islamic times, the Arabs were among the first to sail in the Indian Ocean, and their vessels, as A. Villiers, who sailed in their ships in the Red Sea round the coast of Arabia, characteristically stated, are: "almost the last unspoiled fleet of pure sailing vessels left in the world." (Villers 1940, 3).

The Arab type of vessel of the Red Sea and of the Arabian Gulf, which could also sail to India, possessed certain distinct characteristics that had remained almost unchanged from pre-Islamic times until the coming of the Portuguese (fifteenth c. AD), and with few modifications, have survived till the present day (fig.1). The most conspicuous characteristic of these vessels, known as dhows or bums, was their construction by stitching without the use of any iron nails. The outside planks were mainly sewn on the outside with cord and there were no ribs or frame.

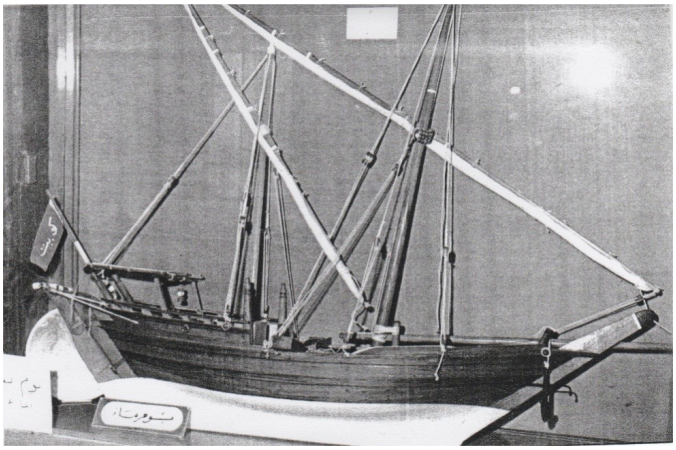


Figure 1 Reconstruction of a ship of the Persian Gulf. Bum. (Museum of Kuwait)

The timber of the hull was made of one of the best types of wood for the construction of ships, i.e. the Malabar teak of India (*techtona grandis*). From the coconut trees of India, cordage was made, and coconut fiber was the best for fitting out the ships. The Arab medieval dhows were square-ended with a graceful overhanging, long-raking stern. Originally, the rig consisted of one or two square sails. Today the dhows of the Arabian Gulf are about eighty feet long and the snout-like stern has been preserved; they are equipped with a high stern and poop deck. Probably the average tonnage of the dhows in ancient and in modern times was seventy to one hundred tons (Pryor 1982, 10). (fig. 2)

Figure 2 Reconstruction of a ship of the Persian Gulf. Jāliun.(Museum of Kuwait)

It should be mentioned that while the literary evidence sporadically informs us about Byzantine navigation in the Red Sea and Indian Ocean, there is scant information about the Byzantine ships sailing in this area.

Turning to the Mediterranean Sea, the Arabs' rapid development of a war fleet by the middle of the seventh century followed their conquest of Egypt, completed in 645. It is in Egypt that the Arabs found excellent shipyards and skilful workers for constructing warships. The first vessels they used in their early raids against the Byzantine islands were constructed according to the Byzantine models (Nicolle 1989, 168-195).

Unfortunately, little is known about the early Byzantine warships (6th c. -9th c.). By the tenth century the average Byzantine *dromon* and its Arab equivalent, the *shīnī*,

both looked like floating fortresses an expression which often appears in Arabic poetry strongly resembling each other. This is hardly surprising since there are numerous documented cases of both sides capturing each other's warships with their crews. Moreover, the Byzantines' main manual of naval warfare, Leo VI's *Naumachica* (written in the 10th century) was partly translated into Arabic at an unknown date and was preserved by Ibn al-Manqali (14th century) (Pryor and Jeffreys 2006, Appendix Eight, 645-666).

While the construction and function of the Arab medieval warships like the Byzantine have presented many problems, i.e. the number of oarsmen on each oar, we do have precise information about the Arab and Byzantine merchant ships. Wrecks of merchant ships are adequate and some have been thoroughly studied. An excellent example is that of Serçe Limani which has been meticulously examined (Bass et al. 2004).

The Arab and Byzantine merchant ships of the Mediterranean from the middle of the seventh to eleventh century underwent the following changes: the general method of ship construction from "shell to skeleton first" and the introduction of the stern rudder instead of two huge steering oars. Most probably the single rudder was almost simultaneously adopted around the ninth – tenth century or somewhat earlier in Western Europe and the Red Sea. Another important innovation was the introduction of triangular sails (known as lateen sails) in place of square sails.

Finally, it should be noted that in the Mediterranean, the Arab sea trade activities were heavily reduced after the twelfth century with the emergence of the Western maritime powers of Venice, Genoa and Portugal. In contrast, in the Red Sea, the Arabian Gulf and the Indian Ocean the Arab hegemony continued until the fifteenth century (Wink 1997, 21-23).

Generally, while the Arabs entered navigation in the Mediterranean as late as the middle of the seventh century, they had started navigation in the Red Sea and the

Indian Ocean already from the pre-Islamic period. Arab ships sailed as a far as Ceylon and India at least two centuries before the Christian era.

The construction of the Arab ships in these seas was different and required special maritime technology. This traditional Arab technology did not disappear with the passing of time and has partly continued until the present day. Some remarks about the maritime Arab technology of the Red Sea in contradistinction to the Mediterranean technology appear in the following sections. These sections deal with strictly technical innovations during the Arab-Byzantine sea struggle for supremacy.

4.3 Development in naval architecture

4.3.1 Shell-first and skeleton-first technique

The shell-first technique is the technique that had been used in Mediterranean since antiquity until the skeleton first technique appeared during the Middle Ages. It entails constructing the “shell” of the vessel primary, then laying in the framework last. This construction method relied widely on structural support given by peg-mortise and tenon joinery via the “shell” of the vessel. On the other hand, the skeleton first technique that has been used until today involves laying down the framework of the ship primarily before attaching the planks to the vessel (Bellwood and Cameron 2007, 2-20). The advantages of this transaction were numerous. First of all, fewer carpentry skills were required. Furthermore, the labor and the timber were less, thus the cost of the construction of a ship was reduced impressively. And last but not least, the construction of hulls could support a larger capacity with respect to the length and the beam, because more acute angles at the turn of the bilges turned out to be possible. The question that occurs at this certain point is why this transaction would need such a long time to be achieved. Most scholars lean on the geometrical abilities required of shipwrights utilizing the skeleton method. A shipwright while using the shell-first technique had to be capable of imagining the form of the vessel in advance in order to decide the dimensions of the frames geometrically and this seems that took an extended time to be achieved.

From the seventh century the lower part of the hull was built by following to the shell-first technique and the upper part by the skeleton-first technique. A grand example of the combination of the two techniques is the shipwreck of Yassi Ada and Pantano Longarini. The technique of skeleton first was accomplished by the eleventh century and became prevailing in the Mediterranean (Dimitroukas 2004, 39-40). The early sixth and early ninth century AD wrecks in Tantura near Tell Dor follow the skeleton-first construction, with planking nailed to the interior and no edge-joints. The shipwreck of Serçe Limani turn of the 11th c is a characteristic example of the utilization of the skeleton first technique. In general, the transition from shelf-first to skeleton-first was not a swift but rather time-consuming and steady change, while both methods were utilized for numerous centuries. It is mostly suggested that this transition was mainly based on the economical causes. The skeleton-first construction reduced costs of labor and material but lacked resilience. Possibly the Tantura A and B wrecks imply that the skeleton-first construction was already applied from previous times but in small coasters, that would be less exposed to extended journeys in rough seas (Wilson 2011, 211-233).

4.3.2 Sails and Rigs

The triangular lateen rig has been introduced since the seventh century AD and it was regarded as the usual type, while the square sails had been rarely used by the fourteenth century but not disappeared completely. It is believed that it evolved from the square sail, brailed up and furled into a triangular form (Wilson 2011, 211-233). It is most probable that the square and the triangular sails were being in use in the area of the Mediterranean earlier than the fifth-sixth century. This sail was being used earlier on small ships in the Black Sea, the Red Sea and the Indian Ocean (Pantzopoulos 1985, 16-17). The triangular sail was named *lateen*. It was lifted to the major mast by the aid of a spar. Both sail and spar were driven up and down from the aid of two ropes, named *protonoi*. A number of walnut formed pieces of wood situated around the mast like rings and smeared with fat in order to slide, named *keroiakes* or *trohoi*, were the helping tools for lifting and lowering the sail. The lateen provided a lot of advantages on a vessel and as a result approximately all the

vessels used it, between the sixth and ninth century, meanwhile small and medium sized vessels were more ordinary. The benefit was that it permitted sailors to point closer into the wind but the process of taking inside such a vessel was much more challenging, as more crew members were necessary and freer space on the deck (Wilson 2011, 211-233). The use of the lateen obviously takes advantage of the slightest winds and simultaneously protects the sailors from the wind gust (Pantzopoulos 1985, 16-17). Even if square sails could be braced around force-and-aft, lateen sails were precisely planned to be rigged fore-and-aft, while the earlier were not. Lateen sails, also, could be positioned much closer to the axis than could the square sails. It is very important because for a ship beating into the wind, the closer its sails were set to the longitudinal axis of the ship the better it would perform. The medieval lateen sail had a large bag in their cut thus they could be used as aerofoils. In addition, according to Pryor's description *"the wind trapped at the foot of the luff on the sail spiraled upwards within the bag of the sail, creating increased pressure toward the peak. Thus the yards were peaked as close to the vertical as possible, creating a more efficient sail. Even if an ancient square sail could be angled to the vertical, its yard was not nearly as long as that of a lateen sail and it sail could not, consequently, take as great advantages of this aerodynamic property. Moreover, the fact that the lateen sails improved the ability of ships to beat to windward, suggests they were designed to increase the maneuverability"* (Pryor 1994, 59-76).

Furthermore, the hull design and the knack to oppose leeway was also a matter of the hull. Throughout the early medieval period the hulls developed into rounder and appeared more like a box, allowing more cargo space. Unluckily, the combination of lateen rigged ship with a round hull did not offer a much closer to the wind course comparing to the previous Roman vessels. Most hypotheses relating to the swift of the rig concluded that it was rather more convenient to abandon the use of the square sail and replace it with the lateen sail, more suitable to the navigation in the Mediterranean Sea (Wilson 2011, 211-233).

Between the ninth and thirteenth century there is no iconographic evidence of square sails in the area of the Mediterranean Sea. The lateen sail was totally predominant. It

is believed that the first illustration of a medieval lateen sail is included in a Byzantine manuscript of the Sermons of St Gregory of Nazarius dated around 880AD. It could be though also a copy of older originals, since lateen sails were in use long before the ninth century (Dimitroukas 2004, 39-40).

Ultimately, the great value of the lateen is being identifiable by the fact that it was utilized widely on the vessels of the Late Byzantine period and throughout the time till the closing stage of the sailing vessels (Pantzopoulos 1985, 16-17).

4.3.3 Steering gear

The structure of sternpost rudders was used on Arab and Byzantine vessels and definitely on some Persian and Mesopotamian ships on the Tigris and Euphrates rivers and in the Indian Ocean.

4.3.4 Bilge Pumps

Bilge pumps were extensively used so as for the vessels to be afloat. The attempt for bailing a vessel depended on the size of it; the bigger the ship, the more water it gathered in the hull.

4.3.5 Sounding Weights

One of the most important supports of navigation were the sounding weights since they were able to determine the depth of the water, estimate the nature of the seabed and consequently evaluate the distance to the land. They were very functional chiefly in situations with low visibility and during the night.

4.3.6 Containers and Cranes

The boost of the merchant vessels along with the harbors influenced also the amount of trade. The containers and the cranes were the vital proof that survives today. For instance the basic transport amphora classes show more competence gradually. Over

time, the appearance of huge containers which would have requested cranes to load and unload the amphorae, are apparent (Wilson 2011, 211-233).

The eleventh century marks the time when the Byzantine and Arab navies lost their protagonist role in the Mediterranean, but their powers did not disappear. Undoubtedly, after the first Crusade the Westerners acquired superiority in number and quality of warships but Byzantine and Arab navigation of merchant ships continued. The structure of all ships, Western, Byzantine and Arab, changed and all vessels, merchant and warships, acquired greater size and tonnage. In the thirteenth century it has been estimated that the yards of large sailing ships may possibly weigh up to 6.5 metric tons. To operate such yards and their huge sails, it demanded around 800 square meters in area were needed, as well as several men and complex block and tackle organization. Steering oars became heavier and more complicated and the number of crews became bigger (Pryor 1994, 59-76).

4.4 Arab-Byzantine Exchanges of Technology

After the Arabs overran the Near East and North Africa by the eight century, they began slowly but steadily to be interested in the scientific legacy of other cultures, notably the Greek and to a lesser degree, the Persian. Certain information concerning the Iranian legacy has been preserved. The Iranian Academy of Jundēshāpūr continued as the scientific center of the early Umayyad Islamic state (661-750), but a number of learned men moved from Persia to Damascus. Concerning any awareness of the Hellenistic legacy in sciences in the court of the Umayyad Caliphate little is known.

The rise of the Abbasids (750-1258) and the transfer of the capital of the Arab caliphate from Damascus to Baghdad mark an époque of Arab splendor and intensive interest in Greek sciences (Al- Hassan and Hill 1988, 10; Sezgin 2004, 4). An important scientific institution, the “Bayt al-Ḥikma” (House of Wisdom), was established in Baghdad by Ma’mūn (813-833). A large number of translators and copyists gathered there and translated numerous Greek works either directly from the Greek or more

often through Syriac translations. The great difficulty in creating a new Arabic scientific terminology was facilitated by the contribution of many non-Arab experts of Greek and Syriac (Macuch 1982, 11-34).

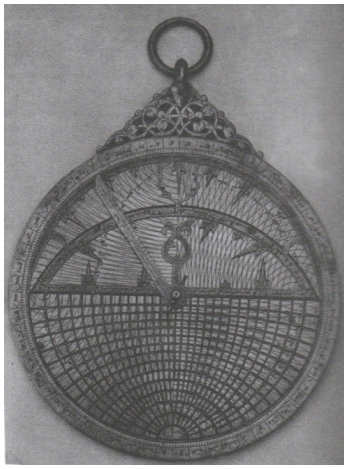


Figure 3 Astrolabe (Delivorrias 1983, 264)

The interest in the translations of Greek scientific works was intensified at the time of the Fatimids (909-1171) when a new academy, the "Dār al-'Ilm" (House of Science), was established in Cairo. At that time a number of scientists gathered to discuss scientific subjects using the academy's library which contained an immense number of books. In particular, the Arabs were fond of Greek geography. They translated Ptolemy's *Geography* (2nd c. AD) (Dunlop 1971, 150), Orosius' *Geography* (Panelas 2001) and other Greek geographical works (Djugrāfiyya", in *Encyclopedia of Islam*, 2nd edition).

The Arabs also paid special attention to Greek cartography (Merce Comes 2006, 210-22). The greatest Arab geographer Idrīsī (12th c.) from Ceuta, based on the work of Ptolemy, a number of other sources and on eye-witness evidence, produced a circular map of the world and a comprehensive geography of the world in Palermo of Sicily with the financial support of the Norman king Roger II. Idrīsī's circular map was engraved on a silver plate (Sezgin 2004, 15; s.v "al-Idrīsi", in *Encyclopedia of Islam*, 2nd edition). In addition, a scientific field that attracted the Arabs was astronomy. They drew many elements from Greek astronomy. They perfected the astrolabe (fig.3), an astronomical instrument of a very ancient Greek invention, which was improved by the brilliant geographer of the Hellenistic times, Ptolemy, and they transmitted it to Europe (Delivorias 1983, 249-264).

Concerning the literature of warfare, the Arabs produced a number of manuals of naval warfare. Unfortunately, a good number of them remain in manuscript form and have not been published. One of the most important manuals is a short naval manual included in the *Book of Taxation*, written in the tenth century by Qudāma bn. Jafar,

who as a high officer in the customs office in Baghdad had access to the state's archives. Qudāma's book includes extensive references to naval warfare.

Qudāma's text is a brief document with laconic bur useful instructions for navigation. Its contents include detailed information concerning the construction of warships, the naval weapons and the duties of the crews. This document has many similarities with the tenth century Byzantine maritime manual of sea warfare, the *Naumachica* by Leo VI (Christides 1982, 53). Both in Qudāma's and Leo VI's documents, the duties of the admirals are described in detail. They are even supposed to take care of the supervision of the construction of warships by checking their implements. It should be noted that by the tenth century Byzantine and Arab ships were very similar in their construction and weapons (Hocker 1995, 90). The length of each ship was about forty meters with a beam of five meters. They were lateen rigged, two masted vessels. Their speed was by far less than the previous Greek-Roman warships because speed was sacrificed for fire power (Karapli 2001, 34-35). Heavy machinery for stone throwing and Greek fire machinery were mounted on the ships while the marines were equipped with weapons similar to the soldiers.

Another Arab manual of maritime war, the book *Nautical Rules*, bears the name of Ibn al-Manqali, but was actually a paraphrase of the above-mentioned Byzantine manual *Naumachica*. The Byzantine manual was paraphrased in Arabic in the tenth century but was completed by the Arab high officer Ibn al-Manqali in the thirteenth century. Ibn al-Manqali added new material to it based on his eyewitness observation as a military man (Christides 1995, 83-96).

A comparison between the treatise of Leo VI's *Naumachica* and Ibn al-Manqali's paraphrased document, *Nautical Rules,* demonstrates the interrelationship between the Byzantine and Arab naval technology in the tenth century. Ibn al-Manqali had an unfettered and inquiring mind. He did not hesitate to write with arrogance in his treatise, *The Rules*: "This is what Leo VI tells us, but I know more than him" (Pryor and Jeffreys 2006, appendix 8, 656-657). Actually, the Arabs' naval technology by the tenth century was enriched by the Chinese naval technology (Al- Hassan and Hill 1988,

29-30). Some of the Chinese nautical inventions, as for example the compass, spread towards the Muslim lands and ultimately reached Europe. An Arab machine for launching Geek fire by rockets, constructed by the Arabs, was also a Chinese invention (Christides 2008, 59-66) (fig. 4)

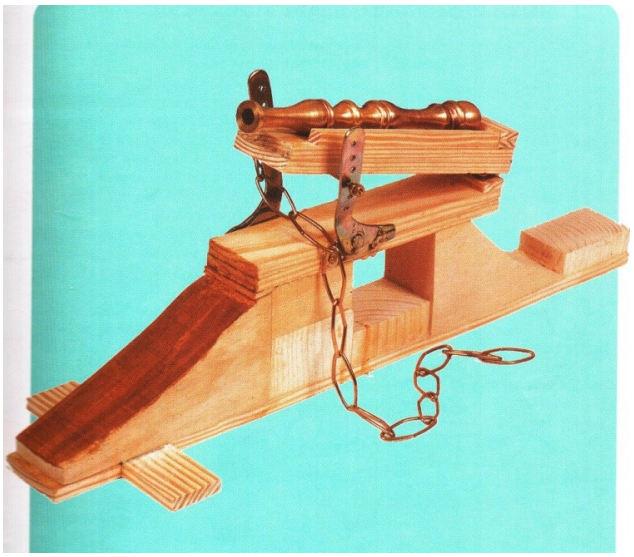
Figure 4 Chinese soldier lauches fire arrow (Christides 2004, 45)

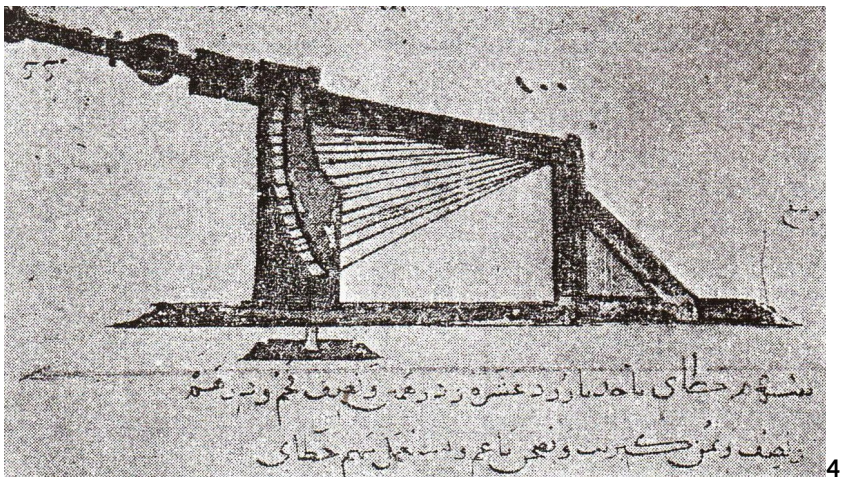
To conclude this discussion it is worth mentioning a transmission of some elements of pseudo-science, i.e. alchemy, from the Byzantines to the Arabs. According to the Greek alchemical literature, there was an elixir composed of dry powder which could transform any metal to gold or silver. While the Byzantines paid little attention to this elixir, the Arabs were obsessed by the idea that there was actually such an invention. Caliph al-Manṣūr (d. 775) tried to acquire this special formula by sending an embassy to the Byzantine emperor Constantine V (d. 775) (Strohmaier 1991, 22-24). (fig. 5)

To sum up, a comparison between the most important Arab and Byzantine manuals of naval warfare is presented, i.e. Leo VI's *Naumachica* and Ibn al-Manqali's *Nautical Rules*. In addition, the Arab maritime technology and naval weaponry were

enriched by the Chinese maritime technology, which enabled the Arabs to create new naval weaponry, as for example a machine for launching Greek fire by rockets.

As a result of direct interwoven maritime exchanges between Byzantines and Arabs, their ships were also identical, as it is demonstrated in the next section. A description of the similar types of ships follows.





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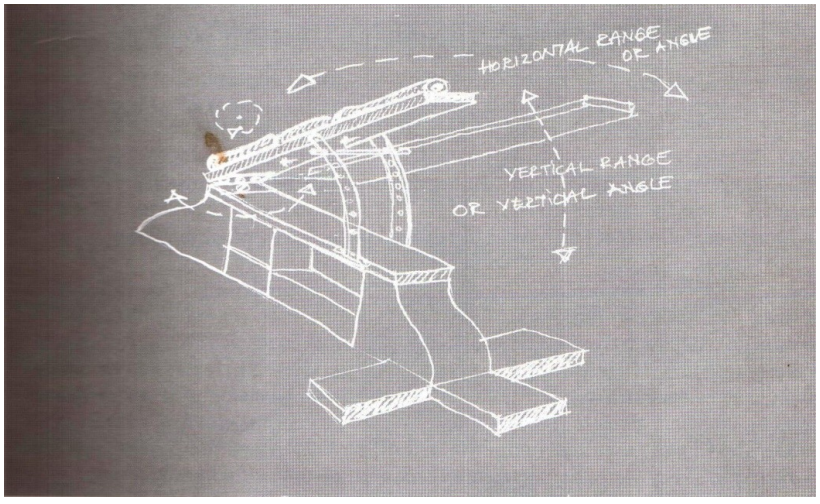

HORIZONTAL RANGE
OR ANGLE
VERTICAL RANGE
OR VERTICAL ANGLE

Figure 5 Arab machines of launching fire (Christides 2004, 23, 43, 44)

4.5 Types of Ships

4.5.1 Construction and Function

At the peak of the Arab-Byzantine struggle for supremacy in the Eastern Mediterranean in the ninth-tenth centuries, the similarities between their ships, merchant or warships, seem to be almost identical. Thus, the Byzantine *dromon* of this period corresponded exactly to the Arab *shīni*, while in later times both terms applied to a more advanced form of construction.

The Byzantine *dromon* continued a long naval tradition which originated in ancient Greek times, continued with many alterations in the Hellenistic and Roman times and took its final form after the fifth century AD. In contrast, the Arabs, as it has been mentioned, started their maritime power in the Mediterranean without any background and constructed their first ships in the middle of the seventh century imitating the Byzantine ships.

It is for these reasons that after a short discussion concerning the various appellations of ships in the Greek and Arabic language, I proceed with the presentation of the various types of Byzantine and Arabic ships under the double corresponding Greek-Arabic terms, i.e. *dromon – shīni*.

The most common classical and general ship-terms that occur in the Arabic sources are *safīna*, *qārib* and *markab*. In almost all accounts of the early centuries of Islam, *safīna* and *qārib* appear to be the most common terms in the Mediterranean Byzantine-Islamic warfare. The corresponding Greek terms from ancient times until the Byzantine are: *πλοῖον* and *ναῦς*. The Arabic term *qārib* was used for both merchant and Arab warships but also for skiffs. Both Arab merchant and warships were modeled after the Byzantine vessels since they were mainly constructed in the Byzantine shipyards of Egypt after its Arab conquest in H 429 (AD 645) (Agius 2008, 265-275) and much later in the other shipyards of North Africa and in those of Syria (Cheira 1947, 90) The ships were distinguished according to their use, their purpose of construction and the size. There were other ships that could be used in the sea and

other for the river and lake. Furthermore, the main distinction of ship derived from the purpose of their construction: warships, merchant ships and travel ships.

4.5.2 Size and appellations of Byzantine and Arab Merchant and Warships

In this section a short description of the different sizes of merchant and warships is presented. It follows a detailed description of the most important types of warships, i.e. the Byzantine dromon corresponding to the Arab shīni, chelandion to shalandi, etc. A series of sections follows, dealing with the findings of shipwrecks: the shipwreck of Yassi Ada (7th c.), the shipwreck of Serçe Limani (11th c.) and the shipwrecks found in the recent excavations for the Marmaray –Metro of Istanbul. The careful study of the naval technology of these shipwrecks manifests the Byzantines and Arabs shared the same knowledge of maritime technology.

It should be taken into consideration first that there were not any carbon made of equal size ships in ancient and medieval time, either merchant of warships, because of the lack of adequate technology. Second, there was a great variety of sizes of ships, merchant as well as warships. Thus, there were certain types of small size ships called “σκάφοι» (skafoi) or «λέμβοι» (lemvoi) in Greek with their corresponding types known in Arabic as “qārib”. They were used either as lifeboats or as boats escorting the big ships from Antiquity to the end of medieval times.

In Antiquity, as underwater archaeology reveals, the average Mediterranean merchant vessel was quite small, weighing less than one hundred tons, but there were also bigger merchant ships for carrying grain especially in Roman times when great quantities of grain were transported from Egypt to Italy. In Hellenistic times the size of the average merchant ship was greater, but especially the average warships became gigantic and carried a large number of soldiers (Guillerm A., 1993: 48). Of course, there were simultaneously small merchant ships, as for example those known as “φάσηλος” (phaselus) which carried only a limited number of passengers and goods (Casson 1971, 167-168).

The Romans abandoned the construction of gigantic warships and used instead small size warships, mainly the type known as “liburna”, which was a fast two-banked galley (Casson 1971, 141). The Byzantines inherited the type of *liburna* and developed it by the 5th century into a swift ship armed mainly with the ram and named it *dromon* (=the runner) because of its swiftness. The size of the original *dromon* is not known. Actually there is a gap in our knowledge concerning the development of the original *dromon* of the fifth century. Meanwhile, as we learn from the discoveries of shipwrecks of Byzantine merchant ships, the size of the Byzantine merchant ship was small, even for the ships which covered long distances (Pryor 1994, 59-76).

In Late Antiquity and Medieval times, the ships were distinguished in two main types: the merchant ships which were round (στρογγύλα) and the warships which were long (μακρά) (Casson 1971, 169). The merchant –passenger ships have masts and sails for sailing only. They use one or two oars only when entering ports. Concerning the warships of our period (9th -13th c.), their main power for rowing is the oars**.** Thus, they have maneuverability but of course the power of oarsmen was limited to short distances.

It should be also noted that in addition to the average warship *dromon* in the Byzantine texts and *shīni* in the Arabic, there are smaller war vessels used for scouting or sabotage. Detailed information about the size and function of all types of Byzantine warships appear in the Byzantine text *Naumachica*, written by the emperor Leo VI in the tenth century. The fourteenth century Arab author Ibn al-Manqali had preserved an earlier translation of Leo VI’s *Naumachica*, adding also more information about the Arab warships (Pryor and Jeffreys 2006).

The most exceptional round ships are the seventh century shipwrecks of Yassi Ada and the eleventh century shipwreck of Serçe Limani. They will be described more extensively in the following pages.

4.5.3 Dromon or Shīni

Unfortunately, little is known about the early Byzantine warships (6th -9th c.). By the tenth century the average *dromon* and its Arab equivalent, the *shīni*, both looked like floating fortresses, an expression which often appears in Arabic poetry, strongly resembling each other.

During the long Arab-Byzantine naval warfare in the Mediterranean both parties managed to capture enemy warhips with their crews and for this reason their naval technology strongly resembled (Christides et al. 2004, 25-26). *Dromon* for the Byzantines or s*hīni* for the Arabs is a general appellation of a warship of the line which had a single mast with sails (Agius 2008, 330-332). They were a type of light and swift warships. (fig. 6)

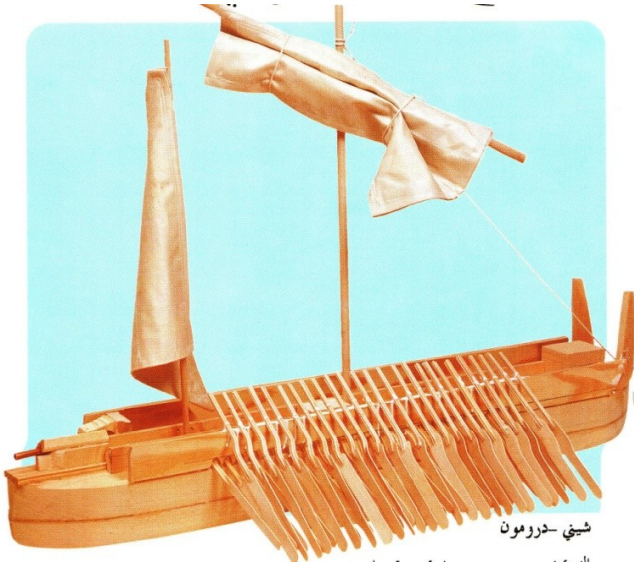


Figure 6 Dromon-shīni representation (Christides 2004, 9)

The *dromon* was clearly stated as the main warship by Leo VI, when he wrote **"**ἀναλεξάμενοι, μικρά τινα καὶ ὅσον ἀφορμὴν δοῦναι τοῖ**ς** ἐπὶ θαλάσσης μάχεσθαι μέλλουσιν διὰ τῶν ποτε λεγομένων τριηρῶν, νῦν δὲ δρομώνων καλουμένων, ἐν ὀλίγοις διορισόμεθα» (Λέοντος Βασιλέως Ναυμαχικά, §1, lines 5-8, in Pryor and Jeffreys, 2006: 484; Dimitroukas, ed. and trans., *Ναυμαχικά*, Athens 2005, 38). (We took into consideration certain elements and we will present them briefly, so that

we will offer guidance to those who will fight with triereis, as they [warships] were previously called, i.e. our present dromones). Several Arab authors, such as Ibn al-Manqali very often use the name *drumun* for the warships, but it is more common to refer for the average Byzantine or Arab warship as *shīni* (Christides 1997; 444-445; Fadel 2001, 48-49). The Byzantine term *dromon* originally appeared at the end of the fifth century and was established in the sixth century. The sixth century early dromons are described in the sixth century Byzantine author Procopius as escorting vessels of the Byzantine armada which was prepared for a naval expedition against the Vandals of North Africa in 533. They were single- banked, had twenty-two rowers-fighters and probably had only one working mast (Van Doornick and Bass 1972, 134-135). Its size was not different from the size of the ancient *trieres*; its length was approximately 40 m and its volume around 350-370 tn (Pryor 1995, 101-116). Initially the warship dromon-shini was operational with double steering oars and later, at a certain point that cannot be determined; they were substituted by the single stern rudder. Regarding the invention of the single rudder two opinions exist; the first by Lawrence Mott (1997) positioning the origin from Western Europe and the second by V. Christides claiming that it was concurrently introduced to Europe from China via the Arabs (Christides et al. 2004, 25-26). Procopius frequently reports the replacing of big sails with small ones called *dolones*, when needed to decrease speed (Procopius, *History of the Wars*, III, xvii, 150). A different passage by the same author refers to sails carried by the three command vessels that had a third of the upper angle painted red signifying that they were lateen sails (Procopius, *History of the Wars*, III, xvii, 119). Probably, the lateen-rig was permitted greater maneuverability. The *dromon* at that time greatly depended on the ram as an offensive weapon. Warships were often administered by the finest troops, but each vessel contingent was fairly small and had to rely more or less wholly on light weapons, such as swords, spears, and arrows (Van Doornick and Bass 1972, 134-135).

Concerning the structure of the *dromon* and its equivalent the *shīni* between the ninth and eleventh centuries, most probably they both had one big mast at the center of the ship and one or two of the supplementary ones in front and/or in the rear, smaller in

size (fig.7, 8).Nevertheless, Pryor reconstructed it with two almost equal masts (fig.8) (Pryor 2004, 85). Plausibly, during the naval battles, the big mast was lowered and one or two of the supplementary masts were used. R. H.Dolley's view that there were two or three big masts in the *dromon-shīni* seems to be correct only for the later period (Dolley 1948, 47-53) but his remark that the forecastle was between two masts seems valid if we take into consideration that the other masts were only supplementary. The *dromon-shīni* was equipped with a main castle (ξυλόκαστρον) amidships, where a small number of fighters were placed, and a supplementary one (ψευδοπάτιον) on the prow, in which the main weapon, the siphon (machinery for launching liquid or Greek fire), was located (Pryor and Jeffreys 2006, 486). The main weapons of the *dromon- shīnī* were the above-mentioned liquid fire-throwing machines (Haldon 2006, 290-325) while the specially trained soldiers for fighting on ships carried the same weapons as those of the land forces, i.e. shields, swords, spears, bows and knives.

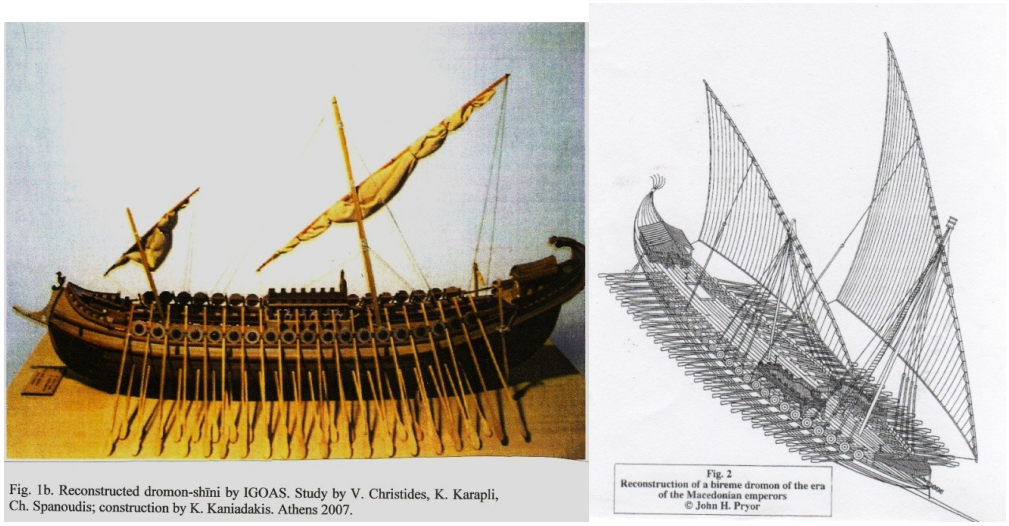


Figure 7 Reconstruction dromon- shīni by IGOAS. (Christides, et al 2007, 267)

Figure 8 Reconstruction of a bireme dromon of the era of the Macedonian emperors (867-1056), by John H. Pryor. (Pryor 2004, 85)

Concerning the oarsmen, according to the literary and artistic data, the *dromon- shīni* was set with two consecutive and overlapping rows of oarsmen. (fig.9) An average vessel of this type could support 150 to 200 oarsmen, from which only 50 were

clearly oarsmen in the lower part, which was entirely covered and well secured (Λέοντος Βασιλέως, «Ναυμαχικά», §8, lines 1-6, in Pryor and Jeffreys, 2006, 486).According to several Byzantine illuminations, the oarsmen-fighters at the upper part were protected by non-removable shields, placed on the sides of the vessels (Karapli K., Spanoudakis Ch., 2001:34) (fig.10)

Figure 9 Placement of oarsmen and system of attachment of oars (Hatzitheodorou 2004, 15)

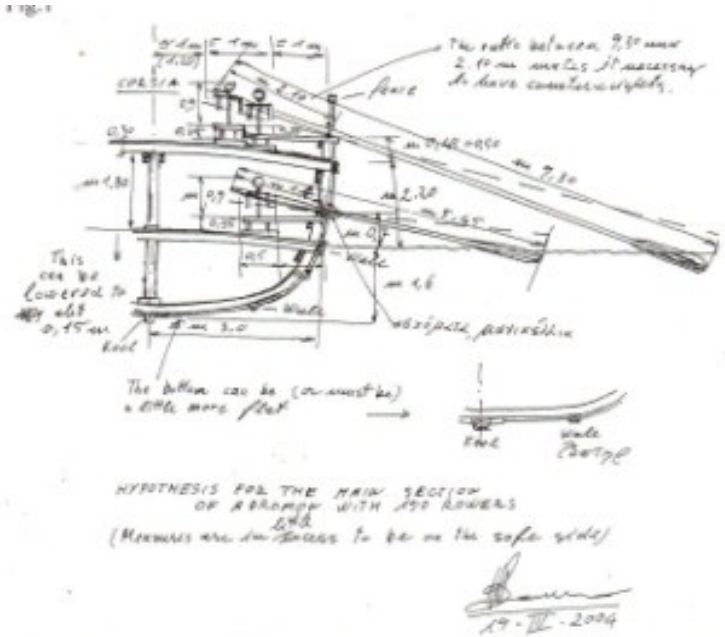


Fig.2. Type A. Sitting arrangement in one and the same deck. The only difference is a slightly higher elevation of the inner sitting row of oarsmen.

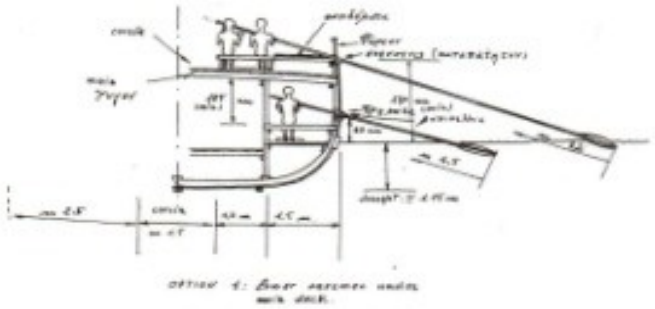


Fig. 3. Type B. Sitting arrangement in two completely overlapping rows of oarsmen, one above the other. In this arrangement the resulting positioning of oars is in a triangular form with self-explanatory benefits in terms of strength, durability, operational efficiency and effectiveness.

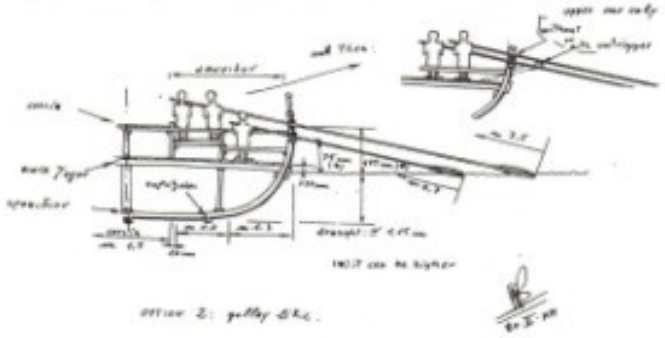


Figure 10 Sitting arrangement of oarsmen (Hatzitheodorou 2004, 36)

It is impossible to determine precisely the length of the oars or the position of the oarsmen, but it can be understood that the oars of the upper part were longer. It has to

be mentioned, as well, that the efficiency of the Arab and Byzantine oarsmen was very much reduced by the tremendous weight of their ships, compared to their counterparts in ancient *triēreis* (Hadjitheodorou N.M., 2004: 35).

Thus, it is obvious that the heavy weaponry amidships was similar, the wood-castle located under the main mast, called *ξυλόκαστρον* (xylokastron) by the Byzantines and *burj* by the Arabs, and the small castle located on the prow which protected the siphon (instrument for launching the Greek fire).(fig.11) The *xylokastron* was much larger and once more enclosed with planks. In that space, better-equipped marines could be placed. (fig.12) The Arabic *burdj* has been situated under or near the middle mast, something that has been confirmed by the iconographic references (Christides 2004, 33). It has been noticed that both sources, Arabic and Byzantine, cite the existence of two structures positioned on the *dromon-shīni*, used as small castles where some armed marines would be sheltered. The Byzantines identify one of them as *pseudopation*, meaning false floor. It was located above the flame throwers, mounted on the prow, made and enclosed with planks on its surrounding (Christides 2004, 33). The *pseudopation* actually protected the bronze machinery for launching "Greek Fire" (Christides et al. 2004, 25-26). According to my view the *dromon-shīni* could have either two main long masts or perhaps one long mast and a second somewhat smaller which could be used also as a dolon. There was also a small structure called "κράβατος", most probably movable, placed on the stern, where the governor of the ship was seated (Λέοντος Βασιλέως «Ναυμαχικά», §7, lines 1-3, Dimitroukas, op. cit., p. 41)

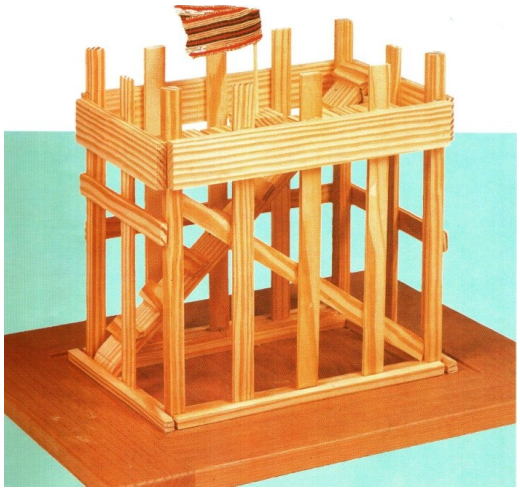


Figure 11 The Burdj-Xylokastron (Christides 2004, 13)

In terms of speed the Muslim galley was outpaced by its rival. Undoubtedly, the Arab fleet and the Byzantine as well, included a plentiful number of warships of a

range of sizes and speed. During the period of the peak of Arab-Byzantine struggle (9th -11th c.), the warships of both sides reduced speed for the increase of firepower. The ram had vanished and it was replaced by machinery for throwing stones or liquid fire (Van Doorninck, 1993: 387-392).

In the Byzantine *dromon*, the upper oarsmen who were στρατιῶται (soldiers) and ἐρέται (oarsmen) actually made little use of their oars, to avoid fatigue and be ready for fighting; this would explain why their dual function is not actually mentioned in the Arabic sources

Finally it should be noted that the selection of the crews in both the Byzantine and Arab fleets for oarsmen, sailors and marines was carefully made between the ninth-twelfth centuries and their payment was generous (Al-Tahir 2001, 52-53). It is only after this period that recruitment changed drastically and crew members were conscripted in Egypt from the lower social classes and eventually even slaves were drafted for the war fleets.

Both, Van Doorninck and M. Bonino argue that the vessel with lateen rig would have needed two masts in order to maintain the center of effort in sails low enough to give the hull adequate stability. A bigger sail would have been carried by one of the two masts, which would be most probably the one in the center, since the front mast, the *artemon*, would have been minor in size. The masts should be removable at the time of battles, because they would have to avoid the decrease of maneuverability of the ship and its possible upcoming destruction.

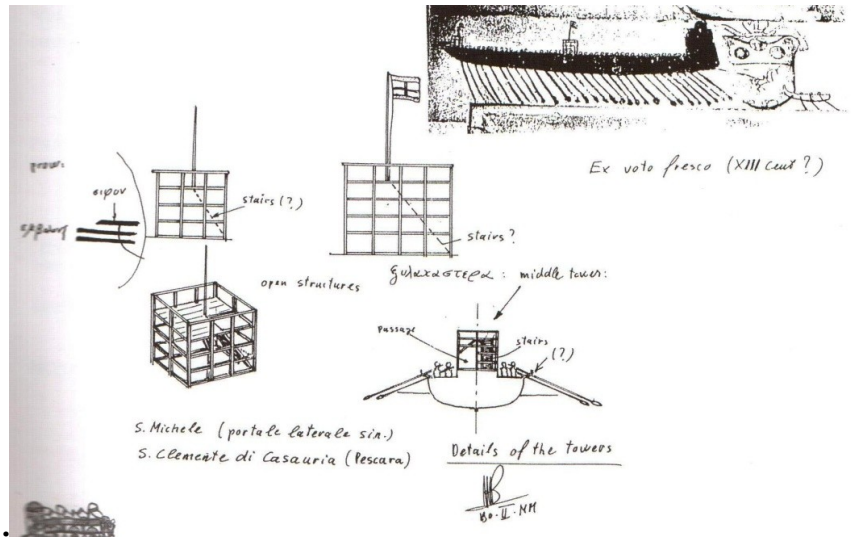


Figure 12 The placement of the burdj-xylokastron (castle) on the dromon- shīni (Christides 2004, 33)

4.5.3.1 Triērēs and Dromon

By the ninth century the average size of the *dromon* reached that of the ancient *triērēs*, i.e. 38-40 m. long, and both were equipped with a crew of about 150-180 men. Nevertheless, there were great differences between these two mainwarships. The *triērēs* needed to be a light swift vessel in order to properly use its main weapon, the ram. The ram (έμβολον) was formed with massive horizontal timber covered by bronze casting placed at the edge of the hull, at the water line (Casson and Steffy 1991, 85 ff.). The discovery of a ram in a bay near Athlit, twelve miles south of Haifa, clearly reveals its construction (Casson and Steffy 1991). It is bronze, weighing 465 kg., 2.26 long and 76 cm. wide. A standard fighting tactic in classical times was the approach of the enemy warship, ramming on the prow and swiftly moving away. If the enemy ship was heavily damaged, there followed a boarding by the sailors fighters of the warship. After the ramming, whose main type was called *diaplous*, boarding was usually a necessary next step during which the marines armed as the *hoplites* (infantry men) boarded the enemy ship (Morrison 1995, 59-62).

In contrast to the light construction of triērēs which served for its necessary maneuverability to apply ramming, the dromon was heavily equipped in order to

apply a new military tactic, i.e. destroying or damaging the enemy ship by launching projectiles. For this purpose heavy stone throwing machines were installed in the Byzantine warships and more important a flame thrower for launching Greek fire (siphon) (Haldon 2006, 290-325), a bronze tube from which a flame would be projected, was installed in the above mentioned *pseudopation* on the prow (Pryor 1995, 105). When the enemy ship was not destroyed by the projectiles or the Greek fire, boarding was followed by the marines who were fully equipped with arms similar to those of the infantry. The best depiction of fighting after boarding appears in Pseudo-Oppian's *Cynēgētica* (11th c.), found in the Marcian Library of Venice (Spatharakis 2004, 24). (fig 13)

Figure 13 Last stage of naval battle, fighting boarding (Venice, Cod. Marc. Gr. 479. Cynē gētica by Pseudo-Oppian (11th c.). Courtesy of IGOAS (Institute for Graeco-Oriental and African Studies)

To sum up, the introduction of new military tactics, i.e. abandonment of ramming which required skilful movements of swift vessels and its replacement with the use of heavy weaponry revolutionized the construction of the Byzantine warships. Nonetheless, a common point had remained in the naval battles, i.e. the body to body fighting after boarding the enemy ship, as vividly depicted in Byzantine iconography.

4.5.4 Shalandi or Chelandion

The *Shalandi* for the Arabs or the *chelandion* (χελάνδιον) for the Byzantines was a warship, used for transporting fighting men, their equipment, their food and their water. (fig. 14) In Arabic and Greek this is a synonym to a Byzantine *dromon*. In the Byzantine sources the term chelandion (χελάνδιον) is at certain times used as a synonym of *dromon* but more frequently it applies to a different type of war vessel (Karapli, 2007: 79-84).In the Arabic sources it is frequently applied as a synonym of shīni, but also of a particular type of warship (Agius, 2001: 56).

A detailed and complete description of the structure and weapons of the Byzantine *chelandion* does not appear in any Byzantine source, but through scattered references in the Byzantine sources we understand it with the above mentioned characteristics (Karapli, 2007: 79-84).

Figure 14 The shalandi-chelandion representation (Karappli 2004, 11)

During the second siege of Constantinople by the Arabs (717-718) Theophanes states that Leo III sent against them “dromonas” (Theophanes 397, 11) while the “chelandia” brought supplies to the blocked Byzantine soldiers (Theophanes 397, 21; Theophanes, *Chronographia*, ed. C. de Boor 1885, 397, 11, 21). Consequently the different utilities of the chelnadion and dromon are visibly distinguished (Karapli 2004,31).

Although, no specific details about the *chelandion* can be gleaned in the Byzantine sources, we can assume that it carried a small fortress (*xylokastron*) amidships and thus it could carry fewer marines and accommodate more supplies in the extra space. Most probably the Arab *shalandi* in its particular meaning had the same function as its equivalent Byzantine *chelandion.*

4.5.5 Shakhtur – Bāridj – Galea

Galea was a one-level light, swift vessel with a single mast rig manned by oars. Its function was for patrolling or spying commando attacks. The volume of the vessel varied and the armed oarsmen and the rest of the crew numbered from about twenty to forty. It seems that single-bank vessel the Byzantines was small warship called (*saktoura)*, a. tern Arabic term *shakhtur* derived from the *shakhtur.* The term incorporated ships of a range of sizes but mostly the single-mast small vessels. Besides the term *shakhtur* numerous names were in use for the Arab spying ships, which were broadly called *djāsūs.* (fig. 15)

Figure 15 The shaktur-galea representation (Christides 2004, 17)

Another small, single-banked warship with one mast appears in the Arabic sources under the name *bāridj*. It was a somewhat larger single-bank aphract vessel having a crew of forty-five men: a governor, three fire throwers, a carpenter, a baker and thirty five oarsmen and marines. Clearly, these types of ships were functioning for sudden attacks while the spy-scout vessels with proper camouflage were manned only by twenty oarsmen (Christides 2004, 37).

Concerning the special troops of the small Byzantine and Arab scouting ships, there is only some meager information in the Byzantine and Arabic sources. Probably the crews of the spy-scout ships of the ninth -eleventh century had a special training like those described in the 4th century author, Vegetius (Vegetius 1885, 31-36). He reports that the hulls of the scouting ships were colored *venetus* (blue), the marines were camouflaged dressed in colored uniforms and were selected among the bravest men.

4.5.6 Tarita – Ṭarīda

Transportation of horses by special ships (πλοῖα ἱππαγωγά, ships carrying horses), an important element in naval expeditions, existed from ancient times and it is frequently mentioned in the Greek sources (Reddé 1986, 128-129). The tenth century author Leo Diaconus reports that Nicephorus Phocas' warships were equipped with special ramps in their ships which enabled the armed horsemen to disembark (Leo the Deacon, History 7, 19-23). By the tenth century both Byzantines and Arabs used special horse carrying ships called *tarita* in Greek and *ṭarīḍa* in Arabic

Figure 16 The tarida representation (Dimitroukas 2004, 21)

The *ṭarīda* was a round shaped ship. Kindermann advocates that the Byzantine *tarita* is linked to the Muslim *ṭarīda*. According to the Muslim chronicles of the Crusades, the Arab *ṭarīda* was designed to transport horses but some transferred archers, as well as crossbow archers and fire-raisers; others were made to hold heavy cargoes and transfer troops, weapons and food supplies. The biggest one was capable of holding 40 horses (Agius 2008, 330-332). (fig. 16)

Ibn Baṭṭūta vividly describes the dismounting of horsemen from ships as he himself watched it: "There were next to us two *ṭarīḍa* ships, open in the stern where the horses were placed and they were constructed in such a way that the horseman could mount his horse, dressed in his armour and disembark…" (Défrémery and Sanguinetti 1853-1858, 107)

4.5.7 Karavos – Qārib

Κάραβος (karavos) was a Greek term referring to a lifeboat utilized for supplementary means of navigation (Kahane and Tieze 1958, no. 780). (fig.17, 18) This term was given during the Middle Byzantine times and had replaced its classical terms of *ἐφολκίς*, *ἄκατος* and *σκάφος* (*efoklis and akatos).* The corresponding Arabic term is *qārib* whose function was similar to that of the Byzantines. The archaeological and hagiographical information has enlightened the function of such vessels.

Figure 17Karavos-qārib or sandalos-sandal attached to an Arab warship. (Institute for Graeco-Oriental and African Studies).

When the water was shallow or the weather was not permitting the ship to moor, the *karavos* helped the passengers and the cargo to be put ashore. In cases of landing on non-habituated islands or isolated coasts, the crew approached them in their lifeboats

in order to seek drinking water and firewood. During storms, the *karavos* was secured aboard ship and was placed to the sea when the weather was better, in order to gain extra space for the cargo. When the ship was exposed to contrary winds, the *karavos* was assisted by the use of oars and tug-lines, the ship's access into port and its way out from it, at the time that no wind existed. In special occasions, such as of a shipwreck, the karavos was utilized for the rescue of the passengers and the crew. Unfortunately, it was effective only when it was close enough to the shore; otherwise it was able to function for such reasons only if it was large enough to sail in the open sea.

The size of the *karavos* could vary from a very small to a large vessel similar to small merchant ships According to descriptions of mid-Byzantine texts, an average lifeboat had the capacity of carrying a small number of people and it also had a rudder, two to four oars and a small sail. It was a hybrid construction due to the fact of adopting elements from warships (oars) and round merchant ships (sail) (Dimitroukas 2004, 41). It should be noted that both Byzantine and Arab iconography depicts *karavoi* either attached to the bigger vessels or moored at the ports.

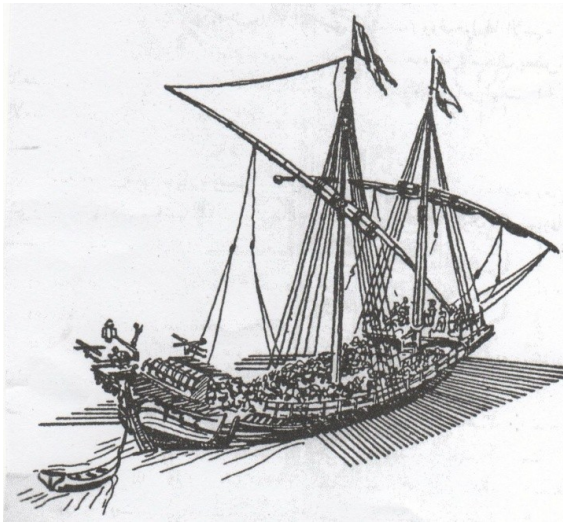


Figure 18 The karavos- qārib representation (Dimitroukas 2004, 19)

4.6 Case studies

The sources about the ships of Byzantium and Islam have not been researched sufficiently since information for the dimensions, structures or rigging of such vessels is not given in detail. The iconographic evidence, as for example some graffiti and a few depictions of ships in Byzantine and Arab manuscripts, is useful but insufficient and more research is required. Maritime archaeology gives concrete data about steering mechanisms, sails and rigging and thus it is very important in order to complete the puzzle. There are some very well known excavations, such as the ones in Yassi Ada and Serçe Limani, which have provided illuminating information about medieval ship structure and the function of ship implements. Furthermore, the most recent discoveries of the ships found in the Theodosian port in Istanbul have enlightened even more our knowledge for the sailing ships. Consequently, although there are a lot of unsolved matters, the research in Byzantine and Arab medieval navigation is proceeding successfully.

4.6.1 The Shipwreck of Yassi Ada (7th c.)

The first investigations of Byzantine shipwrecks near the coastal island Yassi Ada, between the Turkish coast and the Greek island Pserimos, were held between 1961 and 1964 by the University of Pennsylvania, directed by George Bass. This research has enlightened many parts of the Byzantine merchant ships, which has been very limited in knowledge topic (Van Doorninck 1972, 137).

The seventh century shipwreck of Yassi Ada was the first shipwreck to be excavated in its whole. Fortunately, the techniques that were used by specialists gave the opportunity for a detailed reconstruction of the hull. The keel and the sternpost were constructed from cypress, the frames from elm and the hull planking from pine. Sadly, the stem has not survived. In order for the structure to be tied together iron spikes and bolts had been used. (fig. 19)

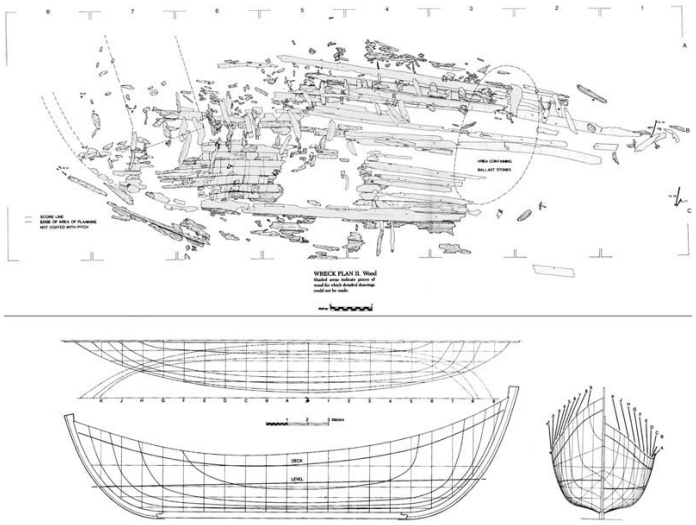


Figure 19 Yassi Ada 7th c. hull remains and reconstruction. (Castro F., et al. 2008, 353)

The capacity of the ship has been estimated to 61 metric tons of cargo, in conditions of good weather. During its last journey, the vessel was transporting 850-900 amphorae of wine, weighing around 40 metric tons. Furthermore, at the stern there was placed a cabin and a galley with a hearth of glazed tiles. There are a lot of objects recovered from there, among them pottery for cooking, eating and storing, oil lamps, coins and the steelyard. In the forward part of the ship 11 anchors were discovered, of which two pairs were tracked near the gunwales at the bow, ready for use.

Pryor mentions that the construction of the hull of this ship has a significant difference from the Graeco-Roman way of construction. He precisely described as follows "*After the keel and posts were set up, the shipwright began to build up the hull by laying strakes and adzing them to fit side by side in the preferred shape, butting them edge to edge with mortise and tenon joints according to the Graeco-Roman method. The difference of this ship appeared when several strakes had been laid out in this way from either side of the keel, timbers was then laid inside them and fixed with iron spikes driven through the planks. The same procedure was then repeated to bring the hull up to the waterline. The frames which would carry the hull up to the gunwales were then put in place, and the hull was completed by bolting four wales to the upper frames and filling in the spaces*

between them and with planks nailed to the frames without any mortise and tenon joints."

The ship carried eleven iron anchors, from which seven were compactly stacked on the deck and four were stored near by the gunwales ready for use. *The anchors had movable stocks which were stowed with the anchors on the deck. Three iron stocks were recovered from the shipwreck.* Furthermore, the ship carried on board a set of weights and more interestingly within the hull near the stern, a galley was placed, small in size but very elaborate (Steffy 1982, 65-86).

The excavation of the Yassi Ada shipwreck offered irrefutable data that by the seventh century the construction methods had started to transform from the typical Graeco-Roman shell-first technique to the medieval skeleton-first technique (Pryor 1994, 59-76).

4.6.2 The Shipwreck of Serçe Limani (11th c.)

The Institute of Nautical Archaeology (INA) excavated a medieval shipwreck from 1977 to 1979, at Serçe Limani, a natural harbor of Turkey located on the coast across the north of Rhodes. The shipwreck of Serçe Limani is estimated to have sunk between the years of 1024 and 1025 based on the coins of Basil II and on the Fatimid glass weights that have been recovered. The sinking therefore occurred during the time that the Fatimid –Byzantine relations were improving, due to the treaty of 1027. During this period, the commercial activity was expanding and the trade had become relatively free. The wholesale merchants were facing ever-changing prices for commodities and in some occasions were dealing with a notable diversity of goods (Van Doorninck 1991, 45-52).

The entire ship was constructed from pine with the exception of its keel that was made out of elm (Pryor 1994, 59-76). It had two masts with lateen sails of 15 meters overall length and around 37 metric tons capacity. The design of the ship and its construction signify that it was a forerunner of the Mediterranean *navis* of the late medieval period (Van Doorninck 1991, 45-52). (fig. 20)

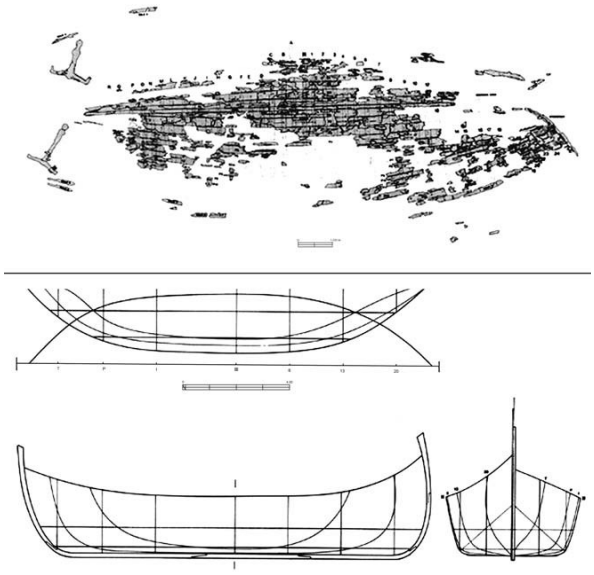


Figure 20 Serçe Limani hull remains and reconstruction. (Castro F., et al. 2008, 355)

Pryor precisely describes as follows *"This was a ship built entirely frame first in that the planking was nailed to the frames and not joined edge to edge. […]The remarkable flat floor amidships and capacious hull of the ship was possible only because a skeletal construction technique was used. The demands of carpentry imposed by the classical Greco-Roman shell-built, mortise and tenon technique would have made the lines of this ship impossible to achieve. The fact that the keel was composed of three timbers rather than one long one, and the large amount of scarfing and butting together of shorter timbers to form the hull strakes, suggests that the ship was built in an environment where economy in the use of timber was important. [...] Twelve frames and floor timber set on the keel before any strakes were laid provided the essential guide to shaping the hull. No mortise or tenon joints for the strakes were used at all."* (Pryor 1994, 59-76)

In addition, the cargo that was found was huge. The items coming from Muslim countries were a lot, but the amount of Byzantine items is equivalent.

- Approximately 3 tons of glass cullet: More than 80 intact glass vessels (among them a matching bottle and beaker decorated with engraved lions), 200 complete glass vessels, 300 complete vessel

profiles and around 10,000 to 20,000 broken glassware vessels, corresponding to more than 200 different types. It is has been attested that this glassware was broken before the ship had sunk. Most of the glassware indicates an Islamic style.

- Various ceramic wares: 6 thin-walled gargoulettes (characteristic of the Fatimid style manufactured in Egypt), 36 thin walled cooking pots, some baking dishes (most probably deriving from the Levant)
- 44 splash-ware and graffito-ware glazed Islamic bowls.
- 8 Anchors: 6 “Y- shaped” anchors, 2 have stamps, from which one bears an Arabic inscription and the other has a form of a tri-lobed flower. Five of them were stowed at the centerline amidships, two on the port bow and one on the starboard bow. There was also one more anchor found on the seabed nearby that might indicate the reason of the ship sinking.
- 110 reused amphorae, from which 80 Byzantine type piriform amphorae (fig. 21), being part of the cargo for storing wine, used between the ninth and eleventh centuries. Some bear graffito names, most probably the names of the owners. A number of them were two –shaped amphorae of a general type that were used in Palestine.

Figure 21 Piriform amphorae. (Van Doornick 1991, 51)

- Gaming pieces: chess set
- Weapons. It is not clear if they were stored as cargo or being on board for defensive causes. The evidence is not enough to make broad conclusions, but certainly some of them were part of the cargo. In any case part of the weaponry must have been used for defense against any piratical attacks. There is no doubt that sailing was secured according to the above mentioned treaty, but unruly piratical attacks could occur. Another problem that occurs with the weaponry is that it is so fragmentary that the definition of a precise number of swords is almost impossible. In general though, one would say that

the weaponry that has been recovered reflects an extraordinarily international range of influences. The hypotheses suggest that maybe the pole arms could have reached the Aegean through the trade routes of Prague to Krakow and from there to the shores of the Black Sea. Instead, they could have been made in Bulgaria imitating the Central European styles. Furthermore, according to Prof. van Doorninck the amphorae bear runic letters that indicate an origin from the Danubian region of the Black Sea coast (Schwarzer 1991, 327-350). (fig. 22)

Figure 22 Espada-weapon. (Schwarzer 1991, 349)

- Weights
- Coins: 40 copper coins Byzantine coins of Basil II (d. 1025AD), 3 gold coins Fatimid quarter *dinars* of al- Ḥakim and 15 clippings from Islamic gold coins
- Jewelry: 6 silver signet rings and a gold Fatimid earring, most probably made in Syria (along with a wooden comb and bone spindle whorls which indicate the presence of a woman)
- Arsenic ore
- Orpiment
- Two pairs of rotary millstones (Van Doorninck 1991, 45-52; Pryor 1994, 59-76).

The origin of the shipwreck of Serçe Limani has troubled the scholars a lot. It is believed that the Serçe Limani *was* a vessel with a polyglot crew of Christians and Muslims and sailed to both Fatimid and Byzantine ports (Pryor 1994, 59-76). According to the collected pieces of evidence, the ship could be a Fatimid vessel, although the amphorae and the fish net weights have Greek letters or Christian symbols on them indicating a Byzantine origin (Schwarzer 1991, 327-350). The pork bones found inside a merchant's personal cooking pot indicate the presence of Christians on board (Van Doorninck 1991, 45-52). On the other hand, the anchors, the glazed bowls, and the glass weight imply to a similarly viable Muslim source. In the same way, the intact glass jars, bottles and tumblers and the numerous glass shreds have an Islamic design, but could not necessarily have an Islamic origin; they could have been made in a number of different ports of the period (Schwarzer 1991, 327-350). Prof. van Doorninck suggests that the merchants and the crew, at least most of it, were Christian-Greeks whose place of residence was possibly within the Fatimid area (Van Doorninck 1991, 45-52).
Finally, it should be noted that the shipwreck of Serçe Limani shows clearly two important points. First of all that, at the turn of the eleventh century Arab and Byzantine merchant ships sailed in the Eastern Mediterranean moving freely from port to port and exchanged goods without any obstacles. Furthermore, there was a constant inter exchange in nautical technology between Byzantines and Arabs, and by the eleventh century there were not any substantial differences in the construction of Byzantine and Arab ships.

4.6.3 The excavations for the Marmaray - Metro of Istanbul

The Harbor of Theodosius in Istanbul is dated on the fourth century and it was found in today's location of Yenikapi in Istanbul. In 2004 the Istanbul Archaeological Museums started excavating at the center of Istanbul before the work for the Marmaray and the Metro construction began. (fig.23) The excavation works expanded from Yenikapi to other districts within the city such as Sirkeci and Uskudar, and they are still proceeding. The results are remarkable and contain numerous remains from all the periods of the city's inhabitation, since Neolithic times until the Ottoman Empire. The cultural treasures and the historical importance

for Istanbul have rated these excavations as some of the most important worldwide held at the moment. Since the excavation works are continuing, it is anticipated to unearth more finds and enlarge the archaeological and historical knowledge.

The harbor's significance was immense due to the major role it played in the Byzantine economy. It was constructed on the crossroads of the Balkans and Anatolia, exactly on the trade route connecting the Aegean to the Black Sea. Thus, it was dominating several trade pathways which contributed greatly to Istanbul's growth. Depending on the sources of ancient maps the knowledge was limited and the precise location, size and outline of the harbor could not be defined

Theodosius I, between 379-39+5, ordered the construction of this harbor due to the needs of the growing capital of the Empire. (fig.24) A breakwater was expanded from the east to the west along the south route of a natural bay in order to erect the harbor. In addition, numerous other constructions and silos were made for keeping the grain brought by large vessels from the nearby ports that were positioned around the harbor. Among them there was a big tower with a guard on the entry of the harbor for safety reasons.

Figure 23 The excavations made at Yenikapi. Working on YK12 (above) and YK7 (beneath). (Kocabas 2010, 6)

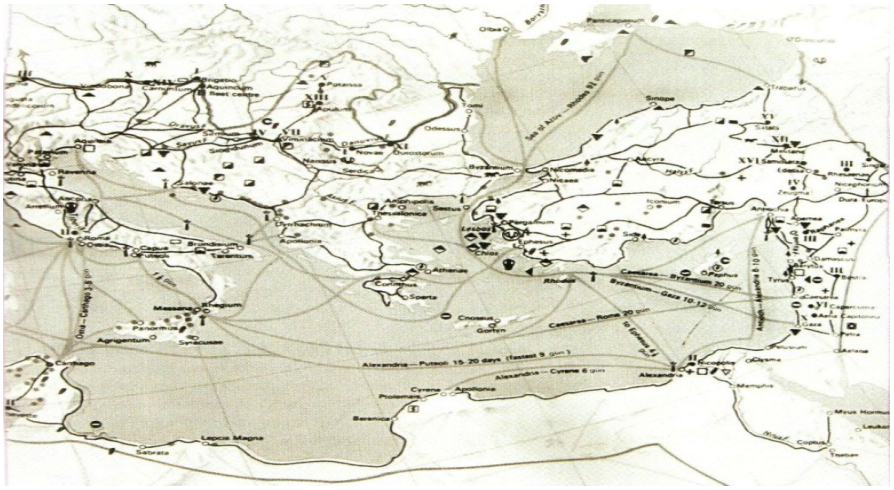


Figure 24 The trade routes linked to the Theododsian harbor (Kocabas 2010, 155)

The fourth century Harbor of Theodosius was in use until the seventh century. It is considered to be the most well-known harbor of the Byzantine Empire. During the Ottoman Empire, the district of Yenikapi was regarded as the fruit and vegetable garden of Istanbul. According to sources travelers visiting Istanbul during the sixteenth century the harbor was functioning as a truck garden after being blocked and becoming a part of the mainland. (fig. 25)

Figure 25The engraving of Buondelmonti (1420) depicting the location of the harbor at the point where the Lykos Stream flowed into the Marmara Sea (Kocabas 2010, 154)

During the archaeological excavation, 34 ships were found of which 21 were in the Metro and 13 in the Marmaray excavations. (fig.26) According to recent researches held on the site, the harbor was silted up from alluvium brought by the waters of the Lycos River, which unfilled in the natural bay. The excavators observed that most of the shipwrecks in the Theodosius Harbor were found at the eastern side close to the access towards the harbor. It seems that the eastern part of the harbor was in use until the tenth to eleventh century. (fig. 27) Depending on the excavated site and the shipwrecks found there, one can assume that this part of the harbor stopped functioning due to natural disaster causes, while the rest of the harbor had been silted up already since the seventh century.

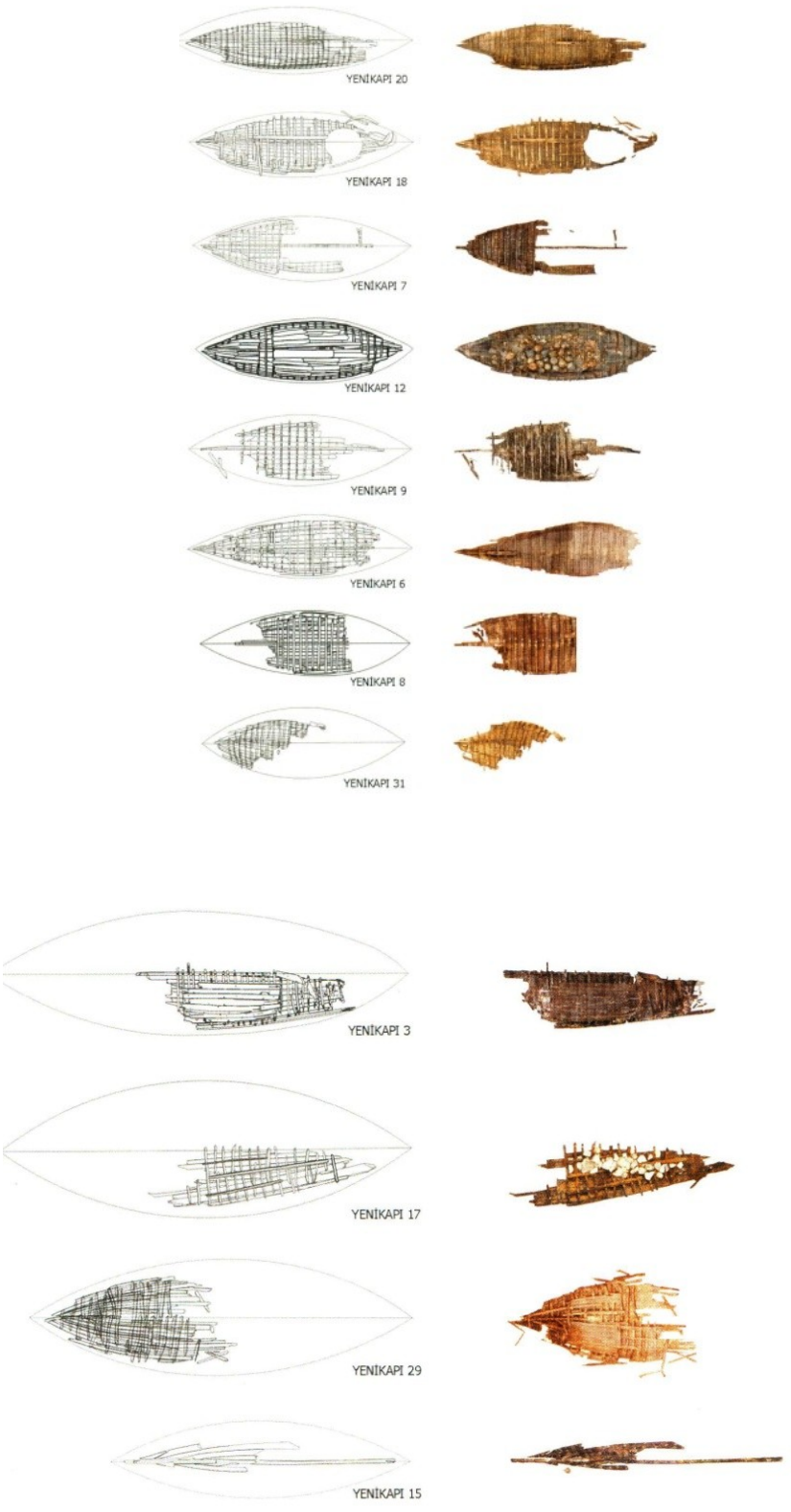


Figure 26 Open seas freight ships and coastal seafaring ships (Kocabas 2010, 27-28)

Figure 27 Dispersion of the finds in Yeni Kapi site (Kocabas 2010, 135)

For instance, the YK 1 ship, having a cargo of amphorae from the Marmara Island, was anchored at the harbor, but seems to have sunk. Also, the YK 12 ship was found with various fragments of amphorae, from which 16 were intact. It has not yet been answered why the harbor stopped functioning and why these ships were destroyed. (fig. 28)However, according to the research held at the moment, it seems more reasonable that a natural disaster or a catastrophe including the case of a tsunami or a storm had happened. Of course, nothing has been concluded yet.

Throughout the Yenikapi excavations around 25,000 artifacts have been found so far. The information provided by them concerns economy, trade, culture, religious aspects and daily life matters of their contemporary period. (Fig. 29) Among all these finds, the prominent ones are the hawsers of the sunken ships, an inscribed image of a ship on an tenth century amphora, iron and stone anchors, and baked clay tablets with definitions inscribed on them about the names and the location of origin of the owners. Their importance is regarded in the information given about the types of ships and shipping in general.

Figure 28 The YK 12 shipwreck found together with its cargo (Kocabas 2010, 29)

Res./Fig. 12 Foto/Photo S. Kara.

Res./Fig. 13 Foto/Photo B. Köşker.

Res./Fig. 14 Foto/Photo B. Köşker.

Res./Fig. 15 Foto/Photo B. Köşker.

Res./Fig. 9 Foto/Photo B. Köşker.

Res./Fig. 10 Foto/Photo S. Kara.

Figure 29 Finds from the cargo of the shipwrecks (Kocabas 2010, 158-159)

Lastly, scientific attention has been lying over this excavation, because among all finds and discoveries vital questions that have been troubling specialists have the opportunity to be answered. For instance, it is widely known that, since Antiquity and maybe even earlier, ships were built with the shell-first technique. During the early medieval period though this method was transformed totally and the technicians followed the skeleton-fist technique (see chapter 4.3.1.). How exactly did this change occur and for what reason? The information was so limited that no conclusion could derive. Luckily, the shipwrecks of the Harbor of Theodosius have a great range of centuries and many observations can be made. First of all, both techniques can be seen and secondly even the phase of the transition from one technique to the other is apparent. Finally, the academic society will be able to comprehend some of the most crucial problems of the maritime archaeology. So far, what can be argued is that the transition appeared slowly and ships of the same period followed both techniques at the same time.

Much more information is to be found from the excavations and conducted by numerous researches (Kocabas, 2010).

5. Byzantine and Arab Artistic Interactions

Throughout the Mediterranean, with ancient and various civilizations, a fresh art appeared at the end of the eighth century, which fruitfully imposed itself in less than a hundred years. The forms of Islamic life that started to being developed in the Mediterranean countries were dissimilar within the unity which resulted from their shared bond with the new religion. On the other hand, one of the main characteristics of Islamic societies and reflected in Islamic art was the capacity to assimilate elements of previous cultures. Consequently, when Islam emerged in the Mediterranean, the cultures in the area were already very diverse, so it is apparent that the Islamic world had not been immutable but rather miscellaneous. In fact, Islamic art brought up new concepts and innovations based on combined regional *modus operandi*, as well as architectural and decorative techniques. At the same time it was inspired and influenced by the artistic traditions deriving from the Graeco-Roman and Byzantine culture, as well as from the Sassanian, Visigothic, Berber and Central Asian. The initial purpose of Islamic art was to accomplish giving a higher image towards religion and several socio-economical aspects. One by one, new buildings such as mosques and sanctuaries were erected for religious purposes. As a result, architecture was one of the most decisive constituents of Islamic art, from the moment that a whole series of other arts were based on it. Furthermore, more minor arts developed as well. Pottery had a big diversity of glaze techniques and among them the luster and polychrome painted wares were the most outstanding. Glassware reached its peak with the significant type of gold and bright enamel colors. Metal work was keen basically on practicing the method of inlaying bronze with silver or copper. The textiles and carpets were of high quality and their ornamentation was of geometric, animal and human forms. The art of books gave stunning illuminated manuscripts with miniature paintings. All together, these types of minor arts fulfill the taste of the Islamic art.

Moreover, Islamic art allowed variety and difference, which enforced more styles to develop, each one recognized by a dynasty. For example, the Umayyad Dynasty (661-750) fascinated by the Hellenistic and Byzantine heritage, incorporated it in

such a way that the classical practices of the Mediterranean were transformed in a new pioneering cast. Consequently, the art of this period was produced in Syria, and the architecture although Islamic, maintained the Hellenistic and Byzantine art tradition (Gomez 2001, 15-18).

The first Islamic classism is a critical chapter during which the art of the Arabs and that of the Byzantines were strongly related to each other. It is considered to be the first assortment between the Near East and the Mediterranean and the new political, social and religious units elaborated by the Prophet and the successors (Grabar 2005, 4-6). This period is most of the times associated with the Dynasties of the Umayyads (661-750) and the Abbasids (750-1258) (Bosworth 2004, 3-7). The most characteristic monuments of this era related to the Byzantine-Arab direct or indirect influences are the Dome of the Rock in Jerusalem (691), the desert baths of Quṣayr ‘Amra (early 8th c.), the wooden beams of the Aqsa Mosque (built between 688-692) and the Great Mosque of Damascus (completed in 715). Especially in Syria and Palestine this tendency was very apparent. During the following centuries a more diverse and complex series of relations could be defined. In the ninth century, the relations between the Andalusians and the Byzantine Empire were strengthened, especially at the time of Theophilos who created close relations with the caliph of Cordoba, ‘Abd al-Raḥmān II. The caliph intended to repeat a model of the early Islamic art and he even requested Byzantine artists to decorate parts of the Great Mosque and furthermore to train the locals. Even later on, during the twelfth and thirteenth century, when a new wave in the art of book illustrations appeared around the Fertile Crescent and Mesopotamia, inspired by the Persian and Chinese art, the Byzantine influence did not disappear.

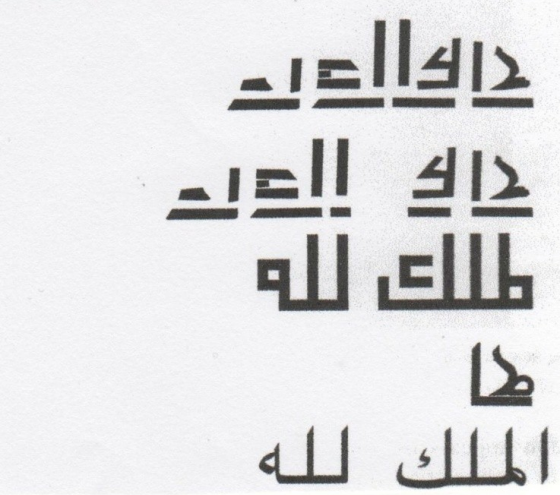
On the other hand, the growth and development of Islam meant much more for Byzantines than just the conflicts and the loss of land. In the very beginning it was wrongly seen as the appearance of another heresy in the Arab provinces of the Mediterranean rather than as the hazard of another famous religion aiming at the union of a new state Relations among the two powers turned out to be an initial combination of military confrontation and culture co-operation (Cormack 2000, 79).

In general though, there was a mutual influence from both sides, Byzantine and Arab. On the one hand, the Byzantines favored Islamic objects and an orientalized view was added to the court of the Constantinopolitan emperors and to numerous churches. On the other hand, the Arabs continued to maintain the impact of the Byzantine art. Thus for example, the Fatimid caliphs of Cairo, whose ceremonial traditions were very similar to those of the Byzantine emperors, borrowed or adopted Byzantine artistic methods, as cloisonné enamel (Grabar 2005, 4-6). After the establishment of Cairo as the capital of the Fatimid's on 3 May 970, their trade interactions with Byzantium were intensified and a large number of textiles were exported to the Byzantine Empire (Lev 1997, 140-141).

The Arabic artistic influence on the Byzantine art is clearly demonstrated in a large number of Byzantine paintings and reliefs. It is, nevertheless, difficult to determine the limits of the influence exercised by Arabic art on Byzantine items, which is a subject of controversy by specialists. Thus in Athens, a number of reliefs in the Church of Gorgoepēcoos, dated ca tenth -eleventh centuries, depicting human-headed quadrupeds, were attributed to Arabic artistic models. Of course, such depictions do appear in the earlier Byzantine and pre-Byzantine period, but most probably there was a return to earlier motifs and simultaneously a renewed influence by contemporary models (Miles 1964, 1-32). Since in the tenth -eleventh centuries trade relations between Byzantium and the Fatimids were intensified, most likely movable artistic objects, i.e. textiles and ceramics with such representations, had reached Byzantium and could have been a source of Byzantine inspiration.

The second important influence we notice appears in numerous Kufic and pseudo-Kufic inscriptions decorating a number of Byzantine churches (Ettinghausen 1976, 28-47). The most conspicuous example appears in the Church of Kapnikarea in Athens (Kanellopoulos and Tohme 2008, 133-139). (fig 30) Another obvious example of Arab-Islamic influence on Byzantine art is the artificially created Abbasid palace of the emperor Theophilus (829-842). This building is of particular interest because it was not the product of pure artistic taste, but an artificially made structure for propagandistic purposes. Theophilus commissioned the building of this palace not

because he had a personal taste for Abbasid architecture but as a symbol of wealth promoting domestic propaganda and reassuring Byzantine cultural supremacy. For this reason Theophilus built it in the Theme of Armenia, the area most suitable for such a structure (Keshani 2004, 75-91). Another area influenced by Arabic art is the ornamentation of certain Byzantine manuscripts of the fourteenth century inspired by the arabesque designs of the Mamluk period (Nelson 1988, 7-22).



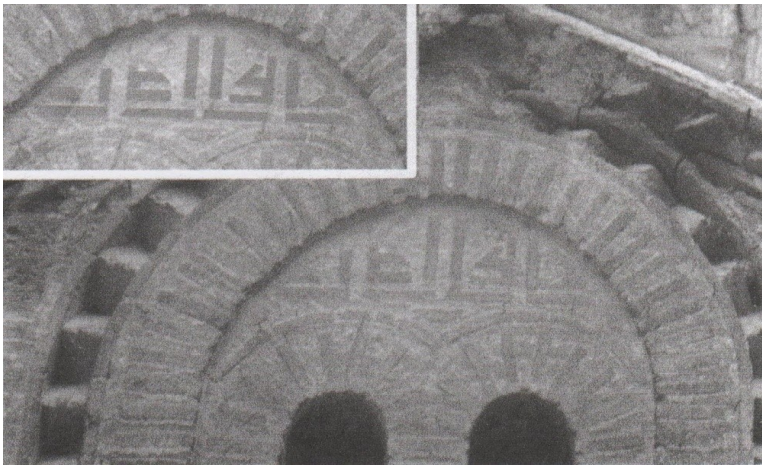


Figure 30 Kufic script on the south wall of the Kapnikarea Church. Actual characters in the brickwork of the church. (Kanellopoulos and Tohme 2008, 136)

Finally, another possible Arab-Islamic influence can be discerned in a number of frescoes decorating some churches on the island of Naxos. A preliminary work on this field has been done by D. Nikolia, who believes that the iconoclastic churches of Naxos found in Kalloni became a point of fruitful artistic ground of Arab-Islamic influence (Nikolia 1999-2000, 433-438). It is my intention to continue Nikolia's research, focusing on the frescoes of the Byzantine church of St. Kyriaki in Naxos which depict a number of birds. Their long necks are encircled with a Sassanian ribbon and the tails of some of them are turned upwards, ending in a fan shape. Such artistic motifs appear already in Sassanian objects of the sixth century (Belloni and dall' Asèn 1968, plate 73). (fig.31) It is my belief that this theme was reintroduced in Naxos in the tenth century when at that time Naxos belonged to the emirate of Crete (Christides 1984, 128-129).

Figure 31 Silver vase depicting a bird encircled with a Sassanian ribbon. Sassanian period, sixth century AD.

These few examples show that the Arab-Byzantine mutual artistic influences did exist although by far more limited than the influences originating from other places out of Islam. After the second half of the thirteenth century in the Mamluk art of Egypt or in the art of Morocco and Spain, Byzantine elements existed but they were rare and their contribution to art was extremely limited. The Mamluks encouraged European traders to go to Alexandria, which by the fourteenth century had become the best spice center in the world (Torky 2001, 196-197). Although most of the foreign merchants were Genoese and Venetians, a limited number of Byzantines were also invited by the Mamluks, and thus sporadically Egyptian products, mainly textiles,

continued to be exported to the Byzantine Empire. This period, however, marks the twilight of the Arab-Byzantine relations.

Nevertheless, it should be noted that even at this last stage of Arab-Byzantine relations, we discern a certain Arabic influence on the ornamentation of a number of Byzantine manuscripts of the fourteenth century inspired by the arabesque designs of the Mamluk period (Nelson 1988, 7-22). Simultaneously, after the conquest of Anatolia by the Turks, Oriental elements kept on existing in Byzantium but they did not derive from the Arabs (Grabar 2005, 4-6).

To sum up, this part moves into a different field, focusing on the artistic interactions between Byzantines and Arabs. It starts with a general introduction of Islamic art and proceeds into the examination of the Arabic artistic influence on Byzantine art, i.e. a number of reliefs in the Church of Gorgoepicoos in Athens, dated to the 10th-11th centuries, depicting human-headed quadrupeds that were inspired by oriental artistic models. The problem which is raised is whether such Byzantine artistic representations originated directly in Fatimid models at a period in which Byzantine and Fatimid trade relations were intense, or simply continued a previous artistic legacy rooted in ancient Greek tradition.

The Islamic influence appears in numerous Kufic or pseudo-Kufic inscriptions which decorate a number of Byzantine churches. They were created either by Arab workers, possibly captives, or Greek artists who imitated Arabic iconographic models transmitted to them either by pottery or textiles.

Moving into the Byzantine influence on Arab architecture, an important case is demonstrated in the Umayyad desert castles in Syria. Scientific analyses are suggesting that the phenomenon of the Umayyad castles in Syria should be interpreted by the existence of the infrastructure of an agricultural organization which had been carried on, if not always created, by the Byzantine world.

The contribution of the Byzantine influence was not limited to Arab monuments, but extended to the use by the Arabs of well-trained Byzantine technicians.

In addition to architecture, a number of illustrated manuscripts, woodwork and decorations of other items betray that in the former Byzantine provinces, Syria, Lebanon, Jordan, Palestine and Egypt, flourished an art in which Byzantine and Islamic elements were interwoven, as it is documented in section 5.1 Architecture and Orientalization.

In the next sections there is a description of the Byzantine and Islamic elements of famous mosques, i.e. the Great Mosque of Damascus, the Dome of the Rock and the Aqsa Mosque in Jerusalem. The following section deals with a number of Islamic monuments in the Iberian Peninsula where Byzantine and Islamic elements are mingled. Supplementary material is shown concerning the possible artistic influence of Islamic art on Byzantine is presented, i.e. especially Islamic Kufic or pseudo-Kufic inscriptions on Byzantine churches. Moreover, a short description of the Islamic artistic influence on buildings in Constantinople is discussed and additional Kufic inscriptions discovered in Athens at the Churches of St. Theodoron, Soteiras Likodimou and St. Apostolon in Athens are described.

5.1 Architecture and Ornamentation

M. Guidetti on her recent article about the link between churches and mosques in the Dār al-Islam argues that the Muslim patrons looked for artifacts deriving from late antiquity and the Byzantine world, and reused them, for their new mosques. This corresponds to the reflection of the shifting status of churches over time (Guidetti 2009, 1).

According to the Anonymous Syriac Chronicle of 1234, at Edessa the churches were not destroyed during the Arab conquest. Furthermore, according to a variety of sources, church restorations were allowed because of the damages caused during several earthquakes. Actually, it has been obvious, especially by the readings of Athanasius bar Gumayer, that during the first century of the Arab conquest not only the Byzantine heritage was preserved but it was also being increased by building new Christian monuments. In addition, the first prayer halls or early congregational mosques were built in the same area where churches existed. This model was applied

in  al--Ruhā’ (Edessa) in 825, by constructing a mosque in front of a church, and it can be seen in many other cities as for instance in Aleppo, Diyarbakir and Hims. (fig. 32, 33) Thus, many cities adopted the model with the church maintained and a mosque being in use either in front of it either adjacent to it. This tendency suggests that the Christian elites and Muslim rulers were closely related and also that the compromise of urban space was continuous. Consequently, the co-existence of churches and mosques resulted in a great cultural and artistic influence, especially from the Byzantines towards the Arabs

Figure 32 The Great Mosque of Aleppo. In the background is the dome of al-Halawiyya Madrasa, built on the site of the Church of St. Helen. (Giudetti 2009, 6)

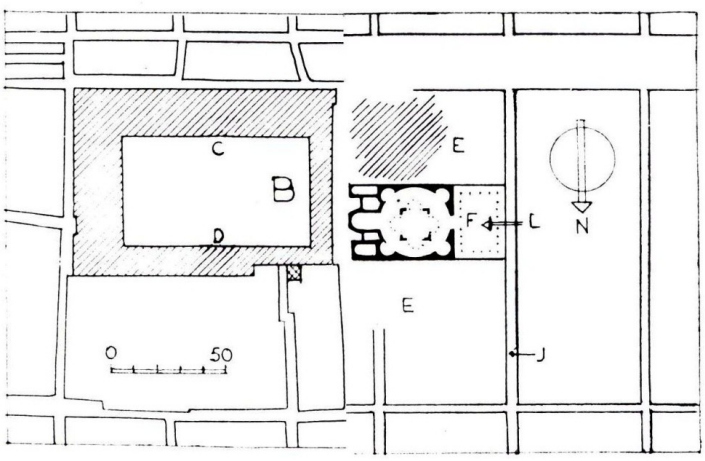


Figure 33 The Great Mosque of Aleppo and the Church of St. Helen between 715-1124 (Giudetti 2009, 7)

There were many attempts from caliphs to claim property from Byzantine architectural fragments from the land they conquered, some of which were successful and some not. Some clear examples were the three columns transported from the Cathedral of Sana to Mecca, while the restoration of its mosque by Ibn Zubayr was held in 680 and furnishings were transferred from the Church of Cyprus to the Umayyad mosque of Aleppo during the early eighth century. The Muslims utilized scattered materials by recycling the abandoned or destroyed by earthquakes ruins of churches or by requesting to "share" the architectural heritage with the Christian community. Nevertheless, the Muslims admired the beauty and the structure of a lot of Byzantine monuments that their newly formed state had inherited; and chose consciously to acknowledge them as masterworks of technical skill and luxury. For instance, the cathedral of St. Sophia in al--Rūhā' has an extended description in the quotes of numerous Muslim geographers, which refer to as one of the *āthār* (antiquities) and *'ajā'ib* (marvels) (Guidetti 2009, 1-36).

Another influence of Byzantium on the Arab architecture should be traced in the Umayyad desert castles in Syria. Scientific analyses are suggesting that the phenomenon of the Umayyad castles in Syria should be interpreted by the existence of the infrastructure of an agricultural organization which had been carried on, if not

always created, by the Byzantine world (Grabar 2005, 13). Under the perspective of the Byzantine architecture continued in Syria and Palestine, the Umayyad palace, seems as an original design, and according to Oleg Grabar, it was composed of four characteristics: " *a highly developed agricultural infrastructure created several centuries earlier; the emigration of large landowners; the existence of an aristocratic ruling group; and the availability of themes, ideas, tastes and modes of behavior drawn from the entire breadth of the newly conquered world and amalgamated with older Arabian habits."* On the other hand, there are several opinions which suggest that such creations resemble more to Roman and late Antique architectural designs than Byzantine. In addition, for the formation of the early Islamic palace art, the conquest of a large world with an immense wealth of styles and objects was as important as the location of the palaces in an area formerly ruled by the Byzantine Empire. The Byzantine art did indeed play a very important role, but only as one of the contributors to a new series of syntheses. At the bottom end, it was the combination of the Byzantine richness and the strange ecology of the Arabs that made the Umayyad art so brilliant and wealthy (Grabar 2005, 16-18).

The contribution of the Byzantine influence was not limited to Arab monuments, but extended to the use by the Arabs of well-trained Byzantine technicians. Thus, during the erections of the first Islamic monuments Byzantine workers were requested. A characteristic example is that of al-Walīd who specifically asked the Byzantine emperor Justinian II to send him workers in order to help decorate the Great Mosque of Damascus. It is believed that the interpretation that the Byzantines and al-Walīd gave differed greatly (Chatzidakis 1996, 12). Presumably, for the Byzantines it seemed as an imperial act granting to "barbarians" the privileged use of highly technical training which served to enhance the prestige of the Byzantine emperor and possibly also to bring the "barbarians" into the imperial fold (Grabar 2005, 24-25). Professor Gibb says characteristically that for al-Walīd it was up to a degree a manner of "*learning the ropes*", since he was restless for enjoying all the features of being an emperor, and as well partially an approach to make an impression on the Christians of the Empire (Gibb 1958). In general, similar to the new Muslim coinage and similar

to the iconography of the Great Mosque of Damascus and the Dome of the Rock, al-Walīd's request for Byzantine workers was intended to symbolize the prince's accession to worldwide power, which is the exact subject of the celebrated fresco of the Six Kings at Qusayr 'Amrah. Fundamentally, this fresco had a more Oriental than Byzantine ceremonial theme about the royal activity, in which the life of the prince was depicted in connection with hunting, games, banqueting, dancing, music, etc. Thus, it appears to have had more than one influence, mainly originating from Central Asia and India. Furthermore, during the early eighth a prince would be depicted after the standards in a Byzantine or Sassanian emperor due to the fact that Islamic iconography had not evolved in such a level that would not require an adopted formula. Thus, the princes were represented with a Byzantine or Sassanian garb, a fact that shows that the Byzantine art was clearly one of the sources from which the Muslims chose elements to use in their necessities and practices (Grabar 2005, 24-28). (fig. 34)

Figure 34 Quṣayr 'Amra. Fresco of the Six Kings and Fresco of Prince. (Grabar 2005, 27, 33)

5.2 Syria, Lebanon, Jordan, Palestine and Egypt

Icons, illustrated manuscripts, woodwork and sculpture are the evidence of the flourishing Christian culture of the Middle East between the eleventh and thirteenth century. There is a huge amount of wall paintings that have survived in this region, probably much more in comparison with the other parts of the eastern Mediterranean.

The wall paintings from Syria and Lebanon have been divided into two groups based on their style. Firstly, there is a group of murals painted in a Byzantine way by Byzantine painters or indigenous artists tutored by them; and secondly, a group apart from the Byzantine influence had adopted local characteristics that are commonly recognized as "Syrian style".

A great example of a series of wall paintings comes from the monastery of Deir Mar Musa al-Habashi near Nebk in Syria. It seems that the monastery was linked uninterruptedly with the Syrian Orthodox Church from the sixth century until the nineteenth, when Syrian Catholics came in charge. More than three layers of paintings have been conserved and it is considered one of the most affluent sources of medieval Christian art in the Middle East. In this monastic complex a lot of significant Syriac and Arabic inscriptions have survived, and among them quite a few dedicatory inscriptions (Snelders 2010, 73-75).

While the blossoming of the Islamic art occurred, Christian art reached its peak as well. The construction and renovation of monasteries and churches was as noticeable as the building of mosques and mausoleums. In addition, all the way through this artistic activity there was a fertile communication between the Christians and the Muslims.

According to Bas Snelders "*Descriptive in this case is a celebrated group of eighteen silver inlaid metalwork objects, as well as candlesticks, ewers, cylindrical boxes, incense burners, trays, a basin and a large canteen which is allocated, in general, to Syria and Northern Mesopotamia. Since the mid-thirteenth century, these*

vessels had decorations inspired by Gospel scenes, imagery of the Virgin and Child, and friezes of saints and clerics, along with scenes common from Islamic art such as the typical imagery of the Princely Cycle. Pretty much the similar visual expressions had come across on numerous of closely connected works of gilded and enameled glass". (Snelders 2010, 86-90) *(*fig. 35) In addition, it is difficult to understand whom these vessels were addressed to, since only two of them have inscriptions which are helpful enough to clarify their original context and ownership. There are many possible answers and among them the most popular are that they were addressed to the Muslim upper class and the Crusader nobility; or to indigenous Christians; or to churches or monasteries. Eva Hoffman has stressed that "*the identities of the makers, patrons, functions, and meanings of many of these works of art remain speculative. There is probably no single answer to these questions and that these works speak to a multiplicity of engagements among all these populations*." Hoffman brings to a close, that the survival of this different group of items is explainable from their essential request by Muslim and Christian consumers (Hoffman 2004, 129-130). Bearing in mind that a large amount of the inlaid brasses with Christian imagery are presented with inscriptions of rather neutral content, most possibly, surely in the case of the less lavish pieces, they were meant for the public markets, where they were meant for those who could buy them, regardless of their religious connection**.**

Figure 35 Freer Canteen (Snelders 2010, 453)

Another view stressed by Oleg Grabar is that the Christian iconographic themes had become one of the potential alternatives in the typical images accessible within the

Muslim world. Most probably Christians and Muslims were sharing the same stylistic taste, which was linked to their social status rather than their religious affiliation. For instance, in Egypt between the eleventh and fourteenth centuries the Coptic sanctuary screens were virtually similar to contemporary *minbars* and *miḥrābs* in mosques. The significant homogeny could be elucidated by the common function of decorative motifs, which mirror a common taste among Christians and Muslims. It could also be the case that they were produced in the same workshops. A good example are the sculptural reliefs, the church architecture, the illustrated manuscripts and the liturgical items from the area of Mosul during the thirteenth century, which appear to share the same level of syncretism. At this point, it should be assumed, that the common perspective of iconographic forms and decorative models in several contexts was in fact the result of a cultural symbiosis of two religious communities (Snelders 2010, 86-90).

In the Islamic Middle East, Muslims and Christians worked together daily, creating artistic elements despite the different religious affiliations of their customers. However the surviving eastern Christian patrimony shows that this artistic association was restricted to precise types of media. In Egypt, Syria, and Lebanon, Christian and Islamic art and the artistic relation among artists and representatives of the diverse beliefs appear to have been limited to metalwork, woodwork, and manuscript illustration. On the other hand, the wall paintings were only the responsibility of Christian artists, either Byzantine or locals. Moreover, it should be mentioned that the number of surviving monumental paintings is not representative enough to permit explicit conclusions (Snelders 2010, 90-92).

The shared Christian-Muslim visual vocabulary fundamentally was apparent in the use of specific floral and ornamental motifs, as well as arabesques and ornamental forms. Most probably one of the best examples is given by *Deir Anba Antonius* in Egypt. In late thirteenth century the *khurus* vault was renovated by a group of artists that included an anonymous figural master and an ornamental master whose combined skills resulted into a magnificent composition. The biblical themes were created in a Byzantine manner by the figural master, and the abstract designs along

with the epigraphic elements, made by the ornamental master, were inspired by the fashionable trends of the Islamic Middle East.

As a general remark, one would say that the style of the wall paintings in Lebanon and Syria are closely linked to the Byzantine artistic developments. Bas Snelders suggests that even the mural painted in a "Syrian style" should better be considered as a regional advance associated with Byzantine art, rather than a severely indigenous style. In fact, the murals production in Mosul and in the area of Mesopotamia generally was not able to reach the level of those in the Mediterranean. Thus, Byzantine artists were welcomed and decorated with fashionable wall paintings for the church he had erected at Deir Mar Yuhanon bar Naggare in Barteli. The wall paintings were typically Byzantine, according to iconography description of the iconography. It seems that the numerous actions of Byzantine artists or indigenous artists trained in a Byzantine style in Lebanon and Syria were not a coincidence. It has not been answered yet whether the criterion for utilizing these precise artistic services was a matter of availability or appreciation of the Byzantine style (Snelders 2010, 415-420).

A preliminary stage of Christian and Islamic interwoven artistic fusion can be seen in the paintings of Quṣayr 'Amra. In Quṣayr 'Amra, of particular interest is the pleasure house in the desert of Transjordan erected at the turn of the eighth century. The influence of Roman tradition and early Byzantine is apparent at the shape of the rooms, the size, the method of construction and the technique (Ettinghausen et al. 2001, 41-47). Quṣayr 'Amra is built of limestone, decorated with exotic paintings, i.e. a number of nude figures, dancers, musicians, animals, etc. This structure illustrates the pleasure-loving taste of the early Umayyads devoted to women and hunting and most of the painters must have been non-Arabs (Burckhardt 1976, 17). Some interesting paintings of animals are depicted on the eastern wall of Quṣayr 'Amra. The animals appear running chased by nomad Arabs. (fig.36) Oleg Grabar pointed out that they are wild asses ("onagres"), realistically described by painters who were familiar with the life of the local nomads (Grabar 1988, 75-83). It should be noted, nevertheless, that some ornamental motifs betray Asiatic legacy.

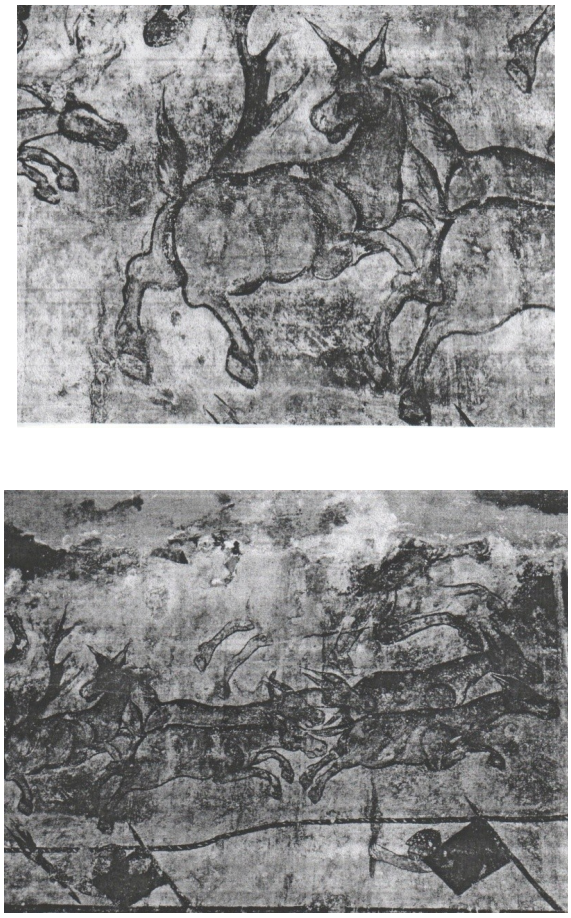


Figure 36 Quṣayr ʻAmra. Scene of wild asses chased by local hunters (Grabar 1988, 79)

Finally, it is worth mentioning a subtle interaction between Islamic and Byzantine art revealed in the famous twelfth century illustrated manuscript called Ḥarīri's *Maqāmāt*, which is found in the National Library of Paris (MS. Arab 5847) (Safwat 2009, 9). The author, ʻUthmān al-Ḥarīri died in 1122 and his work, inspired by the Arab civilization at the time of the Abbasids, reflects the activities of the people of his time. The artist Yaḥya ibn Maḥmūd al-Wāsiṭ, who illustrated Hariri's *Maqāmāt*, painted 99 images of great beauty (fig.37). According to Sir Thomas Arnold, these images were inspired by Christian art and the Muslim artist was "either himself Christian or was copying Christian models (Arnold 1965, 81).

Figure 37 From Ḥarīri's Maqāmāt. Celebrating at the end of Ramaḍān. (Safwat 2009, 13)

5.2.1 Khirbat al-Mafjar

Khirbat al-Mafjar (724-748) is one of the most outstanding buildings dating from the Umayyad period and it is located near Jericho. Inside the palace, there is the famous mosaic panel, on the floor of the reception hall, representing a lion attacking a gazelle under a tree. The hall is reached from a projecting porch; sixteen pillars support the vaults of its roof. According to R. Hamilton, who has excavated and reconstructed the palace, the description of the mosaic is as follows: "*At the pictorial center of the mosaic is a large tree bearing fruit that look like apples. The foliage of the tree seems to grow on both sides from two vertical parallel trunks connected by a smaller branch. The viewer looking into the room can see the lion attacking a gazelle on his right side underneath the tree. On the left side two other gazelles are grazing*". As it has been shown from both Harter and Ettinghausen, the theme of the "conquering lion" can be dated back to the ancient civilizations of Mesopotamia and Iran. Nonetheless, throughout the centuries it has been adopted from several cultures, as also from the classical and Byzantine art with some modifications of a lion attacking a large horse (Behrens-Abouseif 1997, 11-13).

R. Ettinghausen names this room as the “Throne Hall” and makes parallels with the Great Mosque of Damascus. The differences identified to early Islamic art, are closer related to the Byzantine. He precisely says: “*The coordinated multipurpose arrangement of the Throne Hall complex at Khirbat al-Mafjar is Roman, but the building is Byzantine, representing an elaboration of an architectural type used by earlier Arab chieftains in Syria. The floor mosaics are also of Roman and Byzantine derivation. Technically and artistically they are exceptionally fine and surpass in most instances the work done for the churches of the region. Although, the range of figural motifs is very limited, they approach in quality even the work done in the Imperial Palace of Constantinople*” (Ettinghausen 1972, 62-63)

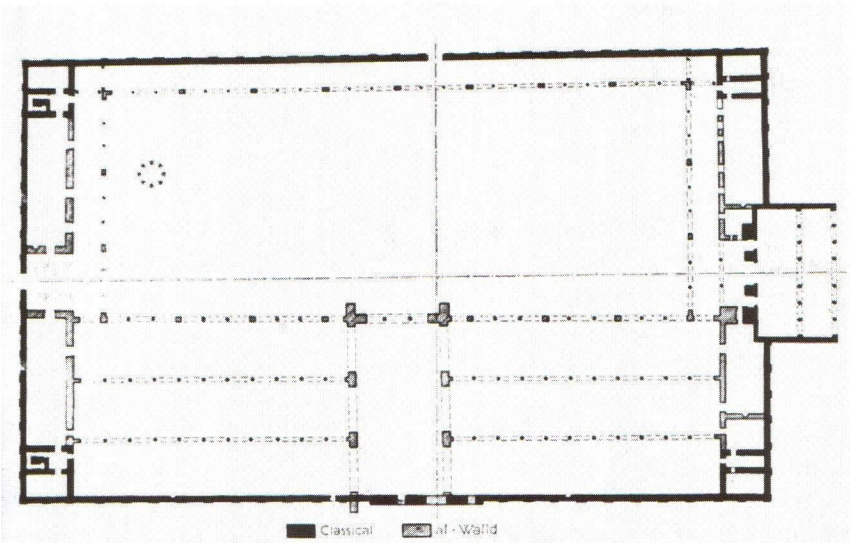
Several mosaics from the Byzantine period in Syria and Jordan found in excavations demonstrate that, despite regional differences, hunting themes, including lions pursuing a stag, were a celebrated ornamentation for mosaic pavements. In the Transjordanian Madaba School of mosaics, where geometric patterns absorb a significant place, the figural scenes show a narrative tendency in the depictions of hunting themes and country life. Both the geometric mosaic carpets of Khirbat al-Mafjar and the wall paintings of Qusayr Amra appear to derive from here (Behrens-Abouseif 1997, 11-13).

5.2.2 The Great Mosque of Damascus in Syria

The most elaborate structure of the Umayyads was the great mosque of Damascus, built at the turn of the eight century (Hattstein and Delius 2004, 69-71). Of particular interest are the mosaics which decorate the walls of the mosque, which have been only partly preserved. They depict multicolored imaginary towns and palaces, gigantic trees and rivers. The general impression of the viewer is that they are in front of a mysterious paradise (Creswell 1973/1988). It should be noted that the mosaics of the Mosque of Damascus and those of Jerusalem are greatly influenced from the Byzantine art in Constantinople. The vine-scrolls decorations on the mosaics inside the small Sekreton of the Patriarchate Palace of St Sophia are a great example of such interactions (Cormack 2000, 80).

In Syria, in most cases a mosque was erected in the place of some older sanctuary. Similarly, on the site of St John the Baptist's church the Great Mosque of Damascus was built, after the church was destroyed. The majority of the elements from which the mosque was constructed were of second use, *spolia*, characteristic of the Byzantine architecture in Syria. (fig.38) Furthermore, a foremost novelty of the composition of the plan is apparent in the odd relation between the court, portico and the deeply recessed sanctuary, which must be new and most possibly originated from the earlier House of the Prophet in Medina (Grabar 2005, 7). (fig.39)

Figure 38 The Great Mosque of Damascus (Grabar 2005,8)



2 Damascus, Great Mosque. Plan

Figure 39 The plan of the Great Mosque in Damascus.

In addition, it is worth to mentioning that minarets emerged in the conquered cities of Syria. Their form was originated from the Roman temenos towers of Damascus or from church towers. Their function was to call the faithful to prayer and moreover they were used as a symbol of stating the presence of the new religion in the center of mainly non-Muslim inhabitants (Grabar 2005, 9). Of the four original minarets, only one at the southwest angle has been preserved; the other three are later replacements.

The principal sanctuary of the Great Mosque of Damascus has three aisles (*liwān*) covered by a dome. At the end of the principal sanctuary, a prayer niche (*miḥrāb*) is located indicating the direction towards Mecca, called *qiblah.* According to Burckhardt, the *miḥrāb* is perhaps a borrowing from the apse of Christian churches (Burckhardt 1976, 25). Another important element of this mosque is the pulpit (*minbar*), a stepped stone, which is an elaborate improvement of the original stool of the Prophet Muhammad. The large courtyard is surrounded by porticos, the arcades of which are on two levels. Its arcades are in horseshoe form. (fig.40)

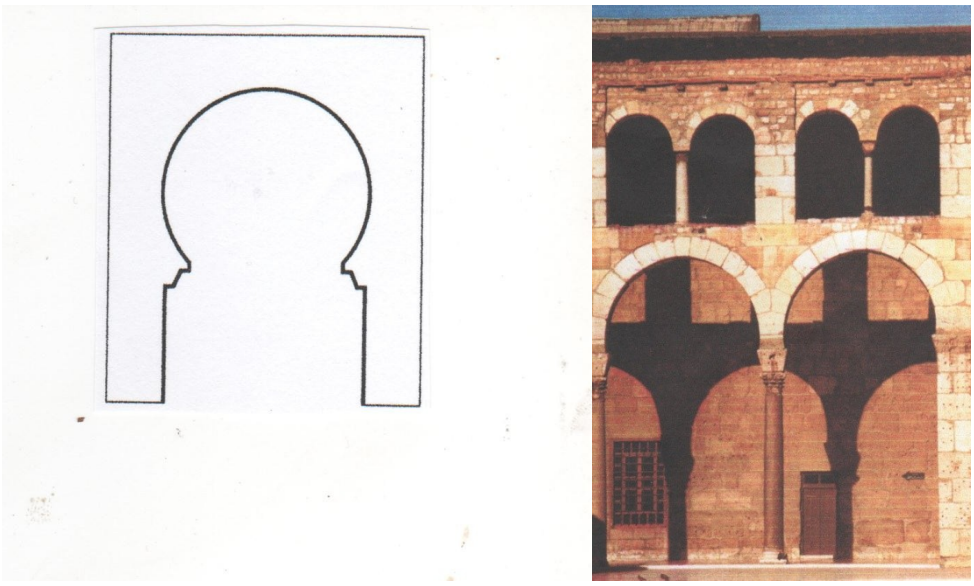


Figure 40 Horseshoe arch (left) and two storeys of arches (right) Eastern side of the Great Mosque (Burckhardt 1976, 25)

It should be mentioned that the Great Mosque of Damascus had the most impressive surface area of gold mosaic found in any building in the world, covering 4000 square meters (Enderlein 2004, 71).

Finally, Great Mosque of Damascus despite the Muslims attracted as well Christians. Although it had been one of the most venerated Muslim pilgrimage sites, it still contained a shrine dedicated to St John the Baptist or *Yahiya ibn Zakarya* in Arabic (Snelders 2010, 95).

5.2.3 The Dome of the Rock and the Aqsa Mosque in Jerusalem

The Prophet considered Mecca, Medina and Jerusalem as the three most sacred places of Islam. All of them were destinations of pilgrimage and thus acquired a monumental expression. For this reason the Dome of the Rock was situated in the old city of Jerusalem. (fig. 41, 42) Its importance is enormous since it has been the earliest remaining and major monument built by Muslims (Ettinghausen et al. 2001, 15-20). The location, the inscriptions and the mosaics of the Dome of the Rock should be examined in order to understand the meaning of its structure (Grabar IV 2005, 1-2).

Figure 41 (left) A general view of the Dome of the Rock (Grabar 2005, 5)

Figure 42(right) The Dome of the Rock (Ettinghaussen 2001, 14)

The Dome of the Rock is a stone building constructed by the Umayyad ‘Abd al-Malik (691), called also “al-mashada” (place of witness). Pilgrims frequented this building, which was believed to be the place from where the Prophet Muhammad ascended to heaven. Its ornamentation obviously betrays a Hellenistic heritage although medieval Indian is also included (Burckhardt 1976, 15-18). Remains of similar desert palaces are found in the present day Jordan (Hattstein and Delius 2004, 72-78). It is located on a platform to the north of the core of the huge artificial path of the Ḥarām-al-Sharīf (Ettinghausen et al. 2001, 15-20). (fig. 43) The evidence existing is not enough to comprehend the reasons of its construction. Its plan has an octagonal shape and it is consisted of two octagonal ambulatories and a circular area in which the Rock exists. (fig. 44) Its architecture resembles a lot the tradition of the Christian *martyria* and it is linked to the Christian sanctuaries in Jerusalem. Therefore, it has been suggested that it had been built as a kind of *martyrium* for a specific episode of Muhammad’s life. It has been many

times paralleled to the Christian sanctuaries in Jerusalem of the *Ascenion* and the *Anastasis*. Geographers described the place by mentioning a large number of *qubbahs*, *maqams*, *miḥrābs* and other related to the incident of Muhammad's Ascension. More precisely, one of the first travelers, the Persian Nāṣir-i Khusraw, which attempted to give a more consistent explanation about the buildings in Ḥarām-al-Sharīf, regarded the Rock under the Dome just a location where Muhammad prayed before ascending into heaven from where the *qubbah al-mi'rāj* was situated, in which Muhammad prayed before ascending into heaven (Grabar IV 2005, 7-11).

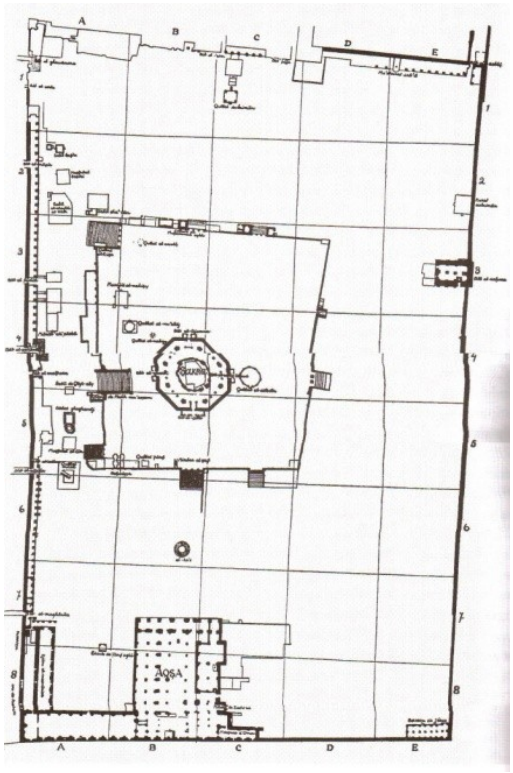


Figure 43 Plan of the Ḥarām -al-Sharīf (Grabar 2005, 4)

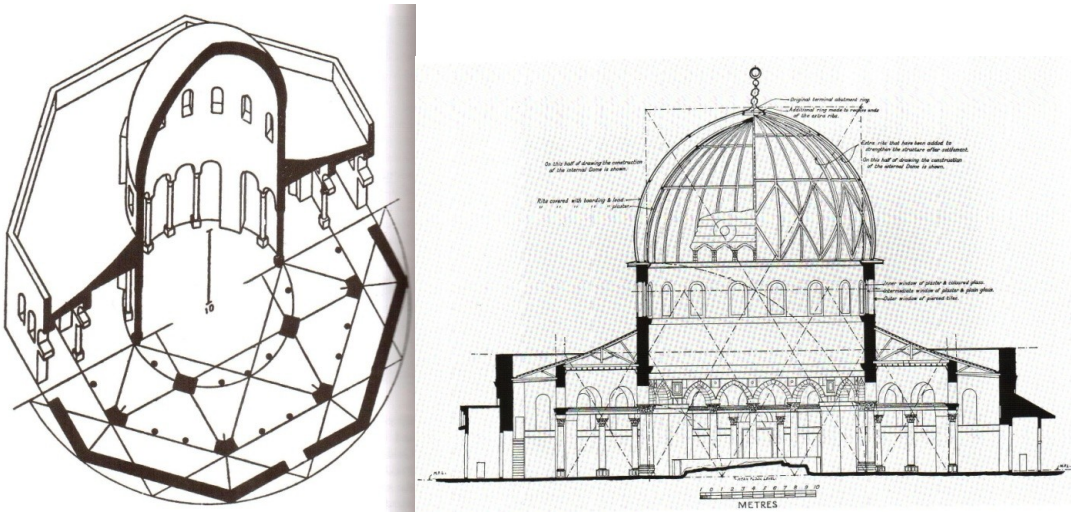


Figure 44 Elevated plan of the Dome of the Rock (Grabar 2005,6; Ettinghausen, et al. 2001, 16)

Under the term of Aqṣa Mosque frequently it is understood in the Arabic sources the whole area of sacred buildings, including the Dome of the Rock, the tombs and a number of public fountains, built by many caliphs from ‘Abd al-Malik (685-705) to the Ottoman Sultan Sulaymān the Magnificent (1520-1566) (Von Gladiss 2004, 166-171). In its strict meaning it comprises of a mosque built by ‘Abd al-Malik between 688-692 in Jerusalem, close to the Dome of the Rock, on the southern side of the Temple Mount. It was constructed with the ruins of Saint Mark’s Church of Justinian, rebuilt later by the Abbasid caliph Al-Manṣūr in about 771. It was adorned by a beautiful *miḥrāb*, dated to the early Islamic period, which was destroyed and reconstructed somewhat later in the eleventh century. Of particular beauty is the *minbar*, richly carved and decorated (Von Gladiss 2004, 170).

The Dome of the Rock and the Aqsa Mosque contain numerous constructions and partly decorative characteristics of Byzantine art (Grabar 2005, 8). The majority of the techniques of construction, the arches on piers and columns, the wooden domes, the grilled windows, the masonry of stone and brick and furthermore the complicated system of proportions are borrowed from the Byzantine church architecture. Similarly, the interior decoration follows the same influence. Nonetheless, it would be wrong to suggest that they were all a pure imitation of Byzantine art. The

significance was different from the ecclesiastical standards. The nature of the mosaic ornamentation, the manner in which architecture and decoration were combined, and the composition of its elevation are the distinct points to which Islamic art contributed (Ettinghausen et al. 2001, 15-20).

The imagery of crowns suspended around a sanctuary and of an idyllic landscape in the Dome of the Rock and the Great Mosque of Damascus, was approached in such a way in order to emphasize the power of Islam and its victory over its Christian and Sassanian opponents. Grabar stresses the fact that “in none of these instances do we find human or animal representations, even though practically all symbols and images of power in Antiquity tended to center around human or animal symbols” and he adds that “in the intervening centuries the theme of power did not disappear, it tended to find expression not so much through organized imagery as through epigraphy and architectural compositions.” (Grabar 2005, 22)

The mosaics inside the Dome of the Rock have several decorative themes most of which consist of vegetal patterns aroused by vases, cornucopias and the so called ‘jewels’. Everything has been examined in detail but the ‘jewels’ appear a peculiarity, which might be useful in the explanation of the meaning of structure. Even though in most instances the ‘jewels’ have been adjusted to standards of the vegetal motifs of the decorative composition, they are unidentifiable. They have been considered to be crowns divided into two groups: either having diadems with hanging or incrusted precious stones, many times topped with triangular, oval, or arched outlines or having diadems with wings and a crescent. (fig.45) Moreover, there is as well a selection of breastplates, necklaces, pins and earrings, of which the majority carries precious stones that are hanging or encrusted. (fig.46, 47, 48)

Figure 45Mosaic on the drum of the Dome of the Rock (Grabar 2005, 21)

Figure 46 Mosaic on the octagon (Grabar 2005, 22, 23)

They are considered to be royal or imperial decorations of Byzantine rulers or perhaps of Persian princes as well. They have parallels with the ornaments bearing on Christ, Virgin Mary and many saints in the spiritual art of Byzantium. Many scholars argue that all the ornaments were in several degrees and in different types, symbols of sacredness and power in the official art of Byzantine and Persian hegemony (Grabar, 2005: 21-34). Additionally it has been suggested that possibly under the impact of the Christian sanctuaries of Jerusalem, and especially the Holy Sepulcher, the Dome of the Rock was ornamented with votive crowns to give emphasis to the sanctity of the place. All of the crowns are meant to highlight the magnitude or holiness of either person or place. More precisely the decoration of the Dome of the Rock has a conscious use by the decorators of symbolic representation intended to challenge the passive or still-active opponents of the Muslim state.

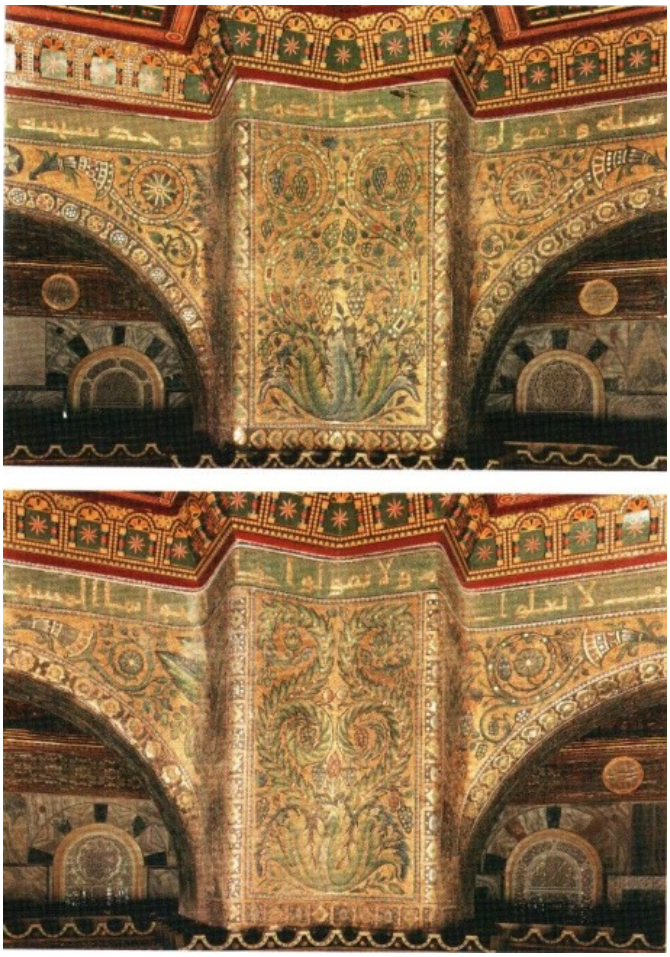


Figure 47 Triangular surfaces with mosaics above piers of octagonal arcade (Grabar2006, 85)

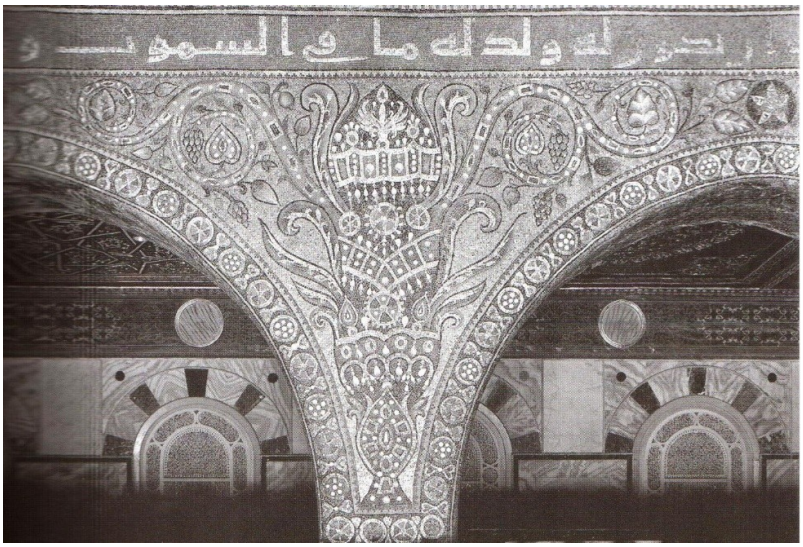


Figure 48 Mosaic from the inner octagon (Grabar 2005, 25)

On the other hand another interpretation of the crowns and jewels positioning in the Dome of the Rock would be that the use of such symbols was meant to make obvious that the non-believers were defeated and brought into the fold of the true faith of Islam. Thus, that would be an interpretation reflecting the relation of non-Muslims towards the new faith and a very religious and self-sufficient explanation in Islamic stipulations.

In most of the mosques there is always an inscription, obviously situated close to the entrance, where the duties of those who enter are inscribed. In the case of the Dome of the Rock this precise inscription shows uniqueness. First of all the quotations of this inscription are used in this sanctuary at least in a period in which they had not yet become standardized. Secondly, the inscription has a double implication. On the one hand, it has a missionary nature, in which Christ and the Hebrew prophets are being accepted and invited to the new faith, and on the other hand it is a declaration of superiority and strength of the new faith and new state. Thus, from a Muslim aspect, this sanctuary was a response to the attraction of Christianity, and its inscription offered the faithful with argumentation against Christian views.

In a word the Dome of the Rock, an elaborate stone building (*Qubbat al-Ṣakhrah*), was a place of witness (*mashad*), from where the Muslims believe that the Prophet Muhammad ascended to heaven. It is one of the conspicuous symbols of Islam which has constantly attracted a large number of Muslim pilgrims. Moreover, its symbolism was made on the one hand to strengthen the beliefs of the Muslims, and on the other to challenge those of the Christians (Ettinghausen et al. 2001, 15-20).

5.3 The Iberian Peninsula-The Islamic State of Andalusia

The art history of the Muslims in Spain had as a starting point the reign of ‘Abd al-Raḥmān ibn Mu‘āwiya in 756 AD. During his thirty-two years of supremacy ‘Abd al- Raḥmān I contributed greatly to the cultural advancement of Andalusia (Provençal 1960, 486-503). The basic feature of the Arabic character that was formed in Spain derived from the fact that there was absence of direct communication with the

caliphate of the Abbasids. It was simply through Fatimid Egypt that the Arabic cultural influences indirectly penetrated Spain. The Muslims were established in a country which had been greatly influenced by Byzantium (Suhrawardy 2005, 22-24). This link continued with the friendly relations of ‘Abd al- Raḥmān II (822-852) with the Byzantine emperor Theophilus (829-842), with whom an important exchange of embassies took place (Makki and Corriente 2001).

One could say that a testimony of this intercourse between the Arabs and the Byzantines was apparent in the architecture of the *Jameyah* at Cordoba, more precisely, the marble windows pierced with cruciform apertures and the floral decorative motifs of buds and vine; a big part of the columns in the interior of the Great Mosque in Cordoba confirms the influences of these two great empires. Precisely, ‘Abd al- Raḥmān III imported a big consignment of Byzantine columns from Constantinople for his palace at Madīnat al-Zahrā’, imitating al-Walīd in the way he built the Great Mosque of Damascus (Suhrawardy 2005, 22-24). He imported as well, mosaic tesserae in order to be used at the miḥrāb of the Great Mosque. It was ornamented with Islamic motifs inspired by Byzantine mosaics and glazed tiles of the method used in Constantinople since the tenth century, as for instance in the church of Constantine Lips of 907 (Cormack 2000, 180). The possibilities that Byzantine technicians were employed at Cordoba are high (Chatzidakis 1994, 13).

Even though the biggest part of the Arab-Byzantine artistic influence was a result of commerce or was found had existed in the region previously, a part of it had also derived indirectly from different sources. It is very hard to distinguish which parts had been authentic Graeco-Roman and which had been inherited through the interaction of Byzantium with Egypt and Iran. However, the art of the Western Caliphate, and more precisely in the sense of architecture, the plan, the arches, the architectonic solutions, was certainly influenced by the churches, which were spread all over Syria (Suhrawardy 2005, 22-24). The same policy was also applied by ‘Abd al-Raḥmān III (912-929, and under the title of caliph 929-961) (Provençal 1937, 1-24).

In general, in Cordoba one can notice that the sculpture large forms are cut on the surface, but there are a lot of examples which are small and dug deep in the marble. This precise technique is apparent at the capitals which are attributed to al-Hakim II and mainly derive from Madīnat al-Zahrā'. It is a Byzantine technique, which passed through the Visigoth artisans who mastered it in a bit dissimilar manner than the original Byzantine method (Suhrawardy 2005, 76-79).

Similarly, the mosaics that were used as a décor in Andalusia were the result of Byzantine artisans' assistance (Stern 1976). The Byzantine Emperor sent an amount of *foseyfa* to the Spanish caliphs. Several factories, *al-mufassas*, were producing *foseyfa* in Andalusia and Byzantine artisans were there, employed by the caliph. This precise method was very common in early Christian buildings, and later on, between the fifth and sixth century it had been introduced to Italy from the Byzantines and consisted in incrusting the surface with little cubes in paste of colored and glided glass.

The basic characteristic of the mosaics in Cordoba is that they are exclusively decorated with plants, flowers and inscriptions; and the geometrical shapes are avoided. The straight angular script adds a note of restraint to the richness of curvilinear intertwined designs. These designs take their rise on a brilliant background made of small glass cubes, spread over by leaf of gold and covered with glassy coating. The colors used are red, blue, green, white yellow and black. The red predominates in the decoration of the *miḥrāb* and the blue of the domes (Suhrawardy 2005, 88-89).

In addition, worth noting is as well the small church of 'El-Christo de la luz' of Toledo, whose value is significant due to the uniqueness among Muslim edifices of the West and the rarity as an architectural entity. The plan of the church imitates the one deriving from the Syrian churches, the so called "Greek plan", and it has almost no similarities with other Muslim mosques (Suhrawardy 2005, 88-89).

5.3.1 The palace at Madīnat al-Zahrā'

The palace at *Madīnat al-Zahrā'* was the most outstanding palace of all around the river of Guadalquivir, and perhaps all over Cordoba. It was founded by Abdur-Rahman III in 936 and its construction lasted forty years. It was positioned a bit further than 3km from Cordoba (Giménez 1985). In the interior of the palace the most extraordinary edifice of all was the Qaṣr al-Kholafah, which was built apart and had a round shape. The domes draped on bejeweled columns of multicolored marbles and crystals. Ibn Khallikān in his descriptions mentioned that from the four thousand three hundred columns, employed in the construction, some came from the Roman ruins, others from the Franks, others from Tunis, Carthage and Sfax and some were made in Andalusia; one hundred and forty were sent to the caliph as a present by the Byzantine Emperor along with a gilt bronze fountain with human figures in relief. Furthermore, there are as well arches of Byzantine type of a very rich composition (Suhrawardy 2005, 41-45).

5.3.2 Motifs of flowers

In the palace of *Madīnat al-Zahrā'*, it has been observed that the stalk with profound grooves most of the times extends to leaves and flowers at the endings. In Byzantine, Coptic and Syrian art this motif of the stalks form cycles or heart shaped outlines having between them a flower or a palmetto is widespread. (fig. 49) The wavy stalk in its various endings in leaf, flower or fruit is very frequent. The ornamentals are the most significant design for leaves. The acanthus design which was adopted from the Greek repertoire was the spiky diversity with three sharp digits separated at the rims by eyelets. During the evolution of the leaf design, it is been observed that the digits increased and they turned thinner and longer. The most characteristic appearance of such leaves is on the capitals of columns. Most likely, they are manifested either en face or in profile and frequently they are folded along the main nerve of the leaf (Suhrawardy 2005, 76-79).

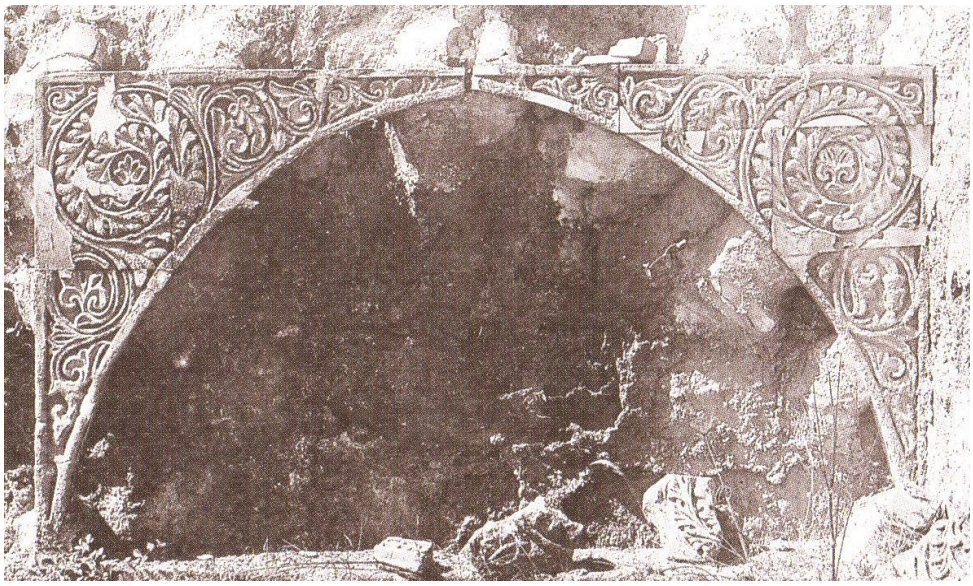


Figure 49 Motifs of flowers from the excavation at Madīnat al-Zahrā' (Suhrawardy 2005, fig. 5.2)

5.3.3 The Great Mosque of Cordoba

The most important and significant of all Islamic-Andalusian art is the Great Mosque at Cordoba, known today as the *mezquita*. 'Abd al-Raḥmān I (756-88) founded in a single year (785/86-786/87), and it was repeated renovated by his successors (Barrucand and Bednorz 1992, 39-46). The short time of its erection is explained by the use of the ruins of a Roman temple and a Christian church available for reuse in situ (Suhrawardy 2005, 22-24). 'Abd al-Raḥmān I's ambition was to create a house of worship that would be as magnificent as the Umayyads' Great Mosque of Damascus.

The structure is constructed on a platform over a slopping plot of land that goes down towards the river of Guadalquivir. It was very common for the early Islamic buildings to be inspired and imitate the structures of the Christian churches. Thus the plan of the Great Mosque was borrowed from the Christian churches with which Syria proliferated in the sixth century. The same source of inspiration had the cruciform plan, the horse-shoe arches, the semi-circular domes and wagon vaults. When the Great Mosque took its final form, it had twenty-one entrances made of horse-shoe arches, nine on the eastern and western and three on the northern side. Three of these entrances were meant to be for women who through them could come

more near to the *takasir*, or the galley under the roof, the *matroves* of the Byzantine churches (Suhrawardy 2005, 33-38).

5.3.4 Capitals of columns

One of the most interesting architectural features of the caliphate is the capitals of columns. The columns are enormous, round and short. In the case of the Great Mosque, they do not have a base or even the ones that do have they are very slim in order to balance their stature. This occurred because some of them were of second hand use from Roman ruins or originated in Africa. Significant is the fact that it is speculated that not only some of them were sent by the Byzantine Emperor as a gift, but they were even fashioned by Byzantine artisans on the spot or by their Muslim students. There are several examples of imported capitals, among which one that belongs to the Great Mosque built by Abdur-Rahman II. (fig. 50) They look very similar to the Corinthian type of capitals or the combination of Corinthian and Ionic, and they are most of the times decorated with foliage. Their form seems like a basket filled with or more lines of acanthus leaves, obtainable frontally, vaguely curling at the top towards the outside, and they finish in four volutes shaped of inward curling stylized acanthus leaves.

It is significant in that the models deriving from antiquity were still preserved and continuing. It has been noticed that even the Muslims, on their first artistic steps imitated a lot the older models, transforming some details by including different floral decoration or Kufic inscriptions. Representative examples are two capitals in the *Museo Arqueologico de Madrid*, one belonging to the reign of Abdur-Rahman II (with an inscription of his name on it) and the other one to Abdur-Rahman III. The simple Corinthian type –in its Byzantine phase- with minute and intensely incised sculpture is reproduced by Muslim artisans. (fig. 51)

Figure 50 **Imported column with the capital, Jemeyah of Cordoba (Suhrawardy 2005, fig. 5.12)**

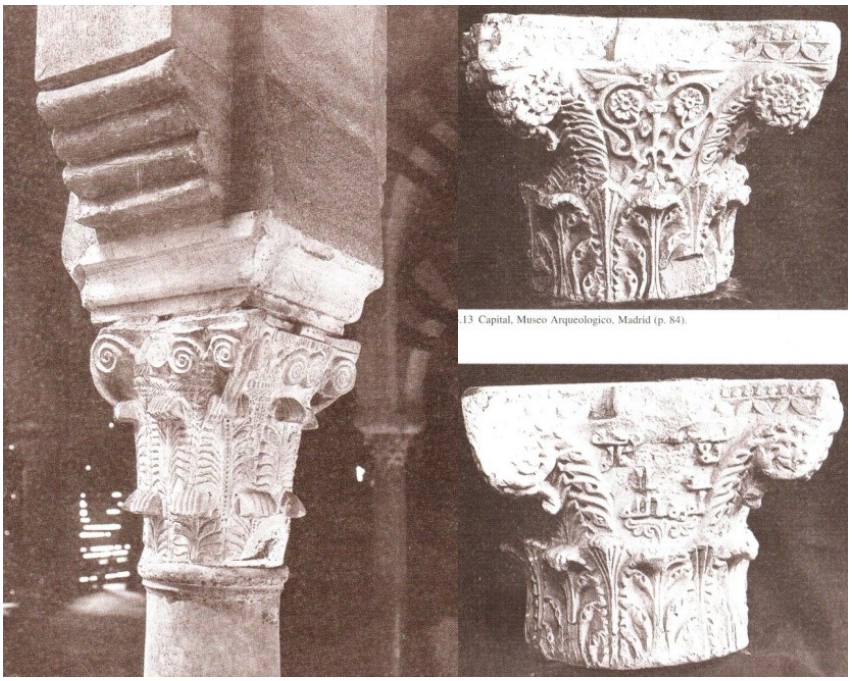


Figure 51 Capitals at Jemiyah of Cordoba (left) and at the Museum of Archaeology in Madrid (Suhrawardy 2005, fig. 5.20, 5.13, 5.14)

Their main characteristics are their minute bulk, little sculptured and occasionally they have Kufic inscriptions. Evidently, the Muslims included a lot of details in order to develop a characteristic Muslim capital, although they had previously adopted the features of the Corinthian type and its Byzantine variation.

5.4 Kufic and Pseudo-Kufic Inscriptions

Less known is the influence of Islamic art on the Byzantine. Nonetheless, such an influence occurred from the trade interactions, the textile workshops and markets in several cities of Greece (Patrai, Thebes, Athens, etc), and the imported items and silk textiles from the East. In addition, according the written sources and the artifacts themselves it is apparent that the Arabs were the ones who manufactured a great number of the finds surviving today. During the Arab occupation of Crete (ca 824-961) and the following year, we notice a considerable Arab influence in Byzantine art. It is mainly demonstrated in a number of Kufic or pseudo-Kufic inscriptions which appear in Byzantine churches. It is interesting to observe that the majority of the kufic inscriptions of the tenth and eleventh century are using real Arab writing,

but after the twelfth century the pure Arab writing had faded along with the Arab population that had been Hellenized (Sotiriou 1033/34, 86-90).

Arab calligraphy, rich in style, created a great number of inscriptions based on the Arabic script (Khatibi and Sijelmassi 1995, 190-191). Two main styles of writing existed in the early centuries of Islam, i.e. the Naskhī and the Kūfi. The latter produced a large number of cursive inscriptions of various types, many of them drawn from the Qur'ān, especially the "bismillah" (in the name of Allah, the merciful…).

The Islamic Kufic inscriptions inspired a number of Byzantine artists to produce designs decorating several Byzantine churches mainly built ca the tenth – twelfth centuries (Connor 1991, 42-43). Furthermore, as an ornamental design, they can be found in Byzantine paintings or luxury objects made of glass, ceramics and metal (Ballian 2006, 37-43). These decorative motifs are either illegible Arabic lettering crudely rendered, known as pseudo-Kufic, or actual inscriptions (Ettinghausen 1976, 28-47). They are divided into two main categories, the ceramic kufic and the champlevé kufic letters on marble. The proper Arabic inscriptions (Kufic) can be found only in Athens. They are, furthermore, distinguished in kufic with floral decorations, kufic with a mixture of Byzantine or Arab forms of decoration, and kufic imitating the round style of Arab writing (Sotiriou 1933/34, 59-82).

It is worth mentioning that most Byzantines were illiterate and thus they were not able to read the inscriptions rather than stare at them as a sign. For instance Oleg Grabar presents the example of a carpet page from an Islamic manuscript dated in the fifteenth century, which has a script repeating the word Ali (the son in law of the Prophet). He stresses that for the illiterate or less literate it is simply a decorative motif. Thus, these scripts on the walls of churches, depending always on the period and the viewers, could either have a concrete meaning or are just ornamental designs (James 2007, 196-197).

A typical example of pseudo-Kufic appears in the late tenth – eleventh century monastery of Hosios Loukas in Steiri of Voiotia (Chatzidaki 1996). (fig. 52) There are

two churches in this monastery, one originally dedicated to Saint Barbara and later to Theotokos (Virgin Mother) (late 10th c.), and a larger church, the Katholikon, built early eleventh century. The church of Theotokos has pseudo-Kufic ornamentation on its exterior walls (Cormack 2000, 165). There are two prominent pseudo-Kufic inscriptions on the two impost blocks above the two tombs in the crypt of the church (Connor 1991, 42-43)(fig.53). Another typical case of the pseudo-Kufic type, which appears in a fragment of a plaque, is a design in a terracotta plaque in the Church of Ag. Charalambos in Kalamata.

Εἰκ. 17-18. Ἀνάγλυφοι κουφικαὶ διακοσμήσεις τῆς μαρμαρίνης ζώνης τοῦ ἱεροῦ βήματος τοῦ ναοῦ τῆς Παναγίας τῆς Μονῆς Ὁσίου Λουκᾶ.

Figure 52 Kufic inscriptions from the Church of Hosios Loukas. (Sotiriou 1933/34, 72)

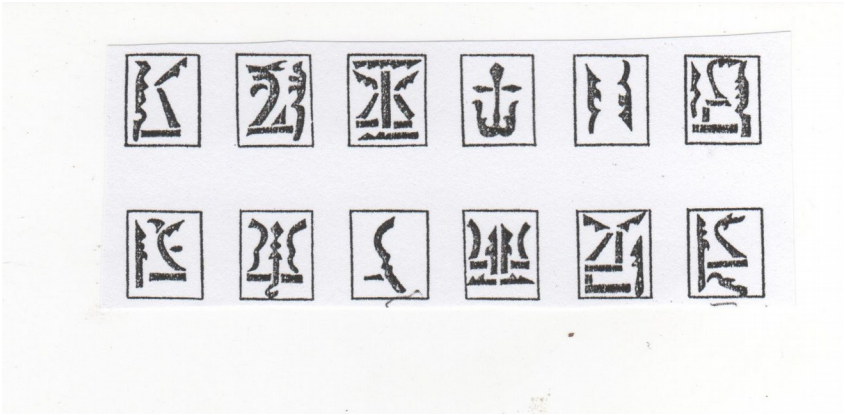


Figure 53 Pseudo-Kufic motifs. East end of the Theotokos Church. Monastery of Hosios Loukas (Miles 1964, 21)

While the pseudo-Kufic letters most probably are imitations of Arabic letters inscribed in Arab textiles and ceramics imported to Byzantium from Fatimid Egypt, it is clear that the actual Kufic inscriptions, as those of the late tenth century Kapnikarea Church in Athens, were written by Arabs, perhaps captives (Kanellopoulos and Tohme 2008, 139). On the south wall of the Kapnikarea Church, a real Kufic inscription appears dedicated to the Presentation of the Virgin. This inscription is inspired by Sūras 64.1 and 57.2, and it is a simple statement of the absolute power of God (*al-mulk lillāh*) (power [belongs] to God) (Kanellopoulos and Tohme 2008, 135).

The artists who carved the pseudo-Kufic inscriptions found in the Greek peninsula are not known. The question that arises in connection with all these decorative motives of Islamic inspiration is who the artists were. G. C. Miles expressed the view that those found in Athens and in Hosios Loukas (located between Voiotia and Phocis) were perhaps created by Arab captives settled in these areas (Miles 1964, 29). This is not improbable since a number of the Muslim captives during the ninth and tenth centuries were not exchanged with Byzantines and had remained in Greece (Patoura 1994, 109-110; Campagnolo-Pothitou 1995, 22). Likewise many Byzantine captives were settled by the Arabs in Cairo where they occupied a whole neighborhood. However, concerning the crudely carved decorative inscriptions known as pseudo-Kufic, we can assume that they were made by Byzantine craftsmen whose source of knowledge of Kufic must be sought in silk and other fabrics brought into the Byzantine Empire by merchants. It is also plausible, as assumed by Ch. Kanelopoulos and Lara Tohme, that “a number of qualified Arab artisans traveled in teams, together with their tools and accessories” (Kanellopoulos and Tohme 2008, 139) in the Byzantine Empire (Cutler 2001, 247-278).

5.5 Constantinople

After the ninth century the Islamic influence in art is apparent in Constantinople as well. Many palaces got influenced, such as the palace at Bryas, which was erected during the period of Theophilus between 831-2. As Hussein Keshani has demonstrated in his article, this Abbasid-style palace was erected by the emperor

Theophilus (829-842), “as a product of Byzantine-Muslim political and cultural rivalry” (Keshani 2004, 75). Furthermore, Islamic art can be apparent in portable objects, such as the crown of Monomachos depicting girls dancing, the same theme that is represented in the court of the Abbasid palace in Samarra. Another example is the so-called “House of Botaneitates”, which had wooden window screens from Mamluk Egypt and Syria and latticework that are frequently depicted in Greek and Arab manuscripts of the twelfth and thirteenth century (Hunt 1998, 40-41).

In addition, the description of a fountain in a court of a palace in Makrembolites Romance *Hysmine and Hysminias* has a lot of similarities with the fountain of the palace of John I of Ibelin in Beirut. The Byzantine fountain is decorated with bronze sculptures spurting water, surrounded by birds and animals and an eagle with wings in the middle on top of a column. Also, the manuscript of 1206 in Constantinople has an illustration of such a fountain, but instead of birds and animals it is surrounded by peacocks.

The Islamic ornamental motifs were popular to the Byzantine aristocratic palaces since the ninth century. Especially after the twelfth century the Islamic artistic influence has been very apparent. Therefore, it has been suggested that the Islamic court art held a consistency and a symbolism which the Byzantines adopted on purpose. The *Mouchroutas* is a representative paradigm of this case (Hunt 1998, 58-59).

The *Mouchroutas* was an extended part to the West of the main throne in the Great Palace of Constantinople, which was built during the twelfth century. The Islamic influence in this building is very obvious, especially in the stalactite ceiling (Cormack 2000, 180). According to a thirteenth century historical treatise, The Palace Revolt of John Komnenos, written by Nikolaos Mesarites the building was the work of a Persian artisan. The name itself originates from the Arabic word *makhruta* that means cone (Walker 2010, 72-102), and most likely it referred to the stalactite ceiling (Cormack 2000, 180). Similar cases are documented in North Africa and especially in

Sicily, including the wooden ceiling in the Norman imperial chapel, Capella Palatina in Palermo. Thus, the structure had Islamic features in both name and form.

Mesarites precisely mentions that the surface of the ceiling had depictions of Persian motifs. He most probably, refers to *muqarnas* vaults and suggests that the themes of the *Mouchroutras* depictions followed the Islamic princely cycle, which would depict courtiers appointed to privileged entertainment, as drinking, hunting and listening to music. Equivalent instances in structure and decoration are apparent in fragments from Fatimid frescoes in the remnants of a bath complex in Fustat, close to Cairo. After examining the description of Mesarites and combining it with a comparative study it has been argued that the structure contained elements similar to other Islamic or Islamized buildings, such as multicolored cross-shaped tiles, chevron motifs, *muqarnas* ceiling and figural representations of substantial pleasures.

The significance of this text is not because it serves a full imaginary or archaeological reconstruction of the Mouschroutas, but it demonstrates the Byzantine reception of Islamic art. It is apparent in which manner a Byzantine spectator witnessed interpreted, conceived and admired Islamic art through his artistic and cultural standards. It could be that the Byzantine viewer may not have comprehended the excellence of Islamic artistic features and therefore one would have been connected with it in a superficial level. In this case the information gained from Mesarites text is not substantial, since he himself recorded the evidence of the monument but observed it as an “exotic piece”. Nevertheless it enlightens the position of Islamic art within middle Byzantine visual sensibilities (Walker 2010, 72-102).

5.6 Region of the Greek Mainland. Supplementary material from Anthens and Naxos

In addition to the previously mentioned pseudo-Kufic and Kufic designs found in churches of the Greek mainland, some other Byzantine monuments betray Islamic

influence in this area. In Athens, precisely, proper ceramic inscriptions are visible on the façade of the church of *St. Theodoron*. Due to the elegancy and stylishness of the inscription it is possible to consider the manner of writing as Fatimid. Numerous others fragments of inscriptions dated between the tenth and eleventh century have been found in the central area of Athens and are now held at the Byzantine Museum of Athens. On the other hand, astonishing examples of ceramic pseudo-kufic can be found at the church of *Soteiras Likodimou* in Athens, dated in 1049. Furthermore, the church of *St. Apostolon*, under the Acropolis has on its façade individual kufic letters in a great variety, surrounding the structure. They are not as clear as the ones found at the church of *Soteiras Likidimou*, but they are closely related to simple kufic writing with a wedge-shaped tip and possibly some of them are an imitation of proper Arabic letters.

In the south of Greece, a parapet with carved kufic ornaments has been found in Korinthos, during the excavations of the American School. The parapet is depicted with a lion climbing a tree and eating its seeds (fig.54). The lion's depiction seems to follow the style of the tenth century, thus most probably the kufic ornaments are of the same period. In the north of Greece, and more precisely in Kastoria, kufic inscription finds are located in the church of *St. Anarguron*. The decorative themes are not flat, but are pitted at intervals with round holes. The provision of the theme is closely related to the decorations of Arabic textiles. (fig. 55) Furthermore, during the fourteenth and fifteenth centuries kufic inscription imitating the Arab writing can be found at the champlevé architrave of the temple of *Lorkido* and above the gate of splint at the church of *Pantanassa* in Mystras (Sotiriou 1933/34, 59-82). (fig. 56)

Figure 54 Parapet with curved Kufic ornaments at Korinthos (Sotiriou 1933/34, 71)

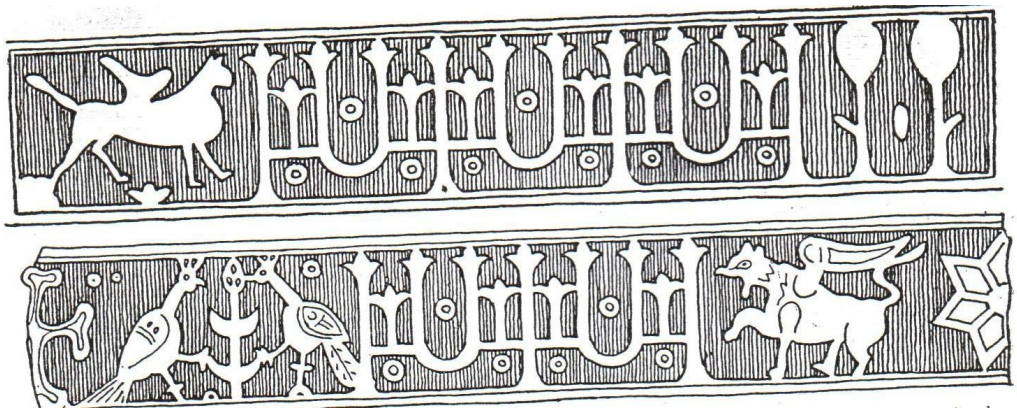
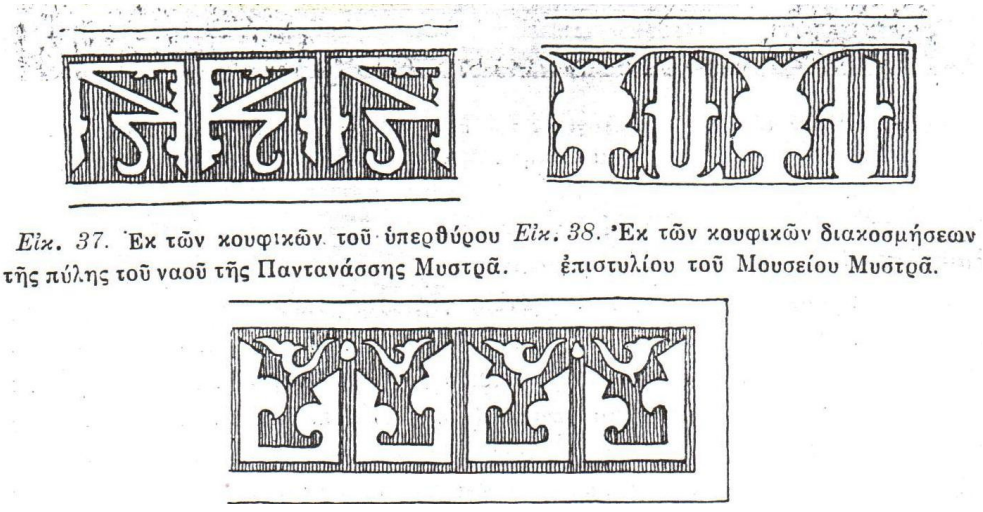


Figure 55 Curved Kufic ornaments at the temple of St. Anarguron in Kastoria (Sotiriou 1933/34, 75)



Εἰκ. 37. Ἐκ τῶν κουφικῶν τοῦ ὑπερθύρου τῆς πύλης τοῦ ναοῦ τῆς Παντανάσσης Μυστρᾶ.

Εἰκ. 38. Ἐκ τῶν κουφικῶν διακοσμήσεων ἐπιστυλίου τοῦ Μουσείου Μυστρᾶ.

Figure 56 Kufic ornaments from the church Pantanasa at Mystra (Sotiriou 1933/34, 80)

5.7 The aniconic Paintings in the church of St. Kyriaki in Naxos

A number of churches in Greece which contain aniconic ornamentation are found on the island of Naxos, in the Cyclades. Among them the church dedicated to St. Kyriake is a very good example with its preserved original painted decoration. The church itself is composed of a single-aisle temple with a dome, a vaulted chapel on the south and a vaulted narthex on the west. (fig 57, 58)

Figure 57 St. Kyriaki Church in Naxos (personal picture)

Figure 58 Floor plan of St. Kyriaki (Vassilaki-Karakatsani 1989, 60)

At the double arched windows next to the *synthronon*, on either side there are the marvelous depictions of six scattered birds facing the window. The composition is drawn with wavy lines and red dots in order to fill in the interspaces. A. Vasilaki-Karakatsani describes the paintings in detail by saying "*They [the birds] are drawn with a sharp outline and are painted in dark color. Their feathers are rendered by curved lines extending from the head to the tail. Their legs are long, rigid with pronounced joints and talons like those of birds of prey. Their tall necks, adorned with a Sassanian ribbon-like motif, are curving sharply downwards as if the birds are pecking with their strong beaks at the dots and wavy lines of the field. On either side, the uppermost bird dominates with its size. This large bird and another small one have turned tails*." (Vasilaki-Karakatsani 1989, 59)

The question which is raised is from where the drawings of the Church of Agia Kyriaki of Naxos, described by Vasilaki- Karakatsani, were inspired. Vasilaki-Karakatsani properly describes the motif of the birds depicted in those paintings as "Sassanian ribbon like motif". Whereas she expresses the view that those painting were influenced by the Islamic art, she does not examine any other origins. Nikolaos B. Drandakis dates these paintings to the time of the Byzantine

emperor Theophilus (829-842) and attributes their aniconic nature to the instructions of the iconoclast emperors who, according to Theophanes Continuatus, instructed the Byzantines to remove the holy figures from the churches and replace them with stead beasts and birds (Dandrakis 1975, 98).Although there is no doubt that, as a result of the orders of the iconoclastic Byzantine emperors, depictions of birds and animals replaced those of holy figures in many Byzantine churches, the question of the origin of such depictions is in general disputable and in particular at the church of Agia Kyriaki.

The depiction of the birds is very similar to the patterns used on Sassanian textiles and post-Sassanian art of the sixth and ninth century. Several other ornamental patterns, as for example the oblique parallelograms, can be seen in numerous textiles from Samarra in Mesopotamia. Moreover, imitations of marble revetment, scales, intersecting circles with rosettes and spirals have a Graeco-Roman origin, which has been adopted and continued in the Byzantine and Islamic art. The form though existing in St. Kyriaki is much closer related to Islamic art of the ninth century, that can be found in monuments of Samarra, Qairawan, Quṣayr ‘Amra and Sus. Not only the forms, but also in general the motifs themselves, the interlinked method and the *horror vacui* resemble an Oriental concept (Vasilaki-Karakatsani 1989, 58-65). (fig. 59)

Figure 59 Panels painted with birds on the curved wall of the apse (personal pictures)

In contrast to Vasilaki-Karakatsani's theory, D. Pallas suggests that the iconographic decorations of the monuments, which are further located from the capital of the island of Naxos, are related to the Iconoclasm but they derive from a pre-iconoclastic tradition that continued even during the period of Iconoclasm. The possibility of the correlation of these frescoes with the continuation of an abstract practice from the early Christian times is disputable (Katsouros 2004/2005, 3-26).

It is my view that Vasilaki-Karakatsani's theory seems most plausible. Of course, more research is needed to secure further this theory. We should also take into consideration that the island of Naxos was annexed to the Arab emirate of Crete (ca. 824/6-961) as it is reported in the Byzantine sources (Böhlig 1973, 59). Perhaps it is from there that we should trace the source of inspiration of the depiction of the birds of the church of Agia Kyriaki.

The importance of depicted birds in Byzantine art was immense and derives from the Hellenistic and Late Antique motifs. Nonetheless, through time the designs were

modified, as for instance the pattern of peacocks during the tenth- eleventh century demonstrates the bird having its wings on the side of the body in a raised position, contradictory to the sixth century depictions in which the birds are painted with wings close to the body, the tail feathers fanned out on the back of the bird. In contrast, during the Late Antiquity the feathers rest close to the body of the birds and the tail feathers are lifted and fanned out. Another interesting feature visible since the seventh century is the "beribonned neck", typical of the Sassanian art, and widespread in both Islamic and Byzantine world (Bollok 2010, 338-348).

To sum up, in this section, some important paintings decorating the Church of St. Kyriaki are described. These paintings do not depict any holy figures, but instead they present a number of aniconic geometric designs and/ or animals. Of particular interest is a painting in this church which depicts a number of flying birds with tall necks, adorned with a ribbon resembling a Sassanian ribbon-like motif. The question which is raised is what the source of inspiration of this wall painting of St. Kyriaki was, i.e. the flying birds, which was a typical Sassanian motif. It could have been simply an early Byzantine artistic motif, transmitted to the painting of St. Kyriaki (built in the tenth century), or perhaps the artist of the wall painting was inspired by an artistic depiction of Sassanian type flying birds, depicted on Arab textiles or pottery, which were imported to Naxos in the 10th century. Since Naxos was part of the Arab emirate of Crete in the tenth century, as it is reported in the Byzantine sources, we can assume that Islamic textiles and pottery could have reached this island and become the source of inspiration of the painter. Other possible Arab-Islamic influences in paintings appear in Byzantine iconography, especially in illustrations of books, as it will be seen in the next section.

5.8 Material Culture

In this study my efforts have been expanded to a vast area in order to present a panoramic view of as many as possible aspects of the intercultural relations between the Byzantines and the Arabs. Thus, in certain cases I touch upon topics which request further research.

5.8.1 The art of book illustration

During the twelfth and early thirteenth centuries, among the emergence of new techniques, new kinds of objects and new cores of artistic expression the art of book illustrations emerged. It was mainly revived and developed in Arabic, with a remarkable quantity and quality. In fact, some of the most characteristic examples are Arabic texts. These books were addressed to a sophisticated urban community, an ambience that differed from that of the princes (Grabar 2005, 32-34). Furthermore, it is well known that this production of manuscripts greatly flourished in Syria and Mesopotamia, apparently in big centers such as Baghdad and Mosul (Snelders 2010, 154-160).

The frontispieces would define the quality of the book. So several, for instance, applied on a series of variations on the author's portrait, in which it was very common to use Byzantine standards'. Celebrated examples are that of Dioscurides manuscript (fig. 60) and that of the Vienna pseudo-Galen (Grabar 2005, 32-34). (fig. 61) Dioscurides' *Materia medica* (ca 60 AD) was translated into Arabic in Spain in the tenth century with the help of the monk Nicholas who was sent to Spain by the Byzantine emperor Constantine VII to 'Abd al-Raḥmān III. This manuscript did not contain only scientific material but also splendid artistic illustrations (Arnold 1965, 80) The manuscript in Istanbul of *De Materia Medica* of Dioscurides was translated into Arabic under the orders of Shams al- Dīn Abu'-l Fada'l Muhammad an Ayyubid ruler from Northern Mesopotamia. The manuscript is dated in 1229 (626 AH). It does not have citations of the painters' names, but it is made clear that one of the illustrators' must have been of an Arab origin since there is an Arab signature under the image of two roots: 'Abd al-Jabbār ibn 'Ali (Snedels 2010, 90-91). Some of these cases resemble more to early Byzantine art than later. In the work of frontpieces from an *Aghani* manuscript and from the Vienna Galen, there is a significant resemblance to earlier Byzantine art, as for example in ivories, in which the higher and lower part and the side boundaries were framed and engorged upon the central subject. (fig. 62)

Figure 60 (left) Istanbul, Topkapi Saray. Ahmet III no. 2147, frontpiece with portrait of Dioscorides (Grabar 2005, 34)

Figure 61 (right) Vienna, National-bibliothek, A.F.10, authors' portraits (Grabar 2005, 35).

Figure 62 Ivory diptych from Ravenna, Museo Nazionale Grabar 2005, 38)

In this case as well, it is obvious that when the Arab artists rehabilitated the exploration of iconographic models to insert distinction to the newly fashioned art of book illustration, they referred to the Byzantine standards. It should be mentioned further, that the practice could also be followed in other fields, such as in architectural decoration, where there has been observed a use of classical themes on facades (Grabar 2005, 32-34).

At the same time with the constant manufacture of biblical manuscripts, there was a growth of biblical books, mainly the Gospels, in Arabic. The preliminary motivation for their creation was due to the decline of the local Christian languages. In some cases though, the necessity for Arabic books increased under the threat of the Syrian Orthodox religion and culture. Furthermore, there was the necessity to maintain Christianity in mainly Muslim ambience, but in these cases appeared the issue of employing the language of Islam. The local Christian Arabs were readjusted and redefined by maintaining their Greek, Syriac and Coptic heritage in Arabic translated texts. This process was applied on a linguistic level and on the same time on cultural, in which books had an important role. This process was applied on a linguistic level and at the same time on cultural, in which books played an important role (Monferrer-Sala 2008, 203).

Before the ninth century, the evidence of the methodical development of the Gospels in Arabic is very limited. The primary translations of biblical texts from Greek and Syriac into Arabic were done in Palestine and Syrian monasteries. It is worth noting that these translations, the texts and the supplementary illustrations were frequently conveyed at the same time (Sneledels 2010, 154-160). According to Sydney Griffith during this time the main impulsion in the growth of Christian Arabic texts was made in the Melkite monasteries of Palestine. The earliest existing manuscripts or manuscript fragments have been saved in the monastery of St Catherine in Mount Sinai (Fort 2011, 251-270). Several times while the manuscripts were translated into Arabic the illustrations were transferred as well (Torallas Tovar 2004, 233-245).

Furthermore, the Muslims were interested in having access in Arabic translated Gospels in order to rebut them and interpret them from the Quranic view. Therefore Sinai along with other Palestinian and Syrian monasteries paid attention to translating from Greek and Syriac into Arabic, with supplementary illustrations conveyed as well. It has been observed that manuscript illumination, while greatly based on Byzantine forms, became more and more arabised. The visual expressions, formerly the main conserved of Quran manuscript illumination, became suitable and were employed in the illustration of Biblical manuscripts by Christians (Hunt 2000, 11-13).

During the period of the Crusades (12th -13th centuries), some influences passed from the East to the West. Among other we notice the special interest of Westerners in the numerous manuscripts written in Greek, Syriac, Arabic and other languages, concentrated in the monasteries of the Near East (Hunt 2000, 22).

Especially, the case of the Monastery of St Catherine in Egypt has been the center of attention for scholars for a long time. The reason is that there were several periods in which this monastery was multicultural. Arabic, Georgian, Latin and Slavic monks lived and devoted there. Most of them were adherents of the Chalcedonian orthodoxy. Nowadays, one of the most famous and significant parts of the monastery is the library, in which the treasures are culturally precious. Of the extant manuscripts more than 2000 are in Greek, 700 in Arabic, 300 in Syriac, 100 in Georgian, 40 in Slavic and one in Latin. A certain number of manuscripts were written at the monastery itself most probably between the seventh and ninth century, and they were used as essential service books. It is worth noting, though, that the figurative representations of the early Islamization do not exist or were kept away on purpose.

Very interesting are the bilingual manuscripts, as for example the Plaster cod. 36, (fig.63) contemporary with the cod. 211, on which on every page of which the outer column is written in a very stylized Kufic manner of Arabic. This type of manuscript was meant for Arab Christians or Greek monks, who had grown up in an Arabic

environment and in most cases they were more fluent in Arabic than Greek. Such manuscripts are the material evidence of the immense impact exercised by the Arabs during the first centuries of their conquests.

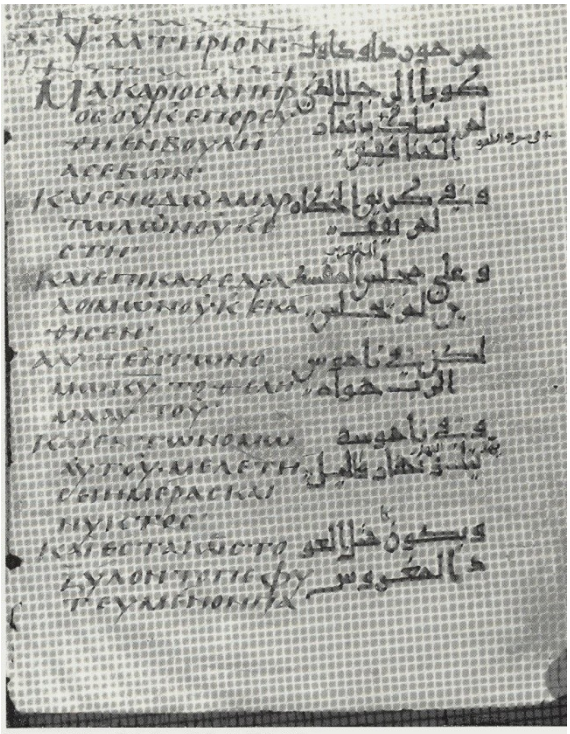


Fig. 3. Bilingual Psalter. Cod. 36. Fol. 10r.

Figure 63Bilingual Plaster Cod. 36 (Weitzmann 1973, 14)

In addition, another significant example is the tenth century Sinai cod. 417. This codex of the Scala Paradisi was written by John Climacus – a famous Sinaitic abbot- in order to be used as a guide by monks that were trying to reach heaven. The title miniature of the manuscript depicts a medallion bust of the author within a broad rinceau frame made up of cornucopias. (fig. 64) Whereas the decorative pattern has an ancient origin, the addition of pearls is a typical design of the Umayyad art, seen as well in the mosaics of the Dome of the Rock, the Great Mosque of Damascus and many more examples of the early Islamic art (Weitzmann 1973, 6-11).

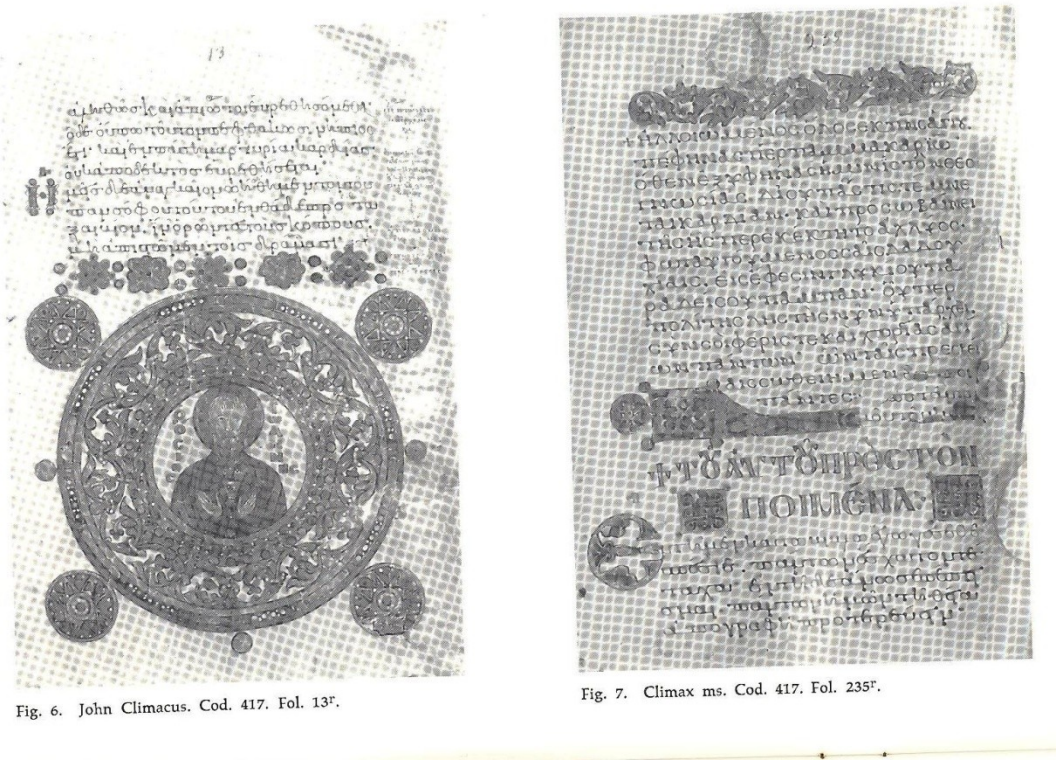


Fig. 6. John Climacus. Cod. 417. Fol. 13r.

Fig. 7. Climax ms. Cod. 417. Fol. 235r.

Figure 64The Cod. 417 written by John Climacus (Weitzmann 1973, 17,18)

Last but not least, is the case of the cod.arab.343, written in 1612 by Thabit and includes the *Scala Paradisi*, whose writer was considered as one of the most celebrated abbots of the monastery. Several copies from different periods do exist, but this precise one has two frontispieces. The one demonstrates the author seated (fig. 65) in front of a lectern, holding a book in a typical Byzantine style, as Evangelists were usually depicted, but wearing a turban and oriental stylized clothing (Weitzmann 1973, 31). The next miniature to be examined is the traditional theme of the heavenly ladder with monks anxiously trying to climb the thirty rungs, from which a lot stumble, are snatched by devils and thrown to Hades. John Climacus is one of the monks which manage to reach his goal and be accepted by Jesus. Also, some reminiscences are depicted as well, such as Moses kneeling against the mountain of St Catherine and behind the basilica of the monastery there is a clear depiction of a Fatimid mosque. This is the only indirect artistic reference to a mosque found in Byzantine art, since the Byzantines were not interested in the existence and artistic depictions of an Arab mosque.

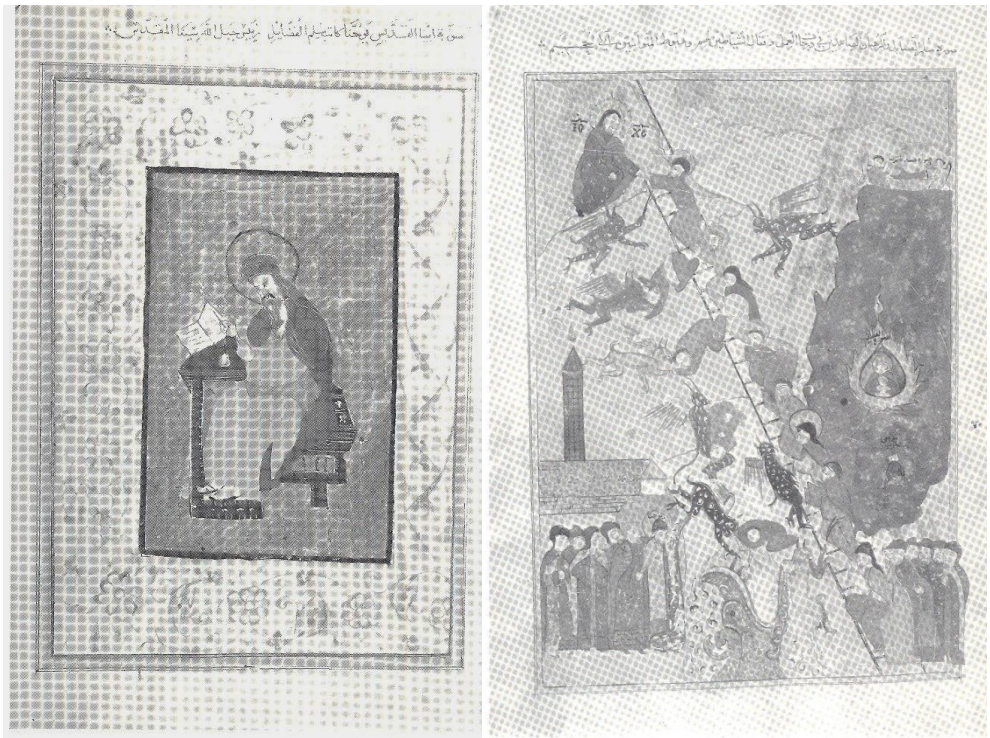


Fig. 45. John Climacus. Cod. arab. 343. Fol. 3r.

Fig. 46. The heavenly ladder. John Climacus. Cod. arab. 343. Fol. 13v.

Figure 65Cod. Arab. 343 depicting John Climacus (left) and the heavenly ladder (right) (Weitzmann 1973, 35,36)

After the Arab conquests of Egypt and Syria, a large number of Arabic translations of the Bible and many hagiographical works took place. Those translations were often illustrated with designs inspired from Byzantine and/or Arab designs, for example an illustrated Byzantine manuscript of the tenth century (Sinai cod. 417) was decorated with pearls, a typical design of the Umayyad art.

Iconographic, Arab-Islamic artistic influences also appear in the Arabic coins, as it is demonstrated in the next section.

5.8.2 Coins

During the Umayyad dynasty, and especially under the rules of Abd al-Malik and al-Walīd I, the Muslims manifested the first interest in visual symbolic system demonstrating their power in order to highlight the existence, the immensity and individualism of their new world. Thus, besides the numerous monuments that

appeared, the first characteristic attempt took place in the minting of coins (Grabar 2005, 20-21). During the first decades of Islamic rule, the Muslims used Byzantine and Sassanian forms of coins (Walker 1952, 235-243) with a few modifications (fig. 66), and slowly changes began such as additional inscriptions with a caliph's name, new iconographies (Ballian 2006, 37) (fig. 67).

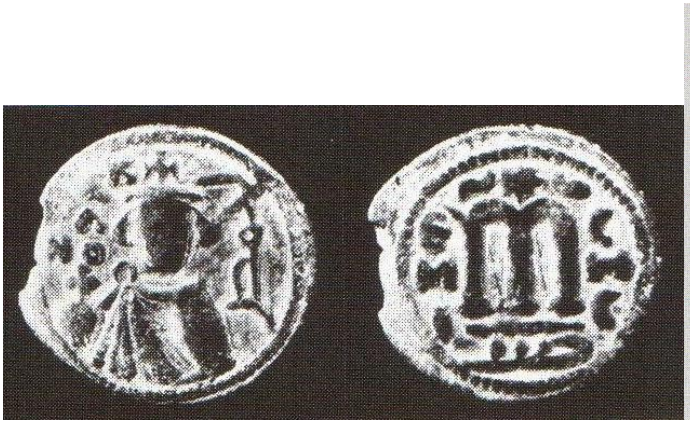


Figure 66 Arab-Byzantine coin (Grabar 2005, 21)

Figure 67 Coin with caliphs name inscription (Grabar 2005, 21)

A very crucial moment was the period of the emperor Justinian II, around 692, when the Byzantine gold coin, *nomisma*, was totally redesigned. The new depictions on the coins had on the obverse Christ and on the reverse there was the image of masterful emperor holding the cross. The change in the Byzantine coinage was immense due to the fact that it was the first time that the face of Christ was depicted on coins and introduced into the secular environment of money. The caliph 'Abd al-Malik being forced to respond, excluded all the imagery from the Islamic dinar (Cormack 2000, 80). Since 695, a new Muslim coinage appeared on, which the depictions were mainly religious expressions and the quranic verse of the mission of the Prophet to the world. It is worth noting a coin which was published by G. Miles and shows the Islamic power as well as its influence by the Byzantine coinage. It s significance lies on its rarity and the fact that the Islamic imagery appearing on the coin was not continued (Grabar 2005, 20-21). (fig. 68)

Figure 68 Arab-Byzantine coin published by G. Miles (Grabar 2005, 21)

The Muslims faced a dilemma while taking their first steps in iconography. They had to either create an original iconography whose interpretation would be unsuccessful since it would not be equivalent to the presented formal vocabulary of the Mediterranean and of the Near East, or to utilize the formal vocabulary, as on early coins, which would insufficiently identify the originality and individuality of the new empire and the new faith. In fact, they attempted both options, but very soon imagery was redundant and instead they implemented the Byzantine techniques without its formulas. As a result, the Muslims adopted only the Byzantine technique in order to avoid downsides by inheriting a much elaborated, highly developed iconography (Grabar 2005, 23-24). In general, far more data was inscribed on the Islamic coins than on the Byzantine. Usually the Muslim coins, i.e. dinars (gold coins), dirhams (silver coins) and fals (copper coins), included the hijra date it was struck, the mint of the city in which it was struck, the name of the Arab ruler and religious formulas. Thus, the Islamic coins are an extremely useful source completing political history when other types of data found in historical sources are incomplete (Bacharach 2009, 15-19).

To sum up, after their conquest of the Near East by the middle of the seventh century, the Arabs started using Byzantines coins in their first trade relations, but already from the beginning of the eighth century they started minting their own coins, imitating the Byzantine. Their decoration of the coins adopted certain elements from the Byzantines, but soon they were replaced by Islamic symbols.

During the time of the Umayyad dynasty (661-750), the Muslims manifested a first interest in a visual symbolic system, demonstrating their power. The careful scrutiny of the Arabic coins of this period can reveal important information concerning a mixture of Arab-Islamic elements. In addition, illustrations of Arabic artistic motives are found in textiles and ceramics.

5.8.3 Textiles and Ceramics

During the peak of the Arab-Byzantine trade (9th-11th centuries), a large number of Oriental textiles and ceramics were imported by the Byzantines mainly from Fatimid Egypt. Textiles, in addition to their practical use, are a powerful agency for cultural transmission (Kadoi 2011, 20).

A very interesting example of textiles is a red silk fragment with designs stitched in blue-black, yellow and white, well known as the 'Witches Cloth'. Its uniqueness appears on the unusual subject depicted. The lower level is arranged with pairs of confronting peacocks with beaks of eagles and elevated tails, which, joining on the tail of the other member of the next pair, form a large ornament. Among them there is a stylized 'homa'. Higher than them, there is a level of monstrous birds with the paws and stylized heads of lions, each one of them included in an arch shaped section. The external arch has heads of lions. The gap in between is filled with grotesque storks and abstracted 'homas'. The red ground type of this fragment originated from a Byzantine silk fabric, which typically depicts eagles (Suhrawardy 2005, 144-145). (fig. 69)

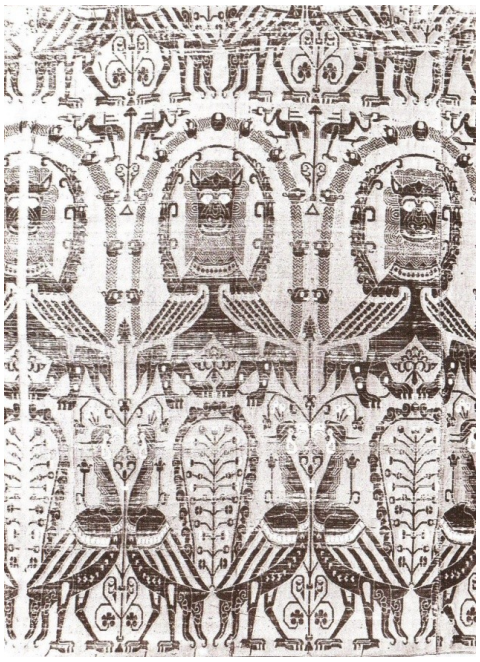


Figure 69 The 'Witches Cloth', Episcopal Museum of Vich, Catalonia (Suhrawardy 2005, fig. 9.5)

The Islamic ceramics, Arabic as well as Persian, especially what is called "lustred pottery", achieved great reputation and inspired Western European artists mainly through Syrian and Asian Minor channels. In the Byzantine Empire, during the peak of the Arab-Byzantine trade relations, a number of ceramic jars were imported mainly from Fatimid Egypt and were found in various places of the Greek mainland (Ballian 2006, 71). A complete list of all similar items found in Greece is still a desideratum. Thus, for example, a ceramic jar with lustre decoration, dated to the 10th-11th century, is found at the Benaki Museum in Athens (Mouratidou 2011, 88-89).

Concerning art on ceramics, a very rare and interesting example is an Islamic artifact with a Christian design depicting the Deposition on a plate fragment, made in Syria during the late thirteenth- early fourteenth century. (fig. 70) It has been identified that the models have been pursued are of Byzantine origin, but the under glaze painting and the relief pattern of dotted leaves on the ground are the same as the Sultanabad-type ware. It has been suggested that probably it served as a liturgical object or a paten in a church of the Christian communities in Syria. A similar fragment that depicts the Virgin holding the body of Christ is kept in the Museum of Islamic Art in Cairo (Baillan 2006, 126).

Figure 70 Fragment of a ceramic plate with the Deposition (Baillan 2006, 126)

Finally it is worth mentioning here that it is my intention to pay attention to a number of ceramics found in Crete and dated to the period of its Arab occupation (ca 824/826 – 961). The archaeologist L. Starida, who has discovered them, expresses her belief that there was an Arab ceramic workshop at this period in Crete (Starida 2011, 117). It is my view that the origin of these ceramics should be traced to the Muslim Spanish tradition transmitted by the Andalusian conquerors of Crete.

I a word, during the peak of the Arab-Byzantine trade relations, a large number of oriental textiles and ceramics were imported by the Byzantines, mainly from Fatimid Egypt. A very interesting example of such textiles is a red silk fragment, known as the “Witches’ cloth”. Concerning the Islamic ceramics, Arabic as well as Persian, they achieved great reputation and inspired Western European artists mainly through Syrian and Asian Minor channels. Finally mutual Arab-Byzantine influences appear in glassware, woodwork and metalwork.

5.8.4 Glassware

Glass findings are also found in various places of Greece. Of particular interest is a colored, disc shaped, glass game counter found in the medieval city of Rhodes. It bears a Kufic inscription in "the name of Muhammad" (Papasoteriou 2011, 84).Based on the Kufic script; the publisher dates it to the 8th-10th century. Nevertheless, imitation of Kufic script is not unusual in such items, and most probably it should be dated to the later period, 11th century, since, as the publisher reports, it bears likeness to a corresponding object from the National Museum of Oriental Art in Rome (Cat. Nr. 21524/15349), dated to 1035-1094.

The tenth-eleventh century gilded and painted glass cup from Constantinople, nowadays kept in the Treasury of St Marco at Venice, is evidence of the variety of Byzantine viewing interests, including characteristics from antiquity and, at the same time, from Islam. Cormack describes it as follows: "*The glass is dark purple and is held in a silver-gilt frame. It has seven figural medallions, figures lights against dark, which have been compared visually with Greek vase painting and which evoke classical figure style, but are figures without clear identity. The smaller medallions are more reminiscent of ancient gems. The decoration around the images fits in monumental painting and mosaic and, like them, includes pseudo-Kuffic letters*" (Cormack 2000, 140).

5.8.5 Jewelry

In addition to ceramics, some Arab-Islamic jewelry, dated to the 10th century (period of Arab occupation), was discovered in Crete. For example a pair of gold earrings with crescent- shaped plaque, decorated with hemispherical extensions, was found in Mesonisi of Rethymno, now in the National Archaeological Museum of Athens (Stathatos Collection, Inv. Nr. Στ 483 α-β) (Sidiropoulos and Vasileiadou 2011, 43). (fig. 71)It is my view that this pair of earrings closely resembles a pair of earrings from Islamic Spain (Museum of Mallorca) (Zozaya 1995, 103) (fig. 72)

Figure 71 **Gold earrings with Kufic Inscriptions. First half of the 10th c. Athens National Archaeological Museum. Stathatos Collection, Inv. Nr.Στ. 483α-β. (Sidiropoulos and Vasileiadou 2011, 43)**

Figure 72 Gold earrings. Museum of Mallorca (Zozaya 1995, 103)

5.8.6 Woodwork

During the Umayyad period, the patterns of wooden objects had an apparent continuance of the Hellenistic and the Sassanian traditions. Nevertheless, the ornamentations of such type of objects were mainly inspired by Byzantine and

Coptic designs. The cause of such a combination of artistic cultures is to be blamed on the location of Damascus, which had been an artistic center, was included in the Byzantine Empire and had later turned into the first capital of the Islamic state.

The decorative elements on the panels of al-Aqsa Mosque are inspired by several kinds of decoration, such as architectural, vegetal and geometrical designs. Each panel is encircled by a frame with quarter circles and carved vegetal patterns on it. The architectural ornamentation corresponds to miḥrābs and includes arches sitting on two columns, from which some are partly wrapped with laurel or straight leaves and also have a capital composed by acanthus leaves. It is a very famous pattern of the Umayyad art and it has Byzantine and Sassanian origin (Abdu Khalaf 1998, 33-41). (fig. 73)

Figure 73 Carved wooden panel showing fleuron ornamentation (Baillan 2006, 42,43)

5.8.7 Metal work

Portable balances were commonly used around the late Roman and Byzantine world. They were later adopted by the Arabs as well but their distinction appears on the fact that they do not have figurative decoration. Such examples are the steelyards with round weights and hooked chains, which were produced in Syria and Egypt between the sixth and the eighth century (Ballian 2006, 70). (fig. 74)

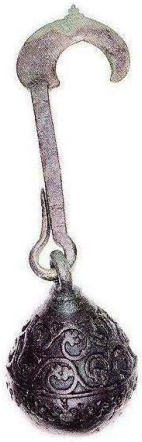


Figure 74 Copper alloy counterweight with vegetal decoration (Baillan 2006, 70)

6. Conclusion

The Byzantines and the Arabs from the middle of the seventh century became the greatest powers in the Mediterranean for centuries struggled for supremacy. In my cursory account of the salient characteristics of the Byzantine Empire, I have described how the Byzantine Empire developed through the ages and I report that after the eighth century, the main language of the Byzantine people was Greek and Christianity was not only the official religion of the Empire but also dominated the daily life of these people.

On the other hand, I have presented briefly how the Arabs, after their embracing of the Islamic faith, were transformed into a powerful, international community (*umma*), governed by their holy book, the Koran. The Muslim Arabs detached the near eastern part of the Byzantine Empire, which was overrun by a vast collection of various peoples. During their first dynasty, the Umayyads (661-750), the Arabs brought their new religion and their language to the peoples they conquered, but simultaneously they were strongly influenced by the Graeco-Roman culture which had been adopted in the Near East and North Africa.

During the time of the Abbasids (750-1258), the Arabs, who had moved their capital from Damascus to Baghdad, were largely contented with the task of organizing a well administered empire instead of conquering new lands. The new rulers relied heavily on Persian techniques of statecraft and simultaneously the Arabs drew some important elements concerning science and mathematics from ancient Greeks completing their knowledge derived from Persians and Indians. It was at this period that the Arabs, who originally were not a naval people, developed an impressive naval power competing with the Byzantine. Meanwhile sea trade between Byzantines and Arabs was intensively increased.

The trade relations between Byzantines and Arabs were strengthened even more with the Fatimid caliphate, which was created after the dismembering of the Abbasid dynasty and originated in Tunisia in 909. Gradually, it extended into Egypt and Syria and established its capital in Cairo in 972.

At the turn of the eleventh century the Arab power was heavily diminished because of the onslaught of the Seljuk Turks. The Seljuk Turks coming from the steppes of Turkestan swarmed into the Near East conquering in all directions. They reached Baghdad on December 18, 1055 and opened the way to the Mongols who conquered it in 1258. Egypt, the last bastion of the Arabs, ruled by a corps of non-Arabs, the Mamluks, was ultimately conquered by the Ottoman Turks in 1517.

Following this cursory historical account of the two rival world powers of the time and their military conflicts, I proceeded first with a description of the Arab-Byzantine literary exchanges. The most important remark in this field is the lack of any serious interest of the Arabs in Byzantine literature. It should be noted that the Arabs, who translated many philosophical and scientific works of ancient Greeks, paid no attention to the Byzantine contemporary literature written mainly in Greek. Similarly, the Byzantines showed no interest in any Arab literary products.

The only literary exchanges are restricted to some popular epic romances composed by both Byzantines and Arabs. Two epic novels, the Arabic *'Umar al-Nu'mān* and the Byzantine *Digenis Akritas* were created during the Arab-Byzantine military skirmishes in Asia Minor, ca the ninth-tenth centuries. Both were inspired by the above-mentioned Arab-Byzantine fighting in Asia Minor and many similarities can be discerned in both expression and spirit. In the Greek epic of *Digenis Akritas,* we detect awareness by the unknown author of the local geographical conditions and the social milieu on the Arab-Byzantine boundaries. Likewise, the unknown author of *'Umar al-Nu'mān* seems to be aware of the same conditions. Most probably both authors were inspired by similar oral literary narrations and there were not any direct literary written exchanges.

It should be also noticed that in these two epic romances, in spite of the descriptions of Arab-Byzantine encounters, there is a spirit of reconciliation reflecting the peace which prevailed in this area following the military conflicts. But, the real spirit of such reconciliation is demonstrated in the Arabic epic romance of "'Antar", written at the time of the crusades. The main hero ''Antar visits the Byzantine emperor and asks for an Arab-Byzantine alliance against the Franks.

The next section of my thesis deals with the Arab-Byzantine conflicts for sea supremacy in the Eastern Mediterranean, which ended in a peaceful *modus vivendi*. The Arabs, who did not have a single ship by the middle of the seventh century, managed to create a powerful naval force by the end of the ninth century. The main factor for the creation of the Arabs' naval power was the enlistment in their navy of the experienced Christian Egyptian and Syrian sailors. Numerous Arab-Byzantine encounters at sea, mainly in the Aegean, took place at the turn of the ninth century. As a result of the Arab naval power, the Byzantine island of Crete was occupied by the Arabs from 824/6-961. Following the liberation of Crete by the Byzantines, a new spirit prevailed between the two rivals. Only few, minor naval conflicts took place and instead, the sea trade was intensified. After 961, Byzantine and Arab merchant ships sailed freely in the Eastern Mediterranean, and the sea trade activities replaced the hostile activities. Byzantines now imported goods from the Arab countries not only for local use but also for transporting them to Western Europe.

Finally, the emergence of the naval power of the Italian cities Venice and Genoa in the twelfth century reversed the situation in the Mediterranean.

In the next section of this paper, I present the various types of ships which were used by both Arabs and Byzantines. The Arab and Byzantine merchant ships, as the underwater archaeology reports, are of similar construction. They use lateen sails and the stern rudder, while the square sails are not completely abandoned. I have attempted to present the characteristics of the most important types of merchant ships with a special description of the underwater findings of the shipwrecks of Yassi Ada and Serçe Limani. As for the warships, there is no difference in the construction of Arab and Byzantine warships. The main Byzantine warship *dromon* corresponds exactly to the Arab *shīni.*

My next section deals with the Byzantine and Arab artistic interactions. I mainly focused on the influence of the Kufic script on certain Byzantine churches. Less influence is noticeable on architecture. While the Kufic and pseudo-Kufic decorations in some Byzantine churches obviously betray Arabic influence, there is a fresco in the church of Hagia Kyriaki, on the island of Naxos, depicting flying birds

which could have been also inspired by the aniconic Islamic art. The form of these birds is very similar to the patterns of Sassanian textiles of the sixth-ninth century. The question which arises is whether the depiction of these birds was actually inspired by any contemporary Islamic objects, i.e. textiles or ceramics, or it was simply reproduced by other similar Byzantine aniconic decorations rooted in the earlier Byzantine tradition. It is my intention to undertake a more thorough research in this topic to secure my view that we should not dismiss the possibility of a contemporary Islamic inspiration. Further work will be undertaken by me to show direct influence of Byzantine ceramics on Islamic artifacts.

Abstract

The aim of the present work is to trace and stress the intercultural relations between the Arab-Islamic power and Christian Byzantium. The struggle for supremacy between these two great powers in the Mediterranean, which lasted from the middle of the seventh century to the twelfth, vividly appears in the primary sources, Arabic as well as Byzantine, and it can be gleaned with sufficient clarity in spite of numerous lacunae.

Nevertheless, information about the cultural relations between these two powers of the time is sparse and incoherent in all sources and the task of modern scholars to trace them is confronted with great difficulties.

An attempt has been made in the present work to take a panoramic view of various aspects of the Arab-Byzantine cultural relations in literature, art and naval technology, hoping to demonstrate that in spite of the continuous rivalry between Byzantium and the Arabs, an ongoing; undercurrent cultural communication existed between them.

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List of Figures

Appendix

The Iconoclastic Movement and its Relationship with Islam. Palestinian Christianity, a Prelude to Iconoclasm

The problems of the Iconoclastic movement in the Byzantine Empire have been repeatedly discussed (Brubaker and Haldon 2011). A recent article discusses the Islamic influence on the Palestinian Christianity, which opened the way to later Byzantine Iconoclasm (Brubaker 2009, 37-55). The author, who extends her research to Carolingian Christianity, correctly points out that after the Arab conquest of [Syro] Palestine, Palestinian Christians, living under the Islamic rule, adjusted their attitudes towards images to "conform to local beliefs".

To this undoubtedly correct observation, it should be added that the attitude of the Palestinian Christians towards images had been different even before the Islamic conquest. Thus, from the fourth century the Palestinian Fathers of the Church, Eusebius and Epiphanius, strongly objected to the cult of images in contrast to Vasilios, Gregorius Nazianzinus and others, who admired the classical, philological and iconographical tradition. The negative attitude of the Palestinian Christians towards images and their preference to aniconic representations, rooted in early Palestinian Christianity, were enhanced after the Arab-Islamic conquests under the influence of Islam which avoided the cult holy images. Of course, the question remains open whether the Emperor Leo III, who was born in the Near East, was inspired by his origin in his negative attitude towards the adoration of icons.