THE SIMILARITY IN PLANNING THE DOME OF THE ROCK AND THE CHURCH OF ASCENSION IN JERUSALEM

by
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The planning of pagan temples and Christian churches have common symmetries which suggest the continuity of planning in numerical values as being an unchangeable concept.

Designating B as the breadth and L as the length of a monument, ratio B/L is an invariable constant for the catagories of deities of certain attributes, and later on for the churches dedicated to personalities of the same attributes.

The ratio of B/L results in one of the following forms:

a. $\sqrt{\frac{N \mp 1}{N}} \times \frac{1}{2}$

b. $\sqrt{\frac{N \mp 1}{N} \times \frac{1}{2}}$

c. $\frac{N \mp 1}{N} \times \frac{1}{2}$

d. $\left(\frac{N \mp 1}{N} \times \frac{1}{2}\right)^{\frac{1}{4}}$

The N and N ∓ is the symmetry of the monument, symmetry meant to have a common measure between B and L, they must not have the same number of measures, but one being one measure less than the other, what ever the measure is.

The form *a* is for the temples where the number of the columns on L plus one divided by two gives the number of columns on B. Vitruvius is mentioning this rule, call it Vitruvian temples.

The form *b,c,* and *d* are called side and diagonal number by Plato and Theon of Smyrna; that is if L is one diameter, then B is the side of an isosceles right angle triangle constructed on the second line, which is one measure less or more than L.

Any building's destination is revealed by the values of N and N ∓ 1. When these values are:

7 and 8, the Monument is for Baalshamin the lord of heaven, Osiris, Nyphaeum, in churches, dedicated to; Jesus, redeemer, St. John, Virgin Mary, heavenly personalities, or places in relation with heaven, baptistery, etc.

9 and 10, the building is for a deity of Jupiter standing.

11 and 12, the building is for a goddess; Athena, Artemis, Allat, Cybele, the Syrian goddess, Anahit, Nemesis, etc.

12 and 13, is a tolerance symmetry, any god can be placed in this kind of a building, but the lodge of the god must be arranged with god's proper symmetry. It might be called a Pantheon.

6 and 7, It is a church dedicated to one apostle, or a temple of Mercury as apostle.

5 and 6, it is a public building, or churches dedicated to Apostles, other numbers; as 4 and 5, and 1 and $\sqrt{2}$, are ordinary buildings, 2 and 3, or 3 and 4, are usually used for the triumphal arches, and theatres, they are the roots of 8 and 9 and 9 and 8 in side and diagonal form.

48 and 49, the building is for a deity of Bacchus standing. 49 and 50, the building is for human gods as, Apollo, Hecules, deified emperors, or churches dedicated to St. George, or Sergius, or local saints etc.

The relations mentioned above show that, the pair of numbers have kept their

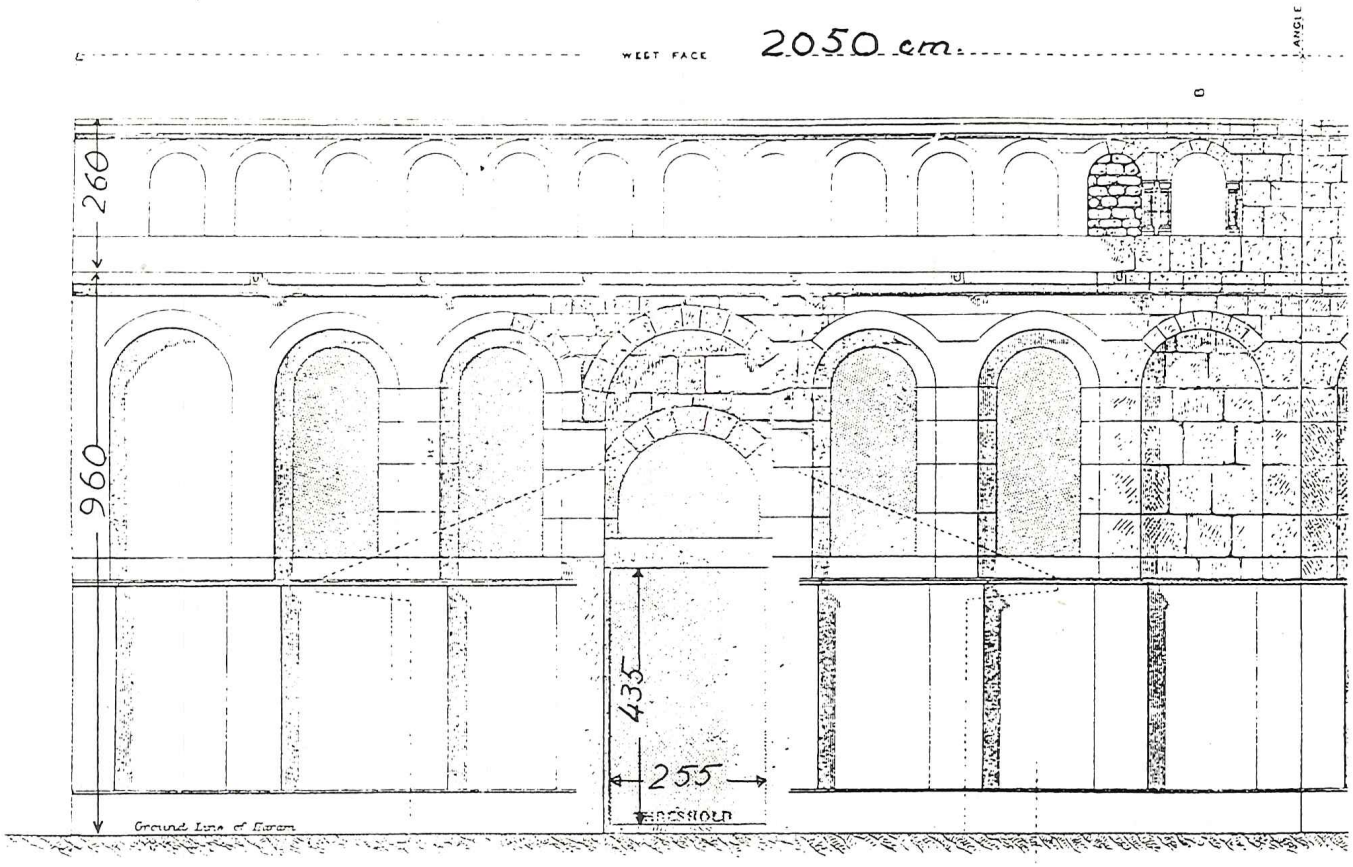

Fig. 1

intrinsic meaning through the ages, from the Egyptian ancient ages, through Greek, Roman, Christian and Moslem periods, as well in Romanesque and Gothic Architecture ages. One can conclude that, there was a universal consensus for the values attributed to the pairs of numbers, either by the constructers or by all the religions of the mediterranean world.

The Church of the Resurrection and the Dome of the Rock in Jerusalem, due to their connection with heaven, have to be planned with symmetry of 7 and 8, and to emphasize 8, they must be planned in octagonal form, as they are.

The Relations of The Dome of The Rock

The porch columns of the Dome of the Rock, in front of the south entrance, have the following axial distances. (This according the scale reading on the plan.) (fig. 2)
155, 270, 155, 352, 155, 270, 155

$$\frac{155}{270} = \frac{8}{7} \times \frac{1}{2} \quad 154.2$$

$$\frac{155}{352} = \frac{7}{8} \times \frac{1}{2} \quad 154$$

$$\frac{270}{352} = \frac{7}{8} \times \frac{7}{8}$$

The porch entrance door 255 cm. by 435 cm. (fig. 1)

$$\frac{255}{435} = \frac{7}{8} \times \frac{2}{3} \quad 253.75$$

The outer facade of the octagon, in elevation, is divided into two sections; the lower 960 cm. high, the upper 260 cm. high. (fig. 1)

$$\frac{960}{2050} \quad \frac{\sqrt{7}}{\sqrt{8}} \times \frac{1}{2} \quad 958.8$$

$$\frac{260}{2050} = \frac{8}{7} \times \frac{1}{9} \quad 260.3$$

The relation of two octagons

The dimension of the side of the outer

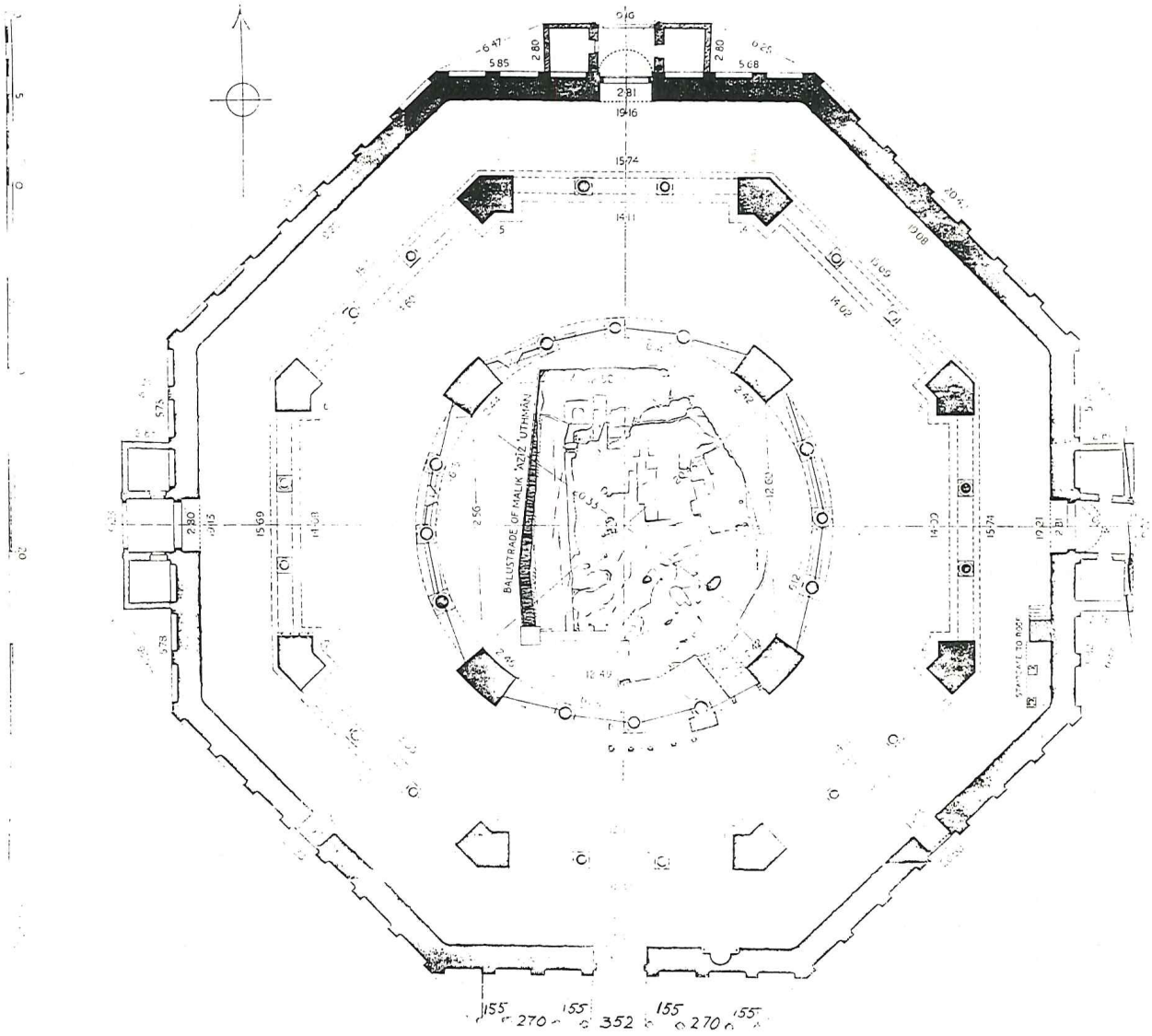

Fig. 2

octagon is 2059 cm. (calculated) that of the inner one is 1570 cm. (average).

$$\frac{1570}{2059} = \frac{8}{7} \times \frac{2}{3} \quad 1568.7$$

The radii of the two circles circumsribing the two octagons must be of the same ratio as the sides of the octagons. Their ratio is 16 to 21.

The inner most circle is measured. The radius is 1022 cm. In Creswell there is a calculation for the outer radius as 2687.5 cm. The relation of the two radii;

$$\frac{1022}{2687.5} = \frac{8}{7} \times \frac{1}{3} \quad 2682.75$$

Thus, the inner circle's radius is 8 divisions out of 21 divisions forming the outer circle's radius. The irregularities of the side dimensions of both octagons may be due to the bisecters unaccuracy of 90 degrees radial lines. The sides of the octagons being incommensurable when the radius is commensurable, the architect had no control of measurement for the sides.

The outer circles radius is 2682.75 cm. according the measured radius of the inner

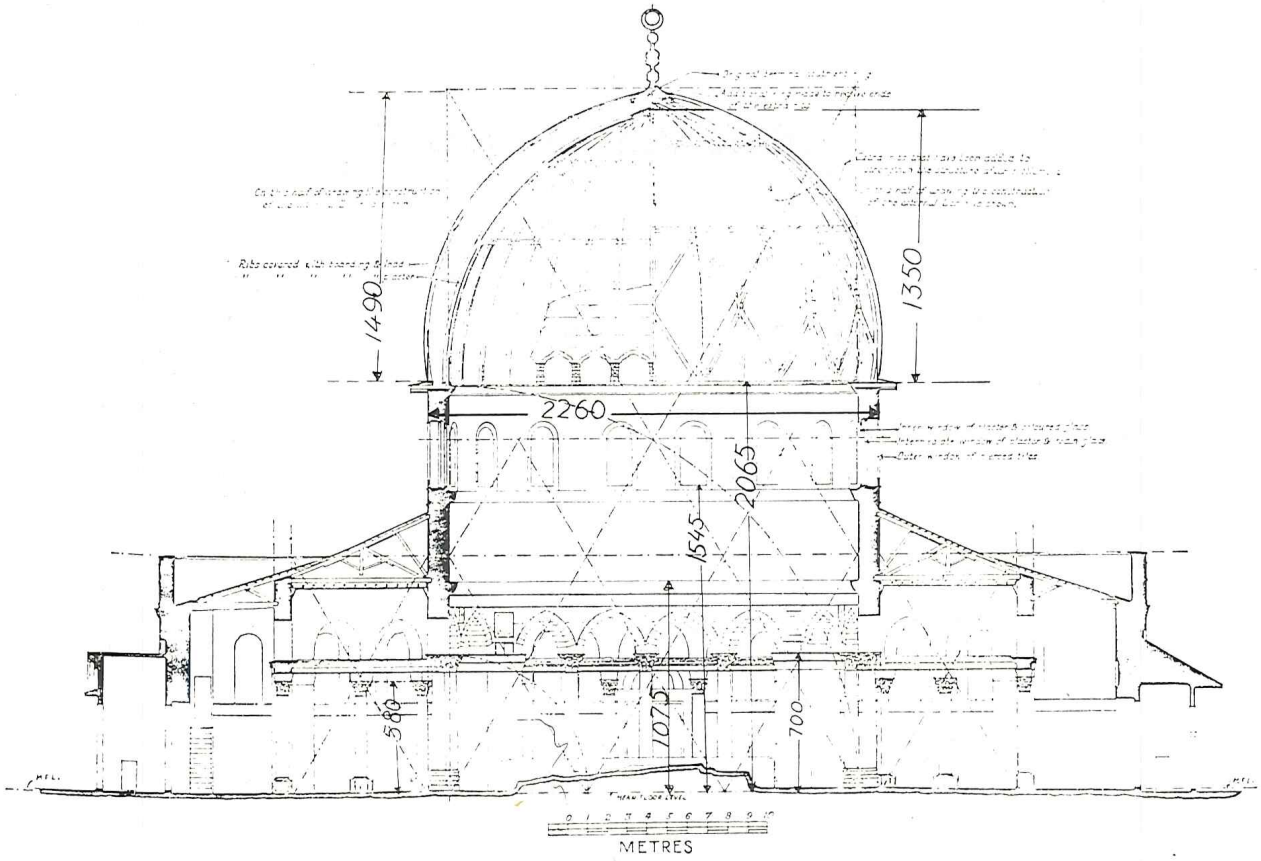

Fig. 3

circle. This measure should be a certain number of feet used for the layout of the building. 2682.75 ÷ 91 = 29.48 cm. The architect has taken 91 ft. as the layout radius of the plan, it is divisible by 7, so the inner radius is 34 and 2/3 ft. long, the second octagon is 69 and 1/3 ft. long.

The elevation relations

(All measurements marked on the fig. 3 is scale measurements from the drawing.)

The height of the inner column is measured as 700 cm.

$$\frac{700}{1022} = \frac{8}{7} \times \frac{3}{5} \quad 700.8$$

The columns supporting the inner octagon is 580 cm. high. the outer radius of the inner octagon is 2044 cm.

$$\frac{580}{2044} = \frac{8}{7} \times \frac{1}{4} \quad 584$$

The inner drum's first cornice height 1075 cm. its relation to radius of 1022 cm.

$$\frac{1075}{1022} = \frac{7}{8} \times \frac{6}{5} \quad 1073.1$$

The upper row of cornice 1520 or the sill of the windows 1545 cm. relation to the diameter 2044.

$$\frac{1545}{2044} = \frac{\sqrt{8}}{\sqrt{7}} \times \frac{1}{\sqrt{2}} \quad 1545.1$$

Total height of the drum 2065 cm.

$$\frac{2065}{2044} = \frac{\sqrt{56}}{\sqrt{49}} \qquad 2064.7$$

The relation 50/49 closes the relation with the diameter.

The relations of the dome.

The dome's outer cord dimension 2260 cm. Its perpendicular bisector 1490 cm.

$$\frac{1490}{2260} = \frac{\sqrt{7}}{\sqrt{8}} \times \frac{1}{\sqrt{2}} \quad 1494.8$$

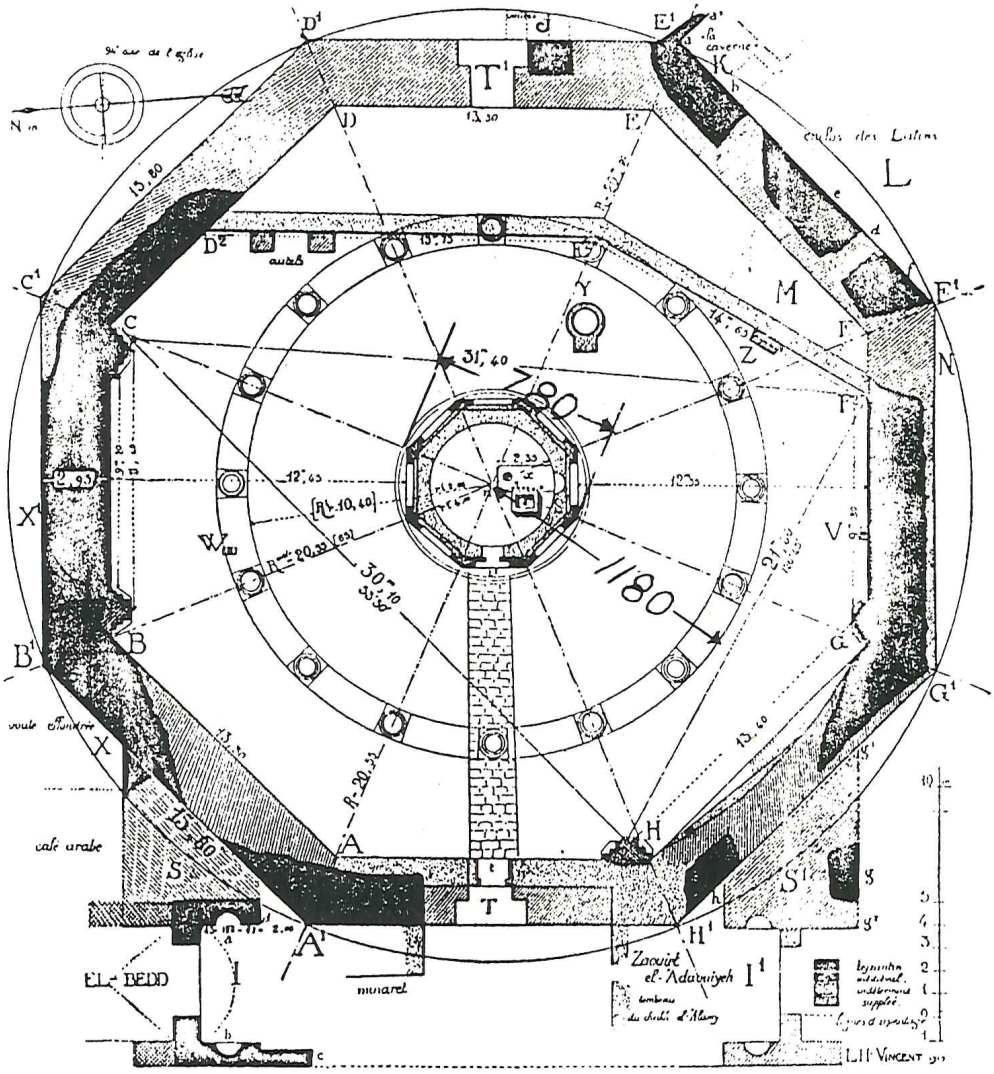

Fig. 4

The inner measurements; the inner cord 2044 cm. and its perpendicular bisector 1350 cm.

$$\frac{1350}{2044} = \frac{\sqrt{7}}{\sqrt{8}} \times \frac{1}{\sqrt{2}} \quad 1352$$

The Church of Resurrection. (Fig. 4)

The radius of the outer circle circumscribing the octagon is marked 2055 cm., 2055 ÷ 70 = 29.36 cm. This dimension of the foot is used for the construction of the temple of Artemis in Jerash, it is marked on a long horizontal line on the southern side of the podium.

The scale reading of the radius for the outer circle encircling the bases of the columns is 1180 cm. the relation to outer circles radius;

$$\frac{1180}{2055} = \frac{\overline{8}}{7} \times \frac{1}{2} \quad 1174.2$$

This radius is 40 feet long.

The radius of the inner octagon 390 cm. (scale reading).

$$\frac{390}{2055} = \frac{8}{7} \times \frac{1}{2} \times \frac{1}{3} \quad 391.4$$

This radius is 1/3 of 40 ft. it is 13 and 1/3 ft. The elements for elevation are not in hand to analyze.(Note. All figures are from Creswell.)

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