Pyramid Paper 3 (2.1)

Pyramidology

M. J. Cooper

(June 1, 2022)

3. Pyramidology

The primary purpose of one branch of Pyramidology is to prove the Great Pyramid's divinity, i.e., that Jehovah is its Designer. Over the more than two centuries of Pyramidology's existence, various concepts that attempt to prove the divinity have been created and studied. This paper explores some of those concepts to determine their viability.

Pyramidology Concepts investigated in this Study:

1. Is David Davidson′s Twelve-Edged Pyramid Viable?
2. Is Davidson's Socket Corner to Socket Corner Length of 9141.1 B" Viable?
3. Pyramid Inch
4. Base Angle
5. Pyramid Displacement, Rectification, Contraction, and Expansion Factors
6. An Alternate Interpretation of the Passage Offset
7. The Capstone
8. Reconstruction of the Head of the Pyramid
9. Compass Bearings From the Pyramid

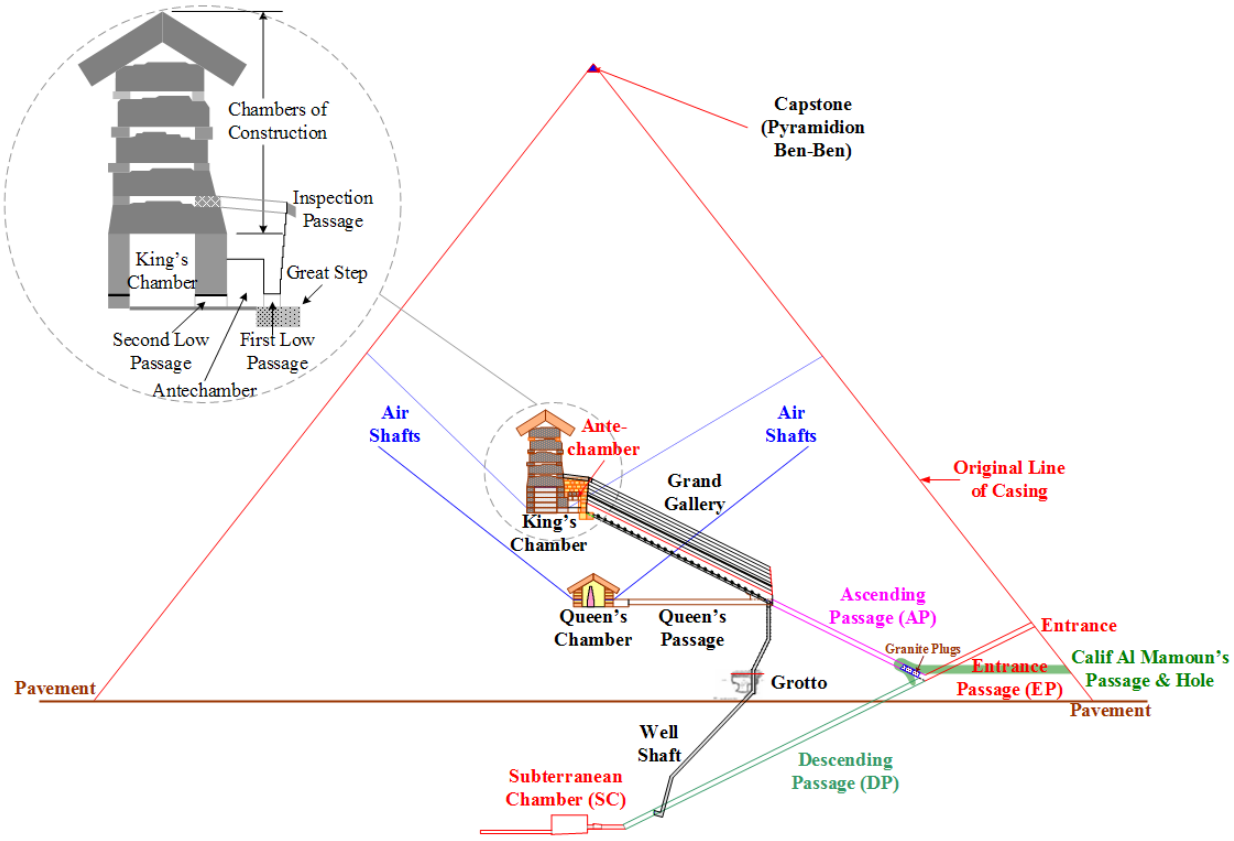
Pyramidology Concepts Not Included in this Study:

- Precession of the equinoxes
- Length of the earth′s orbit
- Mean distance of the Earth to the sun
- The weight of the Earth
- Obliquity of the Ecliptic
- The volume of the earth′s crust above sea level
- The proportion of land and sea on the earth′s surface
- Built at the geographical center of the land surface of the Earth
- The Pyramid stands on the longest land contact meridian
- Situated on the most extended land contact, Earth –circuit bearing (rhumb) on the Earth′s surface

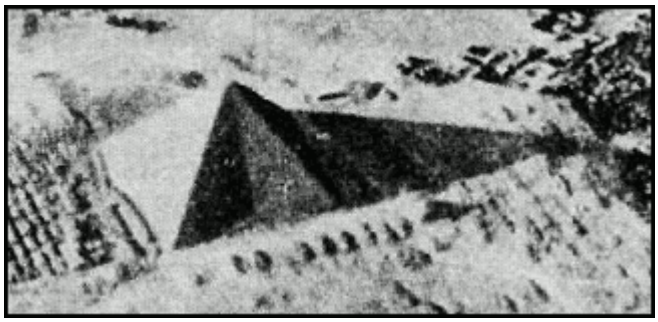
Introduction to the Study

Please use the Figure below for general reference throughout the following discussions.

Is David Davidson′s Twelve-Edged Pyramid Viable?



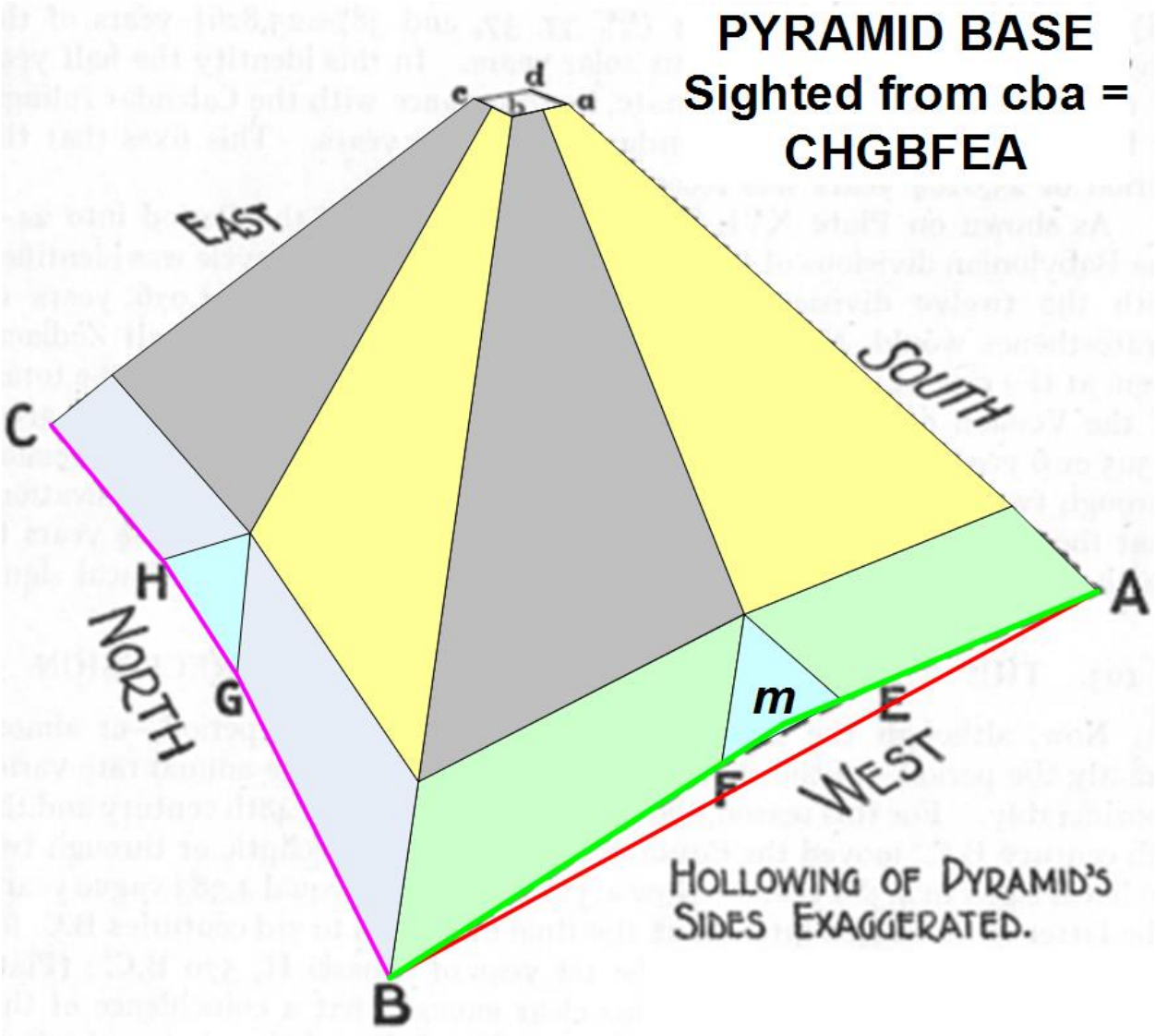
In conjunction with Herbert Aldersmith, David Davidson published ″The Great Pyramid: Its Divine Message. ″ In this book, Davidson set about reconciling Petrie′s measurements with Smyth′s theories. Smyth required the length of the Pyramid base to be 9141.1 B″ (British Inches) so that it equaled 9131 P″ (Pyramid Inches). When the length of its base is multiplied by four, its perimeter equals 36524 P″, representing the number of days in 100 solar years. The conversion factor is 1.001 B″/P.″ Petrie′s and all subsequent surveys measure the base as approximately 9069 B″, about 72 B″ shorter than required, so earlier theories needed to be adjusted.



Aerial Photo by P. Groves (1940) – Shows Three Planes on South Face

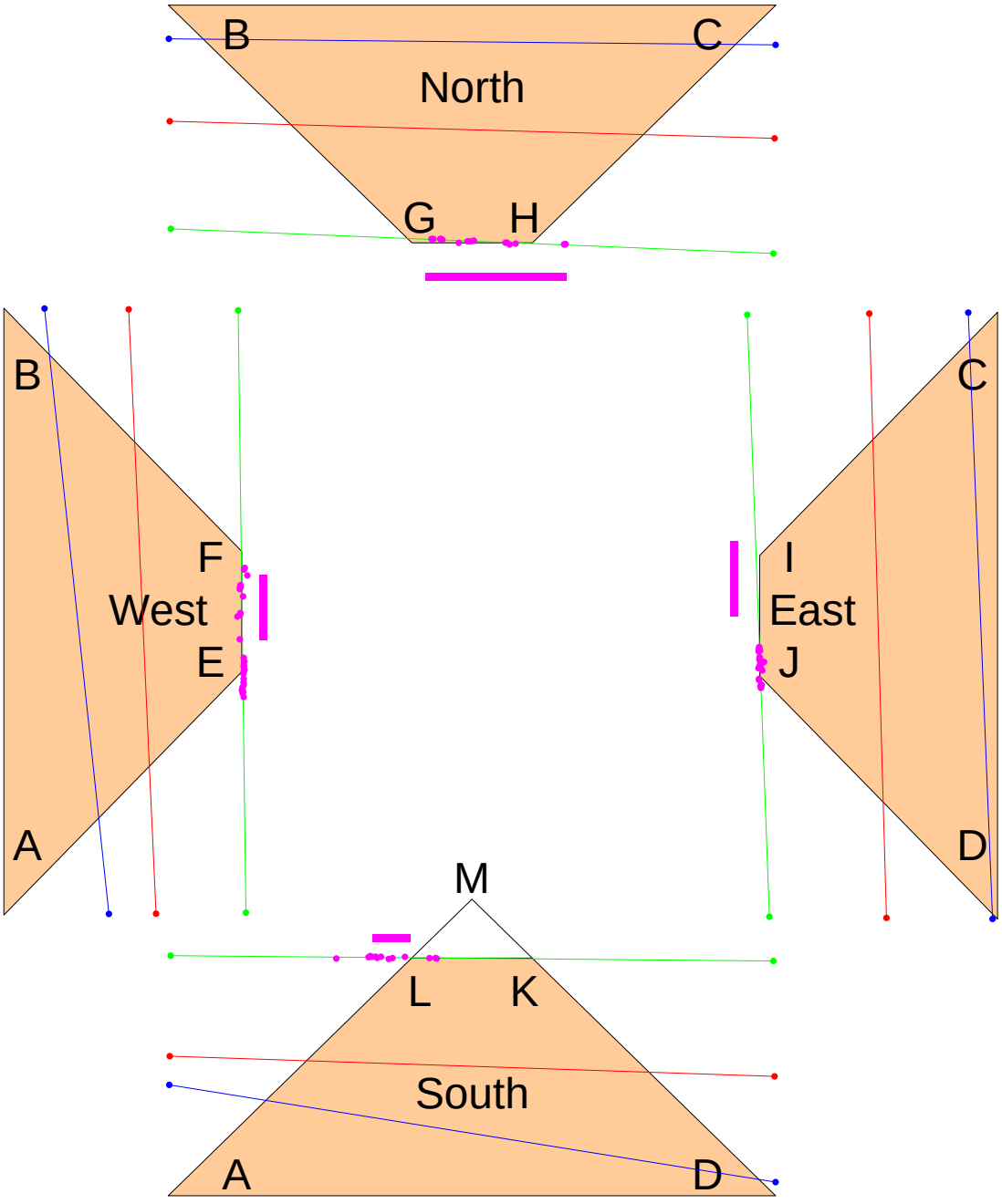
The photograph above, taken under favorable lighting conditions, shows two, or possibly three, planes on the South Face of the Great Pyramid. In 1881 Petrie reported that each Face is creased in the middle and consists of two planes. The angle between them is about 179°. The third plane at the base is debris from the Pyramid's Casing. It has been removed since 1940 and is not visible in today's satellite images. It should be ignored for defining planes.

Davidson recognized that Petrie had reported this double-plane feature and proposed an ingenious solution to the problem of Petrie′s base length not being the requisite 9141 B″. Petrie had assumed that the Casing edges were straight lines that didn't include the Sockets at the Pyramid corners. There is only one plane per Face based on Petrie′s assumption. As shown in the Figure below, Davidson's was a twelve-edged Pyramid with five planes per Face.



Davidson′s Twelve-Edged Pyramid

The following Figure shows the basis of Davidson′s proposal and allows its viability to be assessed. The Figure is based on the Glen Dash Foundation Survey (GDFS) of the Great Pyramid conducted in 2015. The four tan-colored trapezoids mark the boundaries at the bases of the hollowed-in pyramid faces, as proposed by Davidson. The green, red, and blue lines represent the Casing, Platform, and Socket edges as measured by Petrie and Dash. The four sides are exaggerated as individual sub-diagrams within the Figure to show better the relationships between the trapezoids and the surveyed edges of the Pyramid.



The Basis of Davidson′s Twelve–Edged Pyramid Theory and its Viability

The first step was to draw an exact 1:1 representation of the GFDS corners and edges reported in ″The Great Pyramid′s Footprint: Results from Our 2015 Survey″ at http://glendash.com/archaeology/as-published.html#sthash.tyJRcsXp.dpbs

In the above figure, green is for the Casing, red is for the Platform, and blue is for the Sockets. The green, red and blue dots are the coordinates from the figures on pages 12 and 13 of the Dash report. Lines with matching colors were drawn between them for each edge on each Face of the Pyramid. Once drawn, the lengths and angles of the Casing and platform sides were checked for correctness against the reported values on page 11 of the Dash report. The drawing then consisted of three quadrilaterals representing the Casing, the Platform, and the Corner Sockets. The quadrilaterals approximated squares.

However, the horizontal or vertical distance between the quadrilaterals is small, obscuring valuable details. It was necessary to expand the sides to see these details. So the squares were grouped and rotated clockwise by the mean angle of the Casing, 3′ 54″, and a matching set of Davidson's base trapezoids, aligned to the cardinal points, were overlaid. This process prevented the trapezoids from becoming distorted when expanded in the next step.

However, before the next step, the coordinates of the edges of the Casing measured by the GDFS were plotted as magenta dots. Also, the thick magenta lines are Cole's 1925 Casing edges. These magenta lines overlapped the magenta dots, so they were moved slightly inward for clarity. I am grateful to Glen Dash for providing the coordinates of the magenta dots.

Each side of the Pyramid was then independently cut and pasted into a new image, and the sides expanded by 100. The expansion was in the horizontal axis for the west and east sides and vertically for the north and south sides. The expanded dots on the new drawing were then reformatted.

As shown in the Figure of Davidson′s twelve-edged Pyramid, the base of each side is not a straight line. Instead, Davidson defined a hollow in each base using a regular trapezoid ABFE, etc. The two parallel sides of the trapezoids, i.e., AB and FE, etc., should be about 36 B″ apart.

Davidson justified the trapezoids as follows:

Petrie, Cole, and subsequent surveyors assumed that the Casing edge ran straight from D to A, as shown on the south side in the above diagram. Davidson ingeniously proposed that the Casing edge would have run from D to K to L and then to A. Also, the extensions of the lines AL and KD meet at M. The length DA multiplied by 4 symbolizes the number of days in 100 solar years. The length DKLA multiplied by 4 represents the number of days in 100 sidereal years. The length DMA multiplied by 4 represents the number of days in 100 anomalistic years.

In the above drawing, the green lines, i.e., the Casing edge on each side, were defined by GDFS using linear regression of the magenta points. GDFS says:

"In theory, there is a 95% probability that the original Casing and platform corners fell within these windows. "

It is part of Davidson′s proposal that the short sides in the middle of the trapezoids partly overlay the Casing edges at the center of the side, and they do to a large extent. To comply with Davidson′s proposal, the Casing edge, as shown by the magenta dots and Cole's magenta lines, should follow the sides of the trapezoids. The expectation is to see them turn outwards at the end of the short side of the trapezoid, but in no case is this seen. However, the magenta dots follow the straight-line Casing edges on the east end of the north side, the south end of the west side, and the west end of the south side, not Davidson′s trapezoidal edges. The east side has too few points to determine whether the dots follow the Casing edge or trapezoid sides.

Although the Pyramid's core has hollowed-in Faces, there is no evidence of hollowing in its Casing. The evidence shows that the Casing edges appear straight for their entire length. Please observe that the Casing edges are more parallel to the edges of the Platform on which the Pyramid sits than they are to the lines drawn between the socket corners.

In 1925 Cole carried out a survey similar to the GDFS. As there were no computers to calculate best-fit lines, he used his theodolite to ″mechanically″ fit lines along the Casing edges that he found. The thick magenta lines mark the locations of Cole′s Casing edges. These lines should overlay the green lines but were moved inwards slightly to improve clarity since they obscured the magenta dots. On the east end of the north side and the west end of the south side, the magenta lines extend past the ends of the short sides of the trapezoids. The indication is that they probably followed a straight line and not the trapezoid sides. Cole′s survey results showed slightly different pyramid base lengths and angles than GDFS.

Adam Rutherford authored a four-volume treatise titled ″Pyramidology″. He was present at the Great Pyramid in 1925. He realized the implications of Cole′s survey reported in the ″Egyptian Government Survey (P39)″. It is also notable that on page 299 of Pyramidology Book II, he says:

"That the geometry of the Pyramid's Base reveals the three astronomical years was later shown by David Davidson, notwithstanding that owing to his never having been to the Great Pyramid and consequently having no knowledge of unpublished details of it, he had the erroneous idea that the sides of the Pyramid's exterior were hollowed-in. But the results of the present author's research on the spot at the Great Pyramid, as well as the Egyptian Government Survey (P39), demonstrated beyond all question that, unlike the hollowed-in core masonry, the original Casing edge of the exterior of the Great Pyramid was quite straight. The author, on returning home from Egypt on the occasion of his first visit there in 1925, informed Davidson of this fact that the sides of the Great Pyramid's exterior Casing were constructed perfectly straight, whereupon Davidson then put forward another theory, which will be dealt with in Book V."

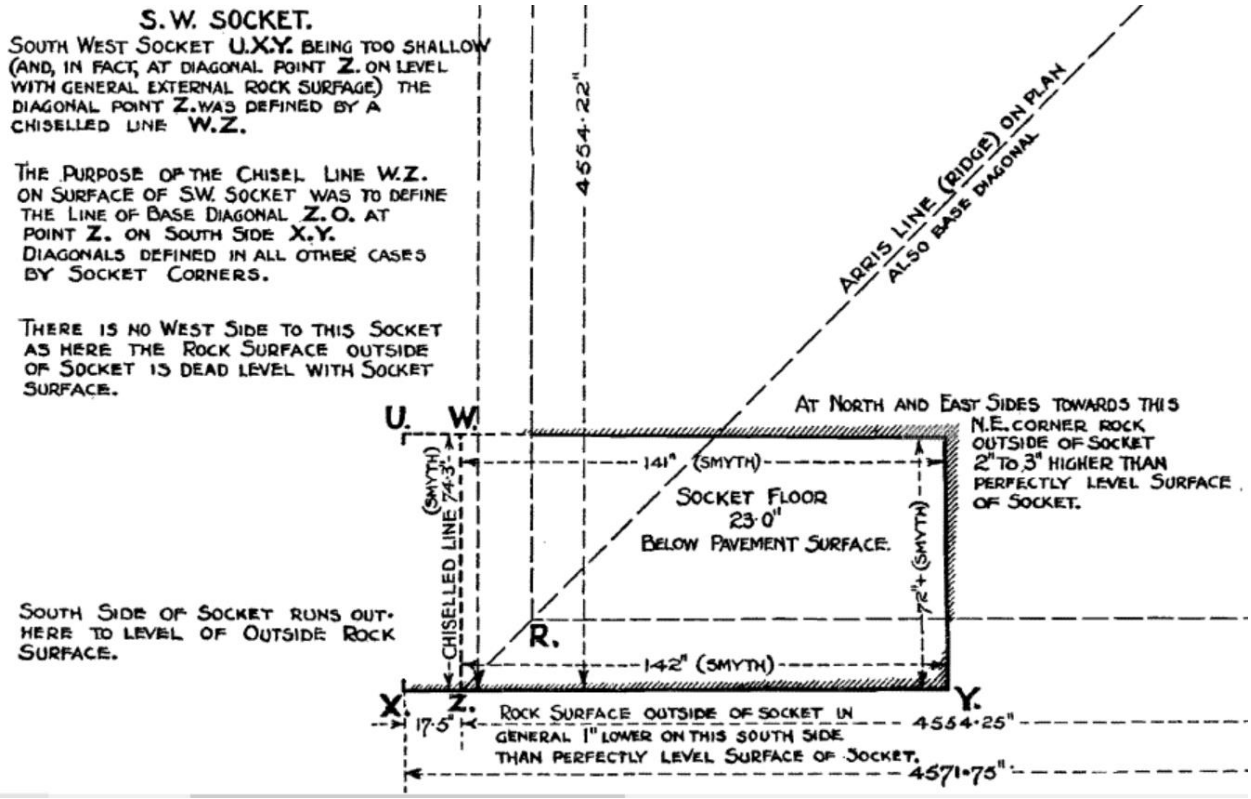
Unfortunately, Rutherford died before he could publish Book V.

It is reasonable to conclude from Cole′s survey and the GDFS that the Casing sides were straight lines and not trapezoidal; therefore, Davidson′s twelve-edged Pyramid is not viable.

Is Davidson's Socket Corner to Socket Corner Length of 9141.1 B" Viable?

The long sides of the trapezoids, in Davidson′s theory, should be parallel to and at a distance of 35.7625 P″ from the short sides and should overlay the socket corners shown as blue dots. As shown in the above Figure, Davidson′s theoretical socket corners miss the measured socket corners by a maximum of 17″ at the S.W. corner and a minimum of 1″ at the S.E. corner. Looking at the relationship between the Casing, red, and blue pyramid edges, we can see that the builders maintained a reasonably parallel relationship between the Casing and Platform edges. So if it had been critical, which apparently it was not, it would have been possible for them to have maintained that relationship between the Socket Corners.

Davidson′s theory required the distance between the socket corners to be 9141.1 B″. Petrie measured them as 9130″ (N), 9133″ (E), 9124 (S), 9119 (W), and 9127″ (Mean). Davidson thinks his scheme is viable because he interprets the statement ″Socket Corner to Socket Corner″ too liberally. In plate XX, not shown, the diagonals of the pyramid pass through the N.W., NE, and S.E. sockets at points L, K, and M, respectively. However, the S.W. socket is different. The figure below shows an expansion of the lower left-hand corner of Davidson′s Plate XX.



Bottom Left Hand Corner of Davidson′s Plate XX Showing the Extra 17.5 B″

Here Davidson has identified the socket as U.W.? YZX, where "?" is the unlabeled N.E. corner of the socket. He notes a chiseled line in the socket floor between W and Z. The Pyramid base diagonal crosses the socket line XY at point Z. Most observers consider that point Z is the socket corner. However, the Royal Engineers survey of 1869 measured ZX as 17.5 B″. Davidson adds the 17.5 B″ to Petrie′s SE to SW socket length of 9123.13 B″ for a total of 9140.63 B″. In paragraphs 144 and 196, he then argues that this length was laid out first and is the model for the other three sides.

I have not seen any other commentator add the extra 17.5″ to the Pyramid's base length. Davidson′s theory is not viable because of faulty logic and faulty interpretation.

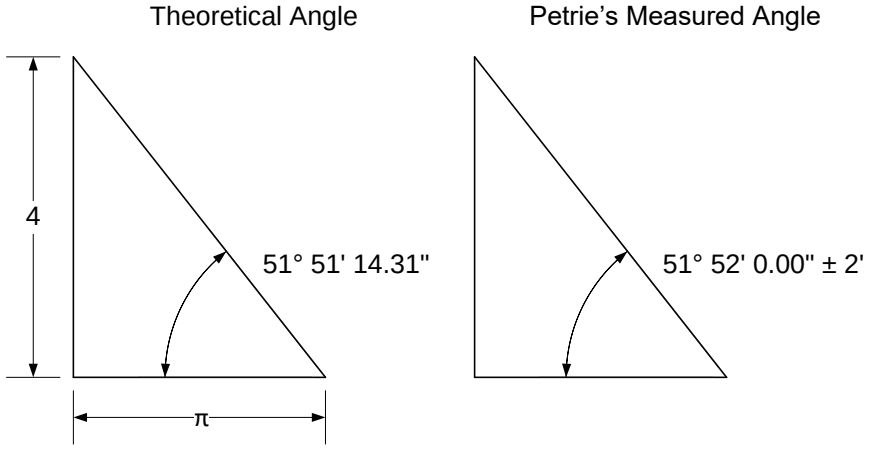
The Pyramid Inch

Pyramidology defines the Pyramid Inch (P″) as its measurement standard. 25 P″ is a Sacred Cubit, which is 25.025 B″. An extensive search only found cubits that were 25.3 to 25.6 B″. Early Pyramidology is the only study that extensively uses a cubit of 25.025 B″, so there are doubts about its legitimacy in proving the divinity of the Pyramid.

Science tells us the ice caps are melting, making the Earth's polar diameter contract. The land at the poles, previously compressed by the ice, is now expanding, increasing the polar diameter. The increase is less than the decrease caused by the water moving to the equator. Therefore, the polar diameter varies, making it unsuitable as a fixed standard. Pyramid Papers 4 and 5 show that the Sacred Cubit (SC) is ≈ 24.83 B" and the P" = SC/25 ≈ 0.9932 B".

Pyramid Base Angle

A vital tenet of Pyramidology is that the theoretical base angle of the Pyramid is a π angle. The left-hand figure below shows that the height to base ratio of a π triangle is 4 to π. The right-hand of the figure below shows Petrie's best-weighted measurement. The theoretical π angle does fall within the measured angle, but so do other candidate angles. Paper 4 discusses the Base Angle.



Theoretical and Measured Base Angle of the Great Pyramid

Pyramid Displacement, Rectification, Contraction, and Expansion Factors

Davidson defined the Displacement Factor, 286.1 P″, based on the difference in the size of his twelve-edged Pyramid's inner and outer squares. Petrie's measurement also determines the Displacement Factor based on the offset of the axis of the passage system, 287 B″ to the east of the Pyramid's vertical axis.

Rutherford assumes the Displacement Factor is a negative value, -286.1 P″, and introduces the concept of the Rectification Factor, which is a positive value, +286.1 P″. He also defines the value of the Contraction and Expansion Factors as $1/8^{th}$ of the Displacement and Rectification Factors, respectively, based on Davidson's hollowing-in of the sides.

The following shows how Davidson computes his value and how this study computes it. The Pyramid papers do not use these factors for interpretation, but there is no reason why they could not. However, they would be based on the B," and their value would be ≈ 286.87, Displacement Factor, or 35.86, Contraction Factor.

Davidson says, "*P148. THE PYRAMID'S DISPLACEMENT FACTOR.*

Criticism, therefore, has shown that the Pyramid was set out to a base line of 9141.1 B″, that its distance between centres of opposite base sides was 9069.5 B″, and, independently, that its base sides were centrally hollowed to the extent of about 36″. The difference between the first two values, 9141.1 and 9069.5 B″, gives twice the extent of hollowing-in as 71.6 B″, and therefore the hollowing-in as 35.8 B″ = 35.76 P″.

The actual PyramId base circuit is therefore defined by two squares, one marginally 35.76 P″ internal to the other. The outer square, defining the base corners, is 36,524.24 P″ circuit, and the inner square is 8 x 35.76 P″ (or 286.1 P″) less in circuit than the outer square.

Now 286. I P″ (286.4 B″) is an important geometrical value of the Pyramid. It is also the measurement of the displacement of the North to South Vertical Plane of the PyramId's Passage System Eastwards from the north to South Central Vertical Plane of the Pyramid.

The existing displacement of the Passage System, as defined, was measured by Professor Petrie as follows :-

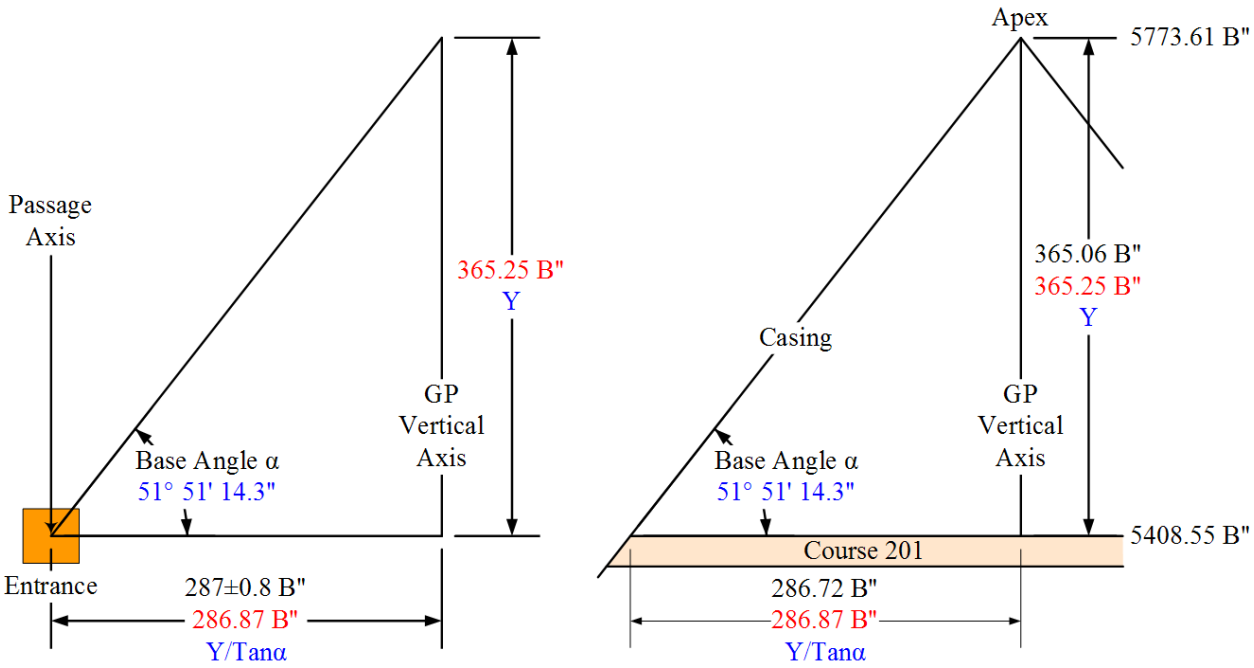
	Petrie's stated possible range of error.
Entrance Door on North Face	*=287.0 B″ ±0.8 B″.*
Entrance Passage End in Natural Rock	*=286.4 B″ ±1.0 B″.*
Beginning of Ascending Passage	*=286.6 B″ ±0.8 B″.*
End of Ascending Passage	*=287.0 B″ ±1.5 B″.*

Plates XXIII, XXIV, and XXV (Figs. A, A_1 and A_2) show how the hollowed-in base feature, the 35th course axis, and the displacement of the Passage System are all geometrical functions of a composite system of geometry featuring the solar year to the scale of 10 P″ to a day, and to the scale of 100 P″ to a day. To convey the full significance of this to the reader it is necessary first to define the precise value of the solar year intentionally identified with the Pyramid's base square circuit."

As described below, the Pyramid Papers compute the Passage Offset differently from Davidson.

An Alternate Derivation of the Passage Offset, Which is Related to 365.25 and the π Angle

The average offset of the Pyramid Passage axis is 286.67 B″ (Petrie), or 286.4 P″. The offset is to the east of the central north-to-south vertical axis of the Pyramid. Rutherford points to the fact that the Grand Gallery roof, according to Smyth, is 339.5 B″ high and the vertical height of the Ascending Passage is 53 B″. The difference is 286.5 B″ or 286.2 P″, a similar value to the Passage Offset. He calls this the Rectification Factor, Vol II p 250. However, it is shown at the end of this section that the height of the Grand Gallery is related to the King's Chamber.



Understanding the Pyramid Passage Offset and the Use of 365.25 in the Pyramid

The figure above shows two triangles found on the exterior of the Pyramid. Both have a theoretical height of Y, the number of days in an Astronomical year, 365.25, and their base angles are $TAN^{-1}(4/\pi)$. There is a measured value in black on the arrowed dimension lines and a proposed equation in blue to calculate the theoretical dimension in red.

The left-hand figure above shows that the axis of the passage entrance at the north Casing is, according to Petrie (P35), 287±0.8 B″ east of the vertical axis. However, a right-angled triangle with a vertical height of 365.25 B″ and a base angle of 51° 51′ 14.3″, $Tan^{-1}(4/\pi)$, has a base length of 286.87 B″, within Petrie′s range above.

In the right-hand Figure above, the Pyramid's apex is 5773.61 B″ above the Pavement. The average height of the top of the 201st course is 5408.55 B″, which is, therefore, 365.06 B″ below the Pyramid's apex. A reasonable assumption is this value should be 365.25. Assuming the base angle is 51° 51′ 14.3″, the base length of the triangle is also 286.87 B″, again within Petrie′s range of 287±0.8 B″ for the passage offset.

The left-hand triangle shows that the Pyramid entrance is theoretically offset $365.25/TAN^{-1}(\alpha)$ to the east. The right-hand triangle shows that the top of the 201st course, where it meets the Casing, has the same offset, which is 365.25 B" below the Apex of the Pyramid. Therefore, it lies directly above the center of the passage axis. Thus, both are consistent with the Pyramid's exterior measurements, which use the value 365.25. For example, the base length of the Pyramid is 365.25 Sacred Cubits of 24.83 B″. These two measurements and calculations also validate the use of B″ in the Pyramid's exterior in conjunction with the use of Y, 365.25.

The conclusion is that the offset of the Passage axis is related to Yand the π angle.

Is it a coincidence that the top courses in Petrie's time were the 201st to the 203rd? The 201st course defines the passage offset and confirms the use of 365.25 in the Pyramid. The height of the 203rd course aids in determining the height of the Pyramid. How else could they be known?

The height of the roof of the Grand Gallery above the roof of the Ascending Passage is 286.5 B″, according to Smyth and Rutherford, based on Smyth′s average height of 339.5 B″. His measurements were from 334.4 to 346.0 B″. This wide range is probably the result of using Smyth′s self-designed measuring apparatus, which involved leveling in two axes and catered for the ″ratcheting″ of the roof stones.

Basing the vertical height of the Grand Gallery on Petrie's average height of the corbels at its south end, the height is 235.34 B″, comparable to the height of the walls in the King′s Chamber, 235.2 B″. (P46 and P, plate 13).

The Capstone

One of the central tenets of Pyramoidology is that the Capstone symbolizes Jesus. He is the head of His People and His Church. When installed, the Capstone will be the head of the Pyramid. There are many verses in the Bible referring to Jesus that point to the Pyramidion as follows:

Psalm 118:22 (KJV)

22 The stone which the builders refused is become the head stone of the corner.

Isaiah 28:16 (KJV)

16 Therefore thus saith the Lord GOD, Behold, I lay in Zion for a foundation a stone, a tried stone, a precious cornerstone, a sure foundation: he that believeth shall not make haste.

Matthew 21:42 (KJV)

42 Jesus saith unto them, Did ye never read in the scriptures, The stone which the builders rejected, the same is become the head of the corner: this is the Lord′s doing, and it is marvellous in our eyes?

Mark 12:10 (KJV)

10 And have ye not read this scripture; The stone which the builders rejected is become the head of the corner:

Luke 20:17 (KJV)

17 And he beheld them, and said, What is this then that is written, The stone which the builders rejected, the same is become the head of the corner?

Acts 4:11 (KJV)

11 This is the stone which was set at nought of you builders, which is become the head of the corner.

Ephesians 2:20 (KJV)

20 And are built upon the foundation of the apostles and prophets, Jesus Christ himself being the chief corner stone;

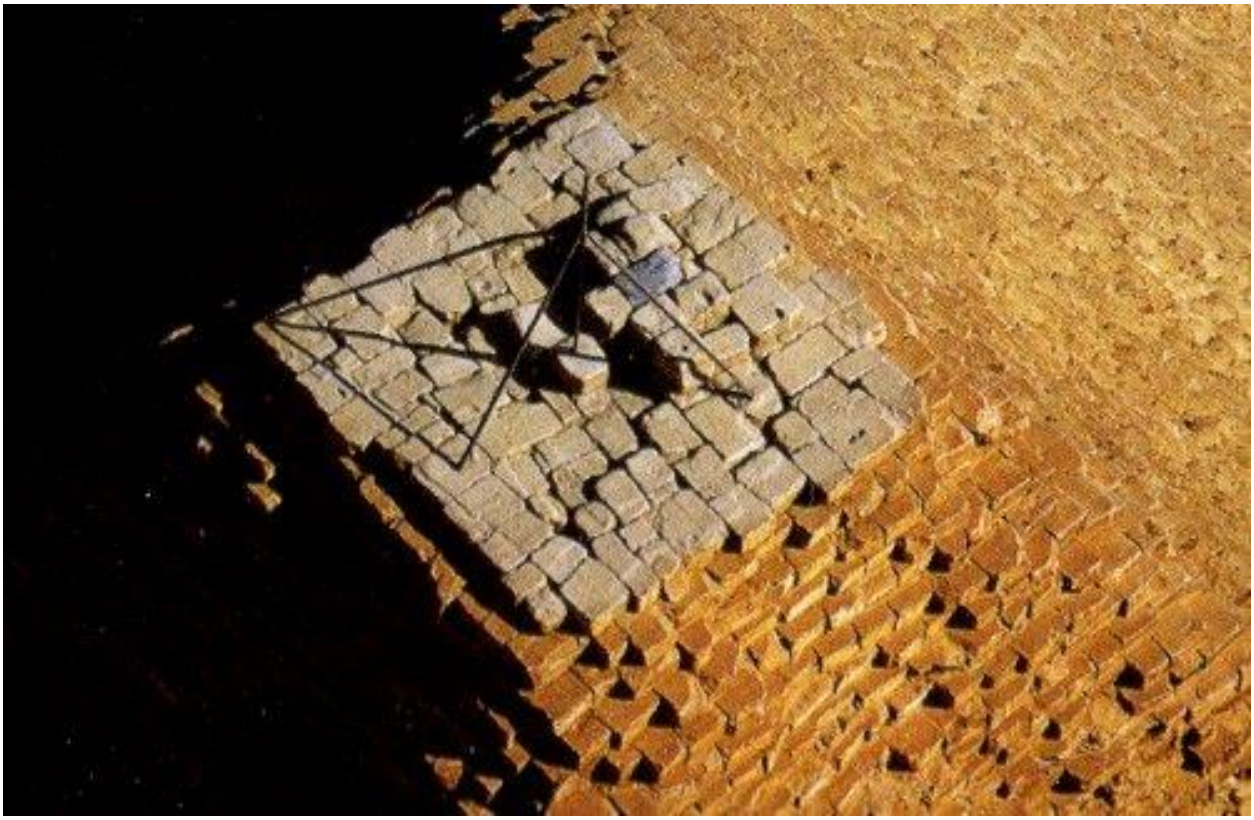
1 Peter 2:6-7 (KJV)

6 Wherefore also it is contained in the scripture, Behold, I lay in Sion a chief corner stone, elect, precious: and he that believeth on him shall not be confounded.

7 Unto you therefore which believe he is precious: but unto them which be disobedient, the stone which the builders disallowed, the same is made the head of the corner,

The above verses indicate that Jesus is the chief cornerstone, the headstone of the corner, and the stone the builders rejected. The builders of the nation of Israel, who were the Pharisees and Sadducees, thought that Jesus did not fit their concept of the head of their nation and rejected Him.

The Bible verses quoted above refer to a stone that is the head of the corner, i.e., the chief stone of which there can only be one. The photograph below shows the four arris edges of the Pyramid coming together to form an apex, which is also a corner. However, they fall short of this because some courses and the Capstone are missing. David Gill set up the mast in 1875 on the nearly complete 201st course. The 202nd and 203rd courses only have a few stones each.



Top of the Pyramid Shows the 201st Course is Complete With Two Ruined Courses Above

As shown in Papers 1 and 7, the Capstone is vertically in line with and overlays, like an umbrella, features in the Pyramid that symbolize resurrection and judgment, events for which Jesus is responsible. In Pyramidology, the Capstone symbolizes Jesus, and its installation won't occur until, or after, His Second Coming.

Possible Reconstruction of the Top of the Pyramid

The top of the 203rd course is the current top of the Pyramid, and it is tempting to think that it marks the Base of the Capstone. The following evaluation determines the Pyramid's form between the 201st course and the apex, including the Capstone, to understand the Designer's intent.

Paper 4 shows that the height of the 203rd course, the topmost remaining course, led to the discovery of the critical Ratio Clue, crucial to defining the overall height of the Pyramid. This arrangement is clearly intentional.

There is no evidence that the Pyramid ever had a Capstone installed. The earliest record indicating this absence comes from the Greek historian Diodorus Siculus around 60 B.C. In Bibliotheca Historica, he describes the Great Pyramid as follows:

"For the largest is in the form of a square and has a base length on each side of seven plethra and a height of over six plethra; it also gradually tapers to the top, where each side is six cubits long.

The entire construction is of hard stone, which is difficult to work but lasts forever; for though no fewer than a thousand years have elapsed, as they say, to our lifetime, or, as some writers have it, more than three thousand four hundred, the stones remain to this day still preserving their original position and the entire structure undecayed. "

The above is from chapter 63 of the translation available at [Diodorus_Siculus/1C]

The phrase *"it also gradually tapers to the top, where each side is six cubits long"*, indicates that there was no Pyramidion. Because Diodorus also says that the stones preserved their original position, this plateau was the base for the Capstone. No visitor to the Pyramid mentions seeing the Capstone, confirming that it was yet to be installed.

As shown in the following table, Colonel Howard Vyse, who studied the Pyramid in 1837, documents the history of the gradual reduction in the number of courses in his book, ″Operations Carried On At The Pyramids Of Gizeh In 1837 Vol. II.″

Author	Year	Page #	# Courses	Platform Dimensions	Notes
Diodorus	60 BC	184		6 Cubits (111″)	Casing intact
Bellonius	1553	191	250		
Johannes Helfricus	1565	193	230	12 fathoms in circuit	
Jean Palerme	1581	194	213	4 Paces	QC 5 or 6 paces long
Prosper Alpinus	1591	196	125	10 paces	
Baumgarten	1594	198		5 cubits	Vyse ″This is obscure″

Sandys	1610	199	255	3 stones, 60 men	
Pietro Della Valle	1616	202	210-250		
M De Villamont	1618	203	215	15 sq feet	
Greaves	1638-9	205	207-208	13.28 ft, 9 stones	
M De Monconys	1647	214	208		Entrance on 16th step
M Thevenot	1655	215	208	16 ft 8″	
Melton	1661	217	206	16 ft 8″	Entrance on 16th step
M Lebrun	1674	222	210	16-17 ft	Entrance on 16th step
M Maillet	1692	224	208		
De Careri	1693	229	208	16 ft 8″, 12 stones	Entrance on 18th step
Lucas	1699	230	243	5 Stones, 2 wanting	
Veryard	1701	232	206		
Egmont	1709	234	206	6 + 6 stones wanting	
Pere Sicard	1715	236	220	10 - 12 feet	
Pococke	1743	244	212	9 stones + 2 wanting	
M Fourmont	1755	251	207-208		Entrance on 16th step
Davison	1763	255	206	6 stones	
M Denon	1799	265	208		
Colonel Coutelle	1801	269	203	2 ruined tiers at top	Entrance on 15th step
M Jomard	1801	274	203	2 ruined tiers at top	
Dr. Clarke	1801	280		32 ft sq 9 stones	

The data in the table is contradictory in places, and it was not possible to reliably reconstruct a course by course history. The best approach was identifying specific years and the difference in the number of courses between their beginning and end. In the table above, data identified by yellow shading are considered outliers. They are rejected from consideration mainly because the total number of courses differs significantly from the likely value at that specific date.

The stone courses of the Pyramid were unmoved until an earthquake loosened the Casing stones, and those near the top were probably cast off. Smyth claims that in AD 908, an earthquake occurred that dislodged some Casing stones. After that, the locals started to remove the remaining Casing stones about AD 1000. The Crete earthquake in AD 1303 and the resulting tsunami devastated Alexandria and caused further loss of stones at the Pyramid. the vintage news the-great-pyramid-of-giza-was-once-covered-in-highly-polished-white-limestone-before-it-was-removed-to-build-mosques-and-fortresses/ says

After that, an amount of Casing stone was carted away by Bahri Sultan An-Nasir Nasir-ad Din al-Hasan, in 1356, to use as material for building mosques and fortress in nearby Cairo, the capital and the largest city of modern-day Egypt. In addition, plenty more Casing stones were

removed from the Great Pyramid by Muhammad Ali Pasha during the early 19th century and reused as material for his Alabaster Mosque, also in Cairo.

Wikipedia Mosque-Madrassa_of_Sultan_Hassan provides details of where some of the Casing stones were used.

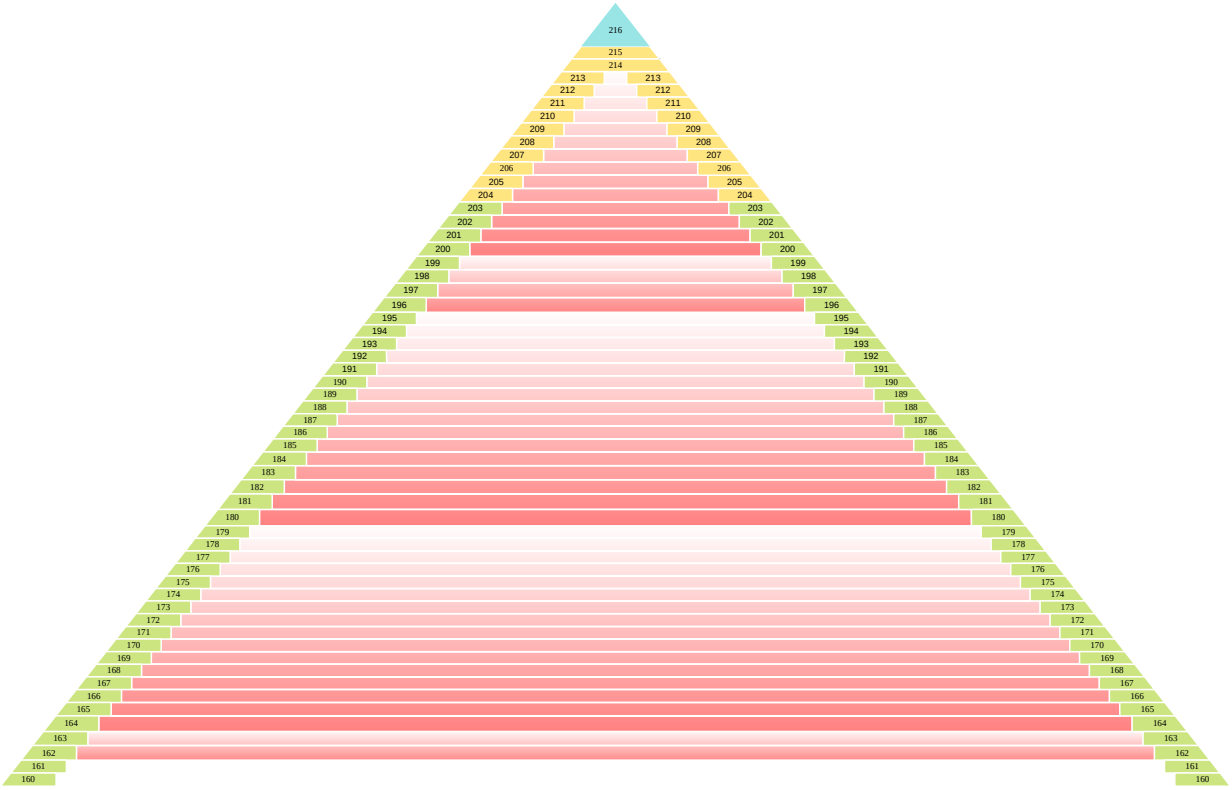
It is most likely that the 1303 Crete earthquake was the one that started to shake off the Casing stones, and this stimulated the local princes to purloin most of those that remained.

The analysis of the reduction in the number of courses begins with Diodorus. The assumption is that he climbed up to the top of the Pyramid sometime during his life between 90 BC and 30 B.C. to measure the sloping height and determine that the plateau was six cubits square. Is it possible to climb a smooth face at 52°? It is a reasonable conclusion that the Capstone was missing at that time since, according to Diodorus, there appeared to be no damage. Removing the Pyramidion without damage would probably not be possible. Therefore six cubits are the Base Length of the Capstone at the Casing.

Although Diodorus was born in Sicily, he was a Greek historian, and the assumption is that he used Greek cubits. There are two major versions of the Greek cubit, 18.23 B″ (kyrēnaikos pēchys) and 18.67 B″ (metrios pēchys) in length. In the absence of data on which cubit Diodorus used the average of these two lengths, 18.45 B is the most appropriate value. Therefore the Base Length of the Capstone would be approximately 111 B″, and its approximate height would be that of a tall man, 71 B″. Greaves appears to agree with Diodorus using the Greek kyrēnaikos pēchys cubit, since on page 208 of Vyse′s book, referenced in the table above because he quotes Diodorus′ measurement as 9 feet, which is 108″.

As shown in Paper 4, the Pyramid's height above the Pavement, in round numbers, is 5774 B″. At the π base angle, the Pyramidion base will be 71B″ beneath this, 5703 B″.

The following Figure shows course 160 and above. The courses above 203 and the Pyramidion, which is shaded blue, are a reconstruction of the probably intended courses.



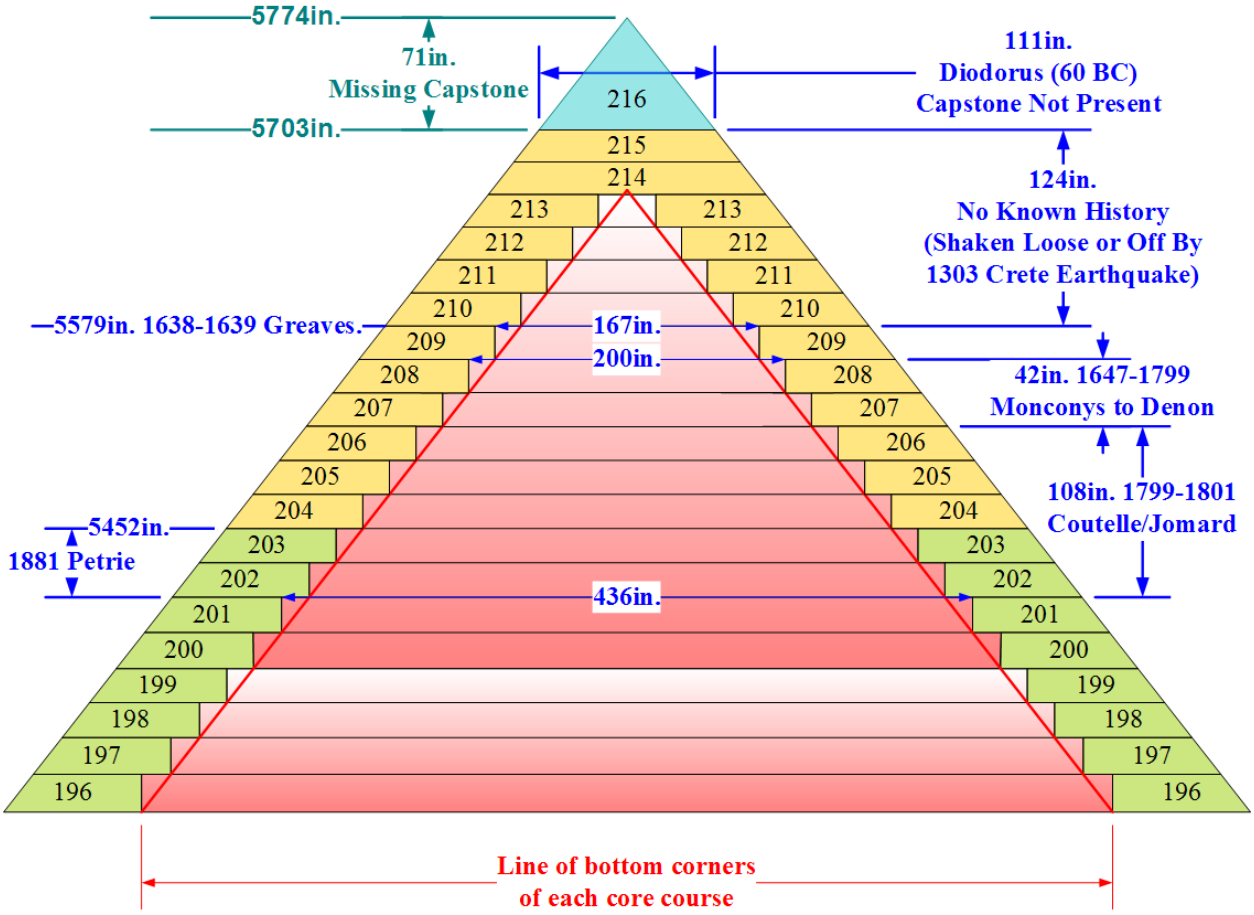
Top of the Great Pyramid Shows the Courses Arranged in Bands of Decreasing Height

There are two groups of courses at this height of the Pyramid, banded in sets of 16. In general, the rule is that within these bands, a course is less thick than the one upon which it sits. However, this is not always the case as some courses are slightly thicker than the one on which they sit but not more than an inch. When the band is complete, the next course is thicker, by several inches, and then they diminish again to form a new band. There are 16 banded courses from 164 to 179, for 332.0 B″. There are16 banded courses from 180 to 195 for 345.6 B″. The average of these two 16 course bands is 338.8 B″. Courses 196 to 199 form an uncharacteristic, four-course band at this height.

Adding 16 courses above the 199th is reasonable. The average height of 338.8 B″ puts the top of the 215th course at 5702.4 B″, 0.6 B″, lower than the Pyramidion's base height estimate above.

From Petrie′s Plate 8, the top of the 199th course is, on average, 5363.6 B″ above the Pavement. The four existing courses above the 199th diminish in height, indicating that a new band is forming. Adding the Pyramidion makes 216 courses, a reasonable number since 216 = 6 × 6 × 6, or 6^3. As shown in Paper 4, the equation for the Pyramid's height uses third-order equations. The primary factors of 215 are 5 and 43. The number 43 occurs several times throughout these Papers in a significant manner in conjunction with the Exodus and Jesus' return.

The Figure below shows a possible reconstruction of the intended courses at the Head of the Great Pyramid based on Vyse′s historical records in the table above and 16 extra courses above the 199th.



Possible reconstruction of the missing courses at the top of the Great Pyramid

The first data point from the table above, based on Diodorus′ 6 cubit plateau, is the Base of the Pyramidion at 5703 B″ above the Pavement. It has a base length of 111 B″ and a height of 71 B″. The assumption is that this is the intended base level of the Pyramidion.

Greaves provides the next data point in 1638, which is that the top of course 209 is 5579 B″ above the Pavement. The assumption is that the Casing stones and courses above this height were all shaken off the Pyramid by Smyth's AD 908 earthquake. The reconstruction above uses Petrie′s data (P25-26). Petrie reports that course 201 resembles a rectangle rather than a square. Still, the above reconstruction assumes it is supposed to be square and averages Petrie′s measurements for the four sides, for a length of 436 B″.

At the ″Greaves″ level, the reconstruction shows a core length of 167 B″ more than his measurement of 13.28 ft., or 159 B″. The reason for this 8 B″ difference is not known. Perhaps Greaves reported the shortest edge of the rectangular core instead of the average.

However, course 208 is a good fit for all the surveyors from Monconys to Denon, who reported a plateau of 16 ft. 8″, which is 200 B″, at the top of course 208. The reconstruction Figure above shows a precise match between the historical and theoretical data at this point. Based on this data, the assumption is that courses 207 and 208 disappeared between 1647 and 1799.

The table shows the Pyramid decreased in height from course 206 to course 201, leaving a few stones for courses 202 and 203 between 1799 and 1801. The Pyramid remained at this height until Petrie surveyed it in 1881. Since the mast that Petrie observed is still in place, the conclusion is that the height is still the same today. The author has counted the courses from photographs and confirmed this.

A granite capstone, sized as above, would weigh about 12 tons, at a density of 162 lb/ft^3.

Pyramidions or Capstones at the Egyptian Museum (Bodsworth)

In summary, there is no data to support the installation of the Capstone at any time. Had it been installed, its intended length is estimated to be 111 B″, its height 71 B″, and its weight, if made of granite, would be 12 tons. These dimensions are assumed to be close to the intent of the Designer. A few Capstones, or Pyramidions, are shown at the Egyptian Museum in the Figure

above. However, these appear to be smaller than estimated for the Great Pyramid. Remember that the Capstone under discussion needs to fit the largest Pyramid ever built.

Suppose the installation of the Capstone was during the initial construction of the Pyramid. How was it removed before Diodorus measured the plateau at the top? One explanation is that an earthquake dislodged it, which would have destroyed much of the Casing. This destruction was not evident to Diodorus since he reports that *" the stones remain to this day still preserving their original position and the entire structure undecayed. "*

A second possibility is the manual removal of the Capstone later. Damage below the Capstone, caused by the removal, would have been evident, but again Diodorus′ reports no such damage. The only likely reason for this is that it was valuable. The thieves would not have cared about damaging the Pyramid. An operation like this would have been a difficult task without the aid of the original working platforms and other construction tools.

So it is concluded that the Capstone was not installed during construction.

So why would the builders have rejected the Capstone? It could have been built in Heaven with the intent of it descending like Jesus′ at His second coming. **Acts 1:9-11 (KJV)**

9 And when he had spoken these things, while they beheld, he was taken up; and a cloud received him out of their sight.
10 And while they looked stedfastly toward heaven as he went up, behold, two men stood by them in white apparel;
11 Which also said, Ye men of Galilee, why stand ye gazing up into heaven? this same Jesus, which is taken up from you into heaven, shall so come in like manner as ye have seen him go into heaven.

An assumption is that the measurement system used by the Pyramid builder is the same as used in Heaven. But, the human version could easily have become corrupted. As a result, the Pyramidion would not fit.

Had the Pharisees not rejected Jesus, he would have become the king. The Casing stones would have been trimmed to the correct size and restored. The photograph below shows the Mokattam Casing stones have lost their whiteness over the millennia and need refinishing.

Original Casing Stone From the Great Pyramid

Since part of Israel rejected Jesus and did not repent of that act, God took the Kingdom of Heaven away from them. Symbolically they were shaken off or removed from the Pyramid in various earthquakes. Rutherford thinks that the Pyramid will be rebuilt during the Millenium. That will be an opportune time to replace the missing Casing stones with new ones on which the Capstone will fit precisely. Perhaps a new technology might make an everlasting Casing possible. The new Casing Stones will symbolize the nation bringing forth the fruits thereof. The Capstone will be let down from Heaven, symbolizing both Jesus and how He will return.

Bearings From the Pyramid

Another tenet of Pyramidology is that drawing a rhumb line on a map, from the center of the Pyramid with a bearing of east minus the angle of the Pyramid′s sloping passages, it passes through Bethlehem. The bearing is 63° 41′ 50″ or 63.6973 °. Calculators on the Movable Type Scripts website are used to evaluate this tenet.

Below are two views of the route that shows it comes as close as 225 meters to ″Manger Square″ in Bethlehem, based on the scale at the bottom. However, it is just one witness, and this study requires two.

Destination point along rhumb line given distance and bearing from start point

Start point: 29°58'45" N, 31°08'04" E Destination point: **31° 42' 25" N, 035° 12' 23" E**

Bearing: 63.69729831

hide map

Distance: 433.6 km

Destination point along rhumb line given distance and bearing from start point

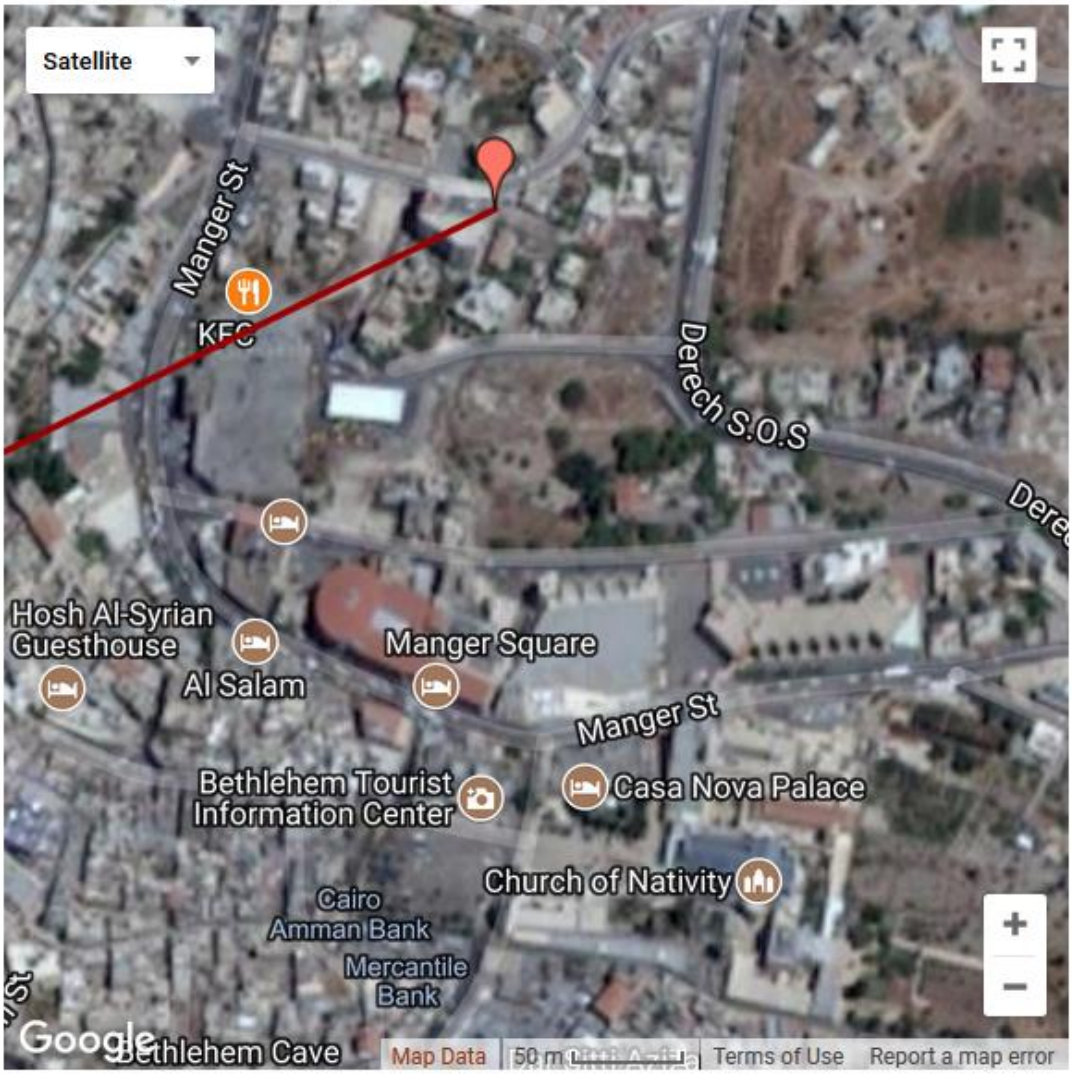
Start point: 29°58'45" N, 31°08'04" E

Bearing: 63.69729831

Distance: 433.6 km

Destination point: **31° 42′ 25″ N, 035° 12′ 23″ E**

hide map



Recognizing that the nativity begins the New Testament, a search found a second witness 270° further round the compass. Navigating along a great circle route, with an initial bearing of north minus the theoretical passage angle, i.e., 333° 41′ 50″ or 333.6973 °, one comes to the island of Patmos. Here, the apostle John received Jesus Christ's Revelation, which is the end of the New Testament. Shown below is the overall route, and the journey is mainly over the sea. A boat or airplane is necessary for this journey, and the shortest route would be along a great circle rather than a rhumb line as one would follow on land.

Destination point along great-circle given distance and bearing from start point

Start point: 29°58′45″N , 31°08′03″E

Bearing: 333.6972983

Distance: 919.3 km

Destination point: **37° 18′ 42″ N, 026° 32′ 21″ E**

Final bearing: **331° 08′ 43″**

hide map

In the close-up view below, the route comes within 600 m of the ″Cave of the Apocalypse". Many believe that the Apostle John lived here during his exile.

Destination point along great-circle given distance and bearing from start point

Start point: 29°58′45″N, 31°08′03″E

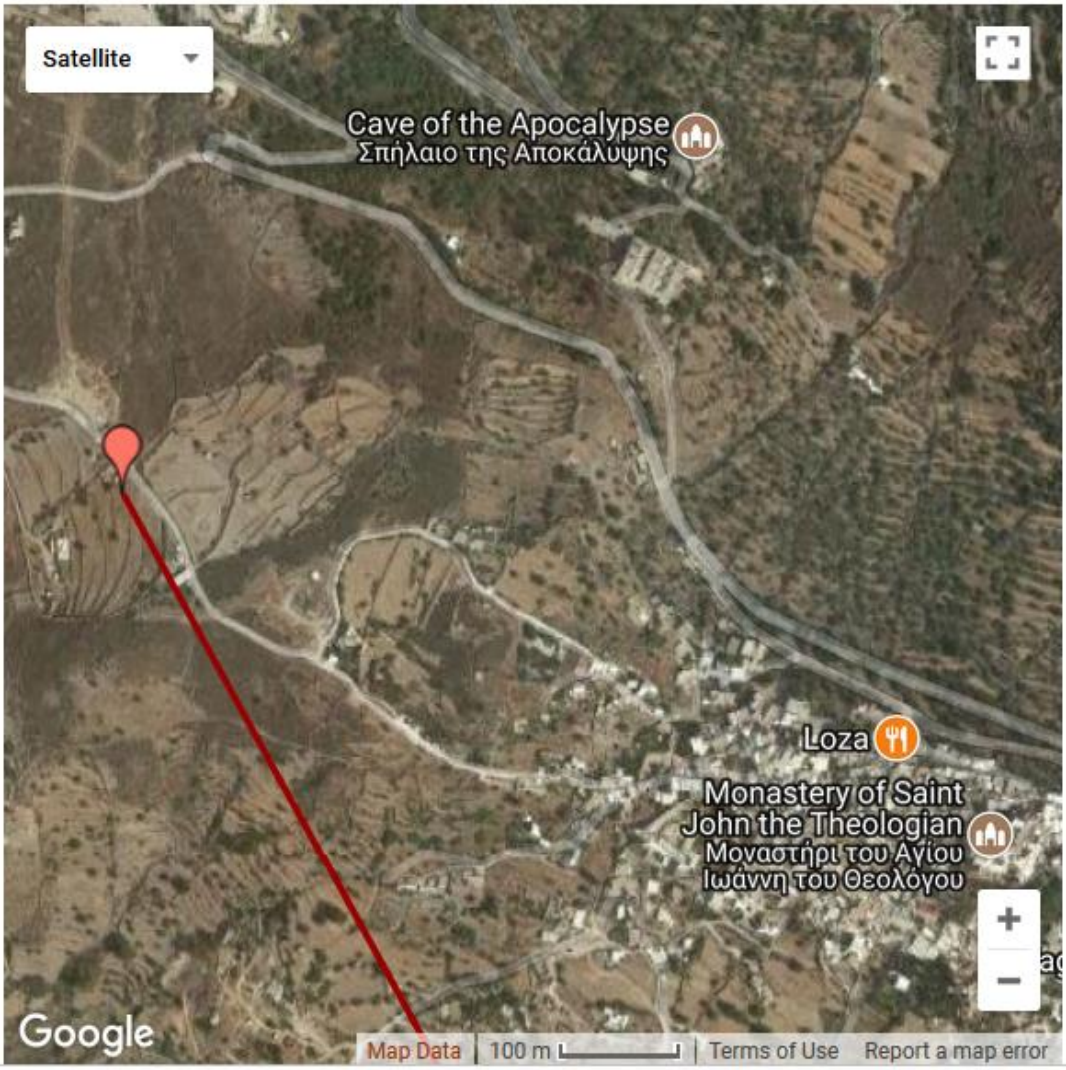
Bearing: 333.6972983

Distance: 919.3 km

Destination point: **37° 18′ 42″ N, 026° 32′ 21″ E**

Final bearing: **331° 08′ 43″**

hide map



The Pyramid′s location permits the construction of two bearings, precisely ¾ of a circle apart. One passes through Bethlehem and the other through Patmos, symbolizing the beginning and end of the New Testament. Quite possibly, the need to define these bearings determined the Pyramid's location. God chose this location 2700 years before the New Testament, so it is prophetic and validates the original tenet.