

**BYZANTINE
CHURCHES IN
CONSTANTINOPLE**

[THEIR HISTORY AND ARCHITECTURE]

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By

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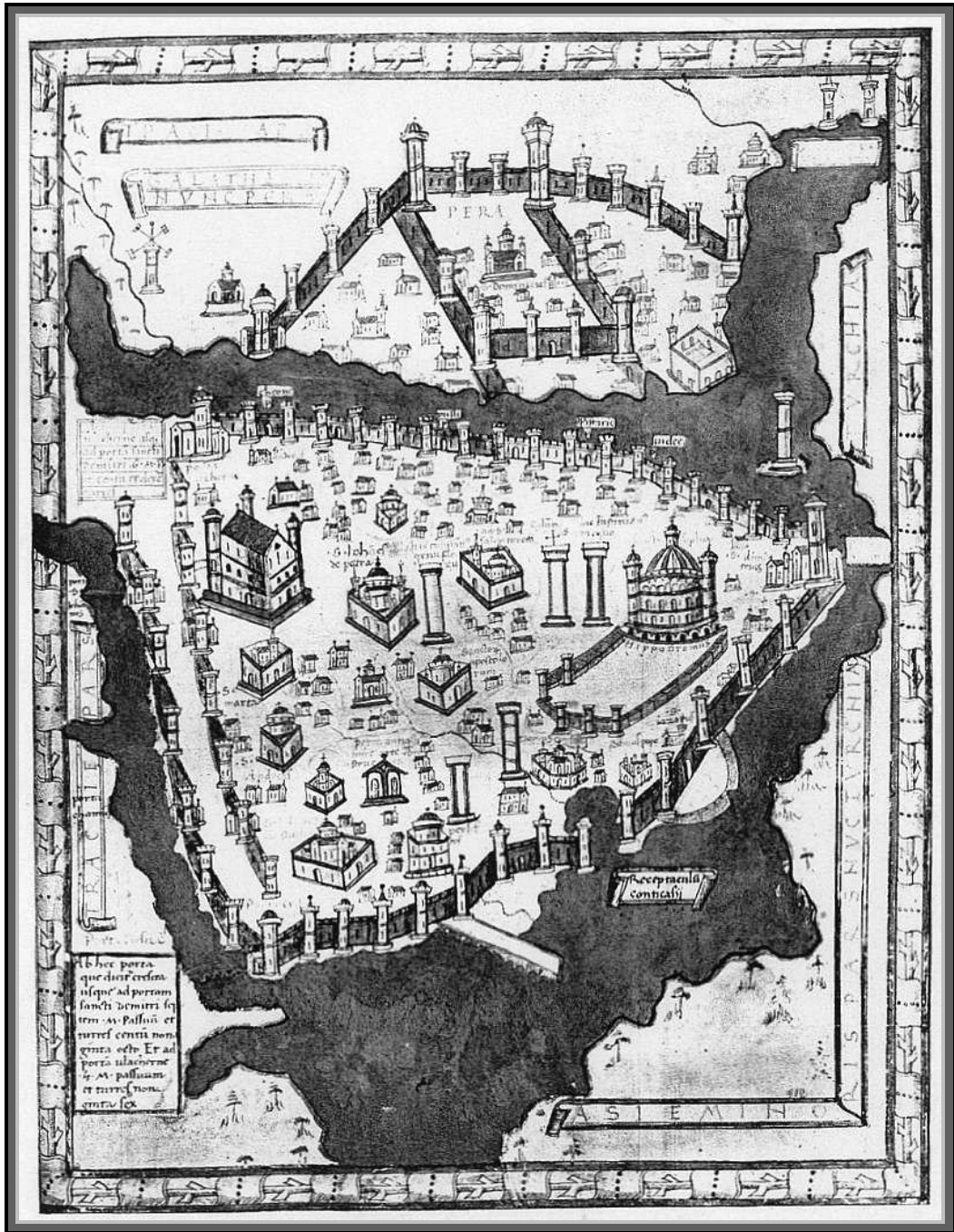
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PLATE I.



Mediaeval Map of Constantinople by Bondelmontius. [Frontispiece.]

NOTE ON THE MAP OF CONSTANTINOPLE

For the map forming the frontispiece and the following note I am greatly indebted to Mr. F. W. Hasluck, of the British School at Athens.

The map is taken from the unpublished *Insularium Henrici Martelli Germani* (B.M. Add. MSS. 15,760) f. 40.

A short note on the MS., which may be dated approximately 1490, is given in the *Annual of the British School at Athens*, xii. 199.

The map of Constantinople is a derivative of the Buondelmontius series, which dates from 1420, and forms the base of all known maps prior to the Conquest. Buondelmontius' map of Constantinople has been published from several MSS., varying considerably in legend and other details:¹ the best account of these publications is to be found in E. Oberhummer's *Konstantinopel unter Suleiman dem Grossen*, pp. 18 ff. The map in B.M. *Arundel*, 93, has since been published in *Annual B.S.A.* xii. pl. i.

In the present map the legends are as follows. Those marked with a dagger do not occur on hitherto published maps.

Reference is made below to the Paris MS. (best published by Oberhummer, *loc. cit.*), the Venetian (Mordtmann, *Esquisse*, p. 45, Sathas, *Μνημεία*, iii., frontispiece), and the Vatican (Mordtmann, *loc. cit.* p. 73).

Tracie pars—Galatha olim nunc Pera—Pera—S. Dominicus—Arcena—Introitus Euxini Maris.

Asie minorus pars nunc tvurchia.—Tvurchia.

Tracie pars—Porta Vlacherne—†Ab hec (*sic*) porta Vlacherne usque ad portam Sancti Demetri 6 M.P. et centum et decem turres—†Porta S. Iohannis¹—Porta Chamic²—Porta Crescu—Porta Crescea—†Ab hec (*sic*) porta que dicitur Crescea usque ad portam Sancti Demetri septem M. passuum et turres centum nonaginta octo. Et ad portam Vlacherne 5 M. passuum et turres nonaginta sex—Receptaculum Conticasii³—Porta olim palatii Imperatoris—Porta S. Dimitri—Iudee⁴—Pistarie p.⁵—Messi p.—Cheone p.⁶—S. Andreas—S. Iohannes de

Petra—Hic Constantinus genuflexus—†Ad S. Salvatorem—†Columna Co(n)s?—Hic Iustinianus in equo⁷—Sancta Sophia—Hippodromus—S. Demetrius—S. Georgius—S. Lazarus—Domus Pape—Domus S. Constantini—Sanctorum Apostolorum—Porta antiquissima mire (sic) arte constructa⁸—S. Marta⁹—S. Andreas—S. Iohannes de Studio—Perleftos.

F. W. H.

1 S. Romani?

2 Porta Camidi, *Vat.*

3 Receptaculum fustarum dein Condoscalli, *Par.*

4 Porta Judea, *Par.*

5 Porta Piscarii, *Par.*

6 Porta Lacherne, *Par.*, delle Corne, *Vat.*, del Chinigo (i.e. Κυνηγίου in the xvi. cent. Venetian maps.

7 Theodosius in aequo eneo, *Ven.* In hoc visus imp. Teod. equo sedens, *Vat.*

8 Porta antiquissima pulcra, *Par.*

9 St. Mam (as?) *Ven.* Sts. Marcus, *Vat.*

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WITH MAPS, PLANS, AND ILLUSTRATIONS

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PREFACE

This volume is a sequel to the work I published, several years ago, under the title, *Byzantine Constantinople: the Walls of the City, and adjoining Historical Sites*. In that work the city was viewed, mainly, as the citadel of the Roman Empire in the East, and the bulwark of civilization for more than a thousand years. But the city of Constantine was not only a mighty fortress. It was, moreover, the centre of a great religious community, which elaborated dogmas, fostered forms of piety, and controlled an ecclesiastical administration that have left a profound impression upon the thought and life of mankind. New Rome was a Holy City. It was crowded with churches, hallowed, it was believed, by the remains of the apostles, prophets, saints, and martyrs of the Catholic Church; shrines at which men gathered to worship, from near and far, as before the gates of heaven. These sanctuaries were, furthermore, constructed and beautified after a fashion which marks a distinct and important period in the history of art, and have much to interest the artist and the architect. We have, consequently, reasons enough to justify our study of the churches of Byzantine Constantinople.

Of the immense number of the churches which once filled the city but a small remnant survives. Earthquakes, fires, pillage, neglect, not to speak of the facility with which a Byzantine structure could be shorn of its glory, have swept the vast majority off the face of the earth, leaving not a rack behind. In most cases even the sites on which they stood cannot be identified. The places which knew them know them no more. Scarcely a score of the old churches of the city are left to us, all with one exception converted into mosques and sadly altered. The visitor must, therefore, be prepared for disappointment. Age is not always a crown of glory; nor does change of ownership and adaptation to different ideas and tastes necessarily conduce to improvement. We are not looking at flowers in their native clime or in full bloom, but at flowers in a herbarium so to speak, or left to wither and decay. As we look upon them we have need of imagination to see in faded colours the graceful forms and brilliant hues which charmed and delighted the eyes of men in other days.

In the preparation of this work I have availed myself of the aid afforded by previous students in the same field of research, and I have gratefully acknowledged my debt to them whenever there has been occasion to do so. At the same time this is a fresh study of the subject, and has been made with the hope of confirming what is true, correcting mistakes, and gathering additional information. Attention has been given to both the history and the architecture of these buildings. The materials for the former are, unfortunately, all too scanty. No

continuous records of any of these churches exist. A few incidents scattered over wide tracts of time constitute all that can be known. Still, disconnected incidents though they be, they give us glimpses of the characteristic thoughts and feelings of a large mass of our humanity during a long period of history.

The student of the architecture of these churches likewise labours under serious disadvantages. Turkish colour-wash frequently conceals what is necessary for a complete survey; while access to the higher parts of a building by means of scaffolding or ladders is often impossible under present circumstances. Hence the architect cannot always speak positively, and must leave many an interesting point in suspense.

Care has been taken to distinguish the original parts of a building from alterations made in Byzantine days or since the Turkish conquest; while, by the prominence given to the variety of type which the churches present, the life and movement observable in Byzantine ecclesiastical art has been made clear, and the common idea that it was a stereotyped art has been proved to be without foundation.

Numerous references to the church of S. Sophia occur in the course of this volume, but the reader will not find that great monument of Byzantine architectural genius dealt with in the studies here offered. The obstacles in the way of a proper treatment of that subject proved insuperable, while the writings of Salzenberg, Lethaby, and Swainson, and especially the splendid and exhaustive monograph of my friend Mr. E. M. Antoniadi, seemed to make any attempt of mine in the same direction superfluous if not presumptuous. The omission will, however, secure one advantage: the churches actually studied will not be overshadowed by the grandeur of the 'Great Church,' but will stand clear before the view in all the light that beats upon them.

I recall gratefully my obligations to the Sultan's Government and to the late Sir Nicholas O'Connor, British Ambassador at Constantinople, for permission to make a scientific examination of the churches of the city. To the present British Ambassador, Sir Gerard Lowther, best thanks are due for the facilities enjoyed in the study of the church of S. Irene.

I have been exceedingly fortunate in the architects who have given me the benefit of their professional knowledge and skill in the execution of my task, and I beg that their share in this work should be recognized and appreciated as fully as it deserves. To the generosity of the British School at Athens I am indebted for being able to secure the services of Mr. Ramsay

Traquair, Associate of the Royal Institute of British Architects and Lecturer on Architecture at the College of Art in Edinburgh. Mr. Traquair spent three months in Constantinople for the express purpose of collecting the materials for the plans, illustrations, and notes he has contributed to this work. The chapter on Byzantine Architecture is entirely from his pen. He has also described the architectural features of most of the churches; but I have occasionally introduced information from other sources, or given my own personal observations.

I am likewise under deep obligation to Mr. A. E. Henderson, F.S.A., for the generous kindness with which he has allowed me to reproduce his masterly plans of the churches of SS. Sergius and Bacchus, S. Mary Panachrantos, and many of his photographs and drawings of other churches in the city. I am, moreover, indebted to the Byzantine Research and Publication Fund for courteous permission to present here some of the results of the splendid work done by Mr. W. S. George, F.S.A., under unique circumstances, in the study of the church of S. Irene, and I thank Mr. George personally for the cordial readiness with which he consented to allow me even to anticipate his own monograph on that very interesting fabric. It is impossible to thank Professor Baldwin Brown, of the University of Edinburgh, enough, for his un-failing kindness whenever I consulted him in connection with my work. Nor do I forget how much I owe to J. Meade Falkner, Esq., for kindly undertaking the irksome task of revising the proofs of the book while going through the press.

I cannot close without calling attention to the brighter day which has dawned on the students of the antiquities of Constantinople since constitutional government has been introduced in the Ottoman Empire. Permission to carry on excavations in the city has been promised me. The archaeology of New Rome only waits for wealthy patrons to enable it to reach a position similar to that occupied by archaeological research in other centres of ancient and mediaeval civilizations. But the monuments of the olden time are perishable. Of the churches described by Paspates in his *Byzantine Studies*, published in 1877, nine have either entirely disappeared or lost more of their original features. It was no part of wisdom to let the books of the cunning Sibyl become rarer and knowledge poorer by neglecting to secure all that was obtainable when she made her first or even her second offer.

ALEXANDER VAN MILLINGEN.

Robert College, Constantinople.

Πόλις ἐκκλησιῶν γαλουχέ, πίστεως ἀρχηγέ, ὀρθοδοξίας ποδηγέ

Nicetas Choniates.

CHAPTER I: BYZANTINE ARCHITECTURE

I. Planning

At the beginning of the fifth century, which is a suitable point from which to date the rise of Byzantine architecture, three principal types of church plan prevailed in the Roman world:—

I. The Basilica: an oblong hall divided into nave and aisles, and roofed in wood, as in the Italian and Salonican examples, or with stone barrel-vaults, as in Asia Minor and Central Syria.

II. The Octagonal or Circular plan covered with a stone or brick dome, a type which may be subdivided according as (1) the dome rests upon the outer walls of the building, or (2) on columns or piers surrounded by an ambulatory.

The Pantheon and the so-called Temple of Minerva Medica at Rome are early examples of the first variety, the first circular, the second a decagon in plan. S. George at Salonica is a later circular example. An early instance of the second variety is found in S. Constanza at Rome, and a considerable number of similar churches occur in Asia Minor, dating from the time of Constantine the Great or a little later.

III. The Cross plan. Here we have a square central area covered by a dome, from which extend four vaulted arms constituting a cross. This type also assumes two distinct forms:

(1) Buildings in which the ground plan is cruciform, so that the cross shows externally at the ground level. Churches of this class are usually small, and were probably sepulchral chapels rather than churches for public worship. A good example is the tomb of Galla Placidia at Ravenna.

(2) In the second form of the Cross church the cross is enclosed within a square, and appears only above the roofs of the angle chambers. An example is seen in the late Roman tomb at Kusr en Nûeijs in Eastern Palestine. In this instance the central square area is covered with a dome on continuous pendentives; the four arms have barrel-vaults, and the angles of the cross are occupied by small chambers, which bring the ground-plan to the square. The building is assigned to the second century, and shows that true though continuous pendentives were known at an early date¹⁰ (Fig. 8).

Another example is the Praetorium at Musmiyeh, in Syria,¹¹ which probably dates from between 160 and 169 A.D. At some later time it was altered to a church, and by a curious foreshadowing of the late Byzantine plan the walls of the internal cross have entirely disappeared from the ground-plan. The dome rests on four columns placed at the inner angles of the cross, and the vaulted cross arms rest on lintels spanning the space between the columns and the outer walls.

From these three types of building are derived the various schemes on which the churches of the Byzantine Empire were planned.

Of the basilican form the only example in Constantinople that retains its original plan is S. John the Baptist of the Studion, erected *c.* 463 A.D.

The church of SS. Sergius and Bacchus and the baptistery of S. Sophia represent respectively the two varieties of the octagonal plan. In the former the dome rests on piers surrounded by an ambulatory; in the latter the dome rests upon the outer walls of the buildings. Both are foundations of Justinian the Great.

Of the Cross church plan showing the cross externally at the ground level no example survives in the city. But at least one church of that form was seen at Constantinople in the case of the church of the Holy Apostles. This was essentially a mausoleum, built originally by Constantine the Great and reconstructed by Justinian to contain the sarcophagi of the sovereigns and the patriarchs of New Rome.¹²

The church of S. Mark at Venice was built on the plan of the Holy Apostles. It is a cruciform church with aisles, but the galleries which might have been expected above them are omitted. The central dome rests on four piers, and four smaller domes cover the arms.

Professor Strzygowski gives examples of cross-planned cells in the catacombs of Palmyra,¹³ and in many Eastern rock tombs.¹⁴ Such cross plans are found also in the Roman catacombs. These subterranean chapels, of course, do not show the external treatment, yet there can be little doubt that the external cross plan was originally sepulchral, and owes its peculiar system of planning to that fact. On the other hand, it was adopted in such churches as S. Mark's at Venice and in the French examples of Périgord for aesthetic or traditional reasons.

In passing now to a consideration of the distinct forms developed from these pre-Byzantine types of church building, the classification adopted by Professor Strzygowski may be followed. In his *Kleinasien* he has brought forward a series of buildings which show the manner in which a dome was fitted to the oblong basilica, producing the domed basilica (*Küppelbasilica*), an evolution which he regards as Hellenistic and Eastern. In contrast to this, Strzygowski distinguishes the domed cross church (*Kreuzküppelkirche*), of which S. Theodosia in Constantinople is the typical example and which is a Western development. A comparison of the two forms is of great importance for the study of certain Constantinople churches.

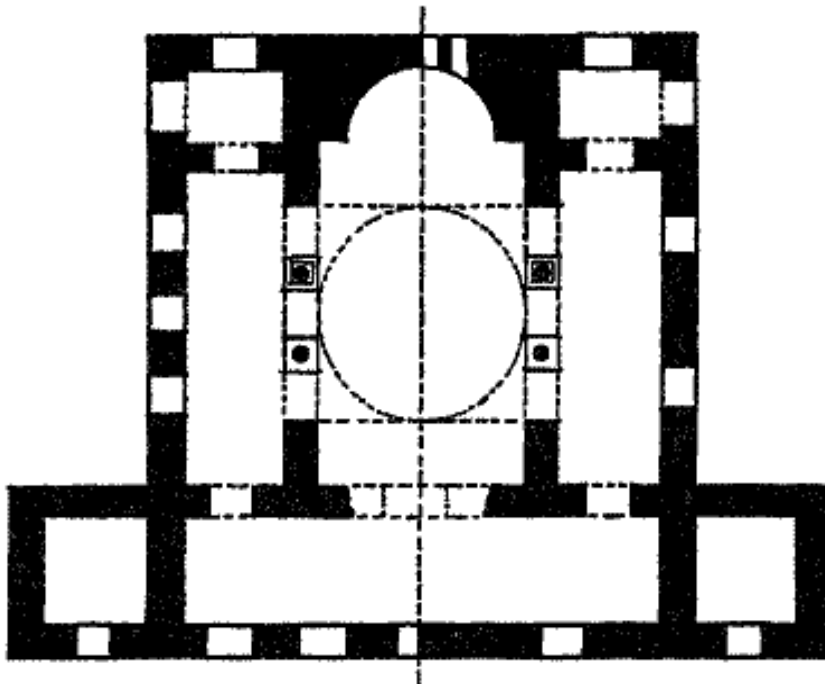


Fig. 1.—Kasr Ibn Wardan (Strzygowski).

The domed basilica, as the name indicates, is a basilica with nave and aisles, in which a square bay in the centre of the nave is covered by a dome on pendentives. To north and south, within the arches supporting the dome, appear the nave and gallery arcades of the basilica; and as the galleried basilica is a usual Eastern form galleries are usual in the domed basilica. As seen from the central area, therefore, the north and south dome arches are filled in with arcades in two stories, and the side aisles and galleries are covered with barrel vaults running parallel to the axis of the church. At the west end a gallery over the narthex may unite the two side galleries. At Kasr ibn Wardan, instanced by Strzygowski as a typical domed basilica,¹⁵ there is such a western gallery (Fig. 1). According to Strzygowski the domed basilica is older than the fifth century.

The domed basilica remains always an oblong building, and whilst the two sides to north and south are symmetrical, the western end retains the basilican characteristics—it has no gallery or arcade communicating with the central area. The narthex communicates with the nave by doors, and if a gallery is placed above it, both narthex and gallery are covered by barrel vaults.

In the domed cross church (*Kreuzkuppelkirche*) the central dome rests on barrel vaults which extend to the outer walls of the building and form the arms of the cross, the eastern arm forming the bema. The lighting of the church is by windows in the gable walls which terminate the north, south, and west cross arms. The prothesis and diaconicon open off the side arms, and two small chambers in the western angles of the cross bring the plan externally to the usual rectangular form.

The domed cross church may have galleries, as in S. Theodosia, or may be without them, as in SS. Peter and Mark. Where galleries are present they are placed in the cross arms and are supported by arcades at the ground level. The vaults beneath the galleries are cross-groined. The domed cross church is a centrally planned church, in contrast to the domed basilica, which is oblong, and therefore we should expect that where galleries are used they will be formed in all three arms of the cross, as is the case in S. Theodosia.

There are a number of churches which vary from these types, but which can generally be placed in one class or the other by the consideration of two main characteristics: if the dome arches extend to the outer walls the building is a domed cross church; if the galleries are screened off from the central area by arcades the building is a domed basilica.

The church at Derè Aghsy,¹⁶ for instance, if we had only the plan to guide us, would appear to be a typical domed basilica (Fig. 2), but on examining the section we find that the north and south dome arches extend over the galleries to the outer walls and form cross arms (Fig. 3). The building is, in fact, a domed cross church with no gallery in the western arm. Above the narthex at the west end, and separated from the western cross arm, is a gallery of the type usual in the domed basilica, so that Derè Aghsy may be regarded as a domed cross church with features derived from the domed basilica. S. Sophia at Constantinople, the highest development of the domed basilica, has a very similar western gallery.

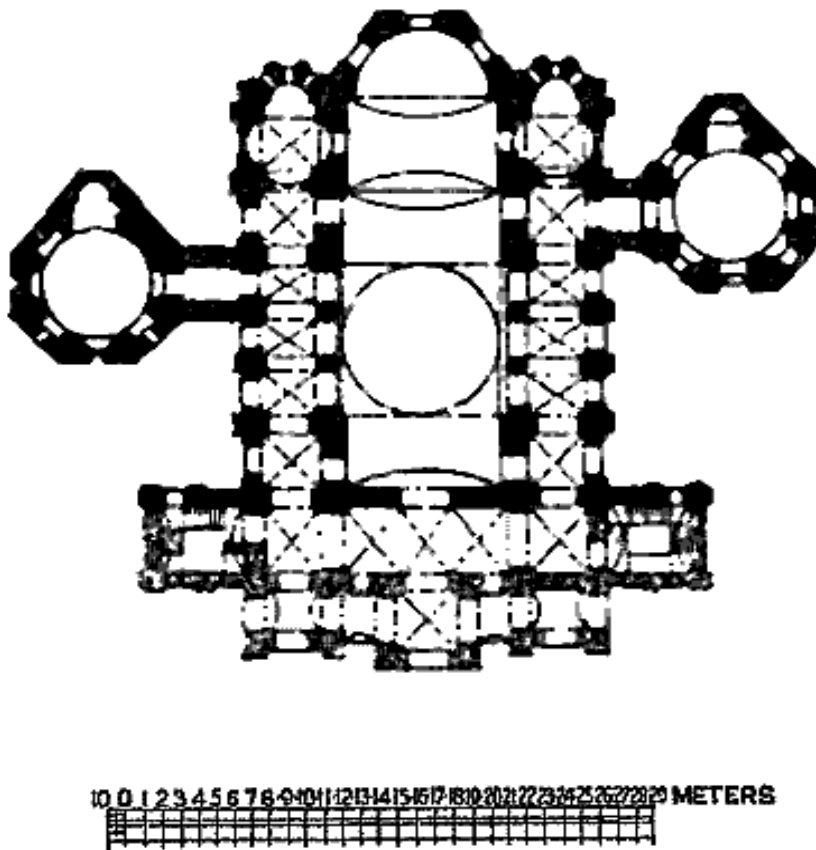


Fig. 2.—Derè Aghsy (Rott).

The church of S. Nicholas at Myra¹⁷ (Fig. 4) has a gallery at the west end, but the cross arms do not appear to be carried over the galleries. The plan is oblong and the cross-groined vault is not used. The church, therefore, takes its place as a domed basilica.

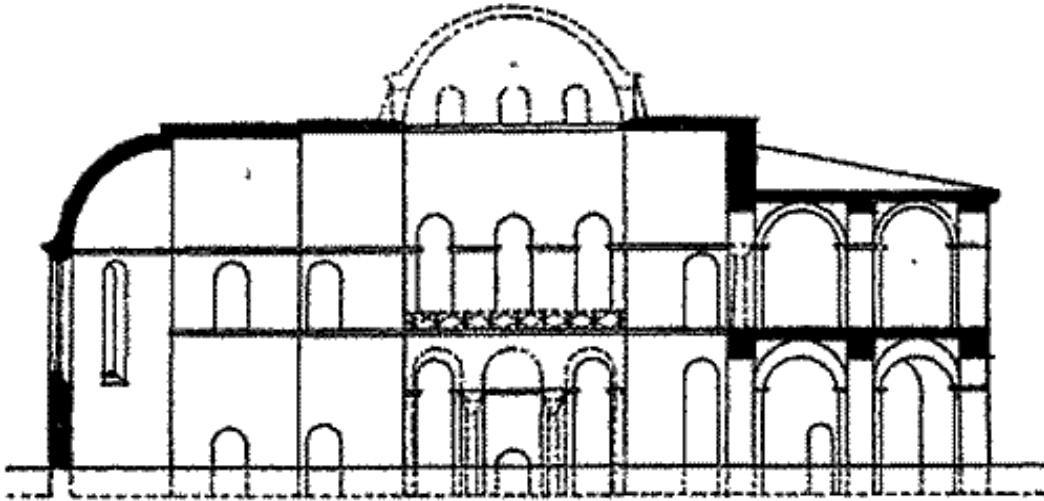


Fig. 3.—Deré Aghsy—Section (Rott).

The church of the Koimesis at Nicaea¹⁸ (Figs. 5 and 6) has no galleries to the sides. The aisles open into the central area by arcades, above which are triple windows over the aisle vaults. At the western end is a gallery above the narthex. The aisles are barrel-vaulted, and as the church is planned on an axis from east to west, and is not symmetrical on all three sides, it is regarded as a domed basilica. It is such a form as might be developed from a basilica without galleries.

In Constantinople there are three churches which seem to constitute a type apart, though resembling in many ways the types just considered. They are S. Andrew in Krisei, S. Mary Pammakaristos, and S. Mary Panachrantos. In these churches, as originally built, the central dome is carried on four arches which rise above a one-storied aisle or ambulatory, allowing of windows in the dome arches on three sides—the eastern dome arch being prolonged to form the bema. The dome arches have arcades communicating with the ambulatory on the north, south, and west. The vaulting is executed either with barrel or with cross-groined vaults. These churches are evidently planned from a centre, not, like the domed basilicas, from a longitudinal axis. At the same time the absence of any cross arms differentiates them from the domed cross churches. S. Andrew, which still retains its western arcade, dates from at least the sixth century, so that the type was in use during the great period of Byzantine architecture. Indeed, we should be inclined to regard S. Andrew as a square form of SS. Sergius and

Bacchus, but without galleries. The type is a natural development from the octagonal domed church with its surrounding ambulatory.

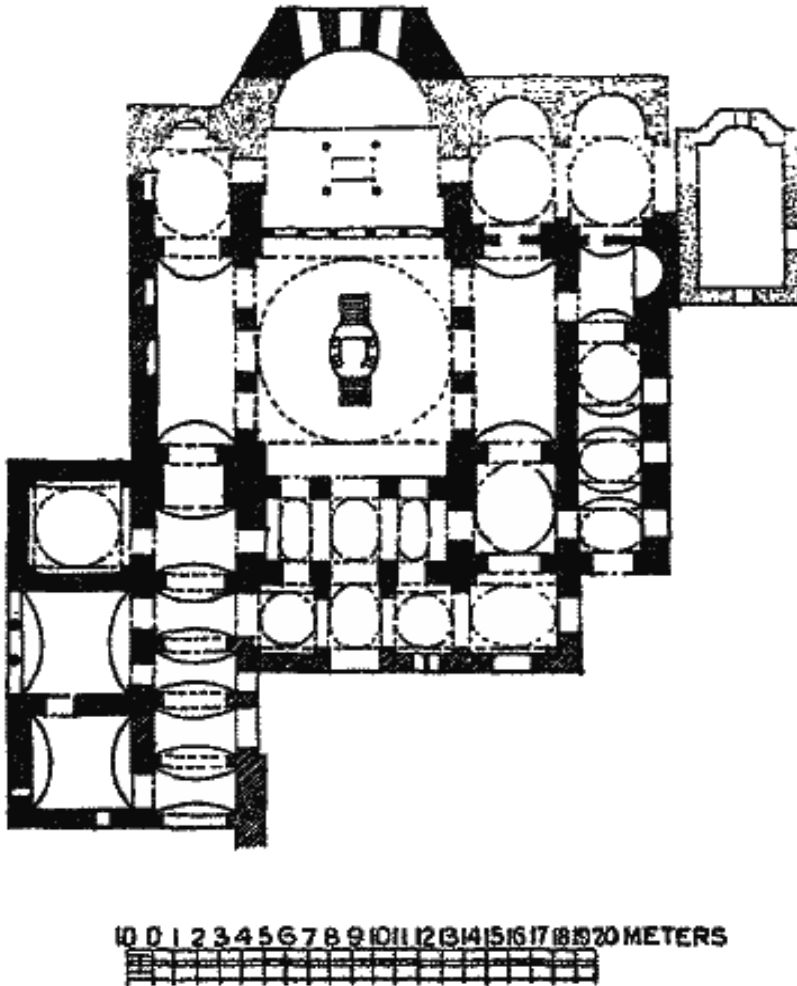


Fig. 4.—S. Nicholas, Myra (Rott).

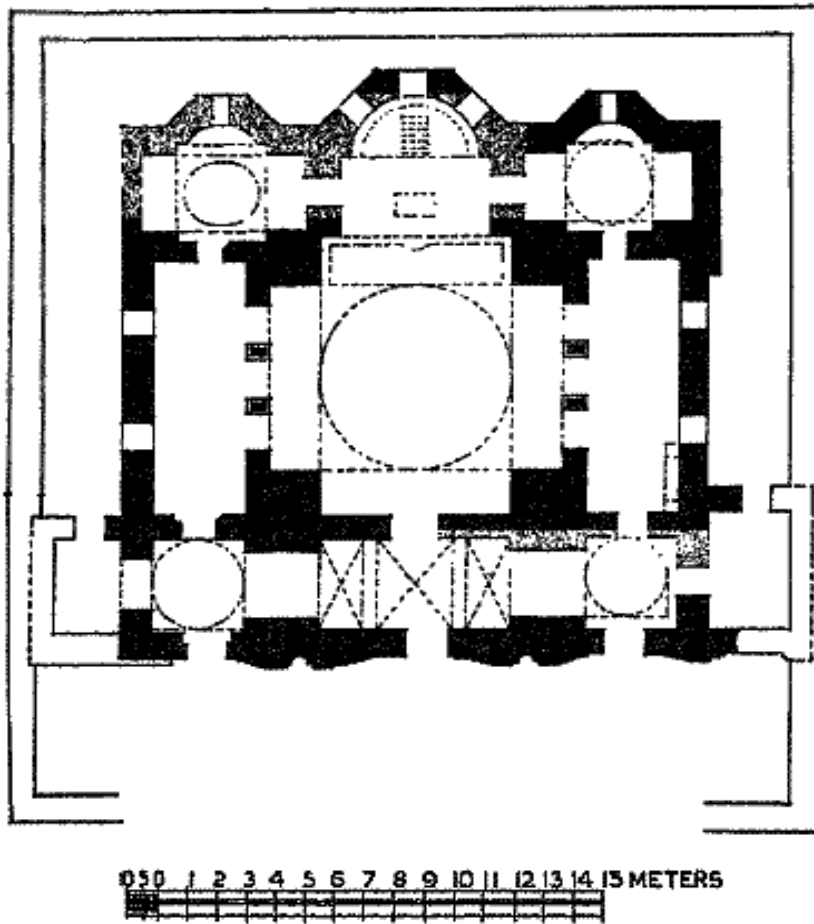


Fig. 5.—The Church of the Koimesis, Nicaea (Wulf).

The typical late Byzantine church is a development from the domed cross plan. In three examples in Constantinople, S. Theodosia, S. Mary Diaconissa, and SS. Peter and Mark, we can trace the gradual disappearance of the galleries. S. Theodosia, as has already been mentioned, has galleries in all three cross arms. In S. Mary Diaconissa they are confined to the four angles between the cross arms; SS. Peter and Mark is a simple cross plan without galleries. In later times it became customary to build many small churches, with the result that the chambers at the angles of the cross, of little account even in a large church, were now too diminutive to be of any value, and the question how to provide as much room as possible for the worshippers became paramount. Accordingly the dome piers were reduced to mere columns connected with the outer walls of the building by arches; and thus was produced the

typical late Byzantine plan—at the ground level a square, enclosing four columns; above, a Greek cross with a dome on the centre.

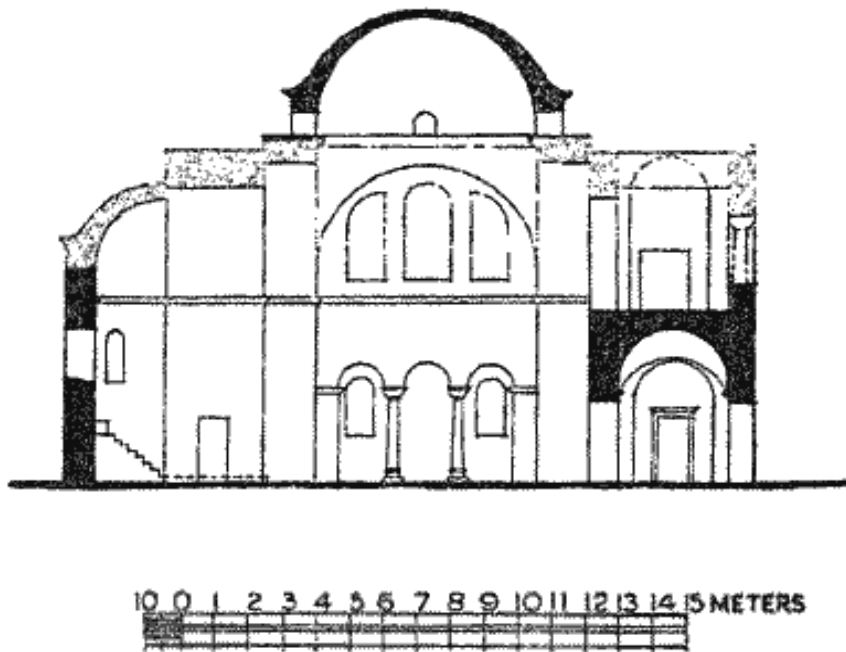


Fig. 6.—The Church of the Koimesis, Nicaea (Rott).

From its distinguishing feature this type has been styled the 'four column' plan. It appears in many Constantinopolitan churches, as, for example, S. Theodore and S. Saviour Pantepoptes. The cross arms are not always equal, and may be covered with barrel vaults (or with cross-groined vaults). The bema is usually a bay added to the eastern arm. The angle chambers have either cross-groined vaults or flat dome vaults. In general the churches of this type in Constantinople do not differ from the numerous churches of the same class in the provinces.¹⁹

A lobed cruciform plan is found in only one church in Constantinople, that of S. Mary of the Mongols. Here the central dome is supported on four piers set across the angles of the square, so that the pendentives do not come to a point as usual, but spring from the face of the piers. Against each side of the square a semidome is set, thus producing a quatrefoil plan at the vaulting level.

Both trefoiled and quatrefoiled churches are not uncommon in Armenia, such as the cathedral at Etschmiadzin;²⁰ trefoiled churches of a later date are found in the western provinces, and examples have been published from Servia,²¹ Salonica,²² and Greece.²³

An unusual form of the cross plan is seen in the building known as Sanjakdar Mesjedi, where a cross is placed within an octagon. Probably the building was not originally a church. It resembles the octagon near the Pantokrator, and may, like it, have been a library.

Single Hall Churches.—The plans hitherto considered have all been characterised by the presence of aisles, galleries, or other spaces adjoining the central area. The churches of the present class consist simply of an oblong hall, terminating in an apse, and either roofed in wood, or covered with domes placed longitudinally, and resting to north and south on wall arches. Examples of this plan are found in Monastir Mesjedi, S. Thekla, Bogdan Serai, and in the memorial chapels attached to the Pantokrator, and the Chora. In the case of these two memorial chapels, their narrow, long-stretched plan is evidently due to the desire to keep their eastern apses in line with the east end of the churches they adjoin, and at the same time to bring the western end to the narthex from which they were entered. They are covered with two domes, a system perhaps derived from S. Irene. Kefelé Mesjedi, which at first sight resembles a single hall church roofed, in wood, was a refectory. Its plan may be compared with that of the refectory at the monastery of S. Luke at Stiris.²⁴

II. Architectural Features and Details

Apses.—A fully developed Byzantine church terminated in three apses: a large apse, with the bema or presbytery, in the centre; on the right, the apse of the prothesis where the sacrament was prepared; on the left, the apse of the diaconicon, where the sacred vessels were kept. Although there is proof that the prothesis and the diaconicon were in use at a very early period, yet many churches of the great period, as for example S. John of the Studion, SS. Sergius and Bacchus, and S. Sophia, dispensed with these chambers as distinct parts of the building. They were also omitted in small churches of a late date, where they were replaced by niches on either side of the bema. The three apses usually project from the east wall of the church, but occasionally the two lateral apses are sunk in the wall, and only the central apse shows on the exterior. As a rule the apses are circular within and polygonal without. It is rare to find them circular on both the interior and the exterior, and in Greece such a feature is generally an indication of late date. An octagonal plan, in which three sides of the octagon appear, sometimes with short returns to the wall, is the most common; but in later churches

polygons of more sides are used, especially for the central apse, and these are often very irregularly set out. Some of the churches of Constantinople show five, and even seven sides.

Bema.—The bema is rectangular, and sometimes has concave niches on each side. It is covered either with a barrel or with a cross-groined vault, and communicates with the prothesis and the diaconicon.

Prothesis and Diaconicon.—These chambers are either square or have a long limb to the east resembling a miniature bema. They are lower than the central apse and the cross arms, so that the cruciform figure of the church shows clearly above them on the exterior,²⁵ though in some churches with galleries small chapels overlooking the bema are placed above them at the gallery level (S. Theodosia). They have usually a niche on three sides, and are either dome vaulted or have cross-groined vaults. The combination of a cross-groined vault with four niches springing from the vaulting level is particularly effective. In S. Saviour in the Chora these chambers are covered with drum domes, pierced with windows, but this treatment is quite exceptional.

The Gynaeceum.—In the development of church building, the gynaeceum, or gallery for women, tends to become less and less important. In S. Sophia, S. Irene, and S. Theodosia, the gallery is a part of the structure. In S. Mary Diaconissa it is reduced to four boxes at the angles of the cross, while in S. Mary Pammakaristos and SS. Peter and Mark it is absent. But though no longer a structural part of the church, a gynaeceum appears over the narthex in the latest type of church. It is generally vaulted in three bays, corresponding to the three bays of the narthex below, and opens by three arches into the centre cross arm of the church and into the aisles.

The Narthex.—Unlike the gynaeceum, the narthex tends in later times to become of greater importance, and to add a narthex was a favourite method of increasing the size of a church. In basilican churches, like S. John of the Studion, the narthex was a long hall in three bays annexed to the west side of the building, and formed the east side of the atrium. In domed cross churches with galleries the passage under the western gallery was used as a narthex, being cut off from the central area by the screen arcade which supported the gallery. Such a narthex has been styled a 'structural narthex,' as forming an essential part of the central building. It occurs in several of the churches of the city.

In domed cross churches without galleries, and in churches of the 'four column' type, neither narthex nor gallery was possible within the cross, and accordingly the narthex was added to the west end. It is usually in three bays and opens into the aisles and central area. Frequently the ends of the narthex terminate in shallow niches. In many churches a second narthex was added to the first, sometimes projecting an additional bay at each end, and communicating with halls or chapels on the north or south, or on both sides of the church. S. Mark's at Venice presents a fine example of such an extension of the narthex.

When a church could not be sufficiently enlarged by additional narthexes, a second church was built alongside the first, and both churches were joined by a narthex which extended along the front of the two buildings. S. Mary Panachrantos is a good example of how a church could be thus enlarged from a simple square building into a maze of passages and domes.

The Interior.—The natural division, in height, of an early church, whether basilican or domical, was into three stories—the ground level, the gallery level, and the clearstory or vault level. In the West these structural divisions were developed into the triple composition of nave-arcade, triforium, and clearstory. In the East, in conjunction with the dome, these divisions survive in many examples of the later period. Still, Byzantine architecture was more concerned with spaces than with lines. Large surfaces for marble, painting, or mosaic were of prime importance, and with the disappearance of the gallery the string-course marking the level of the gallery also tended to disappear. In churches with galleries, like S. Theodosia and S. Mary Diaconissa, the string-courses fulfil their function, the first marking the gallery level, the second the springing of the vault. In SS. Peter and Mark, which has no gallery, there is only one string-course, corresponding in level to the original gallery string-course; accordingly the main arches are highly stilted above it. The absence of the second string-course is a faulty development, for a string-course at the vault level would be a functional member, whereas at the gallery level it is meaningless.

In the Panachrantos, as well as in other churches without a gallery, the gallery string-course is omitted by a more logical development, and the string-course at the springing of the vault is retained. Openings which do not cut into the vault are then frankly arched, without impost moulding of any kind. Simple vaulted halls, narthexes, and passages have usually a string-course at the vaulting level, broken round shallow pilasters as at the Chora, S. Theodosia, and the Myrelaion. Sometimes the string-courses or the pilasters or both are omitted, and their

places are respectively taken by horizontal and vertical bands. Decorative pilasters flush with the wall are employed in the marble incrustation of S. Sophia.

In churches of the 'four column' type the full triple division is common but with a change in purpose. A gallery in a church of this character is not possible, for the piers between which the gallery was placed have dwindled into single shafts. Hence the first string-course ceases to mark a gallery level and becomes the abacus level of the dome columns, as in the north and in the south churches of the Pantokrator. It is then carried round the building, and forms the impost moulding of the side arches in the bema and of the east window. Sometimes, however, it does not extend round the bema and apse but is confined to the central part of the church, as in the Myrelaion, S. Theodore, and the Pantepoptes. On the other hand, in at least one case, the parecclesion of the Pammakaristos, the central part of the chapel is designed in the usual three tiers, but the apse and bema vaults spring from the lower or abacus string-course, leaving a lunette in the dome arch above pierced by a large window. A corresponding lunette at the west end opens into the gynecaeum of the chapel. In S. John in Trullo the two string-courses coalesce and the arches connecting the columns with the walls cut into the stilted part of the dome arches, with the result that all the structural arches and vaults spring from the same level.

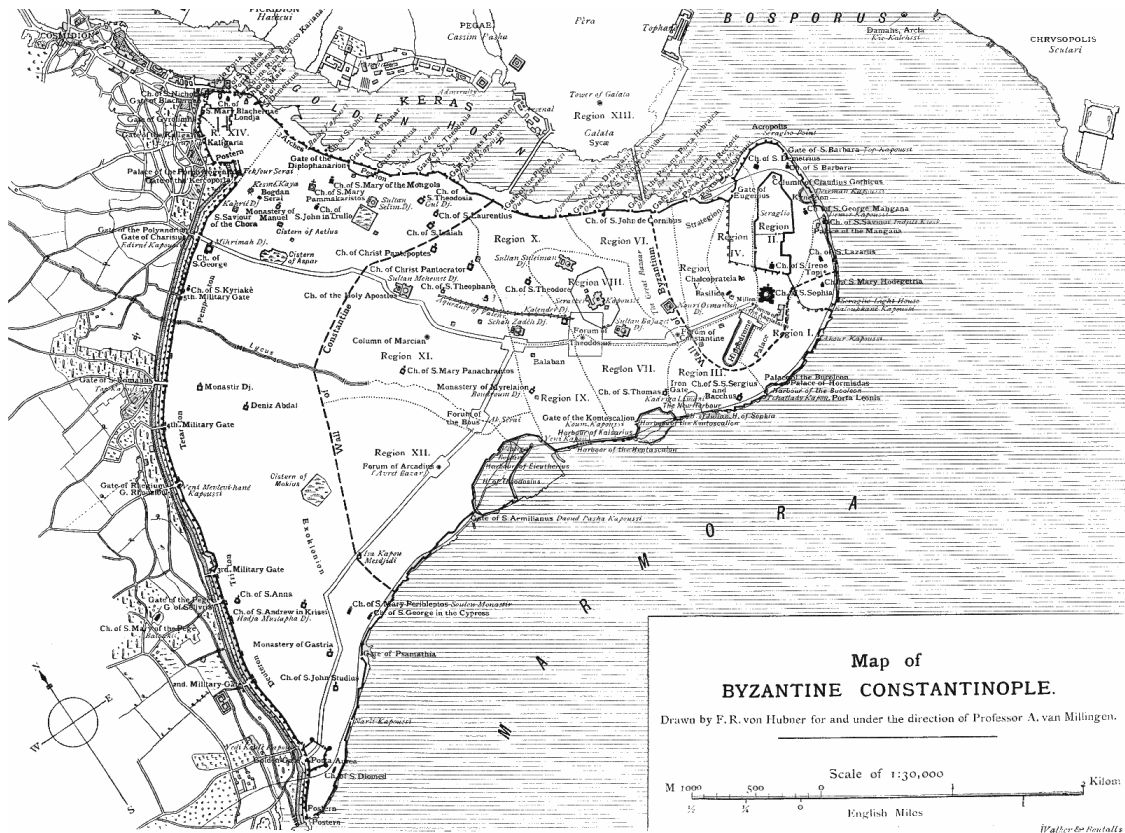


Fig. 7.

Arches.—Though the pointed arch was known and employed in cisterns, as in the Cistern of the One Thousand and One Columns, Bin-bir-derek, the circular arch is invariably found in work meant to be seen. The difficulty attending this form, in which arches of unequal breadth do not rise to the same height, was overcome, as in the West, by stiling, that is, by raising the smaller arches on straight 'legs' to the required height. The stilted arch, indeed, seems to have been admired for its own sake, as we find it used almost universally both in vaulting and in decorative arches even where it was not structurally required. In windows and in the arches connecting the dome columns to the wall stiling is sometimes carried to extremes.

Domes.—The eastern dome of S. Irene, erected about 740 A.D., is generally considered to be the first example of a dome built on a high drum, though S. Sophia of Salonica, an earlier structure, has a low imperfect drum. After this date the characteristics of the Byzantine dome

are the high drum divided by ribs or hollow segments on the interior, polygonal on the exterior, and crowned by a cornice which is arched over the windows.²⁶

Drumless domes are sometimes found in the later churches, as in the narthexes of the Panachrantos and S. Andrew, the angle domes of S. Theodosia, and in Bogdan Serai. These are ribless hemispherical domes of the type shown in Fig. 8, and are in all cases without windows. The earlier system of piercing windows through the dome does not occur in the later churches, though characteristic of Turkish work.

The three diagrams (Figs. 8, 9, and 10) illustrate the development of the dome: firstly, the low saucer dome or dome-vault in which dome and pendentives are part of the same spherical surface; secondly, the hemispherical dome on pendentives; and thirdly, the hemispherical dome with a drum interposed between it and the pendentives.

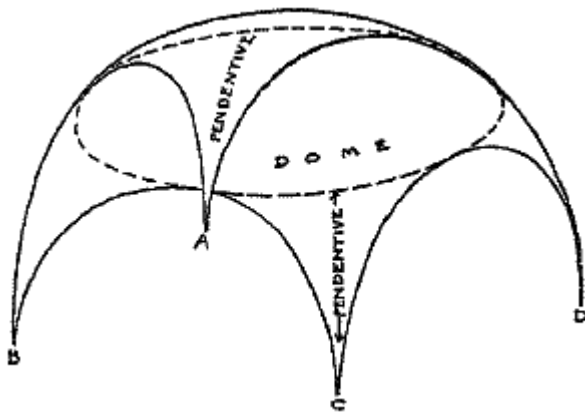


Fig. 8.—The Saucer Dome Or Dome-Vault.

Flat external cornices on the dome are not uncommon in the later churches of Byzantine Greece, as in S. Sophia at Monemvasia.²⁷ In Constantinople only one dome with a flat cornice can be regarded as original, that of S. John in Trullo, a church which is exceptional also in other respects. The many other domes in the churches of Constantinople on high drums and with flat cornices are Turkish either in whole or in part. The high ribless domes of the Panachrantos, for instance, circular in plan within and without, with square-headed windows, plain stone sill, and flat cornice in moulded plaster, may be regarded as typical Turkish drum-domes. As will appear in the sequel, the dome over the north church of the Pantokrator and the domes of SS. Peter and Mark, the Diaconissa, and S. Theodosia, are also Turkish.

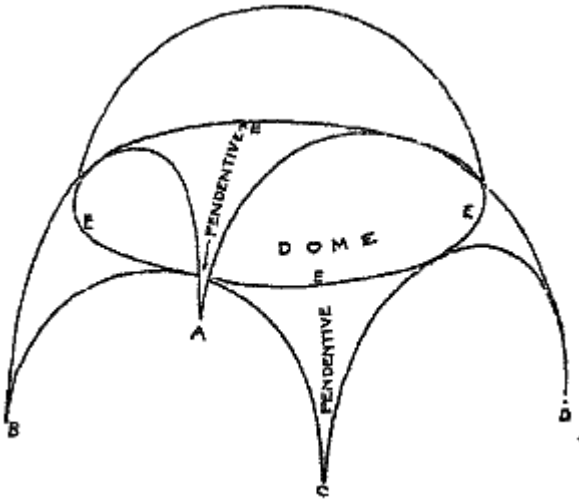


Fig. 9.—The Dome on Pendentives.

It is most unfortunate that the domes of these three domed cross churches have been altered, especially as the domes of S. Mary Diaconissa and S. Theodosia are larger than any of the later domes except the large oval dome on the central church of the Pantokrator which is almost of the same size. It is therefore now difficult to say what was the precise form of the original domes. Most probably they were polygonal drum-domes, and their collapse owing to their size may well have led to the small drum-domes of later times. Though not strictly Byzantine these Turkish domes are of interest as showing the development of Byzantine forms under Turkish rule, and that reversion to the earlier drumless dome which is so marked a feature of the imperial mosques of the city.

Domes are either eight, twelve, or sixteen sided, and usually have a window in each side. These numbers arise naturally from setting a window at each of the cardinal points and then placing one, two, or three windows between, according to the size of the dome. Internally the compartments are separated by broad, flat ribs, or are concave and form a series of ridges on the dome which die out towards the crown. In sixteen-sided domes of the latter type the alternate sides sometimes correspond to the piers outside, so that the dome which has sixteen sides within shows only eight sides without, as in the narthex of S. Theodore. The octagonal dome of the Myrelaion seems to have had only four windows from the beginning.

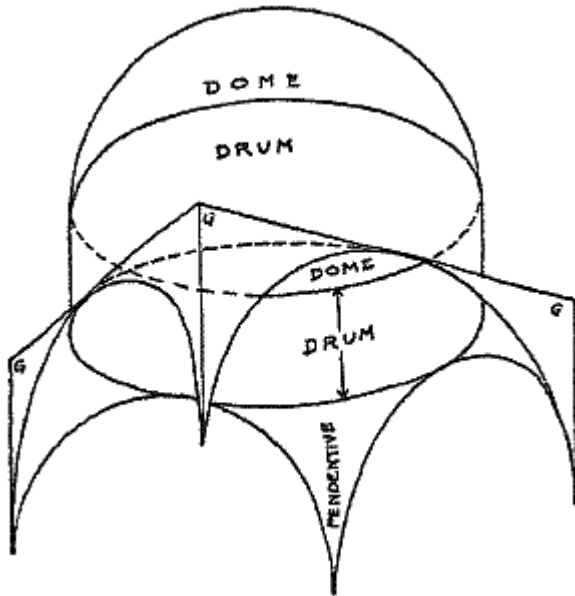


Fig. 10.—The Drum Dome.

The ribs of a Byzantine dome are not constructive in the same way as are the ribs of a Gothic vault. They were built along with the rest of the dome and of the same material, and are in no way separate from the infilling, though they no doubt strengthened the shell of the dome by their form²⁸. On the outside a circular shaft with a very simple cap is often placed at the angles of the piers, and from these shafts the brick cornice springs in a series of arches over the windows. Sometimes the angle is formed by a point between two half-shafts, as in the domes of the narthex in S. Theodore .

External Treatment.—In the older churches the exterior seems to have been left in simple masses of brickwork, impressive only by their size and proportion. Probably even this effect was not considered of great importance. In later times a very beautiful system of decoration with slender shallow niches was introduced and was applied in particular to the east end and to the apses. The finest examples of this system on a large scale are seen at the Pantokrator and S. Theodosia. Carefully considered or elaborate external compositions are rare, and the only examples in Constantinople are the side chapel of the Pammakaristos and the narthex of S. Theodore.

External Marble and Mosaic.—Marble and mosaic, we have reason to know, were occasionally used on the exterior of churches,²⁹ though no fragments remain. On the south side of the

Pantepoptes the string-course does not correspond to the line of the walls, but projects in a manner which shows that marble must have been employed to line the large windows. A similar projection of the string-course or cornice is not uncommon elsewhere, though not so evident as in the Pantepoptes, and may have been made to receive a marble or mosaic lining.

Doors and Windows.—It is a primary rule in Byzantine architecture that all constructive openings are arched. Whatever may be the eventual form of a door or window the opening is first built in brick with a semicircular head, and into this opening the marble jambs and lining are fitted leaving a semicircular lunette above. Doors are square-headed, with heavily moulded architraves and cornice, and the lintel is mitred into the jambs instead of having the more constructive horizontal joint used in the West.

The doors made of wood or of wood lined with bronze, swing on top and bottom pivots which turned in bronze-lined sockets in lintel and threshold. They closed with a rebate in the jambs and against the raised threshold. Windows were sometimes filled in a similar manner, as in the palace of the Porphyrogenitus and in the north gallery of S. Saviour in the Chora. In the latter double windows or shutters were employed, opening inwards in the same way as did the doors. These shutters may perhaps be regarded as domestic, for in the churches, as is still seen in S. Sophia though the arrangement has vanished elsewhere, the entire arched opening was usually filled in with a pierced marble grille.

In addition to the simple round-headed windows double and triple windows are found. Double windows were naturally formed by dividing the single arch by a central pier. This method presented two varieties: either the pier was continued up to the containing arch, thus giving two pointed lights, or the two lights were covered by separate arches within the main arch. Both methods are used in the narthex of S. Theodore. Another variety was produced by placing two single lights together, with a shaft between them instead of the central pier. But as double windows are not very satisfactory, triple windows are more common. In this case both the methods just described of forming the windows were adopted. A large semicircular opening divided by two piers will give an arched light between two pointed lights, or three arched lights, as in the narthex of S. Theodore. In the former case, if shafts are substituted for the piers, a little adjustment will produce the beautiful form found in the side-chapels of the Pammakaristos, and of S. Saviour in the Chora, where the two side lights are covered by half-arches whose crowns abut on the capitals of the shafts, while between and above them rises the semicircular head of the central light.

The method of grouping three arched windows of the same height is adopted in apse windows, each of them occupying one side of the exterior. As the deep, narrow mullions are set radiating, the arch is narrower inside than outside. But this difficulty was overcome, partly by lowering the inner crowns, so that the arch is conical, partly by winding the surface. In the Pantokrator, instead of radiating to the centre of the apse, the side and mullions are placed parallel to the axis of the church, thus obviating all difficulty. Generally the centre to which the mullions radiate is considerably beyond the apse, so that any necessary little adjustment of the arch could easily be made.

Triple windows supported on circular columns are not infrequent in the north and south cross arms. Sometimes the central light is larger than the lateral lights, at other times, as in the Pantepoptes, the three lights are equal. The lower part of these windows was probably filled in with a breastwork of carved slabs, as in S. Sophia, while the upper part was filled by a pierced grille. At present the existing examples of these windows have been built up to the abaci of the capitals, but in the church of S. Mary Diaconissa the columns still show the original form on the inside.

Vaulting.—All Byzantine churches of any importance are vaulted in brick. The only exception to this rule in Constantinople is the little church known as Monastir Mesjedi. The different systems of Byzantine vaulting have been so fully treated by Choisy and other authorities, that in the absence of any large amount of new material it is not necessary to give here more than a few notes on the application of these systems in Constantinople. It should always be kept in view that, as these vaults were constructed with the lightest of centering, the surfaces and curves must have been largely determined by the mason as he built, and would not necessarily follow any definite geometrical development. "Il serait illusoire," remarks Choisy, "d'attribuer à toutes les voutes byzantines un trace géométrique rigoureusement défini."³⁰



The Myrelaion (since it was burned), from the north-west.

The vaults commonly found are the barrel vault, the cross-groined vault, and the dome-vault. The first is frequently used over the cross arms and the bema, and sometimes over the narthex in conjunction with the groined vault (Diaconissa). It is the simplest method of covering an oblong space, but it does not easily admit of side windows above the springing.

A very beautiful form of cross-groined vault is found in S. Sophia and in SS. Sergius and Bacchus, in which the crown is considerably domed, and the groins, accordingly, lose themselves in the vaulting surface. This form is found in Greek churches of late date, but does not occur in the later churches of Constantinople. A full description of the form and construction is given by Choisy³¹ and by Lethaby and Swainson.³²

The cross-groined vault as found in the Myrelaion and many other churches of the city is level in the crown, with clearly marked groins. It is sometimes used with transverse arches resting on pilasters, or without these adjuncts.



The Myrelaion (since it was burned), from the south-east. (By kind permission of H. M. Dwight, Esq.)

One of the most interesting of the vault forms is the dome-vault, a shallow dome with continuous pendentives. It is distinguished in appearance from the groined vault, as found in S. Sophia, by the absence of any groin line, and is completely different in construction.

The geometrical construction is that of the pendentives of all domes. The four supporting arches intersect a hemispherical surface whose diameter is equal to the diagonal of the supporting square. The pendentives produce at the crown line of the arches a circular plan which is filled in by a saucer dome of the same radius as the pendentives, constructed of circular brick rings, the joints of which radiate to the centre. If the space to be covered is not square the broader arches intersect at a higher level, while the narrow arches are not stilted, but kept down so as to receive the dome surface, and in this case the narrow arches are not semicircular, but segmental. Where the difference in size between the two sides was not great, the difficulty presented was easily overcome by the Byzantine builder, who in the later buildings, at any rate, rarely built anything within four inches of its geometrical position. Where the difference was too great it was frankly accepted, and we find segmental arches at the narrow ends.

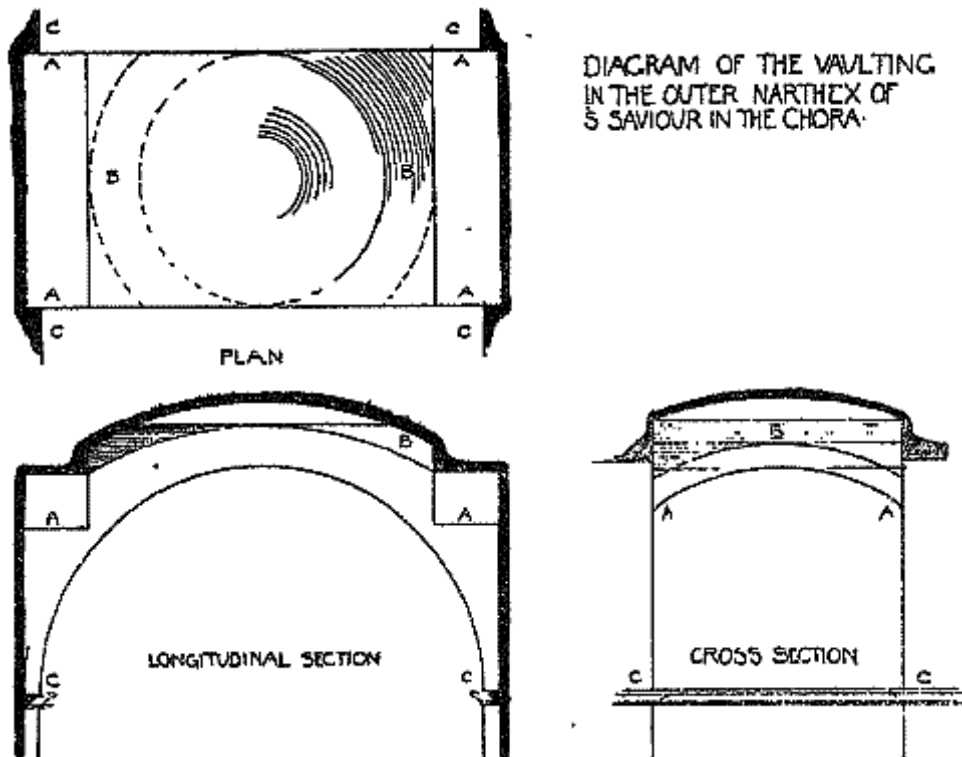


Fig. 11.

The vaulting of the outer narthex of S. Saviour in the Chora illustrates this fully (Fig. 11). Though some of the bays of that narthex are oblong and others almost square all are covered with dome vaults. The almost square bays, although their sides vary considerably, are covered

precisely as if their sides were exactly equal. But in two of the oblong bays, which are nearly three times as long as they are broad, such a method could not be applied. Longitudinal arches (AA) were accordingly thrown between the transverse arches (CC) and made to rest on their spandrils. The oblong form of the intervening space was thus very much reduced, and over it flat domes are thrown. Their rings are true circles, and as the space they cover is still somewhat oblong they descend lower, with additional segments of rings (BB), at the ends than at the sides. In the remaining two oblong bays of the narthex, the result of introducing the longitudinal arches is to convert a decidedly oblong space in one direction into a slightly oblong space in the opposite direction, an additional proof, if any were needed, that the exact shape of plan with this form of vault was a matter of comparative indifference to the builder.

In S. Sophia the vault springs from the intrados of the transverse arches, that is, from the lower edge. In SS. Sergius and Bacchus it springs from a point so slightly raised as to be hardly noticeable. In the later vaults, however, the transverse arches, when present, are boldly shown, and the vault springs from the extrados or outer edge (*e.g.* S. Saviour in the Chora, S. Theodore).

Construction.—Most of the churches of the city are covered with thick coats of plaster and whitewash, both within and without. Only in a few cases, where these coatings have fallen away through neglect, or in some remote corner of a building to which these coatings were never applied, can the construction and the laying of the brickwork be studied. The two-storied chapel, known as Bogdan Serai, is almost denuded of plaster, and is therefore of importance in this connection. The bricks of the wall arches on which its dome rests are laid considerably flatter than the true radiating line, leaving a triangular piece to be filled in at the crown. On the other hand, the bricks of the transverse arches under the dome radiate to the centre.

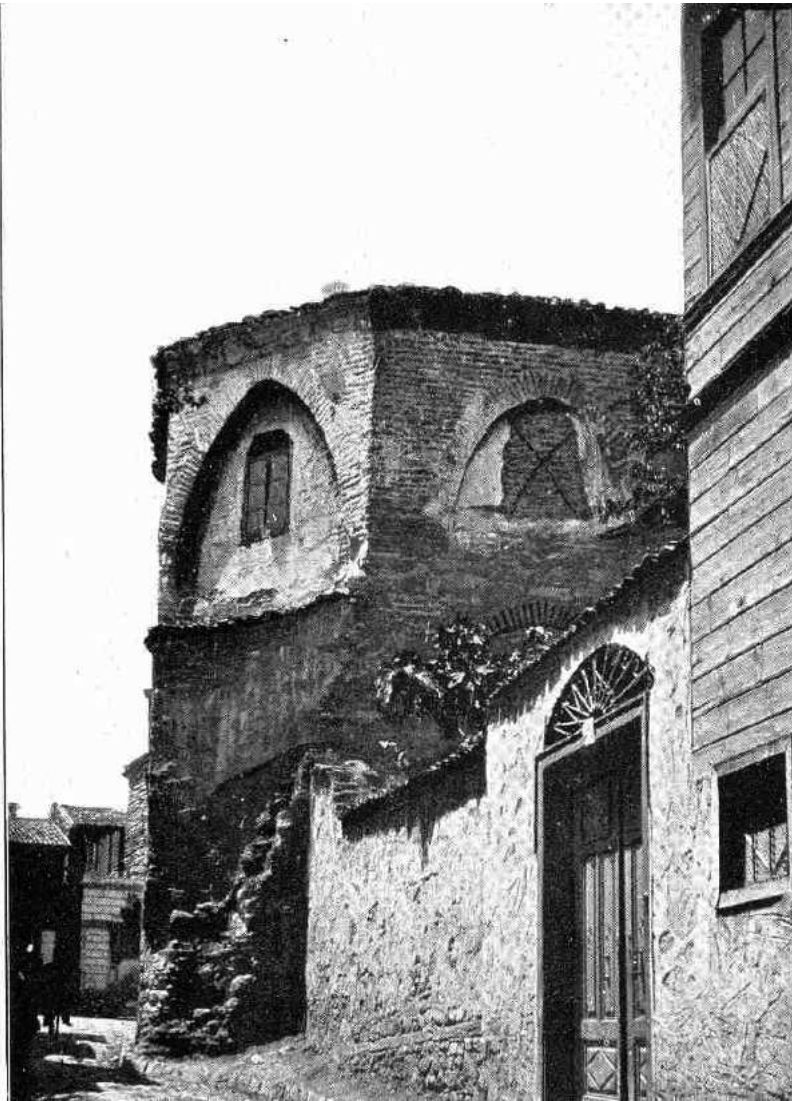
It has been supposed that the method followed in the wall arches was employed in order to economise centering, since bricks could gradually be worked out over the space, each course simply sticking to the one below. This is undoubtedly the case in some examples. But here centering could not have been of any service in the wall arches, and the transverse arches are laid without flattening of the courses, though that arrangement might have been useful in their case. It is therefore more probable that the flattening of the courses in the wall arches is simply a piece of careless workmanship. The pendentives, like all pendentives that could be examined, were formed of horizontal courses corbelled out to the circle. The dome, bema, and the barrel vault in the lower story seem to be laid with true radiating joints. The springing

of the barrel vault is formed of four courses of stone laid horizontally and cut to the circle, and above them the entire barrel is of brick. The dome arches of the Sanjakdar Mesjedi are formed of three distinct rings, not bonded into one another. They radiate to the true centre, and the pendentives are, as usual, in horizontal courses. The transverse arches of the outer narthex in S. Saviour in the Chora are also built with true radiating courses.

The gynecaeum of the side-chapel of the Pammakaristos has never been plastered, and consequently the laying of the brickwork can be seen there to advantage. The little stair leading up to the gallery is covered with a sloping barrel vault built in segments perpendicular to the slope of the stair and could easily have been built without centering. The same remark applies to the cross vault at the head of the stair, which is similarly constructed in 'slices' parallel to each side. The arches of the gynecaeum itself, the vaults, and the two little domes, seem to have true radiating joints. The ribs of the domes are formed in the brickwork, and are not structurally separate. In these last examples, and in all door and window openings, in which the joints invariably radiate from the centre, a certain amount of centering was inevitable.

PLATE III.





The Myrelaion (since it was burnt). Interior, looking east. (By kind permission of H. M. Dwight, Esq.) (Left), Suleiman Aga Mesjedi, beside S. Saviour Pantokrator. (Right)

On the other hand a little passage in S. Saviour in the Chora between the church and the parecclesion, is covered with a barrel vault evidently built without centering. The space is first narrowed by two corbelled courses of stone and, above them, by three projecting courses of brick. From this springs the vault, built from each end in strongly inclined segments. These segments meet in the middle, leaving a diamond-shaped space filled in with longitudinal courses. Like the stairs in the Pammakaristos, this passage is very narrow, some 85 cm., yet

the builders thought it necessary to corbel out five courses before venturing to throw a vault without centering.

Near the Pantokrator is an octagonal building, now Suleiman Aga Mesjedi but generally regarded as a Byzantine library, which has on each side a large wall arch strongly elliptical in form. Two arches of somewhat similar form and apparently original are found in the south end of the gynaeceum of the Pantokrator. These arches may have been built in this manner to economise centering. Still, in the library they are wall arches easily constructed without centering.

Failing the examination of a larger number of buildings in Constantinople we can hardly judge of the later methods of vault and arch construction, but one point may be further noticed. The wall internally is often set back slightly at each spring course, so that with the projection of the course a considerable ledge or shelf is left. On this ledge centering could easily be supported and would have required no further framework to the ground. Centering seems to have been used for dorm, arches, vaults, and door and window openings. It was not used in small vaults. But it is difficult to imagine any method of constructing such groined vaults as those found in the narthexes of the Pantokrator without a very considerable amount of centering.

Ties.—As a general rule tie rods or beams were used, either of iron or wood. In the latter case they were painted with leaf or fret ornaments, and were evidently considered as natural features. But large vaults are often found without such ties as in the narthex of the Pantokrator. Many churches have ties to the dome-arches, and none to the main vault; but it is difficult to lay down a fixed rule. The enormous amount of mortar in the walls must have made them yield to a certain degree when newly built, and some of the larger vaults would have been the better for rods.

Abutments.—The system of abutments in the Byzantine churches of the great period has been carefully studied by M. Choisy.³³ In early examples the dome springs directly from the pendentives on the inside, but is thickened externally over the haunches, producing a double curve and an apparent drum. This is seen very clearly in SS. Sergius and Bacchus. In S. Sophia the numerous windows are cut through this drum, so that it resembles rather a series of small abutments. The object was to support the crown of the dome by adding weight over the haunches. In both these churches the thrust of the dome and its supporting arches is taken by the two-storied galleries, which form, in fact, flying buttresses within the buildings, and are

adapted to their architectural requirements. The square plan and the enormous size of the dome in S. Sophia demanded the great buttresses on the sides; while in SS. Sergius and Bacchus the eight buttresses show only on the outside of the dome and are not carried over the aisles as they are in S. Sophia. Below the roof the arches and piers of the galleries and aisles are arranged so as to carry the thrust to the external walls, and following the tradition of Roman vaulting all buttressing is internal. In S. Irene, where the true drum dome first appears, the buttresses between the windows of the dome still remain, though much reduced in size. A dome raised on a drum can evidently no longer exercise a thrust against the dome-arches; its thrust must be taken by the drum, and only its weight can rest on the arches.

The weight of the drum and dome rests on the pendentives and dome-arches. Their thrust is neutralized by the use of ties and by the barrel vaults of the cross arms, and these in their turn depend on the thickness of the walls. The lower buildings attached to the church in the form of side-chapels and the narthex also helped to stiffen and buttress the cross walls. The system is by no means perfect in these late churches. It was apparently found impossible to construct drum domes of any size, except at the extreme risk of their falling in, and probably it is for this reason that many of the larger domes in late churches, like SS. Peter and Mark, S. Theodosia, the Chora, have fallen. No system of chainage appears to have been used for domes in Constantinople.

Flying buttresses probably of the ninth century are used at the west end of S. Sophia. The double-flying buttress to the apse of the Chora does not bond with the building and is certainly not original. It may be set down as part of the Byzantine restoration of the church in the fourteenth century. In any case, such external flying abutments are alien to the spirit of Byzantine architecture, and may be regarded as an importation from the West. Flying buttresses, it may here be noted, are not uncommon in the great mosques of the city. They are found in Sultan Bayazid, Rustem Pasha, Sultan Selim, the Suleimanieh, and the Shahzadé. But they are generally trifling in size, and are rather ornaments than serious attempts to buttress the dome.

Walls.—The walls of the earlier churches are built of large thin bricks laid with mortar joints at least as thick as the bricks, and often of greater thickness. Stone is used only in special cases, as in the main piers of S. Sophia, but monolithic marble columns are an important part of the structure. In the later churches stone is used in courses with the bricks to give a banded effect, and herring-bone, diamond, and radiating patterns are frequently introduced. The palace of the Porphyrogenitus, the parecclesion of the Pammakaristos, and Bogdan Serai,

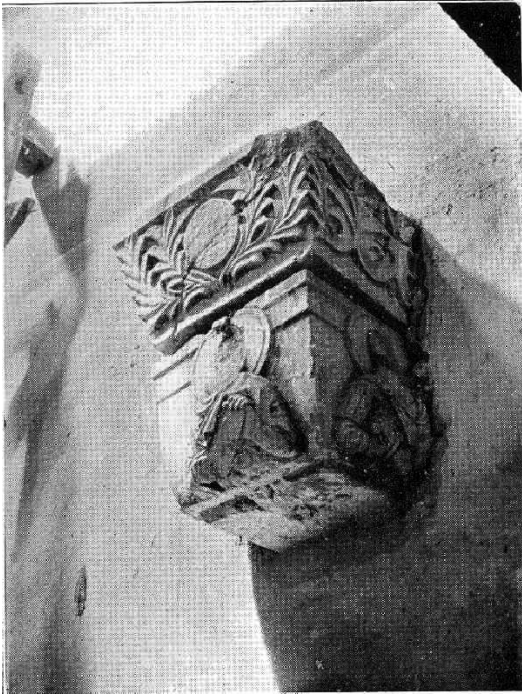
exhibit this style of work. As illustrations of the method adopted in the construction of walls the following measurements may be given, the sizes being in centimetres:

	Brick.	Joint.
Parecclesion of the Pammakaristos	.08	.04
4 courses brick, 5 joints	.46	—
S. John in Trullo	.03	.07 to .09
Refectory of the Monastery of Manuel	.04	.04 to .06
4 course stone, 3 joints	.78	—
4 courses brick, 5 joints	.30	—
Bogdan Serai	.0375	.052
4 courses stone, 8 joints	.035	.035
4 courses brick, 5 joints	.04	.04
Sanjakdar, brick	—	.55 to .60
	.045	.43 to .47
		—

Building Procedure.—The first step in the erection of a building was to obtain the necessary marble columns with their capitals and bases. These seem to have been largely supplied ready made, and Constantinople was a great centre for the manufacture and export of stock architectural features. Then the main walls were built in brick, the columns were inserted as required, the vaults were thrown, and the whole building was left to settle down. Owing to the enormous amount of mortar used this settling must have been very considerable, and explains why hardly a plumb wall exists in Constantinople, and why so many vaults show a pronounced sinking in at the crown or have fallen in and have been rebuilt. After the walls had set the marble facings, mosaic, and colour were applied and could be easily adapted to the irregular lines of the walls.

Byzantine architecture made little use of mouldings. The great extension of flat and spacious decoration rendered unnecessary, or even objectionable, any strong line composition. External cornices are in coursed brick, the alternate courses being laid diagonally so as to form the characteristic dentil. The richest form is that found in the Pammakaristos, S. Theodosia, and S. Thekla, where the small dentil cornice is supported on long tapering corbels, a design suggested by military machicolations.

PLATE IV.



S. Saviour in the Chora. Bracket in the Inner Narthex Interior, looking east. (left)

S. Theodore. Sculptured Marble Slab Built into the Minaret of the Mosque (Right)

The stone ogee, cavetto, or cavetto and bead cornice is common, but seems in every case to be Turkish work and is very common in Turkish buildings. Internal cornices and string-courses are in marble, and are all of the same type, a splay and fillet. The splayed face is decorated with upright leaves or with a guilloche band, either carved (in the Pantepoptes) or painted (in the Chora), the carving as in classic work, serving only to emphasise the colour. The splay is sometimes slightly hollowed, sometimes, as in the Chora, worked to an ogee.

Doors.—Doors often have elaborately moulded architraves and cornice. In S. John of the Studion, the oldest example, the jamb-moulding has a large half-round on the face, with small ogees and fillets, all on a somewhat massive scale. The doors of S. Sophia are very similar. The later mouldings are lighter but the half-round on the face remains a prominent feature. It

is now undercut and reduced in size, and resembles the Gothic moulding known as the bowtell. This is combined with series of fillets, small ogees, and cavettos into jamb-moulds of considerable richness. The cornices are often simply splayed or are formed of a series of ogees, fillets, and cavettos. The jamb-mouldings are cut partly on a square and partly on a steep splayed line. In some, the portion forming the ingo seems to have been regarded as a separated piece though cut from the solid. If in the doors of the Pantokrator or the Pan-teoptes the line of the inner jamb be continued through the rebate, it will correspond on the outside with the bowtell moulding, as though the inner and outer architrave had been cut from one square-edged block, placing the bowtell at the angle and adding the rebate. This formation is not followed in S. John of the Studion.

Carving.—Carving is slight, and is confined to capitals, string-courses, and the slabs which filled in the lower parts of screens and windows. Fragments of such slabs are found everywhere. They are carved with geometrical interlacing and floral patterns, often encircling a cross or sacred monogram, or with simply a large cross. Such slabs may be seen still in position in S. Sophia and in the narthex of S. Theodore. In the latter they are of verd antique, and are finely carved on both sides. In later times the embargo on figure sculpture was considerably relaxed. Little figures are introduced in the cornices of the eikon frames in the Diaconissa, and both in the parecclesion and the outer narthex of the Chora are found many small busts of angels, saints, and warriors carved with great delicacy. The carving in the Chora is the finest work of the kind excepting that in S. Sophia.

Capitals.—The development of the capital from the Roman form, which was suitable only for the lintel, to the impost capital shaped to receive an arch has been well explained by Lethaby and Swainson. According to these authors Byzantine capitals exhibit seven types.

I. The Impost capital.—It is found in SS. Sergius and Bacchus, the outer narthex of the Chora, the inner narthex of S. Andrew and elsewhere. A modification of this type is used in windows. It was employed throughout the style but especially in early times up to the sixth century, and again in the twelfth, thirteenth, and fourteenth centuries.

II. The Melon type.—This is seen on the columns of the lower order in SS. Sergius and Bacchus and on the columns of the narthex of S. Theodore, where they have been taken from an older building. The melon capital was probably not in use after the sixth century.

III. The Bowl capital.—This type is used in the great order of S. Sophia at Constantinople. It has been thought peculiar to this church, but the capitals from S. Stephen at Triglia in Bithynia resemble those of S. Sophia closely. Only the peculiar volutes of the S. Sophia capitals are absent.³⁴

IV. The Byzantine or 'Pseudo-Ionic.'—This is found in the upper order of SS. Sergius and Bacchus, and in the narthex of S. Andrew. It is an early type, not used after the sixth century, and its occurrence in S. Andrew favours the early date assigned to that church.

V. The Bird and Basket.—Found in Constantinople, only in S. Sophia.

VI. The Byzantine Corinthian.—This is the commonest form of capital in the later churches, and must have been in continuous use from the earliest date. It occurs in S. John of the Studion, the Diaconissa, the Chora, and in many other churches. Here the classic form is accurately adhered to, but, as the curved abacus was unsuitable to the arch, a large splayed abacus or impost block is placed above the capital. It is a general feature of the Byzantine capital that it projects at no point beyond the impost line of the arch, thus differing both from the classic and the Gothic forms.

VII. The Windblown Acanthus.—This is found in the churches of Salonica and Ravenna. Three examples are mentioned as seen in Constantinople, two near the Diaconissa, forming bases for the posts of a wooden porch to a house; one is the cistern commonly known as the cistern of Pulcheria.

Window Capitals.—In shafted window of several lights, the impost piers between the arches are of the full thickness of the wall, but are very narrow from side to side. Similarly the shafts are almost slabs placed across the wall, and sometimes, as in the Pammakaristos, are carved on their narrow faces. The capitals are cubical, of slight projection at the sides, but spreading widely at the ends, while the bases closely resemble capitals turned upside down. As with columns, the joints at base and necking are bedded in sheet lead.

Floors.—The floors are usually of thick red brick tiles, some .31 cm. square, or, as in S. Theodore, hexagonal, .34 cm. across by 45 cm. from point to point. Marble floors were used when possible, inlaid with patterns, or in slabs surrounded by borders of coloured marbles, as is still seen in a portion of the floor in the Pantokrator.

Decoration.—Of the churches of Constantinople only S. Sophia, S. Mary Diaconissa, the South Church of the Pantokrator, and the Chora, retain any considerable part of their original decoration. The first is beyond our present scope, but from the general tone and atmosphere which still linger there we are able to appreciate the effect of the same style of decoration where it survives in less complete form.

The accepted method, as may be observed in the Chora and the Diaconissa, was to split marble slabs so as to form patterns in the veining, and then to place them upright on the wall. It is probable that the finest slabs were first placed in the centre points of the wall, and that other slabs or borders were then arranged round them. The centre slabs in the Chora are of exceptional beauty. The usual design consists of a dado of upright slabs surmounted by paneling to the cornice level, the panels being outlined with plain or carved beads. In the Diaconissa the notched dentil form is used for the beads; in the Chora, a 'bead and reel.' The arches have radiating voussoirs, or, in the Diaconissa, a zigzag embattled design, found also in S. Demetrius of Salonica, though two hundred years must have separated the buildings. In the Chora the arch spandrils and cornice are inlaid with scroll and geometrical designs in black, white, and coloured marbles.

The surfaces above the cornice and the interior of the domes gleamed with mosaic, representing, as seen in the Chora, figures on a gold background. The mosaic cubes are small, measuring 5 mm. to 7 mm., and are closely set. This is about the same size as the mosaic cubes in S. Sophia, but smaller than those at Ravenna, which measure about 10 mm.

Painting.—In the majority of churches this full decoration with marble and mosaic must have been rendered impossible by the expense, and accordingly we find examples like the parecclesion at the Chora decorated with painting, following exactly the tradition of marble and mosaic. This painting is in tempera on the plaster, and is executed with a free and bold touch.

Conclusion.—Byzantine architecture is essentially an art of spaces. 'Architectural' forms, as we are accustomed to think of them, are noticeably absent, but as compensation, colour was an essential and inseparable part of the architecture. The builder provided great uninterrupted spaces broken only by such lines and features as were structurally necessary—capitals, columns, string-courses, and over these spaces the artist spread a glittering robe of marble or mosaic. No school has ever expressed its structure more simply, or given fuller scope to the artist, whether architect or painter.

Byzantine architecture is not only a school of construction, it is also a school of painting. Most of the churches of Constantinople have unfortunately lost the latter part of their personality. They are mere ghosts, their skeletons wrapped in a shroud of whitewash. Still the Greek artist retained his skill to the last, and the decorative work of S. Saviour in the Chora will stand comparison even with the similar work in S. Sophia.

In Byzantine times the greatness of S. Sophia tended to crush competition. No other ecclesiastical building approached the 'Great Church.' But structural ability was only latent, and displayed its old power again in the erection of the imperial mosques of the early Turkish Sultans, for they too are monuments of Greek architectural genius.

The origins of Byzantine architecture have been discussed at great length by Strzygowski, Rivoira, and many other able writers. Much work still remains to be done in the investigation of the later Roman and early Byzantine work; nor does it seem probable that the difficult questions of the Eastern or the Western origin of Byzantine art will ever be finally settled.

The beginnings of Byzantine architecture have never been satisfactorily accounted for. With S. Sophia it springs almost at once into full glory; after S. Sophia comes the long decline. It may, however, be noted that the 'endings' of Roman architecture are similarly obscure. Such buildings as the Colosseum, in which the order is applied to an arched building, are evidently transitional, the Roman construction and the Greek decoration, though joined, not being merged into one perfect style. Even in the baths and other great buildings of Imperial Rome the decoration is still Greek in form and not yet fully adapted to the arched construction. At Spalatro, in such parts as the Porta Aurea, a developed style seems to be on the point of emerging, but it is not too much to say that in no great Roman building do we find a perfect and homogeneous style.

There is nothing in either the planning or the construction of S. Sophia which cannot be derived from the buildings of the Roman Imperial period, with the exception of the pendentive, a feature which had to be evolved before the dome could be used with freedom on any building plan on a square. The great brick-concrete vaulted construction is that of the Roman baths, and with this is united a system of decoration founded on the classic models, but showing no trace of the Greek beam tradition which had ruled in Rome.

S. Sophia then may be regarded as the culminating point of one great Roman-Byzantine school, of which the art of classic Rome shows the rise, and the later Byzantine art the de-

cline. This view is in accord with history, for Constantinople was New Rome, and here, if anywhere, we should expect to find preserved the traditions of Old Rome.

The division of Western Mediaeval Architecture into the two schools of Romanesque and Gothic presents a parallel case. It is now realised that no logical separation can be made between the two so-called styles. Similarly we may continue to speak of the Classic Roman style and of the Byzantine style, although the two really belong to one great era in the history of art.

10 *Eastern Palestine Memoirs*, p. 172. A similar dome is given by Choisy, *L'Art de bâtir chez les Byzantins*, Plate XV.

11 De Vogüé, *Syrie centrale*, i. p. 45, Plate VII.

12 Dürm, *Handbuch*, Part II. vol. iii. pp. 115, 149. A restored plan is given in Lethaby's *Mediaeval Art*, p. 47.

13 *Orient oder Rom*, p. 19.

14 *Kleinasien*, p. 152.

15 *Kleinasien*, p. 121 *et seq.*

16 Oskar Wulf, *Die Koimesiskirche in Nikaea*, p. 71.

17 H. Rott, *Kleinasienische Denkmäler*, p. 329.

18 Wulf, *op. cit.* p. 23.

19 For local variations in late churches in Greece, see Traquair's 'Churches of Western Mani,' *Annual of British School at Athens*, xv. 1908.

20 Strzygowski, 'Das Etschmiadzin Evangeliar,' *Byzant. Denkmäler*, i., 1891.

21 Ravanica, F. Kanitz, *Serbiens byzantische Monumente*, Wien, 1862.

22 Pullan and Texier, *S. Elias*.

23 G. Lampakis, *Les Antiquités chrétiennes de la Grèce*, Athens, 1902.

24 Schultz and Barnsley, *The Monastery of S. Luke at Stiris*, p. 13, fig. 6.

25 See, however, North Church in S. Mary, Panachrantos, p. 128.

26 Strzygowski's views as to the early date of the drum-dome are not universally accepted. The examples he produces seem rather octagons carried up from the ground to give a clear-story under the dome than true drums interposed between the dome and its pendentives.

27 *Annual B.S.A.* xii. 1905-6. See also Schultz and Barnsley, *Monastery of S. Luke at Stiris*.

28 See p. 154.

29 Dome of the Rock at Jerusalem. S. Mary Peribleptos; see *Vida de Gran Tamorlan y itinerario del Rey Gonzalez de Clavijo*, p. 52.

30 *L'Art de bâtir chez les Byzantins*, p. 57.

31 *Ibid.* p. 99.

32 *Sancta Sophia*, p. 219.

33 *L'Art de bâtir chez les Byzantins*, p. 135.

34 Hasluck, 'Bithynica,' *Annual B.S.A.* XIII. 1906-7.

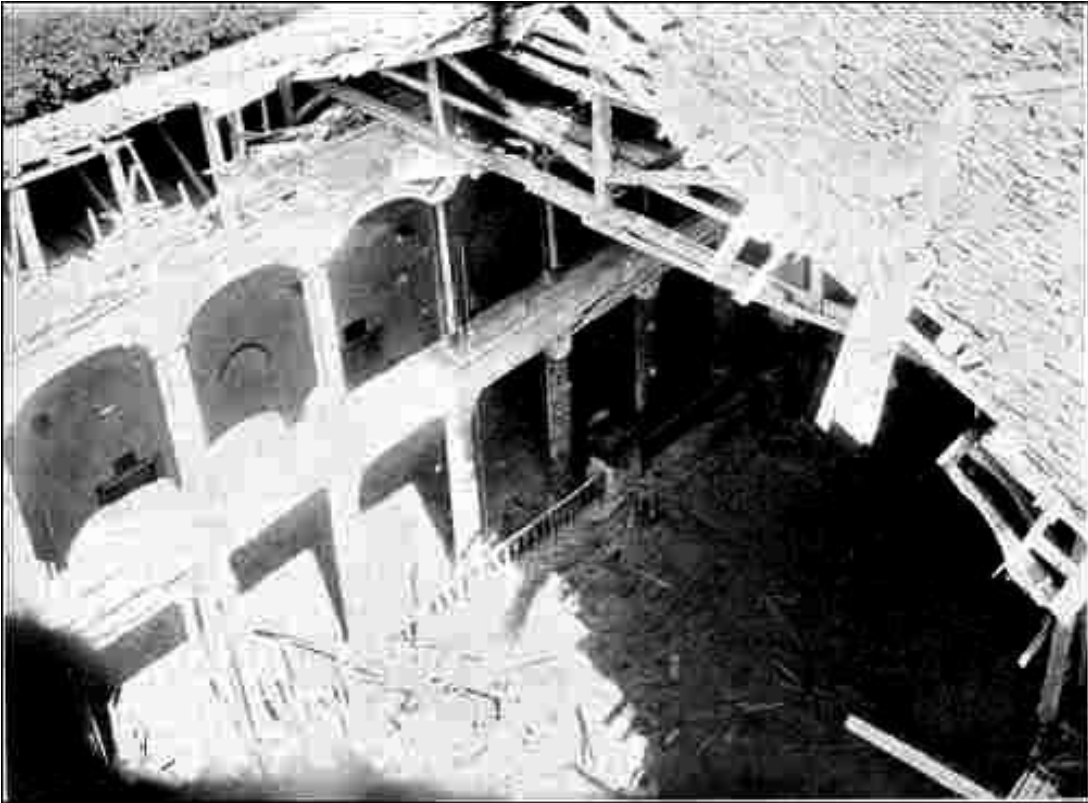
CHAPTER II: THE CHURCH OF S. JOHN THE BAPTIST OF THE STUDIO, EMIR AHOR JAMISSI

The mosque Emir Ahor Jamissi, situated in the quarter of Psamathia, near the modern Greek church of S. Constantine, and at short distance from the Golden Gate (Yedi Koulé), is the old church of S. John the Baptist, which was associated with the celebrated monastery of Studius, ἡ μονὴ τοῦ Στουδίου. It may be reached by taking the train from Sirkiji Iskelessi to Psamathia or Yedi Koulé.³⁵

In favour of the identification of the building, there is, first, the authority of tradition,³⁶ which in the case of a church so famous may be confidently accepted as decisive. In the next place, all indications of the character and position of the Studion, however vague, point to Emir Ahor Jamissi as the representative of that church. For the mosque presents the characteristic features which belonged to the Studion as a basilica of the fifth century, and stands where that sanctuary stood, in the district at the south-western angle of the city,³⁷ and on the left hand of the street leading from S. Mary Peribleptos (Soulou Monastir) to the Golden Gate.³⁸ Furthermore, as held true of the Studion, the mosque is in the vicinity of the Golden Gate,³⁹ and readily accessible from a gate and landing (Narli Kapou) on the shore of the Sea of Marmora.⁴⁰

According to the historian Theophanes,⁴¹ the church was erected in the year 463 by the patrician Studius, after whom the church and the monastery attached to it were named. He is described as a Roman of noble birth and large means who devoted his wealth to the service of God,⁴² and may safely be identified with Studius who held the consulship in 454 during the reign of Marcian.⁴³

If we may trust the Anonymus,⁴⁴ the church erected by Studius replaced a sanctuary which stood at one time, like the Chora, outside the city. Seeing the territory immediately beyond the Constantinian fortifications was well peopled before its inclusion within the city limits by Theodosius II., there is nothing improbable in the existence of such extra-mural sanctuaries, and as most, if not all, of them would be small buildings, they would naturally require enlargement or reconstruction when brought within the wider bounds of the capital. According to Suidas,⁴⁵ the building was at first a parochial church; its attachment to a monastery was an after-thought of its founder.



S. John of the Studion. Ruined Interior, seen from the Minaret of the Mosque.

The monastery was large and richly endowed, capable of accommodating one thousand monks.⁴⁶ Its first inmates were taken from a fraternity known as the Akoimeti, 'the sleepless'; so named because in successive companies they celebrated divine service in their chapels day and night without ceasing, like the worshippers in the courts of heaven.

'Even thus of old Our ancestors, within the still domain
Of vast cathedral or conventual church
Their vigils kept: where tapers day and night
On the dim altar burned continually. In
token that the House was ever more
Watching to God. Religious men were they;
Nor would their reason, tutored to aspire
Above this transitory world, allow
That there should pass a moment of the year
When in their land the Almighty's service ceased.'