# Hebrew-Egyptian Mystery 

IN

## THE SOURCE OF MEASURES

## ORIGINATING

THE BRITISH INCH AND THE ANCIENT CUBIT

BY WHICH WAS BUILT THE GREAT PYRAMID OF EGYPT AND TIE TEMPLE OF SOLOMON; AND THROUGI THE POSSESSION AND USE OF WHICH, MAN, ASSUMING TO REALIZE THE CRE-

ATIVE LAW OF THE DEITY, SET IT FORTH IN A MYSTERY, AMONG THE HEBREWS CALLED KABBALA

By<br>J. RALSTON SKINNER

$$
\begin{aligned}
& 4 \leq 1 \\
& 80 \\
& 99 \\
& 56
\end{aligned}
$$


"OPEN THOU MINE EYES, THAT I MAY BEHOLD WONDROUS THINGS OUT OF THY LAW!
"my son, if thine heart be wise, my heart shall rejoice, EVEN MINE:
" YEA, MY REINS SHALL REJOICE, WHEN THY LIPS SPEAK RIGHT things."
"BEHOLD! THE DAY OF THE LORD COMETH, AND IT SHALL COME TO PASS IN THAT DAY,
"that the light shall not be clear, nor dark, but it shall be ONE day,
" and the lord shall be king over all the earth : in that DAY THERE SHALL BE

ONE JEHOVAH,
A.ND his Name shall be
(S) ne."

ישמחו השמים ותגל הארץ


Univ Calif - Digitized by Microsoft © ${ }^{\circledR}$

## TABLE OF CONTENTS.

## Introduction.

Contents an essay or study rather than, strictly speaking, a work. The whole a series of developments based upon the use of geometrical elements, giving expression in numerical values, founded on integral values of the circle, rediscovered by the late John A. Parker, and by Peter Metius in the 16th century. Brief statement of these developments; the greatest being that the system from whence their derivation was anciently considered to be one resting in nature, or God, as the basis, or law, of the exertion, practically, of creative design: as such to be found as underlaying the Biblical structure. This introduction contains the Hebrew alphabet, with the values and powers of the letters, and some of their supposed symbols, with some remarks on the hieroglyphic use of the letters. (The proof of the uses of these values by the ancients is all that is claimed as being of use connected with the quadrature idea, so that the u6ual offensiveness connected with any stated idea of quadrating the circle is not involved.)

## Quadrature of the Circle by Fohn A. Parker.

It would be amply sufficient for the purposes of this work to give the numerical results (notating geometrical conditions) of Mr. Parker's quadrature; but it is thought that the uses shown to have been anciently made will naturally lead to a desire to examine into the very means whereby these numerical data are obtainable. To satisfy such a desire the leading outlines of Mr. Parker's work on the quadrature, and of his problem of three revolving bodies, with his uses of his results, are given, even pretty fully, by permission. His extremely interesting work is to be had in the city of New York, of John Wiley \& Son.
$\xi$ I. Kabbala a species of symbolic writing. Relation of diameter to circumference of a circle a supreme one as connected with the god-names Elohin and $\mathcal{F}$ ehovah. Two expressions of circumference to diameter, in
integrals, used in the Bible; that of Mr. Parker, the perfect one, and that of Peter Metius (16th century), the imperfect one. One relation between the two expressions to be found in $\% S_{2}$ (b.). ( $\xi_{2}$. Notice of the quadrature by Peter Metius, about A. D. 15 S 5 .) Outline of 12 propositions from Mr. Parker's Quadrature, resulting in the key numbers, and values, on which this entire work depends. (See Prop. XII, p. 20.) \&3. Quadrature by Peter Metius, with statement of curious relations between the Parker and Metius forms.

## Reflections on the Quadrature by Mr. Parker.

3. 4. शuadratare by Mr. Parker of great value, but set forth not on account of intrinsic exactitude, but because : (r.) It affords the measures for building the great fyramid; (2.) The sacred cubit was derived from it; (3.) It gives the kabbalistic value for understanding the god-names in the Bible, and for understanding the esoteric teachings in the mysteries; (5.) It appears at the foundation of the British measures. Its great value is, then, that it is a literary key to the comprehension of ancient learning; and, in this aspect, its mathematical or geometrical value is, however imperfect, one that is of secondary consideration in this work. With this statement it is to be noted, 85 , that Mr. Parker's quadrature values are obtained by area computations; 86 , that there are curious features observable in the details of the Playfair method; $\% 8$, that mathematics is familiar with definitions which are untrue; and, $z 9$, that nature seems to afford confirmatory evidence that Mr. Parker is right.

## Problem of Three Revolving Bodies by Mr. Parker.

द11. This grows out of his quadrature, as a practical use of his results, for astronomical purposes, his postulate being, "The proposition is therefore demonstrated that three gravitating bodies of equal magnitude, revolving together, their relative motion shall be as four to three, or one and one-third of one primary circumference." $\xi_{12}, \xi_{1}$. Illustration of use of this problem to obtain astronomical time, showing that nature recognizes the use of the Parker numerical forms. \&14. Table of astronomical time periods worked out by Mr. Parker. \& 15 . The setting forth of the problems and claims of Mr. Parker is not in any way as affirming the establishment of the " $\mathrm{Q}^{\text {uadrature," or of the "Problem of three re- }}$ volving bodies;" but as necessary, because, without the use of his conclusions, it will forever prove impossible to reconstruct the pyramid agreeably with the intent of its architect.

> The Possibility on Mr. Parker's Forms of Raising a Coordinating Unit of Measure.
3.16. This enunciation explained, and a numerical result given to a geometrical change of shape. $\xi_{7} 17$. This result proves to be a recognized mcasure-viz., the ancient cubit, in terms of the British foot and inch measure. Table of practical restorations of ancient cubit value from different sources; the best being those of Sir Isaac Newton, from the great pyramid, and from the catacombs of Osimandya by the French expedition of ' 99 , the measures of which catacombs were ( $\xi_{1} 18$ ) discovered on a Titrin papyrus by Professor Gustav Seyffarth. \&19. Original value, whence this cubit, shown to have been utilized as in British inches, creating the impression that the British long measures were of that ancient existence.

The Ansated Cross of the Egyptians, and the Christian Cross, the Emblematic Display of the Origin of Mcasures.

8 20. Circular measure taken off on to the edges of a cube. Cube unfolded is in display a cross of the tau form, or Egyptian form, or of the Christian cross form. Circle attached to the first, gives the ansated cross of the Egyptians. Numbers 3 and 4 counted on the cross, showing a form of the golden candlestick, and of the $3+4=7$, and $6+1=7$, days in the circle of the week, as 7 lights of the sun. (So, also, as the week of 7 lights gives origin to the month and year, so it is the time marker of birth, p. 202.) \&21. The cross form being shown, then by the connected use of the form 113: 355, the symbol is completed by the attacliment of a man to the cross. This kind of measure was made to co-ordinate with the idea of the origin of human life ( $\frac{\gamma}{2} \mathbf{2 0}$ ), and hence the phallic form. See $\xi_{2} 23$, and comment by Professor Seyffarth; also, the symbols there displayed. \}22. The man's head symbol, of the sphere, or circle.

## Primordial Vestiges of these Symbols.

\&24. The Easter Isles. Crucified man in South America. Hebrew inscriptions in the American mounds. Curious data regarding the mounds as alike Typhonic cmblems with the pyramid of Egypt, and with Hebrew symbols. Mounds showing British measures. Aztec, or "mound-
builder," pyramid showing the use of the value 318 , or diameter to a circumference of one, as a civil calendar number. Old bronze axes of the Phenicians identical in shape with the copper ones of the mound-builders.

## British System of Long and Land Mcasures, inclusive of an Occult System of Time Mcasures.

द?. 25, 26, 27, and 28, introductory to this inquiry. Note to 833 . $\mathcal{F e}$ hovalh is Noak, in the Hebrew, by literal transfer into British is the word I-nch (see also note, page 160 .) : Also, note page 65, as to Jared, the father of Enoch, being the Mount of Descent. Jared literally is YRD, or the British word yard, a mcasurc; and as source of descent is the British word yard, used in the sense of membrum virile. (Let it be noted that the British part of the language is, one may say, almost purely Hebrew, as is fully within the experience of students.) Hebrew language noted for its stern-building. The words Fared, Ararat, Arets, carth, arour, cursing, cognate forms under the idea of from a source, as birth, or origin. See, also, in this connection, Introduction to Appendices (c.), as to an extension of the same cognate form in Mars, as Generator or the germinating principle. ${ }^{2} 34$. God-names Elohim and Jehovah numerical indices of geometrical relations. God-name Elolim, in its radicals, expressive, also, of the differential values 31 and 36 . A use shown of these differentials. \& 35. A table showing a linking together of values of apparently incongruous subjects matter. (2.) Lunar year of ancients $355-\mathbf{r}=354$ days. Time scale of measures, year values, of $355,360,365$, and 354,359 , and 364 days. (3.) Relation of $6561: 20612$ to $113: 355.0001+$; and $113: 355.0001+$ to $36: 113.0973+$, where, by a slight change 113 becomes a circumference to a diameter of $\overline{6 \times 6}=36$.

## Introduction to Construction of Great Pyramid.

338. Measures by Professor Piazzi Smyth, taken on the British standard at Edinburgh. He found the measures of Colonel Howard Vyse, of the French savants, and of Professor Greaves, of Oxford, reliable. \& 39. (d.) Measures of passage-ways, and chambers, showing variations on a mean of measure.

## Standard Measures of the Pyramid.

840. One object of constraction may be taken as astronomical, because north base side coincides with parallcl of $30^{\circ} \mathrm{N}$. latitude. (b.) Another may be taken as gcometrical. Measures of the mass by Professor Smyth. \&41. Standard measures shown in use of Parker forms. Compari-
son with measures by Professor Smyth. Remarks. \& 42. Standard measures of the king's chamber. $\}$. $43,44,45$. Actual measures as enlargements on the standard, with a reason for the variation. 845. System of enlargement applied to ascertain the measures of the king's chamber. [See Addenda, (a.)] Enlargement on the standard founded on a law. \&47. Enunciation of this law. Note: Base side of pyramid diameter to a circumference of 2400.24 is $\overline{6 \times 4}$. Basc of pyramid would then represent co-ordinately a square of 24 to the side, divided into 4 parts of 6 each. This is the Garden of Eden form; also that of the Hebrew Zodiac (also that of the encampment of the Israelites). $\% 48$. Discovery of this law derived from "Historical View of the Hindu Astronomy," by Mr. John Bentley. Analysis of the Hindu system, and its object shown; for calculations of sines, co-sines, tangents, co-tangents, and orbits of planets. Same object made apparent in the measures of the king's chamber. \& 49 . Note a connection between the Parker and Metius forms, with relation to the factor value $6 . \quad \xi 50$. Table of standard measures of restoration of the great pyramid, made thus far. \&51. Measures enlarged on the standard. 8. 52. Measures as actually made or computed in terms of the British inch and foot. 8.53. Table on these enlarged values, where, in every case, $3 \mathrm{I} S$ is the quotient of the diameter divided by the circumference. 318 a gnostic valuc of Christ, and of the trained servants of Abraham (also of the word Eliezer of Damascus, Abraham's steward). Hindu time periods founded on factor 6. \& 54. System of factoring to obtain the standard measures from the Parker circumference of 20612 .

## Effect of Putting the Pyramid in a Sphere.

855. To develop the number 216330. This number found as an elliptical difference. True pyramid springing from a pyramid in the original Parker numbers placed in a sphere. \& 56. Solar year value obtained fiom $\frac{1}{4}$ base side of pyramid, and the sine of 30 degrees. \& 57. Equatorial and polar diameters of the earth obtained. Note (page 104): Length of passage from edge of great step, through antechamber, to king's chamber, taken from the miles equatorial value of the earth. See, as to this, note, page 139. \%60. Square root of the solar year displayed in the king's chamber. \$62. Hebrew Biblical scheme in some measure bearing on this. $\delta_{6}$. The base of the pyramid includes the thickness of the pavement. ${ }_{3} 6_{4}$ and 70 . Location and length of descending passage-way, with respect to the inclined outside, to the base, and to the vertical axial line of the structure. \& 7r. Descending passage-way set off to the eastward of the vertical axial line of the pyramid, $24.4219+$ fect. 8.72. Dimensions of the descending passage-way. \& 73. Location of intersection
of floor line of ascending passage-way, with the roof line of descending passage-way. Floor line of ascending passage-way, with relation to the base of the pyramid, to the levels of the queen's and king's chamber, and to the vertical axial line of the mass. ? 74. Abstract geometrical elements laying at the base of the interior construction of the pyramid. \% 75 . Length of king's chamber level. § 76 . Elements of dimensions of queen's chamber. 877 . Height from floor of subterranean passage-way to the gable roof of Campbell's chamber. \&79. Height of level of passage to queen's chamber above the center of the sphere, in which the whole pyramid is supposed to have been placed. \& 8o. A method of placing a salient height line for the interior construction of the pyramid, \%8r. Close of effort at reconstruction of the pyramid, with remarks. John A. Parker's method of quadrature and his problem of three revolving bodies thought to be the base of the Pythagorean and Egyptian systems of geometry and astronomy. \&. 82. Pyramid symbolization; having a Hebraic and Biblical application to set forth a primal one under a $\mathcal{F}$ ehovah and Noak form. Fah is Noak, or $\mathfrak{F}$ ehovah is Noak, in Hebrew would be חلy", or literally, in English, Inch.

## The Temple of Solomon.

\& S4. Introductory remarks. Details of description. Remarks on the word cherubion. Comparison of the measures of the temple with those of the pyramid. Kabbalistic elucidations with regard to astronomical features of the temple.

## Introduction to Appendices.

\} 85. (a.) The opening sentence in Genesis. (b.) Its parallel numerical reading. Elohim a circumference value of 3.1415 to a diameter of $\mathbf{1}$. (c.) Arets, earth, Adam, man, and H-Adam-h, earth, are cognate with each other, have a like signification, and are personified under one form, as the Egyptian and Hebrew Mars. (d.) Enigmatical constructions appearing in the first face-readings of the Bible narratives. Illustrations and examples given.

## Appendix $I$.

\& 86. The Garden of Eden an Adam, or 144 form. \& 87 . The production of the woman from the side of the man, or the number value 5315 from 113. The rib a determinative of the method. (c.) (1.) The woman form of the garden the source of the Holy of Holies, by type, and of the four typical rivers. (2.) Object of the glyph to display the Parker and Metius number forms of 20612: 6561 and 355: 113. (d.) Other deter-
minatives. §88. The Garden of Eden as the 7th day. (The Hebrew words: sacr, as membrum virile, the base of the Latin sacr with facio, and also of the English sacr-ifice and sacr-ament; and sanctified, or the Hebrew Kodesh, as showing a sexual or productive use.) Garden of Eden display in the Eleusinian mysteries by women, in the use of the basket and serpent. Curious learning as to this. Note: Mystery of the cross but deepens, as one gathers knowledge as to it.

## Appendix II.

§ 89. Time calculations founded on Abram, Melchizedec, Hebron, or Kirjath-Arba, Foskua the son of Nun, and Caleb the son of Fephzinnek, as connected with the narratives relating to these personages. (Abram is Abra with an appended $m$ final, and Abra read backward is Arba, the city in which Abram lived.) $\S 90$. Abraham and Isaac to be taken together as a year circle value of 355 , which is the Hebrew word shanak, or year. Curious learning. Time year values as $355,360,365$.

## Appendix III.

§91. The word Logos, or Word, connecting with Fohn, or $\mathfrak{F o n a h}$, or Dove, with $\mathcal{F e k o v a k , ~ a n d ~ w i t h ~} \mathcal{F e s}$-us, through the fisk. Fokn the same with Fonak. The word beginning. Fohn and Fonak as Dove. The fish as connected with Dove, or Fohn, or Fonah, to make Fehowah. (f.) The Te Deum and the birth of the Savior. (g.) The Dove used in calculations of the year. (h.) New Testament use. Note, as to the river Fordan and its fisheries.

## Appendix $I V$.

A method of construction of the Fulian Calendar from the different year values of the ancients. \& 92. Garden of Eden one of the birth of time, and of man. Year values, $355,360,365$; from these another scale of 354,359 , and 364 , of which the last value, 364 , arises from the woman number 7 , and connects this as a woman number with 355 , which is an abstract circumference to a diameter of 113 , or man value. Page 229: Pictured use variously displayed; Hindu display clearly marking the Hebrew use; it is that of the woman hermaphrodite Indranee-Indra, the nature goddess, the Issa of the Hebrews, and the Isis of the Egyptians. Page 230: "Remission of sins," having reference to a "new birth unto righteousness," cxplainable under the type of shedding of blood in conception. Page 232: Fulian Calendar Division. § 92. (b.) The possible heel meaning of the 217 days. Name of Jacob the same as Jak is keel.

Page 233: Possible determinative sentences in 4th Genesis. Seth same as year. His son Enosh same as $365-1=364$, showing two year values. The above use somewhat strengthened by the zodiacal sign of the fishes. Page 235 : The word Pdradise as having a bearing on this subject. (It is the same as would be the use of the English expression Divide-O, intended to mean the division of a circle, the Hebrew letter samech for O , indicating, beyond the circle, its value of $360^{\circ}$.) Page 236: The Heel value appearing, as connected with the measures of the queen's chamber in the pyramid. Page 237: Curious learning as to the meaning of the ritualistic fact of circumcision. Relation of the prepuce to the sacr, as of the female pudenda to the membrum virile; hence the type of a spiritual marriage by consummation.

## Appendix $V$.

The Flood and the Ark of Noak, with their Strange Kabbalistic Biblical Relations.
§ 93. Prefatory remarks. Substance of the Old Testament lays in the books of the Law. All the rest but expansion, explanation, targums, enforcements, etc. Law divided into the framing of the ritual and the enunciation of the moral precepts; more space taken up by the former than the latter. Building of the pyramid occupies the first chapters of Genesis. The Biblical containment of the pyramid structure. Page 240: The use of the names Shem, Ham, and Japhet, as determinative of pyramid measures, in connection with the 600-year period of Noah and the 500-year period of Shem, Ham, and Japhet. Page 241: Method of calendar correction contained in the flood narrative. Page 242: Correction of the 600 -year period. The going into the ark an expression of the blotting out of days as a method of calendar correction. Page 243: The terms "sons of Elohim" and "daughters of H-Adam" for one thing astronomical terms. Page 243: The 150 days of the flood the correction of the $600-y e a r$ period, and the determinative of this use. The fixing a limit for the closing and opening of the year at the winter solstice point, by the figure of the subsidence of the flood and the grounding of the ark. Page 245: The word for flood, m'bul; root-word bul, or name of the rainy month. Page 246: Sth November same as I3th Julian style, by use of the epagomenai days, making the first 40 days of the flood end on the 22d day of December. Page 248 : Curious learning as to the balance of 110 days to make up the 150 days. Other number rests or stops in the flood narrative, involving the numbers 113 and 355. Page 249: The number values of the birds, viz., $113 \times 6$, and 355. Page 250: Mount Ararat, or Jared, or Yard, and its significations. The place of Ararat, or Mount Jared, in
the Adamic Chronology. Page 251: Astronomical personification. Ararat same as the Roman Fanus Bifrons and St. Peter. Page 252 : Peter same as cube of 5 under the name of the stone. (There is a curious reflection here. Matthew 16, v. 18, says: "Thou art Peter (ròck or stone), and on this stone I will build my church." The only other place in the gospels where the word church is used is in chap. 18, v. ${ }^{15}$, et seq., where there is commandment for the settlement of trespasses by the church. In both these places the power of binding and loosing is given, showing a direct connection. Contrast this with chap. 5, v. 23, et seq., where there is command for reconciliation with the brother before bringing the gift to the altar. Now, it is most strange : the word for clurch is ecclésia, which is a term of separation, or of the comers out from, and could have had no existence until not only after the death of Jesus, but until the destruction of the altar and temple; for so long as there was an altar and temple, just so long the Jews, by the commands of $\mathfrak{F e s u s}$, were to obey the law. Has there been interpolation here? or were these sentences used prophetically?) Page 253: Other types and teachings. Page 254: Curious, but illustrative, opinions of the church as to women. Page 255 : The twofold character of the Messiak, and its paralleled Hebrew and Greek mode of origin. Page 258: The Méshiac condition connected with the geographical location of the head-waters of the Jordan river. Page 259: Curious learning as to the salient dates of Biblical occurrences agreeing with astronomical time marks. Page 260: Remark as to the "Life of Apollonius of Tyana, by Philostratus," and its connection with the life of the Savior. Page 261: Other Méshiac types and shadows. Accounts for the conversion (which word means turning as on a hinge) of St. Paul. Why he was Saul and Paul. Page 262 : Saul and David. (Note that while Saul was son of Kisk, in Hebrew 113, so David was son of Jesse, or ' $\mathcal{Q}$, , and this word placed in a circle reads 113.) Page 263: Acrostic uses in the Bible; HHS, and Shem, Ham, and Japhet. Roman badge.

## Appendix VI.

§ 94. Grand determinative at the close of the flood, going to show that the confusion of lip did not necessarily imply confusion of knozledge. An evidence of common possession of this knowledge. § 95. The construction of the Tabernacle as a dwelling of Jehovah. Page 271 : Number value of name of Moses is 345 ; that of Jehovah, in His assumed name of I am that I am, is the reverse of this, or 543 .

## Appendix VII.

8. 96. An essay on the fourth chapter of Genesis, showing the continued relations of the Garden of Eden measures as connected with those of the pyramid, and an attempt at deciphering the hieroglyphic or deeper reading of the narrative; connecting also the plan of encampment of the Israelites (a Garden of Eden form) with the closing scenes of the New Testament. (The idea is to be noted here,-in reference to the fact found in the text that the solstice and equinox lines do not divide the year circle equally, and that the half of the year on the autumnal side of the solstice line is 3 days larger than the other,-that, astronomically, the three days of the Savior in the ark, or ground, or grave, may have had reference to this fact. A nother note is here made as to one of the values of the words Garden of Eden, shown in the text to be 177, which may be useful. Ten cubits is numerically $17.17666+$ feet, and this squared is the surface of one of the faces of a cube; and this multiplied by 6, would equal the entire superficies of a cube. The Holy of Holies was a cube of ten cubits; therefore, this expression would apply to it. Now, the operation gives ${ }_{17.17662} \times 6=1770+$; wherefore, the value of the words Garden of Eden, as 177, may, for one phase, have indicated the cube of the Holy of Holies. Further, as a note, there seems to be a connection between the 7 (seven) fold of Cain and the 70 (seventy) fold of Lamech, with the 7 and 70 times of forgiveness by Peter.) Page 300 : False rendering of the words of the Savior as given in Matthew, chap. 27, v. 46. Page 301: This false rendering a purposed one to give force to a mystical sense. Page 302: Comments by a clergyman on the "Study of the Bible," appropriate as to the contents of this work.

## Conclusion of Appendices.

\& 97. Authorities for an esoteric reading of the Bible. Rabbinically. By the Church. \& 98. The esoteric teaching confined to the few. The Bible a Divine, or spiritual work. God the immediate Causer of each sequence. He must be a conscious entity. Page 309: Mystery, dark-saying, and cloaking, the burden of the Testaments. \& 99. Are the keys of this esoterism lost? Page 309: Possessed by the Roman Catholic Church, and by the Free Masons; and probably by the Greek Church and the Brahmins. Traces of it in the English Church. Page 310: Resolutions of the Academy of Sciences, and of Royal Society of London, against entertaining a thesis on the subject of the Quadrature, perhaps an indication of a motive for concealment of the hidden wisdom. Page 31I: Two evi-
dences of the modern existence of this knowledge. Tenıplar emblem of the old man. (The five-rayed star, or pentapla, as signifying a pyramid.) The Genius of Free Masonry, and detailed description of its meaning. Page 314: The province of ritualism. Page 315: Ritualistic symbols. (a.) The T'phillin; (b.) The cross and rosary. Page 318: Conclusions by the author. A discovery by the author, made as these last sheets are in the hands of the printer, is too important to be omitted, and must find a place here. It has a bearing upon the whole work, both as to Mr. l'arker's claims, as supporting them, and also as to the Biblical containment of his forms, as the perfect, or Divine, ones. Mr. Parker's work goes to the extent of showing an integral relation of area of a square to that of its inscribed circle, and of diameter to circumfcrence of a circle by use of a basic number form as seen. Now, if from the same basic number the harmony extends to the development of an integral relation between the cube solid, and the solid contents of its inclosed sphere, this, by harmony, is in very nature almost conclusive of the natural or Divine nature of the origin of the Parker forms. Let the difference between Mr . Parker's relation of diameter of one to circumference, and the accepted one be first stated: The accepted one is I : $3.14159^{2+}$, while that of Mr . Parker, being 656r : 206r2, is $1: 3.141594269 \mathrm{r}+$. For singularity of relations connecting Biblical numbers referred to in the text with geometrical changes of forms, by means of the Parker quadrature elements, take the following :

The running values of the letters of the Hebrew word man ( $\mathbf{N}$ ) are 113 ; the full values, added, are 31 I ; and so, also, the full value of the Hebrew words the woman (问), added, are $3 I I$ : so that 3 II is both man and the woman, while II3 is man. The form stands 3II-II3, which reads the same either way. But the term man as aish is a form of Adam, and $A d a m$ is 144 ; and on the four cross lines of the square, from verge to center, the values read, or are taken as $144-44 \mathrm{r}$, or the reverse (and taking the square thus divided as the squared Zodiac, while one $44^{1}$ is the Hebrew dami (44r), or the vertical line as the sun overhead, or solstice line to the center of the square, another 44 I is the dami (441), as the bloods of Abel shed, and is the line of the ecliptic, or equinox, from the autumnal edge to the center of the square.) But thus we have two formsviz., (r.) 3 II-II3, and (2.) $44 \mathrm{I}-144$; linking themselves together. But from the man form 113 , the woman was taken as 5315 , and there resulted the form $53 \mathrm{r} 5-5 \mathrm{I} 35$; and by dropping the two fives in the center of the square, we had remaining the form $531-135$, or woman as 135 , and its reverse 531 : whence were derived the Metius and Parker forms, showing
one object of the use. Thus there are three forms all connected together under the names man, the woman, Adam, and woman, and they can be placed as-

$$
\begin{aligned}
& 3 I I-I I 3 \\
& 44 I-I 44 \\
& 53 I-I 35
\end{aligned}
$$

It is said of the woman that she was taken from Adam, and afterward that the Lord God brought her to the Adam, showing some use of woman with Adam ; so take the above form of woman, or 135, and Adam, or 144, together,
$\begin{array}{ll}\text { as } & 135-144 \\ \text { or reversed as } & 53 \mathrm{I}-44 \mathrm{I}\end{array}$
which last form, reversed, is Adam joined to woman, or the hermaphrodite form. But take it that there is a significant meaning to the form 531441 (as thus obscured), as disclosing a development of the Parker Quadrature forms, thus:

Take the Parker forms, or-

$$
\begin{array}{lr}
\text { (1.) Area of square, } & 656 \mathbf{1} \text {. } \\
\text { Of which the side of square is, } & 8 \mathbf{1} \text {. } \\
\text { (2.) Area of its inscribed circle, } & 5153 . \\
\text { Of which the diameter is, } & 81 .
\end{array}
$$

Then cnanging area to rectification, or line, measure:
(3.) Diameter being
6561.

Circumference is $5153 \times 4=\quad 20612$.
And now there develops from area and line, to cubic measure, by a wonderful and harmonic sequence, as follows:
(4.) The square of SI to the side in (I.) cubed is

$$
656 \mathrm{I} \times 8 \mathrm{I}=53 \mathrm{I} 44 \mathrm{I}
$$

or the connected form of woman Adam; and now (as discovered by the author March io, 1875),
(5.) The solid contents of a sphere is to be had by the form $\frac{1}{6} \pi \mathrm{Dia}^{3}$ (see any geometry); which for a diameter of 8 r as in ( I .) is $8 \mathrm{r}^{3} \mathrm{X}$ $(3.1415942691 \div 6=) \cdot 523699044 \mathrm{~S}+$; and, as a fact, this is precisely the same as 20612 [rectification of circumference in (3.)] $\times 135$. So that while the area in (1.) changed into a cube is $8 \mathbf{I}^{3}$, or 53 r441, the solidity of the contained sphere is $20612 \times 13.5=278262$, showing a continutd integral relation; where the solidity of the sphere is the Parker circumference multiplied by 135 , or by woman, and where the solidity of the containing cube is expressed by the reversed form of woman-Adam, or 531441 .

By this a leading is shown to closing up these curious relations, wonderful as eventuating in integrals:
(1.) Relation of area of square to that of inscribed circle.
(2.) From this is derived linear relation of diameter to circumference of a circle.
(3.) And, then, from (2.) the value of linear circumference multiplied by woman, or 135, gives the solidity of the sphere inclosed in the cnbe of one of the bases of which (1.) is the area; the cubic contents of which cube is $\mathrm{Si}^{3}$ or $53 \mathrm{I} 4+\mathrm{I}$, or reversed, $144-135$, or a nse of the joined values of Adam and woman.

This shows that there is in nature not only an integral relation between the value of the area of the circle inscribed in the square to the area of that square, and between the linear diameter to circumference of a circle, arising from the same numerical forms, as stated by Mr. Parker, but that on the same numerical basis it is to be shown that the integral relation of the cube to its contained sphere is $531-441$ to $20612 \times 13.5=278-262$ : and this harmony, with such multitudes of others as have been shown, only goes to confirm the fact that the Parker relations are the true natural ones from eternity to cternity; and are the ones on which the Bible is built.

To complete the integral relations. The surface of the cube of Si to the edge is one face $=656 \mathrm{r} \times 6=39366$. Surface of contained p phere $==$
$\pi$ Dia. $^{2}=3.141594269 \mathrm{r} \times 656 \mathrm{r}=20612$.

The following and closing relation, discovered March ${ }_{17}$, 1875 , is too important to omit, as it has a bearing upon the foundations of the quadrature.

Standard circumference of base of pyramid has been shown to arise from integral relation of diameter of 656r to circumference of 20612 ; where 20612 is multiplied by $\frac{4^{2}}{3^{2}}$, and this as inches, divided by $12=381.7037$ feet, the half base side of the pyramid (§41). Actual circumference of base of pyramid, enlarged on this, is where the relation is taken of circumference of one to a diameter of $.3183097+$, which diameter multiplied by $12=3.8197166+$, and by $100=381.97166+$, gives a variation on 3 Si.. $7037+$. The circumference of 20612 on which these relations are raised, is founded by Mr. Parker on the area of 5153 of the circle inscribed in a square of an area of 656 r , the side of which square is 8 I .

Now, to show that these very elcments of circular relation are natural, and actually have connection with the elements of the square:
(1.) The mean proportional between $38 \mathrm{r} .7037+$ and $38 \mathrm{~m} .97166+$ is 3 St. $S_{3766+\text {. }}$
(2.) The diagonal of a square whose side is 8 I , is 114.551298 t, and this divided by ${ }_{10}^{3}=38 \mathrm{r} \cdot 8_{37} 66+$, or this very mean proportional between these circular elements: and this shows that the elements of the square do of themselves by nature contain relations to the clements of the circle; which, again, proves that Mr. Parker's results are well taken according to nature, and are consequently right.
The value $1145.51298 \div 5=229.10+$, is a reduction of this connection between circular and square elements, and the author believes (from memory) that $229.10+$ is marked, in inches, as a measure of antechamber passage in the pyramid, by Professor Smyth.
The mean proportional $38 \mathrm{r} .537+$ is the square root of 1458 , or $485 \times 3$.

March 22, 1875.

## THE SOURCE OF MEASURES.

## INTRODUCTION.

The following, in place of a work, strictly speaking, is rather an essay or study. It is like the study of an artist, where it comprehends many details in outline going to make up a whole, yet unfinished and subject to change, here and there, as the blending of details may prove inharmonious or incongruous to the general scope of the design. Unlike such a study, however, others can join in the labor of completing the task; and it is hoped that it may prove an incentive to that end.

The whole constitutes a series of developments, based upon the use of geometrical elements, giving expression in a numerical value. These elements are found in the work of the late John A. Parker, of the city of New York, setting forth his discovery (but, in fact, the rediscovery) of $a$ quadrature value of the circle. Upon this one, that of Peter Metius, of the sixteenth century, seems to be a variation.

Mr. Parker makes use of an element of measure of the equilateral triangle, by which, as a least unit of measure, to express the measure of the elements of a circle in terms of the numerical value of a square : so that, as a conclusion, a square of 8I to the side, or 656I in area, shall contain a circle whose area equals 5I53; or, rectifying the circumference, a diameter of 656 I shall have a circumference of 5 153 $\times 4=206$ I2.

Let it be understood that the question of value of the quadraare, whether by Mr. Parker, or by Metius, as to whether it is the expression of exactitude of relation, does not arise ; nor is it, save incidentally, pertinent to the subject-matter in hand. While this work thus is relieved of any necessity of examination into the question of the possibility of what is called "the quadrature," or "the squaring of the circle," nevertheless, it is necessary to a proper understanding of the whole that some, to many persons very dry, details of Mr. Parker's construction of his quadrature should be set forth in the very commencement. Incidentally, loowever, it is thought that the matters established herein, as having a direct relation to the holy things of God, as laid down in Scripture, will force an inquiry, on the part of devout people, into the abstract question of "the quadraturc," both as received and as set forth by Parker and by Metius; and also into the question of any special value of the quadrature by Parker, as related to the generally accepted one.

One development is as follows: The numerical value, 206I2, of a circumference is made use of to derive from it a unit of measure for linear, superficial, and solid measure. Thus, as a common unit of measure is the edge of one of the faces of a cube, and as there are twelve edges to the cube, the division of 206 I 2 by 12 - is the distribution of this value onto these 12 edges; so that the quotient, which is I7I7.66+, is that unit of measure, which is, however it may be used, convertible into circular, and again, back into the geometrical elements whence derived. And this is obtained by the special numerical value, $171766+$, the one-twelfth of 206I2, whether, as a fact, it be used as a whole or as a part, as I.7I766+. Now, as a fact, I.7I766+ of the British foot is the ancient cubit value; hence, the whole scheme thus far displayed has been practically utilized, inasmuch as 206I2 is thus seen to be of the value of British inches, while its derivative of I7I766+, so divided or scaled as to represent $1.7 \mathrm{I} 766+$, is the ancient cubit.

This is confirmed from the fact of restoration, by means of these numerical values, of the great pyramid of Egypt, in terms of the British measures thereof made of late years.

Another development is that, by a variation on the use of these numerical values, taken systematically, not empiri-
cally, a diameter value to a circumference value of 6 is found, which is discovered to be the basis of the Hindu method for the calculation of tables of sines and cosines, tangents and cotangents, and of the orbits of planetary bodies; which variation, as an enlargement of the above values, on application, is found to give the exactitude of the pyramid measures, agreeably to the design of the architect, thus again coupling a modern with an ancient use.

Another development is that the British system of long and land measures is discovered to contain an occult or obscure system of time calculations, based on the factor 6 , by which it is seen that the entirety of the British measures rests upon these anciently developed elements, and thus is, in fact, but a phase of the Hindu system. The factor 6 is the base of the acre and mile measure, running up from the inch and foot, and the equivalent of the base side of the pyramid (which is a diameter value to a circumference of 24) is the side of a square, divided into four equal parts of $\overline{6 \times 6}$ each, in terms of the British foot, and necessarily the inch ; hence the advanced measures, as far as the mile, are thus involved. But while this is so, the means of obtaining this pyramid measure is through use of the Parker elements; hence the Parker elements are thus connected with the whole range of British measures.

But the greatest development is that the entire system seems to have been anciently regarded as one resting in nature, and one which was adopted by nature, or God, as the basis or lazv of the exertion practically of creative power-i. e., it was the creative design, of which creation was practically the application. This seems to be established by the fact that, under the system set forth, measures of planctary times serve co-ordinately as measures of the sizc of planets, and of the peculiarity of their shapesi. e., in the extension of their equatorial and polar diameters, in terms of the British measures, or the cubit measures arising, as stated, from the forms of Mr. Parker.

The true study of the Deity by man being in the observa-
tion of His works, the discovery of a fundamental crcative lazw (in numbers and measures), as regards His works, of as wide and comprehensive grasp as shown, would locate the substance of such a discovery as the practical real tangible link between God and man, as that by which man can in a measure realize the actually existing working qualities of God, just, speaking most reverentially, as he would those of a fellow-man-as, say, of a mason, or of a carpenter; thus revealing tangible existence, likeness, relationship, and, remotely, companionship. Such a link, once found, would constitute a base for superstructures of recognition, praise, worship, and copy. As a fact, this system seems to underlie the whole Biblical structure, as a foundation for its ritualism, and for its display of the works of the Deity in the way of architccture, by use of the sacred unit of measure in the Garden of Eden, the Ark of Noah, the Tabernacle, and the Temple of Solomon.

Such seem to be the characteristics of development from the elements of quadrature of the late Mr. Parker. The extent to which the development is made so as to compel a mental assent, must be tested, of course, through the contents of the work. There is no disposition on the part of the author to make any assertion as to the strength of his work. What he has done has been done to the best of his ability, and he believes that a studiously careful reading of the work done, will be that, and alone that, upon which any fair criticism can be based.

Since, after all, all matters of science subordinate themselves to any one by which man can arrive to a realizable knowledge of God, all things in this book are of poor value in every other regard, comparatively, save as they lead up just to this kind or condition of knowledge. Such being the case, the following statements may be made as introductory:
(土.) The "Quadrature of the Circlc," by John A. Parker, sets forth the integral relation of diameter to circumference of a circle as 6561 to 2061.2 , derived from area computations, viz : area of square being 656x, area of in-
scribed circle is 5153 ; and diameter being 656I, rectification of circumference is $5153 \times 4=20612$.
(2.) It appears that nature was regarded as making use of this numerical relation, as a law or application of numbers to measures, by which to construct the mechanical properties of the universe; so regulating the times of the planets that they should move by a numerical system such that by it the measure of their shapes was to be obtained in a definite class or scale of measures adapted to the same system: so that movement should co-ordinate with size under the same system.
(3.) However man obtained knowledge of the practical measure, the British inch, by which nature was thought to adjust the planets in size to harmonize with the notation of their movements, it seems he did obtain it, and esteemed its possession as the means of his realization of the Deitythat is, he approached so nearly to a conception of a Being having a mind like his own, only infinitely more powerful, as to be able to realize a laze of creation established by that Being, which must have existed prior to any creation (kabbalistically called the Word). The knowledge thus gained was simply that of the measure spoken of with its uses, in connection with the geometrical elements from whence it sprung.
(4.) This knowledge as to its origin, interpretation, and use, became somehow that of a caste condition. As such it was most sedulously concealed, and when set forth it was only in a secret or very obscured way. One way of setting it forth was by hicroglyphic zeriting. This method is the burden of the Hebrew Bible. Another way was by architcctural display. The greatest ever made was in the great pyramid of Egypt ; the next greatest seems to have been in the temple of Solomon.
(5.) It is thought the restoration of this pyramid agreeably to the design of the architect, will afford the means of translation of the hieroglyphic meanings of the Hebrew Bible, as, on hypothesis, the one was written and the other built to set forth the same natural problems.

> Univ Calif - Digitized by Microsoft ©

The first step, therefore, necessary to the deciphering of the hieroglyphic or symbolic meanings of the Hebrew Bible, is the restoration of the great pyramid after its architectural conception. This is the chief burden of this work ; and it is thought that the intent of the architect has been so far recovered as to justify publication. Secondarily, it is to be shown that the Temple was but another architectural style of setting forth the same measures with the pyramid. The balance of the matters, condensed as much as possible into brief outline, chiefly serves to exemplify the method of Biblical application of the pyramid system. This balance is noted here and there in the text, and is contained in the appendices. It serves to relieve the dry details of figures and calculations, to show related connections, and is hoped to excite interest in the whole subject, and to stimulate those who may read, to an earnest effort in the further prosecution of this subject so fascinating in its elucidations.

The relation of 6561 : 20612 is both in the pyramid structure and in the Bible coupled with the form II3: 355 . Some connections between the two will be shown, but what the exact basic relations between them were, as anciently recognized, remains to be discovered.

## THE HEBREW ALPHABET.

For the general reader to understand how a numerical or mathematical system may lie closed up in the Hebrew Bible, it may be well to state that the Hebrews, so far as has come down to us, had no numeral system, apart from their, literal one-i. e., their alphabet held their numerals, just as if, in English, our $a, b, c$, stood for 1, 2, 3, and so on, in lack of the Arabic system of numerals, borrowed by us, and now of exclusive use (although it would seem that they were in possession of this system also). The following is a table for reference, giving the Hebrew alphabet, the power of the letters, their symbols to some extent, with the numerical value fixed to each letter. The laws of symbolic use of words as numbers in the narrative of the Bible are not known, and the real uses are only to be accepted or received to the extent for which there is intrinsic proof. Otherwise, it is to be observed that where the letter values rise above units to tens and to hundreds, while the letter character may stand for, say, 20 or 200 , very frequently the charactcristic value is used as giving the expression of the unit value 2 alone. Thus, the letters , or the signs of 2,20 , and 200 , may be read by their characteristics of $2,2,2$, without special reference to the ciphers. So, also, ירשי may be read as 123, whereas, by adding as the values are indicated, the sum would be 5 ro. In many instances, too, the right numbers, found by one expression, are also made use of, by a reverse reading, for some other use, connected or not. Again, the use may be of numbers, simply placed above the letters of a word, read perhaps in the reverse, or of the sum of the full values, addition being made. Thus, the above number may be used as 123 or 321 , or 510 or or 5 , agreeably to the indications to be gathered from the context and the connections, or from determinatives of the proper or intended use to be found in the text.

A very remarkable feature of Hebrew usage is in the
permissible interchange of letters of like class, and sometimes of unlike classes-thus, the letters of any one class, as gutturals, etc., are interchangeable, and may be made use of sometimes without change of the meaning of the word, frequently for the purpose of working out a slight modification of meaning, sometimes to indicate a very marked departure of meaning. A good and very important illustration of this may be given. The verbal היה, or Hāyāh, or E-y-e, means to be, to cxist, while 1 , or Chāyāh, or $\mathrm{H}-\mathrm{y}-\mathrm{e}$, means to live as motion of existcnce. The letter ', or $i$, or $j$, or $y$, in these words, is interchangeable with the letter $\varphi$, or vau, or $w$, and the two words may be read as חוה or חוה, without change of meaning. The first becomes Hāvah, or Eve, and the second becomes Chāvah, or Ch-v-e, and their meanings, as above, being so slightly modifications of each other, they are as words interchangeable one for the other-that is, one may be taken for the other. Now, the first, literally, is Eve, while, as a substantive, the second means mother, and is, in fact, the proper name as given in Genesis for Eve, the mother of all living. The Deity name, J'hovah, is a compound of two words, viz., ', or $\mathfrak{F} a h$, and hovah, or הוה, one of the very words in question. The word Jehovah, or $\mathfrak{F}$ ah-Eve, has the primary significance of hermaphrodite existence or being, as male-female, and is הוּי', of which the , or $i$, or $j$, or $y$, stands for $\mathcal{F} a k$, or male, while is a change upon the word דוה, for the purpose of getting the mumeral form of 565 for 865 (originating in the yoni word fish, or ${ }^{j}{ }^{\prime \prime}=565$ ) : as the woman, or Evc, making up the male-female word Jah-Eve, was the primary intent, the less significant word הוד, as of mere being, taking the place of the more significant one, for the sake of the number value (springing through $j^{1}$, or 565 , as a flux), which, in another view, as will be seen, is of the utmost, and really of paramount importance. Thus, while it may be said that none but a very slight change has been made in the word forms, as to their meanings, a very marked change has been made mumerically, which was the pur-
pose of the change. The great power of kabbala rests upon this kind of play, and is thus derived. Ordinarily, grammatically, however, the same is worked under a law of construction. Under the title "Orthographic Changes," in his Hebrew Grammar, Green says :
"The signs (of the alphabet) thus far described represent all the sounds of the Hebrew language. Its stock of words is formed by combining these in various significant ways. The laws of such combinations, and especially the mutations to which they are subject, or which they occasion, next demand attention. When a particular idea has been attached to a certain combination of sounds, its different modifications may naturally be expressed by slightly varying those sounds. This may take place--
" I. By the substitution of one letter for another of like character, and for the most part of the same organ, $c . g$. :

To be, to exist; חיה to live.
*** *** ***
" 2. By transposition of letters, e. g.:
צา to deal violently; to urge.
" 3 . By the addition of a letter.
*** *** ***
"Such literal changes as those just recited not only serve to express new shades of meaning, but even where the meaning remains precisely the same, they may represent diversities of other sorts. * * * The lexicographer regards such words (undergoing such changes) as cognate, and traces them back to their common source."

These subjects can be but touched on in this work. Volumes have been written on them, and it would be well to treat them more at large in this connection could it be done in a manner not to confuse the main object. It must suffice to close with the Alphabet table.


|  |  | Form and power. h; Latin e; Greek $\varepsilon$; smooth breathing (Fuerst). | Name. <br> Hè. | Symbol. <br> Window opening, womb (Kabbala), also part of the fence of the letter $\Pi$ (Fuerst). |
| :---: | :---: | :---: | :---: | :---: |
| 6. |  | $v$ or $w$. | Vau. | Nail, hook, (crook, Egyptian?). |
| 7. | $i$ | $z$. | Záyin. | Weapon, (Scepter, Egyptian ?). |
| S. | $\Pi$ | $c h, k h, h \hbar$; Latin $h$; Greek H, $\eta$; rough breathing, or the Greek $\boldsymbol{x}$ (Fuerst). | Chēth. | Fence, $\sqcap$, Venus (Seyffarth). Affinity with 7 , as the womb. |

Note, that the letters $\Pi$ and $\Pi$ are from the same source, and are taken as the divided halves of one oblong (of two squares), with a little opening in one end as seen in $\boldsymbol{i}$. The letter is 5 , or a cube of five, while $\Pi$ is $S$, showing the number of cubes taken to make a larger one. (So $\delta$ thus used, is the same as 5 duplicated, for $5^{3}=125$, and $125 \times 8=1000$, and a larger cube made from the smaller of five, will make $5+5$, or 10 to the side.)
9. $\bullet t$
10. $\quad y, i$, or $j$.

Tēth. Snake, basket, figured in Eleusinian mysteries in worship by women (Sharpe's Egypt). Perhaps the scrotum,(Inman). Love apples (plural of word for David, meaning also basket.)
Yōdh. Hand, bent forefinger, mombrum virile with testes (Kabbala). The perfect number, or onc (Kabbala).

| $\begin{aligned} & \text { No. } \\ & 20 . \end{aligned}$ | $7$ | $\begin{aligned} & \text { Form and power } \\ & c, c h, k, k h \text {. } \end{aligned}$ | Name. Caph. | Symbol. <br> The hollow of the bent hand; with $コ=\beth コ$ = cube, measure of hollow sphere (Kabbala). |
| :---: | :---: | :---: | :---: | :---: |
| 30. | $i$ | $l$. | Lait medh. | Ox-goad; sign of a form of the god Mars. |
| 40. | 12 |  | Mēm. | Water. |
| 50. | 31 |  | Nūn. | Fish, symbol of Yo $n i, \mathrm{O}$, woman, or womb (Kabbala). |
| 60. | $\square$ | $s$. | Sā'mech. | A prop, a pillar; tes$t$ is (Sharpe), hence, egg. Divisions of the circle, perhaps indicating a square. Divisions of Paradise (Kabbala). |
| 70. |  | no power. | Áyin. | Eye. |
| So. | 9.7 | $p, p h$. |  | Mouth. |
|  |  | $t s, t z$. | Tsā'-dhē. | Fish-hook, hunter's dart. |
| 100. | $p$ | $k$. | Kōph. | Back of head from the ears; hence, significant of balances. Ancient pillow to rest the back of head on. Scull? Eye of needle. |
| 200. | 7 | $r$. | Rēsh. | Head, sphere, circle. |
| 300. | $\cdots$ | $s h, s$. | Shīn, Sin. | Tooth. |
| 400. |  | $t, t h .$. | Tau. | Cross, +. Foundation framework of construction. |

## CHAPTER I.

## SECTION I.

## QUADRATURE OF THE CIRCLE.

By JOHN A. PARKER.

(§ I.) Kabbala was a species of symbolic writing among the initiated, setting forth the secret teachings of the Bible; and the key of Kabbala is thought to be the geometrical relation of the area of the circle inscribed in the square, or of the cube to the sphere, giving rise to the relation of diameter to circumference of a circle, with the numerical value of this relation expressed in integrals. The relation of diameter to circumference being a supreme one connected with the god-names Elohim and Jehovah (which terms are expressions numerically of these relations, re-spectively-the first being of circumference, the latter of diameter), embraces all other subordinations under it. Two expressions of circumference to diameter in integrals are used in the Bible: (1.) The perfect; and, (2.) The imperfect. One of the relations between these is such that (2) subtracted from (r) will leave a unit of a diameter value in terms, or in the denomination, of the circumference value of the perfect circle, or a unit straight line having a perfect circular value, or a factor of circular value ( $\$ 82$ ).

Of course, as to the fact of these expressions residing in the Bible, it remains to be seen whether this is, or is not, so. It will be sufficiently strange if it is so ; but if it shall so appear, beyond contradiction, it will afford much food for thought, as to whether so sublime a work as the Holy Record can be a refuge for that so much oppressed and
bedeviled idea of "squaring the circle," unless the actuality of such relation exists, or unless an approximate of a certain nature and value was found to be of some nutural use.
(§2.) It is very remarkable: One of the values thus used in the Bible was rediscovered in about A. D. 1585 , by Peter Metius, as 113 for diameter to 355 for circumference, which, in the Sacred Record, is the imperfect value; the other was rediscovered by the late John A. Parker, of the city of New York, as 656I for diameter to 20612 for circumference, which, in the Sacred Record, is the perfect value. What the means of discovery by Metius were, is not known. The " Quadrature" of Mr. Parker is in print, and therein the steps are fully set forth. As to these, as they contain the geometrical key for the proper understanding of Kabbala, it is necessary to set them forth somewhat at large, premising that his value is obtained through the value of areas of shapes. His leading propositions (each proposition in the text being followed by its demonstration) are as follows :

> "Proposition I.
"One of the relative properties between straight lines and a perfect curve or circle is such, that all regular shapes formed of straight lines and equal sides, have their areas equal to half the circumference multiplied by the least radius which the shape contains (which is always the radius of an inscribed circle), than which every other radius contained in the shape is greater, and the circle has its area equal to half the circumference multiplied by the radius, to which every other radius contained in the circle is equal.

## "Proposition II.

"The circumference of any circle being given, if that circumference be brought into the form of a square, the area of that square is equal to the area of another circle, the circumscribed square of which is equal in area to the area of the circle whose circumference is first given.
"Proposition III.
"The circle is the natural basis or beginning of all area, and the square being made so in mathematical science, is artificial and arbitrary.

> "Proposition IV.
"The circumference of any circle being given, if that circumference be brought into any other shape formed of straight lines and of equal sides and angles, the area of that shape is equal to the area of another circle, which circle being circumscribed by another and similar shape, the area of such shape circumscribing the last-named circle is equal to the area of the circle whose circumference is given.

$$
\text { "Proposition } V \text {. }
$$

"The circumference of a circle by the measure of which the circle and the square are made equal, and by which the properties of straight lines and curved lines are made equal, is a line outside of the circle wholly circumscribing it, and thoroughly inclosing the whole area of the circle, and hence, whether it shall have breadth or not, forms no part of the circle.

## "Proposition VI.

"The circumference of a circle, such that its half being multiplied by radius, to which all other radii are equal, shall express the whole area of the circle, by the properties of straight lines, is greater in value in the sixth decimal place of figures than the same circumference in any polygor of 6144 sides, and greater also than the approximation of geometers at the same decimal place in any line of figures."

Under this proposition after his demonstration, he states: "And it is evident that if a circle, and a polygon of 6 I 44 sides (the number to which Playfair carries his bisection), shall have the same circumference, the area of the circle is greater than the area of the polygon in the sixth decimal place: and because the circumference of one diameter must
be four times the area of the circle, therefore, by the transition of shape to a circle, the true value of circumference is greater in the sixth decimal place than any approximation which can be obtained from a polygon of 6I44 sides, whether inscribed or circumscribed."

## "Proposition VII.

"Because the circle is the primary shape in nature, and hence the basis of area; and because the circle is measured by, and is equal to the square only in ratio of half its circumference by the radius, therefore, circumference and radius, and not the square of diameter, are the only natural and legitimate elements of area, by which all regular shapes are made equal to the square, and equal to the circle.

## "Proposition VIII.

"The equilateral triangle is the primary of all shapes in nature formed of straight lines, and of equal sides and angles, and it has the least radius, the least area, and the greatest circumference of any possible shape of equal sides and angles.
"Proposition $I X$.
" The circle and the equilateral triangle are opposite to one another in all the elements of their construction, and hence the fractional diameter of one circle, which is equal to the diameter of one square, is in the opposite duplicate ratio to the diameter of an equilateral triangle whose area is one.
"By diameter of the triangle, the perpendicular is here meant, as explained in the introduction to Chapter I., or a line passing through the center of the triangle, and perpendicular to either side.
" Let it be supposed that the areas of the equilateral triangle A and the square C each equals one.
" It has been shown (Proposition VIII), that the triangle has the least number of sides of any possible shape in nature formed of straight lines; and the circle is the ultimatum of nature in extension of the number of sides. In this par-

ticular, therefore, they are opposite to one another in the elements of their construction. By Proposition VII it is shown that circumference and radius are the only natural and legitimate elements of area by which different shapes may be measured alike, and are made equal to one another. By Proposition VIII, it is shown that the triangle has the lcast radius of any shape formed of straight lines of equal sides and of the same circumference, and by Propositions II and IV, Chapter I, it is seen that the circle has the greatest radius of any possible shape of the same circumference. By the same propositions, the triangle is shown to have the greatest circumference and the least area of any shape formed of straight lines and equal sides, and the circle is shown to have the least circumference and the greatest area of any shape. By a well-known law of numbers and geometry by which the greatest product which any number or any line can give, is, to multiply half by half, it will be seen that if we take the aggregate of circumference and radius in each shape, it is most equally divided in the circle, and the most unequally divided in the triangle of any possible shape. In every case, that which is greatest in the triangle is least in the circle, and that which is least in the triangle is greatest in the circle ; and in every particular the two shapes are at the extreme and oppositc boundaries of nature, being the greatest and the least that is possible. They are, therefore, opposite to one another in all the elements of their construction. There-
fore, the square being made the artificial basis of area (Proposition VII), if the diameter of the circle B (Plate XVI) shall equal the diameter of the square C , then, in the fractional relations of B to C such diameter shall be in the opposite duplicate ratio to the diameter of A correspondingly situated. The diameter of A correspondingly situated with the diameter of B to C , it will be seen, is a line drawn across the center of A perpendicular to either side; therefore, the diameter of $B$, in its fractional relation to C , is the opposite duplicate ratio to the porpendicular or diameter of A , and no other result is possible in the nature of things. (See Proposition VII, Appendix, and remarks following.) The proposition is therefore demonstrated.

> "Proposition N.
" The fractional diameter of one circle which is equal to the diameter of one square, being in the opposite ratio to the diameter of the equilateral triangle whose area is one, equals $\mathrm{Si}_{\mathrm{r}}$.

"Let the area of the equilateral triangle A (Plate XVII, $=\mathrm{I}$, and let the area of the square B also equal one, then the diameter of the circle C , which is equal to the diameter of the square B , also equals one. And it has been demonstrated that in their fractional relations to the square, the diameters of A and C are in opposite ratio to one another. (By the diameter in the triangle it is known that the perpendicular is here meant, as in Proposition IX.)

Now, if the area of the equilateral triangle A shall equal one, then the diameter of A is found to be equal to the square root of three twice extracted, or $\sqrt{ } \sqrt{ } 3$. Hence the fractional diameter of C , being in the opposite duplicate ratio (which is the squares of diameter), shall equal 3 twice squared, or $3^{2} \times 3^{2}$, and $3 \times 3=9$, and $9 \times 9=8$ I. The proposition is therefore demonstrated."

The opposite duplicate ratio of Mr . Parker has relation to the numerical values. The shapes being opposite to each other, he clesires to get an integral number to coordinate with the shapes. When the area of $\mathrm{A}=\mathrm{I}$, then the diameter is found to be $1.316074+$. But this will not do, for, if possible, it must assume the form of a least integral number. Square this value, and it equals $1.7320508+$. This will not do. Square it again, however, and it equals 3, which is just that to be desired. Having, however, obtained this, the value in the opposite ratio must suffer the same process, and $3^{2}=9$, and $9^{2}=8 \mathrm{I}$.

## "Proposition XI.

"The fractional area of one square, which is equal to the area of one circle, equals 6561; and the area of the circle inscribed in one square equals 5153 ."
" It has been proved (Proposition X) that the fractional diameter of the circle $\mathbf{C}$, which is equal to the diameter of one square ( $B$ ), whose area is one, being in the opposite ratio to $a b$ (Fig. A), equals 8r ; hence the area of $\mathrm{B}=$ SI $\times 81=656 \mathrm{I}$; therefore, $B$ equals one of 656 I equall fractional parts. Now, let $B$ equal $H$ in area. It has been proved (Proposition II) that H equals E in area; and if $\mathrm{H}=\mathrm{I}$, then $\mathrm{E}=\mathrm{r}$; and if $\mathrm{H}=656 \mathrm{I}$, then $\mathrm{E}=656 \mathrm{I}$. It has also been proved (Proposition II) that if the circumference of $F$ equals the circumference of $E$, then $F$ and $G$ are also equal in area. And because one circle, which is equal to one square (the area of the square being one), is in 6561 equal fractional parts, therefore, any circle which is equal to any square (the diameter of the circle being a whole number) shall be in some definite and certain number of

656I parts. Hence, the areas of the circles $C$ and $G$ (their diameters being each 8r) are some definite and cer-

tain number of 656 I parts of B and H . It is proved by the approximations of geometry, obtained by the properties of straight lines, that C and G are each greater (much greater) than $\frac{5152}{6561}$ parts of $B$ and $H$, and less (much less) than $\frac{5^{154}}{6561}$; therefore (Rcductio ad absurdum), they shall be each $\frac{5153}{6561}$, because they "can be nothing else, there being no other $\overline{6561}$ part between 5152 and 5154 .
"The proposition is therefore demonstrated; and the fractional area of one square, which is equal to one circle (the area of each being one), is 656 I , and the fractional area of one circle inscribed in such square is $5^{1} 53$."

The expression, "It is proved by the approximations of geometry, obtained by the properties of straight lines," contains a very subtle allusion and meaning. Mr. Parker approves the approximate value, as obtained by Playfair, after the method of its obtainment, viz., by the properties of straight lines, where such lines are defined as being
without breadth or thickncss. Assuming the property of breadth to a line or unit of measure, or obtaining the value of it by means of arca computation, works a change on the Playfair result necessarily. Now, if Mr. Parker is correct in his taken relation between triangle and circle to obtain a least integral unit of measure-i. e., the number 3-then, without at all conflicting with the Playfair results, his own are right, if Playfair's are so. (See Reflections on the Quadrature, § 7.)

## "Proposition XII.

" The true ratio of circumference to diameter of all circles is four times the area of one circle inscribed in one square for the ratio of circumference, to the area of the circumscribed square for the ratio of diameter. And hence the true and primary ratio of circumference to diameter of all circles is 20612 parts of circumference to 656I parts of diameter."
"It will be known that if the diameter of the circle $G$ inscribed in $\mathrm{H}=\mathrm{r}$, then the area of H also=I. It will be known, also, that the area of $G$ equals half of the circumference multiplied by half the diameter, and $\frac{1}{2} \times \frac{1}{2}=\frac{1}{4}$;
 hence, the diameter of $G$ being one, then the area of $G$ equals $\frac{1}{4}$ its circumference, and, vice versa, the circumference of $G$ equals four times its area. And the diameter of $G$ being one, it therefore equals the area of H , because the area of $\mathrm{H}=\mathrm{r}$. Therefore, the first part of the proposition is demonstrated, and four times the area of any inscribed circle for a ratio of circumference, to the area of the circumscribed square for a ratio of diameter, is seen to be a true ratio of circumference to diameter of all circles.
"It has been proved (Proposition XI) that by the primary relations existing between straight lines and curved lines, as developed by the opposite ratio of the equilateral triangle and the circle, the fractional area of $\mathrm{H}=656 \mathrm{I}$, and the
area of $\mathrm{G}=5 \mathrm{I} 53$; therefore, the true and primary ratio of circumference to diameter of all circles $=4 G$, for the ratio of circumference to the area of H for the ratio of diameter ; and since $G=5153$, and $H=5561$, therefore the true and primary ratio of circumference to diameter of all circles $=5153 \times 4=20612$ parts of circumference to 656 I parts of diameter."
"The proposition is therefore demonstrated, and the quadrature of the circle is demonstrated." Mr. Parker should have added, to be explicit, and exceptional to the Playfair method, "by way of area computation."

## QUADRATURE BY PETER METIUS.

(§3.) Some years ago, while examining into the reasoning of Mr. Parker, the author found notice of the ratio of Mctius. He wrote Mr. Parker, asking him if he was acquainted with the grounds on which Metius obtained it. He replied that he was not; but, upon testing the ratio sent by his own, he found some very curious numerical relations of difference. Subsequently, in a proposed second edition of his work (published after his death), he notices this ratio and these relations as follows:
" The ratio of Metius, known for more than a century past ( $1 \times 3$ to 355 ), is the nearest approximation to the truth ever made in whole numbers; but it does not answer the imperative law contained in our twelfth proposition, and therefore it can not be true. The circumference can not be divided by four, without a fraction or remainder. By whatever means Metius may have obtained his ratio, its examination shows it to be of the same composition as mine, but improperly divided. For example, if II3 shall be the diameter of a circle, then circumference (355) is $\frac{\mathrm{I}}{20612}$ part too little. But if 355 shall be the circumference of a circle, then diameter (1I3) is $\frac{\mathrm{I}}{656 \mathrm{I}}$ too big. It
thus affords a very perfect evidence that my ratio 20512 to 656 I is the true one, as we have fully proved it to be."

The conclusion thus drawn does not seem to be so manifest as stated. The relation between the two ratios is, however, very, yes, exceedingly remarkable, as the statement will show :

$$
\begin{aligned}
& 20612: 355:: 6561: 112 \frac{20611}{20612} \\
& 6561: 113:: 20612: 355 \frac{1}{6561}
\end{aligned}
$$

(Mr. Parker has confused the results.) The relation seems to be one which has, at some time, been found as a variant on the Parker forms, because of showing the same composition, as he says. The reverse of the case will not hold ; for, if the Parker forms be tested by those of Metius, no similar relation will be found to exist ; therefore, it would seem that those of Metius were derived from those of Mr. Parker.

## SECTION II.

## REFLECTIONS ON THE QUADRATURE BY MR. PARKER.

(§4.) It is averred that the quadrature by Mr. Parker is of great value. It is not, however, because of the intrinsic value of his work that it is so largely set forth; nor is it from any immediate motive to advocate or sustain it. It is (I) because his can be shown to be that identical measure which was used anciently, as the perfect measure, by the Egyptians, in the construction of the great pyramid, which was built to monumont it and its uscs; (2) because, from it, the sacred cubit value was dcrived, which was the cubit value used in construction of the Temple of Solomon, the Ark cf Noah, and the Ark of the Covenant-the value of all which consisted in the value of the measures used; (3) because it affords that kabbalistic value, which, before all others, conveys in the Bible the idea of God, the mean-
ing of the term, and the value of His works in the Cosmos; (4) because the geometrical symbols out of which it is seen to spring, with their primary numbers, are seen to have a kind of clcmental relation to cack other, and were made use of in the mysteries to convey the csotcric tcachings; and, finally, (5) because it appears bound up in, and as making a fundamental part of, the British system of long and land and time measures. If these statements are true, there will admittedly be no use to assert that it is well worthy of being set forth. All who appreciate the intense labor of research for light upon these matters will attach a value to this work of Mr. Parker far beyond that of the standard method, even though it should be defective, because its value will consist in its being a litcrary $k c y$, such as has never yet, it is thought, rewarded the generations upon generations of searchers in the Bible, in mythology, and in the antiquarian fields. In this view, the question simply of its mathematical value is one of the least possible importance as a primary one; although once recognized to have been used as stated, there is no doubt but that it would cause the foundations of the standard methods to be reviewed with an intensity of thought, which might, perhaps, in the end, establish Mr. Parker's method as the one giving a more useful result-i. e., perhaps, such an integral one, in area computation, as could be followed or copied after in material construction; albeit, it might, just as the Playfair method, be, after all, but an approximation. With this apology, it may be well to suggest some thoughts in relation to this quadrature value, which, to some extent, are worthy of attention, and, to some extent, are curious.
mr. parker's quadrature values obtained by area comPUTATIONS.
(§5.) It seems to be of importance, and it will be observed, that, from beginning to end, Mr. Parker seeks the quadrature through area measure, in terms of area, and finally obtains his numerical value of rectification by
an area computation. His numerical values are all area values to correspond with his geometrical figures; and even so in this final value, for it is in area terms where it exhibits a necessary value of linear measure of circumference. This being the case, it is evident that his computations are susceptible of material realizations, as in objectbuilding or copying. If his process is correct, then, under his Proposition XI, he has raised a test by which to work a change on the standard method to make it conform to area conditions and requirements. The fact that independently he has reproduced exactly the same formulæ which the ancients had, which formulæ had with them application to the same common end, viz., relation of diameter to circumference, goes far to prove that his stcps of ascertainment must have been the same as with them, though they may have had other and more satisfactory methods of illustrating and enforcing the resuit. His process seems to depend for its correctness upon the rightness of his ground of the opposite qualities of the triangle and circle. If this is rightly taken, his numerical integral relation founded on the number 3 must be right. His final step for obtaining the area 5153 of the inscribed circle depends upon the question whether the Legendre, or Playfair approximate, is right as a transcendental one.

CURIOUS FEATURES OBSERVABLE IN THE DETAlLS OF THE PLAYFAIR METHOD.
(§ 6.) It must be known that the results as to the value of $\pi$, by Legendre and Playfair, were not of universal acceptation. They were, for instance, criticised as being incorrect, by Torelli, in the preface of an edition of the works of Archimedes, printed at Oxford. Reference is made to this preface, and also to Playfair's comments on the same, as they are to be found in the supplement to Playfair's Euclid. Torelli held, according to Playfair:
"That it is impossible, from the relation which the rectilineal figures inscribed in, and circmmscribed about, a given curve have to one another, to conclude anything concerning the properties
of the curvilineal space itself, except in certain circumstances, which he has not precisely described."

The following practical truths seem to the author to be exceedingly remarkable as looking, in this specialized way, toward the support of Torelli's assertion, though no assertion must be considered as made that it affects the truth of the general results of the Legendre method.

The burden of the effort of Legendre is to show that by the growing diminution and equality between the circumscribed $\mathrm{C}^{\prime} \mathrm{B}^{\prime}$ and the inscribed CB , the curved line penned up between them becomes measurable; which curved line, at any stage of bisection, being an even and known part of the whole circle, from it the length of the entire circumference, and consequently the area of the curved space, is to be had. The measure of this growing equality is always to be tested by the difference of value, at any stage of bisection, between $C B$ and $C^{\prime} B^{\prime}$. In the diagram, which may stand for any stage of bisection, C B' is the chord of half the arc, and therefore $E E^{\prime}$ is $B B^{\prime}$ for every succeeding bisection. Now, from $\mathrm{B}^{\prime}$, as a center, with $C B^{\prime}$ as a radius, describe the arc CD. Then $\mathrm{C}^{\prime} \mathrm{D}$ will be the quantity which, vanishing by diminution, the triangle
 $C B^{\prime} \mathrm{C}^{\prime}$ will eventually become $\mathrm{CB}^{\prime} \mathrm{D}$, and isosceles; when the curve lying between $\mathrm{CB}^{\prime}$ and $\mathrm{DB}^{\prime}$ must, by hypothesis, become equal to $\mathrm{CB}^{\prime}$, or to $D^{\prime}$, as a straight line. Now, as a fact, taking the value $\mathrm{C}^{\prime} \mathrm{D}$ (the difference between CB and $\mathrm{C}^{\prime} \mathrm{B}^{\prime}$ ) and $\mathrm{E} \mathrm{E}^{\prime}$, for a number of bisections, and it will seem to show that, with relation to the diminution of $\mathrm{C}^{\prime} \mathrm{D}, \mathrm{E} \mathrm{E}^{\prime}$ is increasing, and by an increasing ratio. It becomes a question, on the showing, whether the arc is not, rclativcly, separating from,
instead of approaching, the chord. If so, the question is, what is the effect of this? What does it mean? If $\mathrm{EE}^{\prime}$ is thus increasing, what is the value of the arc becoming?

Is there some incompatibility between the geometrical conditions, as presented to the eye, and the numerical calculations of these forms? The rigicl result of such a condition would seem to be that, the ratio increasing, the step would come where, as Mr. Parker avers, C B' curve would necessarily pass in value beyond that of $\mathrm{C}^{\prime} B^{\prime}$ diminishedan absurd conclusion, unless some unnoticed incompatibility has existed between the condition of the curve and the calculations of the sides of the polygons. It is possible that this may be the case, since, in fact, the relations between them are not known, but only inferred. Practically, a calculation of the value of $\pi$ to 6 I 44 sides of the polygons, taken from the base that the perimeter of the polygon of six sides is one with twenty-five ciphers, making the radius one with 6 repeated twenty-four times, yields the following data as to the relation or ratio between $\mathrm{C}^{\prime} \mathrm{D}$ and $\mathrm{E} \mathrm{E}^{\prime}$, as they respectively diminish with continuing bisections of the arc:

which shows a rapid ratio of diminution of $\mathrm{C}^{\prime} \mathrm{D}$ with relation to that of $E E^{\prime}$ : and the practical diminution of $\mathrm{C}^{\prime} \mathrm{D}$ may be judged of from a statement of its value at 6 sides and 6I44 sides, as follows:

$$
\begin{aligned}
6 \text { sides, } \mathrm{C}^{\prime} \mathrm{B}^{\prime} & =962250448649 \\
\text { '6 } \mathrm{C} \mathrm{~B}^{\prime} & =86273015034 \mathrm{I} \\
\mathrm{C}^{\prime} \mathrm{D}, \text { or difference } & =99520298308
\end{aligned}
$$

$$
\begin{array}{rlr}
6_{1} 44 \text { sides, } \mathrm{C}^{\prime} \mathrm{B}^{\prime} & =0008522 \mathrm{II} 623 \\
\mathrm{C} \mathrm{~B}^{\prime} & =0008522 \mathrm{II} 539 \\
\mathrm{C}^{\prime} \mathrm{D}, \text { or difference } & =84
\end{array}
$$

which simply seems to show that the triangle $\mathrm{CB}^{\prime} \mathrm{C}^{\prime}$ is approaching to being isosceles unattended by a relatively rapid approximation of the chord $C B^{\prime}$ to the curve $C B^{\prime}$. But the relation of this approximation can be had by a statement of the continuing ratios between $\mathrm{B}^{\prime}$ and $E \mathrm{E}^{\prime}$, and these are as follows :

| $\mathrm{EE} \mathrm{E}^{\prime}$ for | 6 | sides | B B ${ }^{\prime}$ | : : I | : | 3.9318516 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ، | 12 | ، | " | I | : | 3.9828897 |
| '، | 24 | '6 | ، | I | : | 3.9989291 |
| " | 48 | ، | ¢ | I | : | 3.9997322 |
| ، | 96 | '، | ، | I | : | 3.9999330 |
| ، | 192 | ، | '6 | I | : | 3.9999832 |
| '6 | 384 | ، | '6 | I | : | 3.9999958 |
| '6 | 768 | ، | '6 | 1 | : | 3.9999989 |
| '6 | 1536 | " | '، | 1 | : | 3.9999997 |

Does not this simply show that while the ratio of $\mathrm{E}^{\prime}$ to $B B^{\prime}$ can never become $1: 4$, the ratio of $\mathrm{C}^{\prime} \mathrm{D}$ to $E \mathrm{E}^{\prime}$ can become I : $\infty$ large ? which mathematically expressed means that the triangle $\mathrm{CB}^{\prime} \mathrm{C}^{\prime}$ may become isosceles, while yet, absurdly enough, the chord and arc have not as yet assimilated? Not only so, but have separated by a, relatively, infinite quantity.

MATHEMATICS IS FAMILIAR WITH DEFINITIONS WHICH ARE UNTRUE.
(§ 8.) It is unfortunate for mathematics that, in attempting to set forth methods of comparative measures of right and curved lines, it has been found necessary to assume truths as the very groundwork of such measures, which, in fact, and in the nature of things, are not so. As to the Calculus, for instance, its results are taken as cxact, when the differentials, which are real quantities belonging to those results, are eliminated ; because, as it is said, on
account of their smallness, they can affurd to be dropped. The very inception of Newton's "Principia," for another instance, is founded upon a geometrically false statement, as regards exactitude of definition-palpably so. His "Lemma I" states: "Quantities and the ratio of quantitics, which in any finite time converge continually to equality, and, before that time, ap-
 proach nearer the one to the other, than by any given difference, ultimatcly become equal." Let A BC be any triangle, and with the length AB as a_radius, let the arc BD be drawn to intercept the line AC. Suppose this figure, both for triangle and segment of circle, be continually and proportionately reduced, as $\mathrm{AB}^{\prime} \mathrm{C}^{\prime}, \mathrm{AB}^{\prime} \mathrm{D}^{\prime}$; the relative differences will never be changed, and, consequently, the ratios of difference will always remain the same. The proposition is axiomatic, and does not require demonstration. But take the triangle ABC, with the circular area $A B D$, as decreasing toward $A B$, by different and successive steps, one of which is, say, A BE, with the circular area ABF. By this method, no geometrical ratio can be preserved. The ratio of diminution has to be calculated by numerical combinations. But there being a ratio of diminution, in which the difference between the straight line and the curve is, say, a decreasing one, it is, nevertheless, plainly to be seen that the only equality of the curved line $\mathrm{B} D$ with the straight line BC , in any possible diminution, will be when the line A C shall so close upon A B as to wholly coincide with it (as to the value of their lengths now or at last becoming alike), and become, with AB, one and the same line, at which stage or condition there can be neither curved line nor straight line left for comparison: therefore, so long as those lines, i. e., CB straight, and B D curve, exist at all, either in
whole or in part, there can, by possibility, be no equality between them. Hence, the lcmma is false in its terminology; nor is it even right in a showing of a growing or proximate equality, as regards the ultimate structure of the lines, as was shown above.

There is a certain ridiculousness in the matter, in this, that while the schools assert the impossibility of there being an integral relation between circle and square, because of the essential difference between a curved and right line (which is true to all intents), the possibility of this integral relation is here, by iaference, falsely set forth and maintained. It is because a line has breadth that a curved and straight line are not comparable. Straight and curved lines conceived of as without breadth may be taken as comparable, because of the possibility of their reduction to points.

NATURE SEEMS TO AFFORD CONFIRMATORY EVIDENCE THAT MR. PARKER IS RIGHT.
(§ 9.) Mr. Parker is of opinion that there is in numbers some, so to speak, flux of notation of quantity, by which geometrical shapes can be integrally noted as changing the one into the other. Thus, if he is right, there is a unit square, which is of the denomination of $\frac{1}{6561}$ of a square area, while it is also at the same time of a denomination of a $\frac{I}{5153}$ of a circular area. Evidently, then, whatever rectangular figure is, represented in terms of this unit square, its equivalent circular area value in integrals can be given in the same terms ; as, $\frac{4}{656 \mathrm{I}}$ of a square $=\frac{4}{5^{153}}$ of a circular area. It may be that nature assumes, in some of her practical constructions on the principles of plane and spherical geometry, a least cubic one; and it may be that it is in terms of this least one that she performs her works, approximating the form of a sphere by its use. It may be that Mr. Parker's method is right as a natural mechanical one, while that by Playfair may be right as a transcendental one. It is certain that nature does lend some data as
touching some of her methods of construction. The condition of substance to form what is called water, is one resting upon the quality of heat as affecting atomic particles of matter. Heat being but a modification of motion of particles, a spheroid or drop of water is such because of its particles being in some peculiarity of motion on themselves, through perhaps the intervention of some subtler substance in which the atoms may act. Thus the globule, or spheroid, of water is formed. The effect of cessation of this motion is indicated by a cessation of spheroidal shape. Motion giving place to rest, the change is characterized by change of shape; and this change seems uniformly to be that, as to shape of particles, of the equilateral triangle as part of a hexagon. On this form, other shapes take place. In one form, at and growing out of the corners of the hexagon, are little squares or cubes. (See description by Professor Tyndall of these forms, as becoming manifested in the breaking down of ice particles in the interior of a mass, when heat rays are passed through it.) In this shape the substance has become ice. If, chemically, the components of water are in integral atoms, and if, in its structural form, in passing from shape to shape, it passes from one integral form to another, as to shape, this would serve as a strong hint that nature recognizes the alliance and interchanges of shapes in subdivisions of wholes not fractions. It is noteworthy that the primary material one here indicated in ice seems to be triangular or pyramidal, then cubic; and this in a measure serves to strengthen Mr . Parker's assertions, for it is on the triangle as the natural originator of plane shapes that he raises a least integral in the number 3 , by which to express the value of the circle in terms of the square and cube; and, again, he accomplishes this by an integral relation, so close to the Playfair transcendental one, that the difference only becomes manifested at the sixth decimal place, in a circumference taken to a diameter of unity.

## SECTION III.

## PROBLEM OF THREE REVOLVING BODIES.

(§ Io.) It is thus seen that the process of Mr. Parker is founded geometrically upon the elements of the circle and of the equilateral triangle, being, as related to each other, the extreme opposites in nature, of which the circle is the primary of all shapes, and hence the basis of all area, and the triangle is the primary in nature of all shapes formed of straight lines, and of equal sides and angles. Of these, the equilateral triangle is numerically measurable; and it being requisite to translate shapes by numbers, as to the conditions required of a least numerical integral value, with which to determine the value of the circle, that integral least number is found to be 3. By means of this shape and this integral he obtains the value of the circle, that shape of greatest extension as compared with the triangle, in terms of the square. Numerically, $\sqrt{ } \sqrt{ } 3$ is opposed by $3^{2} \times 3^{2}=8 \mathrm{I}=$ diameter of his square, or the length of its side. $S \mathrm{I}^{2}=656 \mathrm{I}=$ area of his square, in terms of his least numerical integral. The area of the contained circle $=5153$; and, by the process set forth, changing area value to represent rectification, diameter being 656 I , circumference $=20612$. The results, therefore, are $:$
$\left.\begin{array}{lll}\text { (1) } & ={ }^{656 I} \\ \text { Area of square } & = & 5153\end{array}\right\}$
(2) Diameter of circle $=$ 656I Circumference of circle $=\overline{5153 \times 4}=20612\}$

PROBLEM OF THREE REVOLVING BODIES, BY MR. PARKER.
(§ Ix.) Mr. Parker follows up the ascertainment of these data with his problem of three revolving bodies, founded upon the principles of the quadrature. This problem is as follows:

## "Proposition $I$.

"The respective and relative motion of three gravitating bodies revolving together and about each other is as four to threc, or one and one-third of one primary circumference.
"I have always considered this proposition as self-evident on the face of it, and that no mathematician would deny it and hazard his reputation on sustaining the denial with proof. But, as I shall perhaps be called on for proof, I add here, at some length, the solution of the problem, after my own method, as follows :
" The problem of three gravitating bodies revolving together and about each other is one which, like the quadrature, has hitherto baffled all attempts of mathematicians to solve. But since this, like others of the kind, is of itself a problem, which is daily performed and consequently solved by the mechanical operations of nature, the failure of mathematicians to reach the solution proves nothing but the imperfection of the reasoning applied to it.
"It is a principle, I think, clearly demonstrable, that whatever can be constructed by mechanics out of given magnitudes, can be exactly determined by numbers, and that which can not be constructed by mechanics out of any given magnitudes, can not be exactly determined by numbers, having the same relation as the magnitudes one to another. It is for this reason, and for this reason only, that we can not, out of the same magnitudes, construct a square which is just twice as big as any other perfect square; neither can we find the perfect root of such a square by decimal numbers. If this reasoning be true, then, because the problem of three gravitating bodies is a mechanical operation daily performed in nature, it is hence a thing capable of being proved by numbers. The great difficulty of this problem has arisen, I think, from the impossibility of its full display by diagram, and the difficulty of embracing, in any formula, all the conditions contained in its elements. The plan of exacting a display by diagram of all the geometrical propositions is $s a f c$, and perhaps it
is the only plan by which the yet untaught mind can be initiated into the truths of geometry; but is it always necessary in every original demonstration? Are there not other means equally true and cqually safe in the hands of one accustomed to examination, and acquainted with the properties of numbers and of shapes? I think there are; and, without taking the least unwarrantable latitude, or departing from the clearest perceptions of reason, I think this problem may be easily and accurately solved.
"The thing required of every demonstration is, that it shall give a sufficient reason for the truth which it asserts. But, in order that a reason may be sufficient, and the conclusion drawn from it safe, it is necessary, not only that the relations of cause and effect shall be made clear to our perceptions, but also that the conclusion, when drazon, shall abide the test of practical application. Any demonstration which does less than this can not be relied on, and no demonstration ever made has ever done more than this.
"We know very well that things are possible or impossible to be done, only in proportion as the means applied are adequate or inadequate to the purpose. We know also, that because different principles exist in the various forms of matter, therefore it is impossible to demonstrate everything by the same means or same principles. It is a narrowminded prejudice, therefore, which exacts that every demonstration shall be made by the prescribed rules of science, as if science already embraced every principle which exists in nature. Yet none are more frequently guilty of this narrow-mindedness than mathematicians, who often require that things shall be done by the means which the written science affords, well knowing at the same time that such means are inadcquate. Such has always been the case in respect to the quadrature of the circle. Mathematicians have demanded that it should be demonstrated by the properties of straight lines, knowing at the same time that straight lines are inadequate. Therefore (and therefore only) the thing has been found impossible, and all other demonstrations are rejected, because they can not be shown
by straight lines. I do not consent to such unreasonableness of decision; but, in every proposition where the sufficient reason is manifest, I hold the proposition to be demonstrated until it can be disproved.
" In entering upon the solution of the problem of three gravitating bodies, we must first examine and see of what elements the problem is composed.
" The elements which I shall consider in this case, will not be such as a mathematician of the schools would think it necessary to consider. They will be far more simple, more conclusive (for such as the schools can furnish, have yet decided nothing), and I think, more comprehensible, yet equally true to nature (for I consult nature's laws only, and not the method or opinions of any other man), and equally accurate and precise with any which can be given by any other method.
"And, first, each revolving body is impressed by nature with certain laws making it susceptible of the operation of force, which being applied, impels motion. These laws may all be expressed under the general term forces, which, though various in their nature, possess an equalizing power, controlling each other in such a way that neither can predominate beyond a certain limit ; and consequently, these bodies can never approach nearer to each other than a certain point, nor recede from each other beyond another certain point. Hence these forces are, at some mean point, made perfectly equal, and therefore they may be considered as but one force, and hence but one clement in the problem.
"Sccondly, these revolving bodies have magnitude, shape, density, etc., which affect the operations of force in producing motion. These properties of revolving bodies have all the same inherent power of equalization as forces. For example, if density be greater in one than another, then magnitude will be relatively less, force will be less (the direct force), and the momentum from velocity greater, but the whole shall be equal. On the other hand, if magni-
tude be greater, and density less, then force will be greater, and velocity less, but the whole shall be equal.
"The second element of this problem may therefore be comprehended under the term magnitude, which shall include shape, density, and every other quality or condition which affects the operation of force in producing motion, and the whole constitute but one element in the problem, which I term magnitude, as referring to the bodies themselves rather than to any of their qualities, as density, gravity, or otherwise.
"The third element in this problem is distance, by which I would be understood to mean the chosen distances from one another, at which these bodies perform their revolutions in space. It is well understood, that from the nature of the case, these revolving bodies must take up their mean distances from one another in exact proportion to their respective magnitudes and forces, and in proportion as these are greater or less, the distance from each other will be greater or less. Hence it is seen that the same inherent power of equalization exists in respect to distances as in respect to the forces and magnitudes, and whether their distances from each other be greater or less, equal or unequal, they still constitute but one element in the problem.
"The fourth and last clement in this problem is motion, or velocity, by which distances are to be performed or overcome by revolution. And here again, it will be seen, that because the distances to be thus performed by revolution de_ pend entirely on the choscn distances from one another, and these again depend on magnitude and force, therefore the same equalizing power exists in regard to motion or velocity, as exists in regard to all the other elements, and therefore this also constitutes but one element in the problem, which I will term velocity, as including momentum, and every other quality, condition, or effect of motion.
" These, four in number, are all the elements necessary for the mechanical performance of the problem, and consequently all that are necessary for its determination by numbers; and it has been seen that such is the nature of the
problem itself, and the power of these elements over one another, that every other quality or condition affecting either, is equalized by, and held in subservience to these, and these again are equalized by, and held in subservience to one another, and all controlled by magnitude, so that the whole constitute but one problem or mechanical operation, in which four elements are concerned.
"The difficulty of reducing impalpable things to a palpable standard of measure is generally conceded; but, in this case, I think the difficulty does not exist, and that these elements may all be as truly represented by numbers and magnitudes as if they were palpable things in themselves, having the qualities of length, breadth, and thickness. For example, let a stone be a magnitude, having shape, bulk, density, etc. Now, a force which can raise this stone one foot from the ground, and hold it suspended there, is, in its relation to the magnitude or stone, exactly equal to one foot of measure ; and because the stone is held suspended, and does not descend again, nor rise higher, it is evident that the force and magnitude have become equal at that point of elevation, and therefore, vice versa, the magnitude or stone is, in its relation to the force, exactly equal to one foot of measure, and consequently distance and motion are each also seen to be equal to one foot; and. the same principles of applicability to measure exist in thrce bodies suspended in space, and made to revolve about each other by forces inherent in themselves. It matters not that other and disturbing forces exist outside or inside the space in which these bodies revolve, because, if another and disturbing force be considered, then it ceases to be a problem of three gravitating bodies; and also, because such disturbing forces, if they exist, operate proportionally on all three of the revolving bodies, and in the course of a revolution, and consequent change of relative position, these disturbances must find their perfect equality.
"Now, let us suppose that we have here three bodies, revolving together in space by their own gravitating power,
and let the magnitudes of these bodies be exactly equal to one another: then their forces shall be equal, their distances equal, and their velocities equal, and it will be seen that they can not revolve about each other, but must follow each other round a common center, and their relative motion, in respect to any point in
 space (as the point or star A) must be on the value of the circumference of the circle $B$, which passes through the center of each body, as in the accompanying figure.
" Now, let us suppose that each of the elements contained in the problem of three gravitating bodies, is an equal portion of the arca of the circle which these bodies describe in a revolution; then the circle will be divided from the center into four equal parts, as at the points $a, b, c, d$, and let each part equal one. It will be seen that in each relative change of position, each revolving body passes over an area equal to one and one-third. In other words, their relative motion is as four to three. So, also, if each element shall be an equal portion of the circumference of the circle $B$, or an equal portion of the square of the diameter of $B$, the same result is manifest, and the relative motion of each revolving body is as four to three of such magnitude as is made the standard of measure.
"Again: Secondly. Let the area of the circle inscribed in the equilateral triangle, whose sides make the distance between these revolving bodies, be one, as in the following figure. It is seen that the circle B , whose circumference these bodies describe by their revolution, is four times greater than such inscribed circle. (See Plate XXXI, Appendix.) Hence, again, their relative change of position is seen to be as four to three, or one and one-third of
the primary magnitude which is made the standard of measure, and (Proposition I, Chapter II) it is seen that the
 circle inscribed in the triangle, as above, forms the basis of the area of that triangle, when it shall be measured by circumference and radius, which are the only legitimate elements of area in all shapes alike.
"Again: Thirdly. It is seen that the equilateral triangle [see preceding figure], whose sides make the distance between these revolving bodies, is an angular shape and being measured in the usual way of measuring angular shapes, its area equals the perpendicular $\mathrm{P} d$, by half the side. Now let the perpendicular $\mathrm{P} d$, equal one. Then it is seen that the diameter of the circle B , which these bodies describe in a revolution, is one-third greater than the perpendicular. Hence, in performing a complete revolution, these bodies describe a circumference equal to one and one-third the circumference of one diameter. In other words, their relative motion is again seen to be as four to three of one primary circumference.
"Fourthly. These bodies, which are revolving together, are known (by hypothesis) to be equal to one another in magnitude, and consequently equal to one another in all the elements concerned in their revolution. Now, let us suppose that their distance from each other equals one. That distance is seen to be the side of an equilateral triangle inscribed in the circle $B$, whose circumference they describe in one complete revolution. [See preceding figure.] Now, the side of an equilateral triangle inscribed in a circle, equals the perpendicular from the base of an equilateral triangle, whose side equals the diameter of the aforesaid circle; and therefore, because the square of the side
of any equilateral triangle equals one-third added to the square of its perpendicular, and because the square of the side of the equilateral triangle inscribed in B equals one, therefore the square of the diameter of B equals one and one-third. Hence the area of B equals one and one-third the area of a circle whose diameter is onc. Hence, in describing the circumference of $B$, the relative motion of these three revolving bodies shall be as four to three, or one and one-third the area of a circle whose diameter is one.
"By Proposition XII, Chapter II, it is shown that the true and primary ratio of circumference to diameter of all circles, which can be expressed in whole numbers, is four times the arca of one circle inscribed in one square for the ratio of circumference, to the arca of the circumscribed square, for a ratio of diameter. [See preceding figure.] Therefore, it is evident that if the circumference of $B$ shall be resolved into such primary parts as shall express the circumference of one diameter in whole numbers, and in its exact relation to area and diameter, without a remainder in either, then the circumference of B shall equal one and one-third of one primary circumference, such as may be expressed in whole numbers; because the area of the square circumscribing B equals one and one-third, when the side of the equilateral triangle inscribed in B equals one.
"Fifth, and lastly. These revolving bodies must be supposed to revolve upon a value, in which diameter and area form exact and equal portions, and the only circle in nature whose diameter and area are equal to one another, and identical in numbers, is a circle whose circumference is four; hence the relative motion of three bodies of equal magnitude, revolving together, can not be otherwise than one and one-third of such parts.
" It is evident, from all the foregoing demonstrations, that, if we suppose the elements of which this problem is composed to be magnitudcs, and take them as a standard of measure, whether such magnitudes shall be equal portions of the area of a circle, or of its circumference, or of
the square of its diametcr, or whether we take as our standard of measure the distance betzocen these revolving bodies, which makes the side of a triangle, or the perpendicular of such triangle, or its inscribed circle, in all cases, and in every case, the relative motion of these three revolving bodies must be as four to three, or one and onethird of such magnitude as is made the standard of measure, and there is no other standard of measure which can be mathematically assumed in the premises which I have not here considered.
"The proposition is therefore demonstrated that three gravitating bodies of cqual magnitudc, revolving together, their relative motion shall bc as four to three, or one and one-third of one primary circumference.
" It will be obvious to any one that, in the foregoing demonstration, I have assumed that the magnitudes of the revolving bodies are all equal to one another, and hence their forces, distances, and velocities are all cqual to one another; consequently, they all revolve on the same circumference, as shown in the several plates, from XXII to XXVI; therefore, they can not revolve about each other, but must follow cach other round a common center. But, in the problem of the revolution of the moon about the earth, and the earth and moon together about the sun, the magnitudes are all uncqual, and hence their distances from each other, their forces and velocities, are all uncqual, and they are known not to followe cach other, as in the foregoing demonstration, but to revolve about each other in the order above stated.
"It may perhaps, therefore, be inferred that the foregoing demonstration is not applicable to such gravitating bodics. But it must be observed, also, that the equalizing power of all the elements of the problem are in fiull force and opcration here, as well as in the problem just soived, and that the chosen distances, forces, and velocities are in exact proportion to the relative magnitudes of the bodies revolving; and hence their relative motion shall be still the same, with this difference only, that because the moon re-
volves about the earth, and the earth and the moon together revolve about the sun, thcrefore their relative motions being expressed by time (which is also relative), the following proportions ensue."
(§ 12.) While Mr. Parker seeks to set forth his own clearly conceived opinions that nature, in the construction of the solar system, and of the cosmos, founds all bodies as to their size, shape, density, motion, relation to each other, and relative motion to each other, upon an underlying law, capable of mental realization and of geometrical setting forth, by which, if some one unit fact of these phenomena is known, then all these various elements may be had in a correlating and co-ordinating method of notation, he also intends to say that there is one, and but one number form, for a flux through which all these relations may become manifested and known. The base of the law is the relation of the geometrical elements of the triangle, the circle, and the square; the second, or measuring, or notating, stage is the relation of the area and rectification of the circle in terms of the square. Now, these relations may be variously set forth, as of unity for diameter to $3.14159+$ for circumference, and so on; but there is but one numerical form for the expression of these relations, through which all these phenomena will correlatively work themselves out, and that is in the Parker forms of 6561 : $\overline{5153 \times 4}=20612$, and none other; and this is the form on which, under his quadrature value, and his problem of three revolving bodies, Mr. Parker proceeds to the calculation of the time periods of the earth and the moon.

Suppose that nature herself recognizes the division of the solar day into the same subdivisions that man does, viz., ${ }_{51}$ I $_{4000}{ }^{\prime \prime \prime}$ (or, in other words, suppose that man has been taught these number relations from nature, as by revelation, in what way soever we may understand it as coming), as a time circle actually made by the revolution of a planet; and suppose she herself has so adjusted her works that this circle has relation to the abstract relation of square area to circular area and circular rectification in one pecu-
liar number form, and none other, so that she shall preserve harmonious connection in all her works, between geometrical principles of change and the power of translating or notating them through just these number forms, and none other. The conclusion is irresistrble that the numerical methods, which we as mortals do possess, are, after all, but the very ones which some unseen power has been working by in the very creation of our cosmos, and in some way has actually implanted in us for our use. The test of this is in the application. Mr. Parker has the right of comparison of two distinct forms of circular use. For instance, a point on the equator performs a circle of time in what we call 360 degrecs of space, or 24 hours of time, or 5184000 thirds of last subdivisions of time. Then 5184 is the index of this work done and of a circular value accomplished. Again, Mr. Parker finds that 5 I53 is abstractly the area of a circle inscribed in a square of an area of 6561. He has the right to institute whatever comparisons he sees fit between these two relations, because of the common property which they have of being circular admeasurements. But this is but his right, and it does not follow that nature has had any like weakness or any like strength of design. However, she has a measure of her own to mark the same time period, which is in the rising and setting of the sun as a fact, or in the alternations of day and night. If Mr. Parker's uses are such that nature's use is seen accurately to fit and adapt to them, then instead of speaking of "Mr. Parker's applications," we can say and should say, "Nature's applications as discovered by MIr. Parker."
(§ I3.) Mr. Parker takes the characteristic value of a solar day as a circular admeasurement in its division of

With this he claims that, in nature, the abstract value of circular area is connected in mechanical construction, which value is
5153.

As the one is the solar day value in thirds, so he makes the second the abstract circular value in thirds, or like denomination. He says:
$\begin{array}{lll}\text { " The length of one ' circular day' is } & 5153000 \text { "" } \\ \text { " The length of one 'solar day ' is } & 5184000^{\prime \prime \prime} \\ \text { " The length of one 'sidereal day" is } & 5169 S_{4} 66^{\prime \prime \prime}\end{array}$
"The difference between one circular and one solar day is $8^{\prime} 36^{\prime \prime} 40^{\prime \prime \prime}$ (or, it is $31-000^{\prime \prime \prime}$, the differential 31 being a number of great use).
" The difference between one circular and one sidereal day is $4^{\prime} 40^{\prime \prime} 46^{\prime \prime \prime}$."

His relation of area of square to that of inscribed circle is :

$$
\begin{array}{ll}
\text { Area of square, } & 6561 \\
\text { Area of inscribed circle, } & 5153
\end{array}
$$

His relation of rectification is :
Diameter of circle, $\quad 6561$
Circumference of circle, $\overline{5 \text { I53 } \times 4}=206 \mathrm{I} 2$
His general formula for the calculation of time periods, under his " problem of three revolving bodies," is :

$$
206 \mathrm{I} 2 \times \frac{4}{3}=27482.666+, \text { and this } \times \frac{4}{3}=36643.555+
$$

in which the base is the area of the inscribed circle $\times$ by $4=$ its rectification; the second term is numerically the value of the moon's lunation, and the third is the base of the calculation of the solar year. To illustrate what has been said: Take the second term as the value of the moon's lunation : numerically, it is the value of abstract circumference, plus one-third of itself, and Mr. Parker says of it that it is "the value of the moon's passage around the earth over the value of one complete circle in space, in circular days;" that is, it is in terms of the abstract value of 5153 and in its denominations, for it was raised from it. Reduce this to solar time, thus :

$$
27482666+\times \frac{5153000}{5184000}=273183220164+:
$$

Take this result as $27.3183220164+$ solar days, and reduced to the proper divisions of solar time, there results 27 d .7 h . $3^{8^{\prime}} 23^{\prime \prime} \mathrm{I}^{\prime \prime \prime} 20^{\prime \prime \prime \prime}$. Now, this result is too small for a sidereal lunation by the quantity $4^{\prime} 40^{\prime \prime} 4^{6^{\prime \prime \prime}}$, but strangely enough, or rather magnificently enough, as proving all that has
been advanced, this quantity, as will be seen by reference to the differences above, is just the difference between one circular and one sidercal day, that difference being just $4^{\prime} 40^{\prime \prime} 46^{\prime \prime \prime}$. Thus there are the integral calculations: (1.) The Parker abstract form, raised by his problem of three revolving bodies, to a numerical value of a sidereal lunation, which, (2.) reduced to solar circular value, by the addition of the difference between the abstract circular value and the real sidereal value of a solar day, gives the real mean lunation in natural periods of days. There could be no stronger proof that in our resultant number forms of 360 degrees, 24 hours, and $5184000^{\prime \prime \prime}$, we have simply been making use of a system with which we have had no hand or part in its invention. It is to be observed that this result is one-fifth of one second in a lunar month, less than the period given in astronomical time. But let it be remembered that from the received astronomical value, it has been inferred that with regard to ancient astronomical time, the moon's motion has been accelerated, and this has given rise to the opinion that the solar system of movement is winding down, or closing up. By Mr. Parker's time, on this same ground, the moon's motion is shown to be equable and perfectly true to itself, going to show that the solar system is not a system of projectiles, but is a permanency, having a far more subtle and lifc-like cause of movement.

The third term of Mr. Parker's application of his problem of three revolving bodies, is $36643.555+$, which he says is " the exact value of the earth's passage around the sun, over the value of one complete circle in space, in circular days;" and on this he proceeds to the reduction to the exact period of the earth in solar time.
(§ I4.) His periods of time agree to a marvelously small fraction with the standard periods. The following tabulation shows this:
(1.) A sidercal lunation.

Astronomical time,
27 d. 7 h. $43^{\prime} 4^{\prime \prime}$ By Mr. Parker, 27d. $7 \mathrm{~h} .43^{\prime} 3^{\prime \prime} 47^{\prime \prime \prime} 20^{\prime \prime \prime \prime}$

## (2.) 1 solar lunation.

Astronomical time as usu-
ally given,
By Mr. Parker,

29d. 12h. $44^{\prime} 3^{\prime \prime}$ 29d. I2h. $44^{\prime} 2^{\prime \prime} \frac{84 t}{100}$

The synodic period, as given by McKay, the English navigator,

29d. 12h. $44^{\prime} 2^{\prime \prime} 48^{\prime \prime \prime}$
By Mr. Parker,
(3.) A mean year.

Astronomical time, as given
"thirty years since," 365d. 5h. $48^{\prime} 49^{\prime \prime}$
"By the latest authorities, as taken from a work of Dr. Dick,"

365d. 5 h. $48^{\prime} 5^{\prime \prime}$
By Mr. Parker,
365d. 5h. $4^{8^{\prime}} 50^{\prime \prime} 53^{\prime \prime \prime} 6^{\prime \prime \prime \prime}$
(4.) A solar year.

Astronomical time,
$365 \mathrm{~d} .5 \mathrm{~h} .4^{8^{\prime} 6^{\prime \prime}}$ By Mr. Parker,

365d. 5h. $48^{\prime} 6^{\prime \prime} I^{\prime \prime \prime} 6^{\prime \prime \prime \prime}$
(§ I5.) These statements are given to exhibit the use made by Mr. Parker of his problem of three revolving bodies, based on his abstract circular values, and the use of the factors 4 and 3 in the formula

$$
20612 \times \frac{4}{3}=27482.66+, \text { and this } \times \frac{4}{3}=36643.55+
$$

the use of which factors will be shown to be very prominent in the pyramid works and measures.

And here, as in relation to his Quadrature, it is stated distinctly that the setting forth of the problems or claims of Mr . Parker are not in any way as affirming either his establishment of the Quadrature or of the problem of three revolving bodies. It is absolutely necessary to set forth the results of his labors, because it will be shown beyond all controversy that the construction of the great pyramid was
the architectural display of his results; and without the use of his conclusions and results, it will forever prove impossible to reconstruct that mass agreeably to the conception of the architect.

## CHAPTER II.

## SECTION I.

THE POSSIBILITY ON MR. PARKER'S FORMS OF RAISING A COORDINATING UNIT OF MEASURE.
(§ I6.) Since the value of circumference of a circle, 20612, is so simply raised into measures of time, the question arises: Why would it not be feasible to found upon the same datum a co-ordinating unit of measure for other purposes? Take Mr. Parker's formulation :
$\frac{206 \mathrm{I} 2}{1000} \times \frac{4}{3}=27.48266+$, and this $\times \frac{4 \times 10}{3}=366.4355+$,
which equals
$20.612 \times \frac{4}{3}=27.48266+$, and this $\times \frac{4 \times 10}{3}=366.4355+$.
Here the first value is an abstraction, but the second term is the value of a moon's lunation, and the third term is the value of a year's period, in circular days reducible by observation to solar time: and here we have, as attached to the value of circumference in integrals, time measures in natural periods of days. Suppose it is attempted to raise from this source a unit for linear, plane, and solid, measure, in terms of these elements, so as to combine it with the circular and time measures. How to do it? Very simply. The natural unit for linear measure is anything which will serve as unity. That for plane and solid measures should correlate with linear. Take the geometrical figure of the
cubc.' The cdge of this solid is a line, and a line by which the superficics or face of the cube is measurable in terms of arca; and the face area multiplied by the linear length, will give the solidity. Now, there are twelve edges to the cubc; therefore, divide the above expression by 12, and there results

$$
\frac{20.6 \mathrm{I} 2}{12} \times \frac{4}{3}=\frac{27.4826}{\mathrm{I} 2} \pm \text {, and this } \times \frac{40}{3}=\frac{366.4355}{\mathrm{I} 2},
$$

or,

$$
1.71766+\times \frac{4}{3}=\frac{27.48266}{12}, \text { and this } \times \frac{40}{3}=\frac{366.4355}{12}:
$$

that is, this first tcrm, from whence spring these measures of lunar and solar time, by thus being, as it were, cubcd, gives an additional unit of measure, for lincar, plane, and solid measure. If to this first term, thus divided, some practicable value for use could be assigned, this remarkable co-ordinating unit of mcasure would be of the greatest value.

THIS POSSIBILITY, IN FACT, IS A REALITY-THE ANCIENT CUBIT AND BRITISII INCH.
(§ 17.) Providentially, this first term has a practicable value assigned to it, so that we are at no loss as to its recognition. For long, the attempt to arrive at the value of the ancient cubit measure has proved futile, except as to an approximate of what its real length was; that is, the source of its derivation has remained a mystery. Gathering some of the results as to the ascertainment of this cubit measure, in the "Israclite," and in the "Ancient of Days," the author says:
"The value of the ancient Egyptian cubit has been long sought, with results as follows:
"Cubit of Elephantine, 20.625 inches, or $1.7187+$ feet. " Memphis, 20.47291 " " 1.70607+ " " Turin, 20.57869 " "1.71489+ "
Another, ،

| 20.61806 " |  |
| :---: | :---: |
| 20.65843 " | " $1.72153+$ |

Another (Karnak), 20.650 inches, or $1.7208+$ feet. " Sir Isaac Newton, 20.604 " " $1.717+$ "
The most important, as ascertained by Seyf-
farth, on the meas- 20.61113988, " r.71759+ " ures of the French Expedition of 1799 ,
"These results have been accurately taken from different authors. Their nearness to the truth is sufficient to show that the perfect determination of this cubit value has been obtained to within a very narrow limit; in fact, so narrow that but little hopes of further correction can reasonably be entertained, unless the very elemental principle whence the cubit numerical value was derived be, in some way, stumbled on.
(§ I8.) "Before proceeding to show whence the derivation of the cubit, it may be well to explain why it is stated that the measure of Seyffarth is noted as the most important. Seyffarth was appointed to succeed to and to continue the labors of Spohn in the effort to solve the question of translation of the Egyptian hieroglyphics. At Turin, in the museum, he found a papyrus scroll containing the ground plans and dimensions of the chambers, passagcways, etc., of the catacombs of Osimandya, in Egypt, as to the lengths, breadths, and heights thereof, in the terms of cubits and parts of cubits. It seems that the French expedition of ' 99 had, with great care, taken these very measures. A comparison of one with the other was made, and there resulted a value of the cubit as .523524 of the French motcr. One meter $=39.37$ inches English; and the reduction gives 20.61If3988 British inches as the resultant value. The importance is that this is derived from a grcat number of comparative measures, just as Sir Isaac Newton's was derived from many comparative measures taken by Professor Greaves from the passage-ways and chambers of the great pyramid of Jizeh. As to this value, Professor Seyffarth himself says:
"' There are at present several Egyptian cubit measures in

## § ig. Of Raising a Co-ordinate Unit of Measure.

Europe which agree with each other in length and divisions. It was, however, to be decided whether those ells were typical imitations or real instruments of measuring. This question was answered by the said ground plans at Turin, as has been demonstrated, with reference to the Hebrew cubits, in my "Alphabeta Ægyptiacum, Persarum," etc., Lipsiae, 1840, p. 140. This work forms the sixth part of my " Beitraege zur Kenntniss," of which a copy is to be found in the Astor library. The Egyptian cubit, being divided into 2 feet, 7 palmi, 28 inches, and several smaller parts of an inch, measures 0523524 meters, i. e., nearly 21 inches English.'
"Take the expression given above :

$$
\text { r. } 7 \mathrm{I} 766 \times \frac{4}{3}=\frac{27.48266}{\mathrm{I} 2}+\text {, and this } \times \frac{40}{3}=\frac{366.4355}{\mathrm{I} 2}+\text {, }
$$

and here in that very first term, which is a cubing of the value of circumference, or $\frac{20.612}{12}$, to raise a co-ordinating unit of measure, this ancient cubit value of the Egyptians is to be found, with the natural reasons for its derivation. With it compare

> Value of Sir Isaac Newton, 717 feet.
> Value of Professor Seyffarth, $1.71759+$ feet.

Obviously, then, we have as a practical fact that the first term of this expression is the value of the ancicnt cubit in terms of the English foot measure. As obviously, the expression from whence this was derived was of the value of the British inch, because it was 206I2 -12 , the reduction by 1000 being made to make it co-ordinate with a natural measure of time, as stated.
"Hence, then, we really and truly have in the British foot and inch measures the identical derivations from the elcments, and they turn out to be units of measure for circular, linear, plane, solid, and time values."
(§ I.) Thus, in discovering that there is a practicable value to this unit of measure, co-ordinating so many different kinds of measure, ordinarily taken to be diverse and distinct from each other, in the Egyptian cubit value, it appears that the original value whence this cubit, or cubiting, was taken, was itself utilized, as in British inches,
making it to appear that the British measures were prior in rank to all others. The further close and intimate connection of these kinds of measure creates the impression that (I) the British system of measures rests upon this same quadrature of the circle, and (2) that the British system of long and land measures is purposely framed to answer at the same time to time measures, showing an extension of the idea herein so strangely raised. Therefore, it is not out of place to assert that an examination into the structure of the British system of these measures may serve to shed light on the whole subject, and to help the mind to a partially better conception of the workings of the system. This examination is to be found in Section III of this chapter.

## SECTION II.

THE ANSATED CROSS OF THE EGYPTIANS AND THE CHRISTIAN CROSS THE EMBLEMATIC DISPLAY OF TIIE ORIGIN OF MEASURES.
(§20.) If it is desired to display the process of the establishment of the co-ordinating unit of measure spoken of, by way of symbol, it would be by the figure of the cube unfolded, in connection with the circle, whose measure is taken off onto the edges of the cube. The cube unfolded becomes, in superficial display, a cross proper, or of the tau form, and the attachment of the circle to this last gives the ansated cross of the Egyptians, with its obvious meaning of the origin of measures. Because, also, this kind of measure was made to co-ordinate with the idea of the origin of human life, it was secondarily made to assume the type of the pudenda hermaphrodite, and, in fact, it is placed by representation to cover this part of the human person in the Hindu form. It is very observable that, while there are but 6 faces to a cube, the representation of the cross as the cube unfolded, as to the cross-bars, displays
one face of the cube as common to two bars, counted as belonging to either ; then, while the faces originally represented are but 6 , the use of the two bars counts the square as 4 for the upright and 3 for the cross-bar, making 7 in all. Here we have the famous 4 and 3 and 7. The four and three are the factor numbers of the Parker problem. But, what is very much to the purpose here, is, that the golden candlestick in the temple was so composed that, counting on either side, there were four candle-sockets; while, at the apex, there being one in common to both sides, there were in fact 3 to be counted on one side and 4 on the other, making in all the number 7 , upon the selfsame idea of one in common with the cross display. Take a line of one unit in breadth by 3 units long, and place it on an incline; take another of 4 units long, and lean it upon this one, from an opposite incline, making the top unit of the 4 in length the corner or apex of a triangle. This is the display of the candlestick. Now, take away the line of 3 units in length, and cross it on the one of 4 units in length, and the cross form results. The same idea is conveyed in the six days of the week in Genesis, crowned by the seventh, which was used by itself as a base of circular measure.
(§2x.) On page 6 of the Introduction, and in $\S 3$ of the text, it is noticed that with the Hebrews and in the pyramid-and this will be shown hereafter more fully-the form of II3 to 355 is closely allied to, and intimately connected with, the Parker form of 656I to 206I2. It is so in the working out of astronomical and other problems, and in giving one great symbol value to the Hebrew godword fehozah. As seen, the symbol of the origin of measures, from whence the idea of the origin of all things took its rise, in the number form, is the cross. In Hebrew, the, or one of the, word forms for "man" is $\boldsymbol{\bullet \prime \prime} \times$, or aish. The value of this word is, adding the values of the letters, $3 I I$, or, reading the characteristics of the values as the word reads, II3-the very diameter value in question. The circumference value to this, or 355 , is to be found in the

Hebrew word for a lunar year, or $\boldsymbol{3}$, or shānūh, thus directly connecting the idea of "man" with an astronomical value, as also an abstract circular value. As said, the two values of 113 to 355 and 656I to 20612 are, as it were, welded together in the ancient use. The attachment of a man to the cross would be, in display, the symbol of such welding. In fact, this is a plainer and more perfect symbolization of the ancient use than any other. It was one made use of in this form of display by the Hindus. In fact, the Old Testament is rabbinically and kabbalistically familiar with the expression of crucifying a man, or men, before the Lord and the sun. In symbol, the nails of the cross have for the shape of the heads thereof a solid pyramid, and a tapering square obeliscal shaft, or phallic emblem, for the nail. Taking the position of the three nails in the man's extremities, and on the cross they form or mark a triangle in shape, one 1ail being at each corner of the triangle. The wounds, or stigmata, in the extremities are necessarily four, designative of the square; and, as in the candlestick, there have been two used as one, or rather one used as two, in the connection of the three nails with the four extremities. The three nails with the three wounds are in number 6 , which denotes the 6 faces of the cube unfolded, on which the man is placed; and this in turn points to the circular measure transferred onto the edges of the cube. The one wound of the feet separates into two when the feet are separated, making three together for all, and four when separated, or 7 in all-another and most holy fominine base number.
(§22.) The man's head is the symbol of the sphere, or circle; but this has been enforced by the use of a crown upon it, of a circle of light about it, or of a nimbus or glory radiating from it. In Hebrew, the word for head is $\ddot{\cup M N}$, or $r \bar{a} s h$, and reads 213 . The Hebrew, so far as the author can discover, had no expression for a cipher or nought, but understood it or not, as needed. Now, 213 equals $355 \times 6=213-0$, and this circumference value, as that of the hocad of the man, is in fact used to denote the
subdivision of the circumference of 355 by 6 diameters crossing, thus making the circle subdivided into 12 compartments. This is to be found in the first line of Genesis, and in the picture of the flood.
(§ 23.) These are symbols of ancient use of the Parker forms and their cornections. It serves but to confirm this use to notice the conclusion to which Professor Seyffarth arrived from the study of the Egyptian hieroglyphic signification of the ansated cross. It will be observed that this cross, being surmounted by the circle, or circular figure, in fact roughly represents the form of a man, with arms extended. Professor Seyffarth says:
"It represents, as I now believe, the scull with the brains, the seat of the soul, and with the nerves extending to the spine, back, and eyes or ears. For the Tanis stone translates it repeatedly by anthropos (man), and this very word is alphabetically written (Egyptian) ank. Hence we have the Coptic ank, vita, properly anima, which corresponds with the Hebrew שנוחש, anosh, properly meaning anima. This אנוּש is the primitive אנוך for אנגכ (the personal pronoun I). The Egyptian Anki signifies my soul."

It is curious that this Hebrew equivalent, Anosh, for " man," by Mr. Seyffarth, reads numerically 365-r, which could be intended to mean either $\overline{365+1}=366$, or $\overline{365-1}=$ 364 , or the time phases of the solar year, thus shadowing forth the astronomical connection.


## PRIMORDIAL VESTIGES OF THESE SYMBOLS.

Under the general view taken of the nature of the number forms of Mr. Parker, it becomes a matter of research of the utmost interest as to when and where their existence and their use first became known. Has it been a matter of revelation in what we know as the historic age-a cycle exceedingly modern when the age of the human race is contemplated? It seems, in fact, as to the date of its possession by man. to have been further removed, in the past, from the old Egyptians than are the old Egyptians from us.

## TIIE EASTER ISLES.

(§24.) (I.) The Easter Isles in " mid Pacific" present the feature of the remaining peaks of the mountains of a submerged continent, for the reason that these peaks are thickly studded with cyclopean statues, remnants of the civilization of a dense and cultivated people, who must have of necessity occupied a widely extended area. On the backs of these images is to be found the "ansatcd cross," and the same modified to the outlines of the human form. A full description, with plate showing the land, with the thickly planted statues, also with copies of the images, is to be found in the January number, 1870, of the "London Buildcr." The statues exhibiting the markings of the cross, it is thought, are in the British Muscum.

## CRUCIFIED MAN IN SOUTH ANERICA.

(2.) In the "Naturalist," published at Salem, Massachusetts, in one of the early numbers (about 36 ), is to be found a description of some very ancient and curious carvings on the crest walls of the mountains of South America, older by far, it is averred, than the races now living. The strangeness of these tracings is in that they exhibit the outlines of a man stretched out on a cross, by a series of drawings, by which from the form of a man that of a cross springs, but so done that the cross may be taken as the man, or the man as the cross; thus exhibiting a symbolic display of the interdependency of the forms set forth in the text.

IIEBREW INSCRIPTIONS IN THE AMERICAN MOUNDS.
(3.) A few years since, a man by the name of Wyrick, a persistent delver in the squares and circles of the "mound-buildcrs," at Newark, Ohio, discovered two stones, covered with old Hebrew inscriptions. He had borne a very good character; was a simple, unlearned, and, by reputation, truthful man. Shortly prior to his finding these relics in the clay of a kind of well or water hole, in one corner of one of the inclosures, he had been in the State of Pennsylvania, and it has been supposed that he obtained these relics there, and afterward pretended to find them in the mounds. As to the relics themselves, they were pronounced upon by competent judges as being of great antiquity, and certainly were made at the expense of very much labor, skill, and learning. While, by common consent, Mr. Wyrick held the reputation of being simple and truthful, the seeming impossibility of his alleged discovery made his reputation for truthfulness, in the estimation of some, kick the beam ; and so, by some, his find was put down as doubtful, by sheer necessity of the case.

## CURIOUS DATA REGARDING TIIE MOUNDS AS ALIKE TYPHONIC EMBLEMS WITH THE PYRAMID OF EGYPT AND WITH HEBREW SYMBOLS.

(4.) Now, as sustaining his veracity, it is to be seen that there is this very curious combination of data, with respect to these mounds: The mounds are monumented circles and squares, or relations of circular and right line measure. To these the Egyptians and the Hebrews alike, were addicted, in the workings of their highest religious cultus. Both the Egyptians and Hebrews seem to have derived their knowledge from the common source of the Phenician. The great pyramid monumenting this cultus, stands on the west bank of the Nile, the side of scpulturc. The books of the Egyptians containing this knowledge, were called the books of the dead. The name of

Moses, the author of the Hebrew books containing this knowledge, was the equivalent of Thot, or Hermes, the lord of the lower realms, or of the dead, who, also, was esteemed the teacher of wisdom. Now, one form of the lord of the descendant, he who held the gates of death, was Typhon ; and he was lord of sepulture, and his great Egyptian representative was the crocodile, or alligator, as his Hebrew and Egyptian representative was that of the swine or hog; exemplified in the Christian books by the devil leaving the man and passing into the herd of swine, which thereupon rushed into the sea, another emblem of Typhon. Near the Newark mounds of circles, and squares, or rectilinear figures, is a high hill overlooking them, and it is stated that on this hill is a monstrous mound, built to monument the shape of an alligator or crocodile, apparently located as lord paramount over the works below.

The authority for this interesting crocodile mound is as follows, quoting from a letter of description: " The alligator of which I spoke to you, I have seen a great many times; is on the farm adjoining my father's; is, as I recollect it, from 75 to 100 feet in length, and properly proportioned as to breadth, length, and size of legs, tail, body, and head; is distinctly preserved and easily traced; looks, as I recollect, to the east, and most of the ancient works in that vicinity are in an easterly direction from that point, and when the forests are cleared away, in sight of the alligator, which is on the highest point in that vicinity." This description is by a very prominent and well-known public man of the State of Ohio.

In the city of Marietta, Ohio, is to be found some fine remains of the "mound-builders." There is a truncated cone surrounded by an elliptical embankment. On one side this embankment is cut through, leaving a passage-way leading on to a causeway, raised above the general level of the ground, and extending a distance of about $\mathrm{I}, 000$ feet to the side of a square. Half-way across this distance, and on the general level of the ground, a fire had been made, and gifts offered, probably at the dedication of the works.

The most remarkable one was a mass of pure native silver of four pounds weight, lying on charcoal remains of the fire in which it had been smelted. This metal, in its pure condition, could only have been procured from Lake Superior. It has been noticed by those conversant with the mounds, that the gifts (of dedication) are as follows: Discs of mica slate from the cast of the Alleghanies, and shclls from the Gulf of Mexico, or from the south. Here was silver from the north. The west was seemingly not represented, as likewise was the case with the Egyptians and Hebrews, because the west signified the Typhonic portals into another condition of existence, from whence no gift could be brought.

## MOUNDS SHOWING BRITISH MEASURES.

(6.) In searching in the works of Squier and Davis, a great number of measures of the mounds were found, and it was very observable that the English measures seemed so fitting, that it was difficult to free the mind from divelling upon their use in the original construction. These measures seemed to be multiples of $3,4,6$, and 12 , and kept running toward the value 360 . These facts were noted at the time as curious; but any possible connection seemed, even as it does now, but a wild freak of the imagination, and the matter, though noted, was dropped.

AZTEC OR " mound-builder" pYRAMID, SHOWING THE USE OF the value 3 IS, or diameter to a circumference of one, as a Civil calendar number.
(7.) It is known that tradition among the Aztecs has handed down a very perfect account of the deluge of Noah. Baron Humboldt says that we are to look for the country of Aztalan, the original country of the Aztecs, as high up, at least, as the 42 d parallel north ; whence journeying, they at last arrived in the vale of Mexico. In that vale the earthen mounds of the far north become the elegant stone pyramidal, and other structures, whose remains are now found. The correspondence between the Aztec remains
and those of the Egyptians is well known. As to the ancient works, Atwater, from examination of hundreds of them, is convinced that their authors had a knowledge of astronomy. As to one of the most perfect of the pyramidal structures among the Aztecs, Humboldt gives a description to the following effect :
"The form of this pyramid (of Papantla), which has seven stories, is more tapering than any other monument of this kind yet discovered, but its height is not remarkable, being but 57 feet, its base but 25 feet on each side. However, it is remarkable on one account: it is built entirely of hewn stones, of an extraordinary size, and rery beantifully shaped. Three staircases lead to the top, the steps of which were decorated with hieroglyphical sculptures and small niches, arranged with great symmetry. The number of these niches seems to allude to the 318 simple and compound signs of the days of their civil calcndar."

318 is the Gnostic value of Christ, and the famous number of the trained or circumcised servants of Abram. When it is considered that 318 is an abstract valuc, and universal as expressive of a diameter value to a circumference of unity, its use in the composition of a civil calendar becomes manifest. It was in Hebrew use.

OLD BRONZE AXES OF THE PHENICIANS, IDENTICAL IN SHAPE WITII TIIE COPPER ONES OF THE MOUND-BUILDERS.
(8.) General Cesnola, on the hillside of Idalium, in the island of Cyprus, exhumed an early Grecian or Pelasgic necropolis, which was three feet below the surface. At the depth of six and a half feet below this, a still more ancient necropolis of the old Phenicians was found, from which a vast collection of their remains was made. The metal instruments found were of bronze, or an admixture of tin with copper. Among these, is to be seen, in this collection, in 14th street, New York, the style of shape of the axes used at that time. Larger and smaller, they are of the same peculiar shape, being solid, without any hole for a handle. They are identically the same with the copper axes to be found in the "mound-builders'" remains. These copper axes must have been useless, because of their
softness; and, on this continent, there was no tin found for admixture. It may have been that there was relationship of race and nation, and these useless articles were made as mementos of the actual ones, which were, in another part of the world, useful from the admixture of another metal. The same style of axes is to be seen in a Boston collection, either of Egyptian or early Greek.

The above series of facts seem to be interesting and worthy of recital in the connection made; but conclusions from them, as touching relation between the Egyptians and Hebrews and Phenicians with the "mound-builders," or as touching the primordial use of the Parker forms, and the symbols of their use, are left to the reader.

## SECTION III.

BRITISH LONG AND LAND MEASURES, INCLUSIVE OF AN OCCULT SYSTEM OF CO-ORDINATING TIME MEASURES.
(§25.) (r.) It is found that the great pyramid can be reconstructed from a standard base of measures (the Parker elements of diameter to circumference values of a perfect circle, viz., 6561 to 20612 in inches), so that by a purposed variation on the standard, the result is an answer to, or is in correspondence with, actual British measures of that structure ; evidently to the intent of the architect. (2.) It is found that this value of circumference, divided by 1000 and by 12 , or, $\frac{20.6 I 2}{I 2}$, is just the value $\mathrm{I} .7 \mathrm{I} 766+$ of the ancient Egyptian or sacred cubit, in terms of the British foot measure. (3.) It is found that by the proportion

$$
20612: 6561:: \quad 1 \quad: 31830972249+
$$

there results a diameter of $318+$ to a circumference of 1 ; which 318 is the Gnostic value of the Christ, and is made use of for this meaning of diameter, in the 318 trained or circumcised servants of Abraham. It is also found that this value, thus arising, is, in fact, made great use of in the
pyramid, in the formulce $3.18309+\times 6=19.0985+$, and $190.985+\times 2=38 \mathrm{r} .970+$; the first result being the hight of the king's chamber, and the second being the half base side of that structure. (4.) It is found that the means of reconstruction of that mass is that value of the Parker elements, which, from his problem of three revolving bodies, gives the value of a lumation, and of the year period, in circular time measure ; that is, the values used are

$$
206 \mathrm{I} 2 \times \frac{4^{2}}{3^{2}}=36643.55+, \text { and this } \div 100=366.4355+;
$$

which result is, as Mr. Parker says, "the exact value of the earth's passage around the sun, over one complete circle in space, in circular days." (For the full formula, see § 13, p. 43.) And, in fact, the standard measure of the circumference of the base of the pyramid is $36543.55+$ inches.
(§26.) (a.) It is found (§57), by certain values taken of the earth's diameters, that the differcuce between their lengths in British miles, multiplied by this value of $366.4355+$, gives the earth's equatorial diameter in miles; that is,
(I.) $21.6325+$ miles $\times 366.4355+=7926.9269+$ miles.

The same difference, multiplied by the same value, less one, gives the other diameter taken, thus:
(2.) $21.6325+$ miles $\times 365.4355+=7905.2943$ miles; a value greater than the polar, and less than the cquatorial diameter.
(b.) It is found that this difference, stated in miles, is itself also a derivative from an approximate ycar time value in days, and partly derivable in the same manner. An estimate back will clearly show the derivation, thus :

$$
\text { (I.) } 21.6325+\times\left(\frac{3^{3}}{4^{2}} \times 10\right)=365.04894+
$$

It will be observed that the same process is used as in § 25 (4), with the same factors, save in the reverse; and that here $3^{3}$ is used in place of $3^{2}$. Reverse this process, thus:

$$
\text { (2.) } 365.04894+\div\left(\text { Io } \times \frac{4^{2}}{3^{3}}\right)=21.6325+\text { miles. }
$$

Substitute this value in (a.) (土.), and, by formulating, there results,
(3.) $\frac{366.4355+\times 365.04894}{10}+\times \frac{4^{2}}{3^{3}}=7926.9269+$ miles, or, the equatorial diameter of the earth :

$$
\text { (4.) } \frac{365.4355+\times 365.04894 t}{10} \times \frac{4^{2}}{3^{3}}=7905.2943+\text { miles. }
$$

or, the other diameter taken.
(Attention is directed to the use of the factors 4 and 3 , as from Mr. Parker's problem of three revolving bodies. Notice, also, that the equivalent of 144 , as the inches in the square foot is $4^{2} \times 3^{2}$.)
(§27.) It is found that (4.), in § $26(b$.$) , is the same as to$ (I.) $365.4355+\times 365.04894$,
as the square of the mcan of these values. Substituting this equivalent expression of the square of the mean in that formulation, (4.), and there results:

$$
\text { (2.) } \frac{365.24225^{2}}{10} \times \frac{4^{2}}{3^{3}}=7905.2943 \text { miles, }
$$

where the multiplicand is found to be the mean solar year value.

Wherefore, it is seen that the miles diameter value taken is obtainable directly, and the miles equatorial value of diameter is obtainable indirectly, through the square of the mean solar year value. With these and additional data, as of the true solar year value, the polar diameter of the earth is to be had. $[\$ 57$ (d.) (4.) and (5.)]
(§28.) The chiefest value in the construction of the pyramid is $21 \sigma_{330}$, taken, first, as an elliptical property, or difference of diameters, and was evidently intended as the numerical value of the difference of certain ones of the earth's diameters, as 21.6330 miles, for the purpose of obtaining others.
(§29.) The consideration of the foregoing carries with it the impression that ( I ) there is a relation between time and British mile values, in nature's construction of the earth, so that (2) the matcrial extension of the earth in miles is in a kind of co-ordinate relation with its time measure about the sun, and vice versa. So it is well to ascer-
tain what, if any, relation exists between time and distance, or area values, in the British measures themsclics. If such a relation does exist in them, and is discoverable, so as to be recognizable, it certainly will serve to strengthen the impression mentioned.
(§30.) That which attracts attention as to the make-up of the British long and land measures is, that after the denomination yards, or "three feet make one yard," the next enlargement is not continued in zuole, but in fractional values; as, " $5 \frac{1}{2}$ yards make one rod," or, " $30^{\frac{1}{4}}$ square yards make one square rod." Continuing on, it does not say that 40 square rods make one square rood; then, that 4 square roods make one square acre; then, that 640 square acres make one square mile. It runs, " 40 square rods make one rood," " 4 roods make one acre," and " 640 acres make one square mile," where the measures terminate. If a spccial or occult (i. e., one beyond the ostensible purport) measure can be shown to run through the grades of these measures, having in view some definite terminus, which attained to, shall co-ordinate two separate kinds of measure, then the principle, or such a principle, of the structure of these British measures, and enlargements thereof, may be inferred. It is thought that this can be shown.
(a.) I44 square inches $=\mathbf{I}$ square foot. This gives a square of 12 divisions to the side. $\left(4^{2} \times 3^{2}=144\right.$, so that I6 blocks of 3 inches to the face, or 9 blocks of 4 inches to the face, fills the square.) Divide this square into 4 squares; each will contain $\overline{6 \times 6}$, or 36 square inclees, and $36 \times 4=$ 144. By this division, the unit taken is a block of $\overline{6 \times 6}$ $=36$ square inches, 4 of which is a square foot. This is the favorite subdivision among the ancients, and the basic square, capable of subdivision again into blocks of $\overline{3 \times 3}$ =9. Therefore, take as the base 6 blocks in length of $\mathbf{I}$ square inch each. This use is to be found in the beginning of Genesis. (Kabbalistically, the measure of the earth is represented as in alternate black and wwhite squares, the white signifjing male, and the black female.)
(b.) $\overline{36 \times 36}$ square inches $=1$ square yard. $36 \times 3^{6}$ $=1296$, or 6 rows of $36 \times 6$, or $216 \times 6=1296$.

Now, 4 square yards $=1296 \times 4=5184$, and this is a time measure, for

One solar day has in hours, 24 $24 \times 60^{\prime}$ equals in minutes, $1440^{\prime}$

$$
1440^{\prime} \times 60^{\prime \prime} \text { "، }{ }^{\prime} \text { seconds, } 86400^{\prime \prime}
$$

$$
86_{4} 00^{\prime \prime} \times 60^{\prime \prime \prime} \quad \text { "، "t thirds, } 5184000^{\prime \prime \prime}
$$

the characteristic values being, respectively, 24, 144, 864, and 5184 , numerically; whereby it is seen that the perfect square of 36 inches to the side, or the area of one yard, multiplied by $4,=5184$ square inches, is, in time value, the $\frac{1}{1000}$, in thirds, of one solar day.
(c.) Find, if possible, some condition of the British measures, into which this value of one solar day will evenly divide.
(土.) I rod $=\mathrm{I} 98$ inches to the face, or $198^{2}=39204$ square inches in arca. 5184 will not evenly divide in this.
(2.) 40 rods $=1$ furlong in length, and I rood in area, and $40 \times 39204=1568160$ square inches in area. 518 . will not evenly divide in this.
(3.) 4 roods make one acre, and $\overline{1568160 \times 4}=6272640$ square inches in area. 5184 divides cuenly in this 1210 times.
( $\$ 3$ I.) The block used has been $\overline{6 \times 6}$, of 36 square inches, or 6 times the unit row taken, $=\overline{6 \times \mathrm{r}} \times 6$; and the length of 160 rods, or $40 \times 4$, or one acre, is just 5280 of these blocks in length by 33 of them in breadth; showing that that condition which is a perfect multiple of $518_{4}$, or of $6^{4} \times 4$, or of the $\frac{1}{1000}$ part of one solar day, is arrived at, when we have a linear length in land measure, in blocks of 36 square inches each, or of $\overline{6 \times 6}$, of 5280 numerically the mile value.

One rod face by 160 rods deep is, in depth, one half of one mile, and 320 such blocks, placed together, make one
mile in length. For the ordinary uses of these measures, the unit measure taken to begin with was a block of I2 inches to the face, and 144 square inches in area; doubling the above, or $160 \times 2$, will, at the same time, preserve the above measure of time, in terms of blocks of $\overline{6 \times 6}$, or 36 square inches each, and will also give the same numerical value, viz., 5280 , in blocks of $\overline{12 \times 12}$, or of 144 square inches.
(§ 32.) So, it is seen that the value of the mile length of $\overline{5280 \times 33}$, in blocks of $\overline{6 \times 6}$, the mile being the terminal stage of the table of measures, is just that one which gives the first value into which the solar day value will evenly divide. This is very noteworthy, when taken in connection with the facts and formulations hereinbefore set forth, where the solar year ralue, in terms of solar days, produces the values of the earth's diameters in terms of British miles.
( $\$ 33$.$) (a.) One acre, then, is 5280$ blocks of $\overline{6 \times 6,}$ or 36 square inches in area, in length, or the numerical value of the mile length in terms of blocks of $\overline{12 \times 12}$, or 144 square inches in area. And it is the first stop or rest, where the solar day value of 5184 evenly divides in square inches.
Note that, in Hebrew, stop or rest (equals also a support or base, as of a system, applicable variously) is Noah, or $\pi$, and our word Inch, literally changed into the Hebrew, is $7 \mathrm{H}^{\circ}$, or I-nch, the meaning of which is $\mathcal{F a h}$, or $\mathcal{F c h o v a h}$ is Noah; and as the term Jehovah, for one of its meanings, is a unit straight one of a perfect circular denomination $(\$ 82, b)$, Noah, by the copula, is designative of some unit foundation or base.
(b.) $518400^{\prime \prime \prime}$, or one solar day, $\div$ by $60^{\prime \prime \prime}=86400^{\prime \prime}$. The square yard contains 6 blocks of 6 inches each to the face, or, in area $\overline{36 \times 36}$. One-sixth ( $\left(\frac{1}{6}\right)$ of the square yard is a block of $36 \times 6=216$ square inches. $216 \times 4$ $=864$ square inches; therefore, 864 is $\frac{4}{8}$ of one square yard, and is the $\frac{1}{100}$ of one solar day, in seconds.

Thus, it is seen that the square yard seems to be just that purposed unit condition, such that 4 even units, or one
enlarged square block of four even square yards，gives this solar day number 5184；hence，it would seem to be the source of the co－ordination of two sets of different kinds of measure；and as it originates the solar day，it may be said to be the parent of the solar year，mumerically．

Note that，in Hebrew，Fared，the father of Enoch，is construed to be＂the mount of descent，＂and is said to be the same with Ararat，on which the cubical structure of Noak，or foundation measure，rested．Fared，in Hebrew，is ${ }^{-9}$ ．The root deriva－ tions are the same with those of Ararat，of acre，of carth．＊ The Hebrew $7{ }^{-9}$ ，is literally，in British，Y R D ；hence，in Fared，is to be found，literally，our English word yard（and also $77^{-\cdot}$ ，for $\mathscr{F a h}$ ，or $\mathscr{F}$ chovah，is rod）．It is noteworthy the son of $\operatorname{Farcd}$ ，viz．，Enoch，lived 365 years；and it is said of him， by rabbinical commentators，that the year period of 365 days was discovered by him，thus bringing，again，time and distance val－ ues together，i．e．，year time descended，by co－ordination，through the yard，or farcd，who thus was its father，in or through Enock；and，truly enough， $1296=$ yard（or Fared）$\times 4=$ 5184 ，the characteristic value of the solar day，in thirds，which， as stated，may be styled the parent，numerically，of the solar year．
＊The Hebrew is noted for its word stem－building．The methods of stem changes，to form organic changes，are very in－ teresting，though now not accurately known．＂Ararat $=$ the mount of descent $=$ הר－י־רד，Hor－Fared．Hatho mentions it out of composition by 1 trath $=$ תר． enensis says：＇By this，they say，is signified the first place of dc－ scent（of the ark）．＇＂（Bryant＇s Anal．，Vol．IV．，pages 5，6，15）． Under＂Berge，＂mountain，Nork says of Ararat：＂אררט，for ארת（i．e．，Ararat for Arath），earth，Aramaic reduplication．＂ Here it is seen that Nork and Hatho make use of the same equiva－ lent，in Arath，ארת，with the meaning of earth．Take the word $7 \boldsymbol{\sim}=$ arad，to proceed from，to be descended from， which is but a form of $7 \boldsymbol{7}$ ，or Fared．Consider that $7, \cup$ ，and $ת$ are interchangeable，and תרא，arath，ブぶ，arad，and arat，are cognate from a common source．Reduplicate，and we have，for אֲ ארטט，or Ararat．Consider that in is in－
 arets，the Hebrew word for earth．The Egyptian word for acre，
an earth measure, is ar-ou-ar, in which there is a simple reduplication of $7 \boldsymbol{N}$, ar. " $\mathbf{N N}_{\mathbf{N}}=a r$, is a stem having the fundamental signification of ground, earth, soil; hence, furrowing or plonghing, harrowing or vexing." (To be found to this effect in "Origin and Destiny of Man.") Hence, taking the $7 \mathbb{S}^{\circ}$, ar, as a stem, we have, in vexing or furrowing, a base for the word $\boldsymbol{7}^{-7} \mathbf{N}$, arar, to curse, used in Genesis. Chang-
 to engrave; and in שֶׁר, charash, to piough, harrow, vex. Now, Fuerst says that $7 \boldsymbol{7}$, arad, is but a form of $\boldsymbol{7}^{-9}$, $\mathcal{F a r e d}$, the word in question, the $\boldsymbol{N}$ "and" "frequently running into each other." The idea is descent from, as a source, also flowing from, for the word, with suffix, is also a river. It will be shown that the word $\mathfrak{Y} \boldsymbol{\sim}$, arets, earth, is really a very great god-word, expressive, with Adam, $\mathbf{\square} \mathbf{~}$, in the hifil participle of this word, as a verbal, of the first great abstract hermaphrodite source of production, or generation, or birth, or flowing from, under the titles Arts, Artes, and Mädim, for Mars: hence Arets carth, is a term of birth or descent, or of flowing from, with Fared and Ararat, while all have reference to earth as a source of birth as well as a mere reality. The development under the Mars form works out the idea of generation, as applied also to the growth of civilization-i. e., as a source of ploughing, planting, building, measures, etc.; in short, of all that comes under the generalizing English-Hebrew and English-Egyptian word Arts. So, cognately, Fared or Fard, as source or descent of eartl measure, is but a form of Aretz, and of Ararat. All this seems to fasten the chief stem, from whence the cognate ideas are derived, in the radical stem $\mathbf{7 N}$, ar, with suffixes, and changes to vary the original idea. In fact, Fuerst says, under 77N, arar, to curse, "The stem is $\mathbf{7 N}$, and, in further developments, has also the harder sound, and so the root $\wedge \boldsymbol{\wedge}$, chārā, to separate, sever." So, it is thus seen that the words Fared, Ararat, aroura, arour, cursing, arets, earth, may all be cognate forms under the radical $7 \boldsymbol{N}$, ar. It is to be observed that the numerical value of the word Jared, or $\mathcal{F a r d}$, is taken, not, as usual, from any such value appearing in the word, but from it as a concealed word for that measure here given ; because of its most curious connections in relation to measures, and because that it gives us the very English word name ( $y a r d$ ) under which the very measure fitting in these very connections is numerically to be found.
(c.) $86400^{\prime \prime} \div 60^{\prime \prime}=1440^{\prime}$. The square foot contains I44 square inches. Therefore, the square foot equals in inches the $\frac{\mathrm{I}}{10}$ of the numerical value of one solar day in minutcs. But it is rather four squares of $\overline{6 \times 6}$, or of 36 square inches, by using the unit square of $\overline{6 \times 6}$.
(d.) $1440^{\prime} \div 60^{\prime}=24$ hours, or one solar day in this division. Therefore, the $\frac{r}{24}$ part of one square foot equals one hour, and $144 \div 24=6$ square inches, the basic unit value from whence the source of this inquiry. As this can not be formed into a square, it is taken as the even part of the unit square in a row of 6 square inches, as one hour, which is the geometrical and numerical base of the system; or, as hereafter to be seen, each unit square of this block of 6 is to be considered, by division, as making four hours, viz, 2 of day and 2 of night.

Thus it is seen that a system of time measures is, so to speak, inclosed in the British system of long and land measures, the limits of one being, or constituting, the limits of the other kind-the difference being that, whereas, in one kind, the measure runs from smaller to larger grades of measure ; in the other, it runs in the reverse, from larger to smaller.

Note, as a matter for antiquarians. Is it not possible that the British system of measures, possibly thus shown to be of Phenician origin, is a remaining link connecting the British people with the source of their origin, through the Druids? Their gilgals, and this development as to these measures, seem to point that way.
(§34.) It will be shown hereafter that the two great godnames, viz., Fehovah and Elohim, in their numerical values, stood (for one meaning) for a diamcter and a circumference value, respectively. It is now well enough to state a relation which one of these names, in its radicals, seems to have to the measures under consideration.

There is a variation on the Parker values of 6561 to 20612 , used in the pyramid as II3+ to $355+$, but in the

Bible it is used as II3 to 355, whether as exhibiting this relation purely, or as implying a decimal, or both, is not as yet known with perfect accuracy of determination.

The god-name Elohim, or אלהּים, has the radicals El, $\boldsymbol{\kappa}$, as the stem masculine, with an $h$, or N , giving a feminine quality attached, thus: $E l-h$, אלסיה. The numerical value of $\boldsymbol{\sim}$ א added is the greatly esteemed kabbalistic value, or number, 3 I . The god-name radical is $\mathbf{2 N}$, or $3 \mathbf{I}$; but there was appended to it a terminative letter $h$, or $ה$, to, as it were, finish out its meaning or scope, thus: ה゙ Both words were the proper expression of the god-name prior to that of Fehovah. The root, or nucleus, numerical value for $E l$, being 3 I , with the letter $h$, or 5 , added, it became 36 , or $6^{2}$, the unit square referred to above. The 36 shozved the system to winich reference was indicated by the number value, while the value of the first radical, or 31, was a differential, used as a flux betwecn that system and another, with which it was essentially connected.

The circular elements rediscovered by John A. Parker were those on which time and earth extension values were in nature based. Time values, and their relation to earth extension values, seem to have been marked out through a system of measures founded on the number 6 , and $\overline{6 \times 6}$. It has just been shown how such a system involves and coordinates time and earth extension values. Now, Mr. Parker, to obtain time values, reduces circular to solar time, through the intermediation of a unit of solar time value, viz., $5 \mathbf{1 8 4 0 0 0 ^ { \prime \prime \prime }}$, which, as seen, is that value which will evenly divide in the numerical mile value of 5280 , or rather of the acre value composing it, and which connects time with British long and land measures, as shown. Mr. Parker's time value circular is based on the area value of the circle inscribed in the square, which has been shown to be 5153 . He uses it as $5153000^{\prime \prime \prime}$, and thus, as a perfect abstract circular value, contrasts it with the natural circular, or solar day value of $5184000^{\prime \prime \prime}$. The connecting
link between the two systems of value, or rather one such, is the differcnce between the two, and

$$
518_{4}-5153=31 ;
$$

and 31 is the radical god-word $E l$. But to $E l$, or 31 , add the other radical, or $h$, or 5 , and we have $E l-h$, or 36 , which indicates some system of use, founded on the factor 6 .

Again, take the limits of the British measures, as shown, viz. :

$$
144 \text { and } 5184
$$

Deduct from these values that of $E l$, or 31 , and there results

$$
\overline{I_{44}-3 I}=I I 3, \text { and } \overline{5 I S_{4}-3 I}=5 I 53:
$$

where one remainder is a pyramid and Bible value of diameter to circumference, or 113 to 355 , and another is the area of the circle inscribed in the square of 6561, and at the same time is the value of a circular day in contrast with that of a solar day. And this shows the use of this differcntial, as fluxing, or zuclding, time and earth measures, through plane and circular foundations.

## Note to Chapter II.

TABLE SHOWING A LINKING TOGETHER OF VALUES OF APPARENTLY INCONGRUOUS SUBJECTS MATTER.
(§ 35.) This table, while given as a curiosity, because a regularly formed system of use can not be derived from it, is, nevertheless, believed to be of value as the hint of a well-founded system anciently made use of to correlate, or co-ordinate all sorts of measure.
(r.) Diameter of circle, ${ }^{113}$; circumference of same, 355 ; 113 being aish or man, and 355 being shanah, or lunar year.
(2.) As to the ancient Greeks, Seyffarth, in his "Chronology," page 163 , quotes as follows: "Theodorus Gaza (Petavii Uranology, c. 9), says expressly that the ancient Greeks had for their religious festivals, a lunar ycar of 354 days, but for the civil life, a solar year consisting of 12 months of 30 days each, with 5 , and in leap years with 6 , intercalary days. The same is affirmed by Censorinus." See, also, page 168 et seq. of same, as to the Hcbrews. The same statements hold good as to the Egyptians and the Hebrews. Agreeably with this, take the ancient scale of time
(a.) 355
(b.) 360
(c.) $3^{65}$
(d.) $355-\mathrm{I}=354$
(e.) 359
(f.) $365-\mathrm{I}=364$,
where on 355 the shanah, or year word of the Hebrews, the intercalation of 5 days makes the year of 360 days (equal to the celestial circle of 360 degrees, and the earth geographical circle of 360 degrees; also, the square of 6 as a factor) ; and the intercalation of 5 days on this makes the full solar vague year of 365 days. It will be observed, that by this arrangement the year of 360 stands as at the mean value between the two extremes 355 and 365 ; the first being an abstract value of circumference to diameter, while the last is the solar year time circle in natural periods of days. The ancient method of display of the year circle was of a serpent swallowing one or more units of its length : so, under this form,

$$
355-1=354 \quad 359 \quad 365-1=364
$$

by the reduction of one unit the first scale is made to show the lunar years, viz, 354 days, which was the number of days of the lunar year among all the ancients, and 364 days which was the luni-solar year springing from the number 7 [ $\left.\$ 90, \S 9^{2}(a)\right]$, (and here perhaps, is an indication of a numerical use in "fared" as to Eroch, who lived 365 years, for both 77' and 77ハ, added as to the character values, give the number 7). Thus it is seen that the form 113 to 355 , is made the base of a scheme of, and is linked in onto a method of time admeasurements of two kinds.
(3.) In the Hebrew Bible there seems to be an undoubted connection between 1 I3 : 355, and 656ı: 206ı2. Taking the last as the staudard, then

$$
\sigma_{5} 61: 20612:: 113: 355.0001+
$$

showing the variation on 355 to make this proportion good. How these values were worked to bring out intended results is but conjectural, but in a measure, some of the uses shown are probably closely near the proper object. Now, in addition to the above forms, take the words aish, man, $=$, numerically, II3, and Adam, man, $=$, numerically, i44; which words are thought to be but conditions of each other,-then

$$
\begin{array}{cll}
113: 355.0001+ & : & 144: 452.3893+ \\
56.5: 177.5+ & : & 72: 226.1946+ \\
113: 355.0001+ & : & 36: 113.0973+
\end{array}
$$

where now II3 from a diameter value becomes, by a slight enlargement, a circumference value to the form $\overline{6 \times 6}=36$. (A precisely same use is worked on 6561 : 20612 in pyramid construction.)

And so here we see a shifting of use of 113 from a diameter value of 355 , as founding a year time scale, to a circumference value of the factor value $6 \times 6=36$, the base of the time and geographical measuring circles. And here again, in 36 , the British land measures are linked to the Hebrew uses of 113 to 355 .
(As another variation on this,

$$
\begin{aligned}
355: 113:: \quad 144: 45.83 & :: \\
& \\
& \\
& :: \\
& \\
& \\
& 740: \\
& 360: 114.59+
\end{aligned}
$$

Now, these values as shown are made use of in the Bible, and in the pyramid.
(4.) Take the limits of the British long and land measures, viz:

$$
\text { (a.) } 144 \text { (b.) } 5 \mathrm{I} S_{4} \text {; }
$$

where ${ }_{51} S_{4}$ is the characteristic of one solar day in thirds, and springs from 144 as being the number of square inches in 4 square yards, and $51 \mathrm{~S}_{4} \times \mathrm{I} 2 \mathrm{I}=$ the limit factor of the acre. The Hebrew god-word, $E 1$, or 3 I , gives this value of 31 as a difference value, or link, running into two systems; for subtracting it from (a.) and (b.), and there results,

$$
\text { (c.) } 113 \quad \text { (d.) } 5153
$$

where, by the use of the differential El, or 3 , the diameter value 113 is linked on to the English measures, and in such a way that at the same time 5153 is produced. Now, while 113 is the diameter value to a circumference of $355,5^{1} 53$ is the value of the area of a circle inscribed in a square, whose area is 6561. Here there is introduction to

## The Parker forms.

(5.) (a.) Area of square, 656r.
(b.) Area of inscribed circle, 5153 .
(c.) Diameter of circle, 656i.
(d.) Circumference of same, $5153 \times 4=20612$.

On these values construct the formulations of Mr. Parker, as of his three revolving bodies :

where we come to the pyramid value, for, 36643.55 is in inches the standard measure of the circumference of its base, and $11664 \div 2=$ in inches its standard height.

In (2.), 27482.66 , as a circumference, equals the value of a lunation, as shown by Mr. Parker as $27.48266+$ days, to the diameter value of 8748 . Now, I acre of 5280 blocks of $\overline{6 \times 6}$ long, by 33 blocks of $6 \times 6$ wide, equals a length, or number, numerically, of one mile, and equals in area 627264 - o inches.

$$
\begin{aligned}
627264 \div \overline{6 \times 6} & =17424 . \\
17424 \div 2 & =8712 .
\end{aligned}
$$

(Also, $6_{2} 2264 \div 12 \mathrm{I}=5 \mathrm{I} 84$, the solar day value.) The object is to compare this 8712 the even division of, or $\frac{1}{720}$ of, an acre, in blocks of $\overline{6 \times 6}$, with 8748 , the diameter, as shown, of a lunation, springing as it does from the Parker form.

While the use of the god-word $E l$, or 31 , as a differential, has been made above, the full god-word $E l-h$, or 36 , can now be used as one also, for

$$
\left.\begin{array}{l}
8712 \\
8748
\end{array}\right\} \div \overline{6 \times 6}=\left\{\begin{array}{l}
242 \\
243
\end{array}\right.
$$

that is, $3^{6}$ is the differential by which the Parker forms for time, based on the relation of diameter to circumference of a circle, can be fluxed into the British measures (in square inches) of the acre value, which carries with it the numerical value of the mile as shown. $6 \times 6$, or 36 , the value of the celestial circle, thus becomes the differential of a raised value of these quantities.
(6.) But 243 is equal, numerically, to the half the standard height of the great pyramid in British feet, and on a reduced scale is found as a measure of height of the queen's chamber. There is little doubt but that the relation 242 is taken into comparative account, also, in the pyramid structure; if so, this very relation of differential comparison is a pyramid one. 242 is a valuable number in another way, for $518_{4}$, the characteristic value of a solar day $\times 121$ (or $\frac{242}{z}$ ) $=627264$, in inches the $\frac{1}{10}$ part of the area of one acre. This shows, that while 243, the pyramid height, as above, is adjustable with 8748 for divisions of lunar circles, 243 less one (of a value of 36 for the one), or 242 , is adjustable with the characteristic of a solar day value, to obtain the area of the acre in square inches.

The circumference of 8748 as a diameter value, or $27482.66+$, is used in a most remarkable way in the pyramid, to show a com-
parison between lunar and solar time. Here its diameter, or $S_{74}$, affords a means of contrast with a terminal land measure, for,
$242 \times \overline{6 \times 6}=8712$, and this $+36=243 \times \overline{6 \times 6}$, or 8748 .
(7.) Now,

$$
\left.\begin{array}{c}
27482.66 \\
874 \mathrm{~S} .
\end{array}\right\} \times \frac{4}{3}=\begin{aligned}
& 36643.55 \\
& 11664
\end{aligned}
$$

giving as a result the standard measures of the pyramid; and treating 8748 and 8712 alike,

and $11664-11616=$ the differential 48. The height of the pyramid is to twice its base side as diameter to circumference of a circle. By the enlargement on the standard, as will be shown, $\frac{1}{2}$ base side is $3 \mathrm{~S} \mathbf{1} .974+$ feet, or a diameter value to a circumference of 1200 . Twice the base side, then, is a diameter to a circumference of 4 Soo ; and, as shown, 4 S , the $\frac{1}{100}$ part of this, is the differential between a system of time valucs, and a system of land measure values, objectively resting on the acre value, shaped for the formation of a mile, as in blocks of $6 \times 6$, giving the 52 So, or mile numerical value in feet, in the length of one side, in blocks of $\overline{6 \times 6}$ inches.

Thus, there has been shown a curious method of linking together of the relations

| 113 | to | 355, |
| ---: | :---: | ---: |
| 6561 | to | 20612, |
| 355 | 360 | 365, |

while all are applicable in use, as exhibited in the measures of the great pyramid.

## CHAPTER III.

## SECTION I.

INTRODUCTION TO THE CONSTRUCTION OF THE GREAT PYRAMID.
(§36.) To a mind unbiased by the prepossession of a theory that way, the assertion that the great pyramid of Egypt was built to perpetuate a series of measures, astronomical and otherwise, and to contain a mathematical and geometrical system of calculation and admeasurement, can not but be received with incredulity, and rightly so. Given a great number of pyramids in a land, the uses of which were notoriously for sepulchral purposes, and a rule is established applying to all, unless proof to the contrary can be made as to any one or more isolated exceptions. But, taking the affirmative of the issue, then as to reconstruction ; given a pyramidal mass, utterly destroyed as to its exterior surface, save the corner base sockets, and a casing stone in situ, with the connection of the exterior with the construction of the interior lines seriously impaired, to be restored in an original measure, which has been lost. None but proof of an extraordinary kind as to ability to reconstruct, after the mental conception of what the architect intended to represent, ought to become, or will become, acceptable. This is especially the case where the time of the building of the mass dates back beyond what may be called the historic age, and where every theory advanced must rest for support upon its own intrinsic merit, unsupported by positive evidence of any kind filtering through the historical channels of the world.

Where a question of measure is concerned, it will not do to cut and carve a mass, so as to fit it to such a measure, particularly adopted on supposition; nor will it do, as occasion requires, to change the value of the adopted standard
to suit a stubbornly resisting condition of the mass. It is true that this method is the one to be employed in arriving at a possibility, or probability, as a theory; but, this accomplished, the further step is required of eliminating all theory, and all probability, and all possibility, leaving a standard of measure as fixed and rigid, for instance, as is the British inch. As a sequence to this, the restoration of the mass is to be made in terms and divisions of this measure. Subject to these considerations, and they seem to be fair and pertinent, if a standard of measure can be arrived at, as a rigid and fixed one, derivable from an elemental source, by use of which a structure can be erected, as to its whole and most of its parts, similar to that of the great pyramid in its geometrical shapes, and in such manner that the evidence is convincing that the actual measure of its original construction is being used, then, indeed, the recognition of that standard, its source, and its use in that connection, it is thought, should be conceded, even thouigh the particularities of the method of use may not be certain.
( $\$ 37$. ) It is seen that from the elements of quadrature of Mr. Parker is to be derived the ancient Egyptian cubit value, and that in terms of the British inch and foot values. Of the two most important recoveries of the Egyptian value, viz., those of Professor Seyffarth and of Sir Isaac Newton, that of the last named was, as has been said, derived from admeasurements taken by Professor Greaves, of Oxford, from the interior work of the pyramid. The conclusion was that that measure had been used in the building of the structure. If, from the elements of Mr. Parker,-from whence the value, and reason of the value, of that same cubit measure is seen to be derived,- the pyramid structure, with the chief outlines of its interior works, can be restored, with a manifest reason why it was built,-this reason why being an essential in these very elements,-it will not only be a proof that the cubit value thence derived was the cubit value, but also that these were the elements whence it took its rise. Still further, if it should happen that such a restoration of the pyramid answers to the Brit-
ish measures, in inches and feet, of that structure, then it would seem almost impossible for even exacting criticism to charge upon such a complicated series of correspondences the escape of coincidence.
(§38.) Professor Piazzi Smyth has given to the world a mass of measures of this structure. He was laboriously, and even painfully, careful in their taking, on a measure adjusted to the British standard at Edinburgh, even to the balancing and dwelling upon tenths and sometimes hundredths of inches. He had found such discrepancies in the measures of the multitudes of those who had preceded him, that he was prepared beforehand for his work. Besides, he desired to discover who of those others had done their work well. Of those who had preceded him, he found the measures of Col. Howard Vyse, of the French savants, and of Professor Greaves, exact and reliable.
(§ 39.) There are four points to be taken into consideration, and which should always be had in mind in this matter, viz :
(a.) That it is next to impossible to have measuring instruments alike, though taken from a same standard; and it is almost impossible that, even though having the same measures, their uses will bring out the same results. Discrepancies are liable, from these causes, to show themselves in tenths of inches, and even more, where lengths of thirty or more feet are taken. No one will better appreciate this statement than Professor Smyth.
(b.) Professor Smyth says most truly, in relation to the pyramid structure :
"The differences amongst our own results are partly due to dilapidation effects, but are partly dependent, also, on variations introduced by the builders, or actual errors in their work, as where the breadth of the grand gallery varies in different parts of its length irregularly, anywhere between $8_{1} .7$ and 83.0 inches. Another source of error is more uncertain, as where two parts taken by Sir Isaac Newton, and most other writers, as certainly intended to be the same in measure, are found to be positively different. An example of this is presented in the breadth and height of the ramps, assumed by Sir Isaac to be equal, but found by my meas-
ures to be (on the mean of a number of places, but nowhere uniformly) nearly an inch different, without a probable uncertainty of more than 1 - 10 inches."
(c.) In long distances, in great masses of mason-work, it is absolutely impossible to practically obey, by reason of jointing, the mathematical exactitudes of the architect.
(d.) Professor Smyth found a very curious feature as to lengths of passage-ways, the proportions of the king's chamber, and of the coffer therein. He also infers the same as to the grand outlines of the pyramid base. It is : (I.) That a passage-way may present two lengths, the east side, say, being longer, or shorter, than the west side. (2.) That, compared with a perfect cubical chamber, the king's (and queen's) chamber is out of shape, or askew. (3.) The same happens as to the coffer. Very many circumstances connected with these irregularities of admeasurements would seem to point them as purposcd, so that the differences between the measures of a standard cubical chamber, or coffer, and these as they are, served to give some derived result as the working out of a problem; or else that a purposed variation in height or breadth might be intended to satisfy, in fact, two sets of measures differing from each other by some very slight quantity.

## SECTION II.

STANDARD MEASURES OF THE PYRAMID. ENLARGEMENT ON THE SAME, WITH THE IREASONS WHY. THE STANDARD AND EXAC', OR ENLARGED, MEASURES OF THE KING'S CHAMBER.

Standard Mcasures of the Pyramid.
( $\$ 40$.) As to the objects of construction of the great pyramid of Egypt: (a.) One may be taken as astronomical , from the facts, that the north base side of the structure coincides with the parallel of $30^{\circ}$ north latitude, and that the mass, as to its sides, evidenced by its corner socket
lines, is oriented as perfectly as could be expected of human ability. (b.) Another may be taken as geometrical. It was considered by the Rev. Mr. Taylor, who had made this structure a study (see "Our Inheritance in the Great Pyramid," by P. Smyth, prior to his "Life and Works"), that it was so built that its height should be to one-half its circumference as diameter to circumference of a circle. Professor Smyth shows that approximately this was the fact. Upon carefully taken measures, linear and angular, and upon computation, he comes to the result that the structure was-

In height, $\quad 486$ feet, 2 inches;
And that its base side was, by the measures of Col. Howard Vyse, in longth, 764 feet;

And, by the measures of the French
Corps, $\quad 763 \frac{62}{100}$ feet.
( $\varsigma 4$ I.). Take, as the result of Mr. Parker's problem of three revolving bodies, his formula for obtaining the sun's time, or rather the time of the earth about the sun. It is(土.) $20612 \times \frac{4}{3}=27482.66+$, and this $\times \frac{4}{3}=36643.55+$; in which the last term, being the direct product from 20612, or value of circumference, pointed at 366 , is, as Mr. Parker says, " the exact value of the passage of the earth around the sun, over one complete circle in space, in circular days." The diameters to correspond with this formula are-
(2.) $656 \mathrm{I} \times \frac{4}{3}=8748$, and this $\times \frac{4}{3}=11664$.

Let it be remembered that, though this formula is taking the part of time values, it nevertheless is also in the value of British inches.

Take the two results and divide them by 12 , thus reducing them to feet-
$\left.\begin{array}{c}\text { (3.) } 11664 \\ 36643.55+\end{array}\right\} \div 12=\left\{\begin{array}{l}972 \text { feet for diameter. } \\ 3053.629+\text { feet for circumfer }\end{array}\right.$

Then $972 \div 2$ will give the height as radius, and $3053.629+$ will be the circumference of base equal to the circumforence of a circle to a radius of that height ; or 486 will be the diameter value to twice the side of base, or to $\frac{3053.629}{4}=763.407 \times 2=1526.814+$ feet, taken as circumference of a circle. These are the proportions corresponding to those of the great pyramid.

This division gives-
(4.) For height, 486 feet.

For base side, $763.407+$ feet.
Compare these with Professor Smyth's results in British values, viz:
(5.) For height,

486 feet, 2 inches.
For base side (French measure), $763 \cdot \frac{62}{100}$ feet.
Hence, the great pyramid exhibits itself as one not only monumenting a method of quadrature, the elements of which we possess, but also a measure of the sun's time, and also the British inch and foot values. On the premises and conclusion, then, the Parker elements seem, by a very strong showing, to have been known and used in the building of this structure. The worth of having a unit of measure, common for the expression of different kinds of value, is also apparent; for here astronomical and geometrical values are, by means of the common mason's measure in inches and feet, built into a stone book. It is thought that the idea is practically carried out in details, passing from more generalized to and through complex calculations; evidenced by the chamber, coffer, and other fine work of the interior. Even color may be used to classify or qualify the kinds of measure intended.

The formula in (3), viz:

$$
\left.\begin{array}{r}
11664 \\
36643 \cdot 5+
\end{array}\right\} \div 12=\left\{\begin{array}{l}
972 \\
3053.629
\end{array}\right.
$$

is the same as-

where use is made of the original Parker elements. .
It may be taken, then, as determined, that this pyramid structure was planned in the measure of reductions from the Parker elements, and that they are the standard measures employed in its entire building, whether in mass or detail, subject to variations on these standards, in the working out of the various problems contained in the whole, and various parts.

Standard Mcasures of the King's Chamber.
( $\$ 42$.) Take, as one set of derivations in detail, the dimensions of the King's chamber-
(1.) 206.12 inches $\div 12=10$ cubits, or $17.1766+$ feet.
(2.) 17.1766+ feet $\times 2=20$ eubits, or $34.3533+$ feet.
(3.) $\left.\begin{array}{l}20612 \div \frac{17280}{16}, \text { or } \\ \\ 34.3533 \times \frac{10}{18}\end{array}\right\}=19.085 \mathrm{I}+$ feet;
which measures, agreeably to the conditions, are the measures, taken at the standard, of the King's chamber; (I) or 17.1766+, being standard brcadth, (2) or $34.3533+$, being standard longth, and (3) or $19.0851+$, being the standard height, all in British fcet; subject to variations therefrom for special purposes, as will be shown. The measures of this chamber, as given by Professor Smyth, are-

$$
\begin{aligned}
& \text { Bread:h, } \quad 17.19 \text { feet, } \\
& \text { Length, } 34.38 \text { " } \\
& \left.\begin{array}{r}
\text { Height, from I9.I } \\
\text { to } 19.179 \text { feet. }
\end{array}\right\}
\end{aligned}
$$

(As to height, Professor Smyth gives his measures I9.I to 19.179, with allowance, or as conjectural, because of the broken state of the floor when he took them. "Floor broken up thus since the measures of Col. Howard Vysc." His measure for height was I9.I feet.)

Actual Pyramid Measures, as Enlargements on the Standard, with the Reason for the Variation.
(§ 43.) The following is a method of variation on the standard measures as given; and one which seemingly controls the entire pyramid structure. The Parker elements are 206 I 2 to 656 I . The cubit value is $20.6 \mathrm{I} 2 \div 12$ $=$ 1.71766+ feet; and io cubits are 17.1766+ feet. If the value of diameter 656I taken as feet, be divided by 17.1766+, or the measure of io cubits, thus derived, the quotient will be $38 \mathrm{r} .97 \mathrm{I} 66+$ fcet. This method is given for its results in the actual measure desired.

This, in effect, is the same as the division, or quotient, of diameter value of 656 I by circumference value, or 20612 , under a formulation to obtain a diameter value to a circumference of unity, thus:

> (1.) $20612: 6561:: 1: \cdot 3183097+$, and,
> (2.) $31.83097 \times 12=381.97166+$,

$$
\text { and this } \times 2=763.94333
$$

The effect is a very curious one. Take the following:

$$
\text { (3.) } 206 \mathrm{I} 2 \times \frac{4^{2}}{3^{2}}=36643.55 \div 48=763.407+
$$

where the standard base side is obtained from the primary circumference value. By (I.), 3183097 is a diameter value, and raising it as shown, it becomes 763.94333 , being almost the same by comparison. Then, working in circumfercnce values, the standard pyramid measures are found; working in diameter values, the exactitude comes by the cnlargenent. Referred to a primary principle,

Original circumfercnce is,
Changing to diameter value, it becomes 20626.47001 + .
(§ 44.) The standard measure of the side of the pyramid in (§41) (4), was $763 \cdot 4074+$ feet. The half of this is $38 \mathrm{I} .7037+$ feet. Compare this value with that obtained by the method of variation shown in (§43):
(1.) Standard, 381.7037+

Variation, 381.9716+.
This last multiplied by $2=763.94333+$ feet for the side of
base of pyramid, instead of $763 \cdot 4074+$ feet ; and let it be assumed that this was, in fact, a variation taken on the standard measure, yet one growing out of the Parker clcments.

Taking the base side at $763.94333+$ feet, the proportionate height of the mass would be,

$$
\text { (2.) } 486.34 \mathrm{I}+\text { feet, }
$$

instead of 486 feet as by the standard.
(§ 45.) This measure of the pyramid's base agrees with that taken by Col. Howard Vyse, as follows :

| Vyse, | 764.000 |
| :--- | :---: |
| Above, | $763.943+$, |
| Difference, | $.056+$, |

or, to within less than one inch in 9168 inches.
This Variation of Enlargement Applicd to Ascertain the Mcasures of the King's Chamber.
(§ 46.) If this variation on the standard be applied, for the admeasurements of the king's chamber, to ascertain the enlargements on the standard, there will result, as a base of estimate ( $\$ 43$ ), 206.2647001 + as the enlargement on the Parker circumference of 206.12 ; and,
(1.) $206.2647 \div 12=17.1887+$
as the enlarged width of the king's chamber ;

$$
\text { (2.) } 17.1887 \times 2=34.37745+
$$

as the enlarged length of same ; and,

$$
\text { (3.) } 34.3774 \times \frac{10}{18}=19.0985+,
$$

as the enlarged height of same.
Or, comparing these with the actual measurcs taken (§ $4^{2}$ ), as above, there results :
(4.) Actual measured breadth, 17.19 feet. As above, 17.1887 "

Difference, $\frac{13}{10000}$ of a foot, .0013 "
(5.) Actual measured length, 34.38 feet.

As above, 34.3774 "
Difference $\frac{26}{10000}$ of a foot, .0026 ،
(6.) Actual measured height, 19.100 feet,
As above,
$19.0985+6$,

Difference, $\frac{15}{10000}$ of a foot, .OOI5 "
or, literally, the difference has become so inappreciable that there is no method of ascertainment as to what the correct admeasurement is, by any practicable test of actual measure. If, however, a lazv can be ascertaincd, which will in its fulfillment demand the use of these variations on the standard, then they should be considered as data correctly taken. There is such a lazw; and its demands as to their nature coincide with the spirit or genius of the pyramid structure, as a measure of time.

## Enunciation of the Law.

(§ 47.) The very great value of the number 6 as a factor, is at once recognized in the base of the British long and land measures, and also in the construction of the celestial time circle. That circle is of the value of $360^{\circ}$; it is divided into minutes, scconds, thirds, etc., in the scale of $60^{\prime}=\mathrm{I}^{\circ}, 60^{\prime \prime}=\mathrm{I}^{\prime}, 60^{\prime \prime \prime}=\mathrm{I}^{\prime \prime}$, and so on. This circle is subject to another division, as applied geographically to the earth, where $360^{\circ} \div 24=15^{\circ}$ to the hour of longitude, where 24 is also a multiple of 6 , as $\overline{6 \times 4}=24$, and where each degree $=69+$ miles British. The primary division of this circle is on the base of 6 parts, subdivided for each part into 3600 parts, oi $6 \times 3600=21600^{\prime}$; or, $360^{\circ} \times 60^{\prime}$ $=21600^{\prime}$.

Now, by the variation on the Parker elements (standard), worked out, as seen, through the simple use of the elements themselves, the result is obtained of a diameter value, (by change on a circumference value), of $190985+[\$ 46,(3)]$.

This factor 6, which is of such great value, is not taken empirically, merely because it proves to be of such great practical use in the admeasurement and subdivision of time periods or land measuring rests, or stops, but it is a legitimate circumference value, derivable from this variation on the standard Parker elcments of diametcr and circumference, for-
(土.) 6561 :
: 20612 :: 381.97166 : 1200 :: 190.985+ : 600 :: 1.90985 : 6; where the reduction from $\frac{6561}{20612}=318309+\times 12=$ 38 r97166, or $\frac{656 \mathrm{r}}{\text { 17.1766 }}=38 \mathrm{I} .97166$, divided by $2=190.985$, becomes the diameter value of a circumference of 600 ; or, r. 90985 becomes the diameter value of a circumference of 6; and this properly, and rightly, and exactly, belongs to the use of the Parker elements: so, this height of the king's chamber is diameter to a circumference of 60. See the play of change! The Parker circumference 20612, changed to a diameter value by variation, gave the exactitudes of measure of the pyramid in diameter for circumference terms. Among these is the height of the king's chamber, which now turns out to be a means of re-getting an integral circumference value, in the number 6 , or 60. The obtaining of this end seems to be the law of pyramid actual construction.
(2.) $19.0985+$ inches $\times \frac{216}{10}$, or $\frac{6^{3}}{10},=412.5294+$ inches, which equals the length of the king's chamber in inches, as the enlargement or variation on the standard; and,

$$
\text { (3.) } 6561: 20612:: 412.5294+: 1296 \text {; }
$$

or, there results, the length of the king's chamber, in inches, as a diameter value, proportioned to the number of inches in the square yard British, as a circumference; and it is well to reflect that $1296 \times 4=5184$, the characteristic value of one solar day reduced to thirds.

$$
\text { (4.) } \frac{41259.24: 129600}{6}=6875 \cdot 48+: 21600,
$$

and,

$$
\text { (5.) } \frac{6875.48: 21600}{360}=19.0985: 60 ;
$$

where the celestial, or geographical earth, circle of $(6 \times$ 60 , or) $360^{\circ} \times 60^{\prime}$, equals $21600^{\prime}$ of division, in terms for circumference to height of the king's chamber as diameter. This, as a foundation, embraces all the time subdivisions of that circle into hours ( 24 equal to 1 solar day of $\left(\frac{144}{2}\right)^{2} \times 1000=5184000^{\prime \prime \prime}$, as well as the distance divisions of the circumference of the earth in miles to the degree), minutcs, or primes, scconds, and thirds.

So, also, as to the width of the king's chamber.
(6.) 6561 : 20612 :: $206.264+$ inches : 648 inches.

So the law of construction of the pyramid is assumed to have been found on this showing.

Note, that the base side of the pyramid, by actual measure, being thus shown to be a diameter of $763.943+$ to a circumference of 2400 feet, this is $24 \times$ 100, and 24 is four times the factor 6. The base of the pyramid, then, would be co-ordinately represented by a square of 24 , or $\overline{6 \times 4}=24$, to the side ; and this is the Garden of Eden form : and, also, it is the square Hebrew Zodiac of the 12 months.

## The Discovery of this Law.

(§ 48.) The discovery of this law, and of its application, arose from a suggestion of thought on reading a passage in the "Historical Vicw of the Hindu Astronomy," by Mr. John Bentley. It is almost evident that one intention of the architect of the pyramid, has been exactly reproduced in the use of a numerical system; and this accomplishment is but the going back to the original sources of the numerical instrumentalities which are in use to-day. Considering the value of this discovery, it is appropriate to give the original notes made on the subject, as follows (premising, however, that the author had before this obtained the numerical value of the enlargement on the standard,
and had made use and mention of it in Ancient of Days, without knowing, or seeing its application) :
"A very remarkable blending of all these systems can be given, arising from the actual method used by the Hindus, for the calculations of sincs, tangents, cosines, cotangents, etc., which belongs to their most ancient system of astronomical calculations. This method is given by Mr. John Bentley, in his "Historical Viezu of the Hindu Astronomy" (sec. 3, page ${ }^{5} 56$ ). He is giving the various values for the computations of the value of $\pi$, one after the other, until coming to one very nearly approximating the true relation, he says:
"But Argabhatta, in the 17 th chapter, in speaking of the orbits of the planets, gives us a nearer approach to the truth; for he there states the proportion as 191 to 600 , or as $1: 3.14136$, which gives the circumference a small matter less than the proportion of Bhaskara in the Lilavati. This, however, is not the invention of Argabhatta; for it is employed in the Brahma Siddhanta, Surga Siddhanta, and by all the astronomers before the time of Argabhatta, as well as since, for computing the tables of sines, etc., though not immediately apparent. Thus, in computing the sines, they take the radius at $3438^{\prime}$, and the circumference they divide into $21600^{\prime}$; the diameter is therefore 6876 : hence the proportion is $6576: 21600$. Reduce these numbers to their last terms by dividing them by 36 , the result will be 191 : 600 , as stated by Argabhatta."
" Mr . Bentley was greatly familiar with the Hindu astronomical and mathematical knowledge; not as a foreigner studying the reach of a nation in such matters, but as a resident in Hindostan of some fifty years. This statement of his may, then, be taken as authentic. The same remarkable trait, among so many Eastern and ancient nations, of sedulously concealing the arcana of this kind of knowledge, is a marked one among the Hindus. That which was given out to be popularly taught, and to be exposed to popular inspection, was but the approximate of a more exact but hidden knowledge. And this very formulation of Mr. Bentley will strangely exemplify the assertion; and, explained, will show that it was derived from a system exact beyond the European one, in which Mr. Bentley him-
self, of course, trusted, as far in advance of the Hindu knowledge, at any time, in any generation.
"This formulation is the taking of a radius of 3438 to obtain a circumference to be divided into 21600 equal parts. The diameter would be 6876, and the reduction of this by 36 would be 19r. 216 is $6^{3}$, or, $\overline{36 \times 6}$, which shows use of a system founded on a multiple of which 6 is the basic factor. $343^{8}$ is an exceedingly near approach to a pure circumference value; which goes to show, as it is used as a radius, that which has been so observable heretofore of the expression of diameter, or straight line, values in terms of circumference.
"Take the reductions of 20612, the Parker circumference value, that give the dimensions of the king's chamber :
(土.) $20612 \div 600=34.3533+$ feet, $=$ standard length.
(2.) $206 \mathrm{r} 2 \div 1200=17.1766+$ feet,$=\quad ، \quad$ width. $20612 \div 1080$
(3.) $343.533 \div \quad 18\}=19.085 \mathrm{I}+$ feet,$=$ standard height. $190.851 \div$ 10
" These are the standard measures of these dimensions, for comparison; or, on which variations are raised in the working out of the various problems for which they were the base. Take it that this Hindu problem involves these measures, and that the system of factoring by 6 is introduced, by which with these measures to work out tables of sines, cosines, tangents, cotangents, etc., and for calculations of planctary times, or distances. So (1), perfect circular elements are required; and (2), the circumference of these elements is to be divided into 21600 equal parts. Can not the Hindu system be traced back to an absolutely perfect one, based on the Parker elements? And, at the same time, can not this same Hindu system be attached through the same Parker elements, by actual measures, to the king's chamber, the passage-way therefrom, and to the ante-chamber works? If this can be done, plainly, and mathematically, it will be an important achievement.
"Let use of the base of operations be in whole
numbers, viz., 20612, the perfect circumference, instead of its fractional derivatives. A perfect radius, instead of being, as Mr. Bentley represents that of the Hindus, or 3438.
is, say, the perfect one of
$3435 \cdot 333+$
or, $2061200 \div 600$. The diameter, then, instead of being 6876, will be
$6870.66+$ or $4122400 \div 600$.
"Let Mr. Bentley's Hindu radius values be tested with the perfect ones-
(4.) 19.0851 : 34.3533+ :: $1910: 3438.015$;
where standard height of the king's chamber is to its standard length as Mr. Bentley's diameter reduction is to the diameter value he reduces from, 3438 , plus the increment, to make up the exactitude, of .or 5 , as seen. Comparison with the standard values of king's chamber measurement is thus made, subject to variations on these for special purposes. Howard Vyse's height of the king's chamber is I9.I, and Professor Smyth's measured length of the same is $34 \cdot 38$, the very numbers of Mr. Bentley.
"It is now desired to get a perfect circumference to divide into 21600 equal parts, and for trial-

$$
\text { (5.) 6561 : 20612 :: } 41224: 129509.0821
$$

that is, diameter : circumference $:$ : standard length of king's chamber in one-hundredths of inches : circumference required. Divide this fourth term by 21600 , to see what the value of the subdivided parts will be-

$$
\text { (6.) } 129509.0821 \div 21600=5.995790 ;
$$

and here, in this result, is evidently to be seen one object of the Hindu system, as to the values taken to get this division, viz., to create a system from a mmerical base of 6 , which may be used as a factor throughout the system developed.
" 21600 is the cube of 6 , or $\overline{6^{3} \times 100}$, and here, in the quotient, by the division of 21600 into the circumference value taken, there is obtained $5.99+$, or a result with an exceedingly near approach to the factor 6 , desired as the base of the system. But this base is wanted exactly; therefore,
force back a perfect circumference value into an enlarged form, to accommodate to this state. Were this quotient 6 , instead of $5.99+$, the dividend would be 1296 (by the way, the number of square inches in the square yard), instead of $1295+$. Carry back, then, with this value, by the proportion from the standard of Parker circular elements, and there results-
(7.) 20612 : 6561 : : $129600: 41252.94+$, for the desired diameter value in the fourth term, in hundredths of inches, as an culargement upon the standard length of the king's chamber measure. Compare this with the standard-
(8.) Enlarged value, 41252.94

Standard "
41224
Difference in hundredths of an inch, 28.94 , as a variation on the standard to obtain the desired result.

$$
\text { (9.) } 4^{1252.94 \div 12}=3437.74+
$$

is the radius required to complete the object sought ; or, the diameter will be-

$$
\text { (го.) } 3437.74 \times 2=6875.48
$$

"And this is taken to be the real radius, and the real diameter belonging to the Hindu system; which was just sufficiently obscured to cover the real derivation from the perfect elements of the quadrature.
(ir.) The radius given by Mr. Bentley, is 3438.00
The true one is 3437.74
The diameter given by Mr. Bentley, is 6876.00
The true one is $\quad 6875.48$
And again :

$$
\text { (12.) } \frac{6875.48: 21600}{36} \text { gives } 190.985+: 600,
$$

for, and in place of Mr. Bentley's Hindu proportion of 191: 600.
" Now, applying these results as a variation on the height and length of the king's chamber, the standard measures are, respectively :
(13.) 19.085I $+34.3533+$.

90 Construction of the Great Pyramid. §48.
The variations for the purpose stated, give :
(14.) 19.0985+ : 34.3774+;
while the actual measures made, are:

$$
\text { (15.) } 19.1: 34.38 ;
$$

and in mason work of these lengths, the difference between $19.0985+$ and 19.1, and between $34.3774+$ and 34.38 , in feet, is certainly inappreciable. While this is so, the purpose of the Hindu use is also thus shown to be perfectly fitting in measures, to such a use in the pyramid; and the pyramid work, just here, almost undoubtedly involves circular admeasurements.
"This slight but proportionate change is made to give a circumference value into which 21600 , as $6^{3} \times 100$, will divide cvenly into subdivision of 6 . And thus, and here, and in this manner, is shown the working-in of the system of the division of a circle into 360 equal parts, and further subdivisions, to co-operate, and to co-ordinate, with pure circular measure. $21600 \div 60=360$, or $360^{\circ}$ of $60^{\prime}$ to the degree. $360^{\circ} \div 24$ hours $=15^{\circ}$ to the hour. If the minutes in 24 hours are taken, or $24 \times 60^{\prime}=144^{\prime}$, then $144^{\circ}$ $\div 2=720^{\prime}$, and $720^{\prime 2}=518400^{\prime}$, and this $\times 10=$ numerically, and in minutes, just one solar day in its last subdivision of thirds; and in the limits of 144 and 5184 , are to be found the peculiar limits of the British square foot, and four times the British square yard of 1296 inches: and the British acre is the only least quantity into which ${ }_{5184}$ will divide without a remainder. 5184 is again reproduced by $\overline{8 \mathrm{I} \times 64}$, where the 8 I is the square root of the Parker square of 656 I , and the 64 is one-tenth the number of acres in the square mile.
" So, an exceedingly practical use is thus developed, as belonging to the meanings, or readings, of the king's chamber."

## NOTE.

A Conncction betwecn the Parker and Mctius Forms with Relation to the Factor 6.
(§49.) In §35(3), it is seen that we have the forms: (土.) 6561 : 20612 : 113 : 355.0001+, and-

```
(2.) 113 : 355 OOOIt :: 36 : 113.0973+.
```

Above, we have the change of circumference to diameter values, to obtain the exact measures of the pyramid, with dimensions of the king's chamber, of which height of king's chamber is a base of change, again, from a diameter, to get a circumference value, viz., in the form-
(3.) 1.90985t : 6;
where the third proportional is diameter to, the fourth, a circumference of 6 .

Through a like change on the Metius forms, we find in the third proportional of (2) $6^{2}$, or $6 \times 6$, or use of 6 as a factor, for a diameter value, to the fourth, that of a circumference.

Both forms thus find a like base of structure on the same factor, 6; but one finding it as circumference, and one as diametcr value. It is thought that herein, perhaps, is a key to one of the chief links of connection between the two forms.

## SECTION II.

TABLE OF Standard measures of restoration of the great PYRAMID, MADE THUS FAR.
(§50.) Standard circumference in inches, 20612.00
For circumference of base, raised to 36643.55

Standard diameter in inches, 6561.00
For height of pyramid, raised to
$\frac{11664}{2} .00$ Standard circumference of pyramid, $\begin{aligned} 3664.3 .55+\div 12= & \text { in feet, } & & 3053.62+ \\ & \text { in cubits, } & & 1777.77+\end{aligned}$

Standard base side of pyramid,

$$
\begin{array}{rlr}
3053.62+\div 4= & \text { in feet, } & 763.4074 \\
& \text { in cubits, } & \\
& \text { in inches, } & \\
& 944.4444 \\
160.88
\end{array}
$$

Standard height of pyramid, $11664 \div 24=$ in feet,
486.00

Standard length of king's chamber, $206.12 \times 2=$ in inches, in feet, 412.24 in cubits, 34.3533 same, in inches, 206.12
in feet, in cubits,
Standard height of same,
Base side, $763.4074 \div 40$,

| $\text { or, } 20.6 \mathrm{I} 2 \times \frac{\mathrm{II.IIII}}{\mathrm{I} 2}$ | in feet, | 19.08518 |
| :---: | :---: | :---: |
| $\text { or, } 34.3533 \times \frac{10}{18}$ | in inches, | 229.0222 |
|  | in cubits, | II.IIIII |

## Enlarged Measures on the Standard.

(§5r.) These are obtained on the formula-

$$
\text { 6561 : 20612 :: .318309+ : } 1
$$

where the object evidently is, among other things, to get a new diameter value for an integral circumference value of unity. It will be seen that this new diameter value can be raised so as to exhibit a very slight enlargement on the standard circumference values already used.
Enlarged height of pyramid in feet, $\quad 486.341 \ddagger 8$
Enlarged base side, ?
$31.830972 \times 24,\}=\quad$ " $763.9433+$
And this is a dia. to a circumference of 2400.0000
in inches,

$$
9167.3 \mathrm{I}+
$$

Enlarged height of king's chamber,
$763.943328 \div 40=$ in feet,
19.098583 in inches,
229.182998

Enlarged length of king's chamber,
$\begin{array}{rlrl}19.098583+\times \frac{18}{10}= & \text { in feet, } & & 34.37744976+ \\ & \text { in inches, } & 412.529396+\end{array}$
Enlarged width of same,

$$
\begin{array}{rlrl}
34 \cdot 37744976+\div 2= & \text { in feet, } & 17.1887248+ \\
& \text { in inches, } & & 206.2647001+
\end{array}
$$

Measures as actually Made or Computed in Terms of the
British Inch and Foot.
(§52.) Height (estimated or computed by Smyth), in feet, 486.2 inches. Side of base (French measures), in feet, $\quad 763 \cdot \frac{62}{100}$ Side of base (Col. Vyse's measures), in feet, 764.00 Length of king's chamber, in feet, Width "، "، "6 Height ،
$34 \cdot 3^{8}$
17.19
19.1
(§53.) A table can be raised on these enlarged values, where, in every case, $318+$ is the quotient of the diameter divided by the circumference. It is thought that the usefulness of this value oi $318+$ is just that which gave it the name of the 318 trained or circumcised servants of Abram.
(a.) I .9098 + feet diameter to a circumference of 6 feet.


|  | 34.377449 ft . diameter to a circumference of 108 feet. |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 412.529 inches | - | * | 129 |
|  | 103.132+ ، | 6 | 6 | 3 |
|  | 68.754899 feet | ، | ، | 21 |
|  | 825.058 inches | '6 | ' | 259 |
|  | 137.509796 feet | " | \% |  |
|  | $1650.116+$ inches | ، | '6 | 518 |
|  | 275.019592 feet | " |  | 86 |
|  | 3300.232 inches | ، |  | 10368 |

In this table, it is seen that the actual pyramid measures, for one feature, become diameter values for circumferences of which 6 is a factor. This is a fact of interest, when it is considered that the British long and land measures are based on the use of this factor; so, also, the Hebrew capacity measures; likewise, also, the Hindu measures of time.
The characteristic, or value, number of the Hindu time measures, as to one of their cycles, is 108
This is the half of 216

That of another period, called Kalpa, is 432
" "، "، Dwaper, is 864
" "، " Sandhi, is 1728
That of one of their divisions of months is $\quad 5 \mathrm{r} 84$
It is thus seen that the factor 6 co-ordinates long and land, and capacity and time measures, belonging, respectively, to different peoples.
(§54.) There is also a system of factoring to obtain the standard pyramid measures from the value of a circumference alone, as follows:
$20612 \times \frac{4}{3}=27482.66+$ Whence the lunar time by Parker.
" $\times \frac{16}{9}=36643.55+$
" " solar " " "
§ 55. Effect of Putting the Pyramid in a Sphere. 95


The enlargements are to be obtained by use of the same factors, on the enlargement of 20612 to 2062647001 , thus:

$$
\begin{aligned}
& 656 \mathrm{I} \times 100 \div 20612=31.8309722+ \\
& 3 \mathrm{I} .830972 \times 12=38 \mathrm{I} .97 \mathrm{r} 6664+ \\
& 38 \mathrm{I} .97 \mathrm{I} 66+\times \frac{864}{16}=20626.47001+
\end{aligned}
$$

which last result is the enlargement on the Parker primary circumference.

## SECTION III.

effect of putting the pyramid in a sphere, preliminary to giving, or working out, its further measures; and stated as hypothesis or theory. obtaining the number value 216330 .
(§55.) Thus there has been displayed the elements for the construction of the pyramid; the enlargement on the same, with the reason therefor; the standard measures, and actual measures thereof as enlargements, or variations, on the standard; as also of the three elements of the length, breadth, and height of the king's chamber.

It is thought there is a reason for the pyramidal shape of the structure; and because the use of it in that shape can be made instrumental in the production of a numerical value, which seems to be recognized and made use of, or rather worked with reference to, by the architect, in most of the governing lines of the interior work, it is thought best to commence with the development of the number

$$
216330
$$

as a result of placing a pyramid, in terms of the original Parker measures, in a sphere. From this, as will be seen, some very extraordinary numerical relations arise, which harmonize with the supposed object, or genius of the structure.

(a.) Let $\mathrm{A} \mathrm{D} \mathrm{B}^{\prime}$ represent a vertical meridianal section, and AB B ' a transverse vertical section (cutting in the corners) of the pyramid. Let $\mathrm{DB}^{\prime}=\frac{\mathrm{I}}{2}$ side of base, and $B B^{\prime}=\frac{1}{2}$ diagonal of base. Then,
Height
(standard), $\mathrm{A} \mathrm{B}^{\prime}=656 \mathrm{r}$

$$
\begin{array}{ll}
\frac{\mathrm{I}}{2} \text { Base side } \quad \text { (standard), } \mathrm{DB}^{\prime} & =5153 \\
\mathrm{BB}^{\prime}=\sqrt{\mathrm{DB}^{\prime 2} \times 2} & \\
& =7287.44248+
\end{array}
$$

To get this pyramid in a sphere, $\mathrm{A}^{\prime}$ must be produced to such a length, that with some point, as $O$, as a center, and with O A as a radius, a circle may be described which will cut in the points A and B . This can be done because $B \mathrm{~B}^{\prime}$ is a mean proportional between $\mathrm{A} \mathrm{B}^{\prime}$ and some length $x$, which gives $\frac{A B^{\prime}+x}{2}=$ radius required.

This radius equals 7327.6588 I $72+$.
As $B B^{\prime}$ is longer than $A^{\prime}$, addition must be made to $A B^{\prime}$ to get this radius. The difference between them is $726.44248+$; and this added to $\mathrm{AB}^{\prime}$ gives the 7287.44248 . Now, though A B' has been increased to equal B B', it still is not the radius required; because, by difference in position, $\mathrm{AB}^{\prime}$ thus increased, taken as a radius, can not inclose the pyramid. A further distance is required.

The true value is as stated, $7327.6588172+$.
The difference between this and $A B^{\prime}$ increased as above is $40.216330+$.

Now, let B B' be increased by the zuhole number of this last difference, viz., 40 ; then there will remain as between the true radius, $7327.6588+$, of the circle inclosing the pyramid, and $\mathrm{H} \mathrm{H}^{\prime}$, the numerical value,

$$
216330,
$$

as a final difference.

## 216330 Found as an Elliptical Difference.

(b.) There are two ways to take up or represent an elliptical property : one is to measure out from a common central point to the end of the major, or minor, axis of the ellipse; the other is to take a true circle, and exhibit the same difference at the center, on the quadrant lines. Here the latter plan seems to have been adopted:

| $\mathrm{AO}=$ | $7327.658817^{2}$ |
| :--- | :--- |
| $\mathrm{H} \mathrm{H}^{\prime}=$ | $\frac{7327.44^{2} 487}{.216330 ;}$ |
| Difference, |  |

which thus introduces the property of an ellipse, as connected with the sphere, taken up or represented at the center thereof.

True Pyramid springing from the Pyramid placed in the Sphere.
(c.) It is seen that this pyramid thus placed in the sphere, is composed from the original Parker elements, in numbers. Now, any pyramid taken off this by a base line, as $\mathrm{CC}^{\prime}$, drawn parallel with $\mathrm{B}^{\prime}$, will be proportional in all its elements with the pyramid inclosed in the sphere. On the pyramid lines thus placed in the sphere, another is required to represent the Parker formulæ-

$$
\begin{aligned}
20612 \times \frac{4^{2}}{3^{2}} & =36643.55+ \\
6561 \times \frac{4^{2}}{3^{2}} & =11664 \cdot
\end{aligned}
$$

in which $36643.55+$ is to represent the circumference of the base, and ri664 is to represent the hëight. This can be done: reducing the values to feet, equals for circumference $3053+$ feet; or, for base side, $\mathrm{D}^{\prime} \mathrm{C}^{\prime} \times 2=763.4074+$ feet (standard measure) ; and, for height, $11664 \div 12=$ 972 for diameter, and $972 \div 2=486$ feet (standard measure) for radius or height; whereby, on the lines of the first pyramid, constructed from the original Parker numbers, another pyramid is made to spring from the same original numbers in terms of the Parker formula, for obtaining in 366.4355 , as he says, "the exact time of the passage of the earth around the sun over the value of a complete circle in space in circular days." The enlarged measures of the pyramid proper are to be had by extending the height and standard base lines.

> Solar Year Value obtained from $\frac{\mathrm{I}}{4}$ Base Side of Pyramid, and the Sine of $30^{\circ}$.

( $\$ 56$.$) It is to be noted that the north base line of the$ great pyramid is located on the actual parallel of $30^{\circ}$ north latitude. Let it be assumed that the sphere taken was in-

> Univ Calif - Digitized by Microsoft ©

## §56. Effect of Putting the Pyramid in a Sphere.

tended to represent the earth; that by the difference taken up at the center, as shown, a datum, numerically, of the clliptical property, or of an clliptical property, of the earth's shape, or of its spheroidal character, was intended; and then, that the line of $30^{\circ}$ was intended as a point to work to in the elaboration of the problems intended to be displayed as measuring the carth and the planetary orbits. A use of this can be made manifest.
(a.) The standard length of $\mathrm{D}^{\prime} \mathrm{C}^{\prime}$, or $\frac{\mathrm{I}}{2}$ base side of the pyramid, is-

$$
\text { (土.) } 38 \mathrm{I} .70370+\text { feet. }
$$

The half of this is-

$$
\text { (2.) } 190.85185 \mathrm{I}+\text { feet. }
$$

In the circle of this diagram is represented the pyramid taken at the standard height and $\frac{1}{2}$ base side, or 486 feet, and $38 \mathrm{I} .7037+$ feet, respectively, as a proportional part of the ideal pyramid drawn in the sphere. The actual pyramid is an enlargement on these values of $486.34118+$ feet for height, and 38 r. 97 r $66+$ feet for half base side; and, to effect this, the height will project beyond the circle .34II 8 of a foot, and the base line will be projected for the other differences.

The radius of the standard circle is $610.638234+$ feet. Add, for enlarged height,
(b.) From the center O of the sphere (preceding figure), draw the radius line OF , to intersect the parallel line of $30^{\circ}$, at F on the sphere, takcn as thus cnlarged. The distance $O \mathrm{D}^{\prime \prime}$, where this radius line is found to intersect the inclined side of the pyramid, is found to be 381.228o7 feet, as follows: The angle $\mathrm{AD}^{\prime \prime} \mathrm{E}=5 \mathrm{I}^{\circ} 5 \mathrm{I}^{\prime} \mathrm{I} 4^{\prime \prime} 5$; the angle $\mathrm{ED}^{\prime \prime} \mathrm{O}=30^{\circ}$; then the angle $\mathrm{AD}^{\prime \prime} \mathrm{O}=8 \mathrm{I}^{\circ} 5 \mathrm{I}^{\prime} \mathrm{I} 4^{\prime \prime} 5$; the angle $\mathrm{D}^{\prime \prime} \mathrm{AE}=38^{\circ} 08^{\prime} 45^{\prime \prime} 5$; and the angle $\mathrm{AOD} \mathrm{D}^{\prime \prime}=60^{\circ}$; then-

$$
\begin{array}{ll}
\text { Sin. } 81^{\circ} 51^{\prime} 14^{\prime \prime} 5 & 9.995595 \\
\text { Sin. } 38^{\circ} \mathrm{o8}^{\prime} 45^{\prime \prime} 5 & 9.790754 \\
\text { Log. 610.9794 } 5 & 2.786026 \\
\text { Log. } 38 \mathrm{r} .22807 & 2.58 \mathrm{II} 85
\end{array}
$$

If this is taken as the radius, then the value of the sine line of $30^{\circ}$, or O E , will be,

$$
\text { (2.) } 190.614035+\text { feet. }
$$

Compare this value of sine of $30^{\circ}$, with the corresponding value of standard one-fourth base side $[(a)(2)$.$] , or,$ $190.85185 \mathrm{I}+$ feet; and let it be taken that the object has been to get the difference between these values, as to their decimals, for use, so that:
(3.) $190-|851851-190-|614035=190-| 237816$.

The uses of this remainder are in exceeding great harmony with the scheme supposed. $190.85185 \mathrm{I}+$ is the standard value of the $\frac{I}{4}$ the base side of the pyramid, or $190.85185 \mathrm{r}^{1} \times 4^{2}$, or 16 , equals the standard circumference of the pyramid in feet, or $36643.555+$ inches, where the height of the pyramid is to this value as radius is to circumference of a circle. As to the use of the variation found :
(4.) 190.237816 feet equals, in inches, 2282.853792 ,
and-
(5.) $2282.853792 \times 4^{2}$, or $16,=$, in inches, 36525.660672 , or, in tenths of inches, 365256.60672 ,
as a result from the use of this difference between the standard $\frac{\mathrm{I}}{4}$ base side, and the sine value of $30^{\circ}$ as taken.
(c.) 36525 is numerically taken as the correct solar year day value, or circle, as used in the calendars; but this carries it to a greater exactitude, for this value is in tenths of inches, $365256.6067+$
The true and exact solar year value is 365256.3835
Difference,
$000000.2232+$
or $17^{\prime \prime}$ in a year's time: so close an approximate that 5000 years would have to elapse to require the intercalation of r day, for correction of the calendar.

Note on $\$ 56$.-The results of thus putting the pyramid in
a sphere can be shown by diagram. The base of the pyramid proper is 36643.55 inches, from which numerical value Mr. Parker derives the cxact solar year period. The side of the square base is 763.4074 feet. This divided by 2 is 3 Si. $7037+$ feet; and this by $2=190.85185 \mathrm{I}$ feet: the very division on which comparison is made for the differential of 190.237816 , by running a radius to $30^{\circ}$, on the circle of the pyramid colarged. It is thus seen that this is a method of working the differential on the $\frac{I}{2}$ base side, and the $\frac{1}{4}$ base side, of the pyramid. 190.614035 being sine of $30^{\circ}$, then $190.614035 \times 2=381.22807$ feet, becomes the side of a square measurcd on this circle: so that this is a square of comparison with that of the base of the pyramid, in its seen division, to obtain a differential to procure the solar year value. This division of the square base of the pyramid, divides it into 16 squares ; 12 around the circumference and 4 in the midst, framed on two lines crossing in the conter. This is cxactly the square framed for the Garden of Edcn, and the cncampment of the Israelites, showing that the Hebrew idea is just that of the Egyptians. Now, the square base of the pyramid is the zodiac. The $\frac{\mathrm{r}}{4}$ of this square is a variation on that square in a circle obtained by putting the ideal pyramid in a sphere, cutting in the parallel of $30^{\circ}$, and thus obtaining the solar year, as the value of the zodiac. But the sphere itself is representative of the earth, the diametcrs of which are to be worked out co-ordinately with the time value of the zodiac, and in and from the same data. Was there ever a more magnificent conception? The data for exact computation are the governing ones, and the architect is cunningly blocking out the cosmic work architecturally.

Equatorial and Polar Diameters of the Earth obtained.
(§57.) It is seen that this very exact solar year numerical value, in tenths of inches, is architecturally obtained as
a variation, by difference, on $366435 \cdot 5+$ in tenths of inches, or the standard circumference of the pyramid proper, which value as 366.4355 is the very value, which, under his problem of three revolving bodies, John A. Parker raises from these very original elements of his quadrature (which, under the present application, give the pyramid in the sphere, whence the real pyramid is taken) as "the exact value of the passage of the earth about the sun," etc. Now, if under the geometrical conditions framed in § 55 (a), and with the data obtained of 3664355 t, and the elliptical value numerical of $216330+$, taken up at the center of the earth, the actual miles numerical value of the earth's diameters can be worked out, it would seem, almost, that the design of the architect must be being reproduced, though perhaps in a stumbling way, and lacking in the refinements, and proper details, by which he almost undoubtedly was working out planetary exactitudes as to size and motion through geometrical elements, under a co-ordinating system of construction and of notation. As a fact, by a very beautiful calculation through these very means, the equatorial and polar diameters of the earth can numerically be obtained.
(a.) Let the values of the earth's diameters be taken at, for
(土.) Equatorial diameter, 4 1.854.174 + feet, And another at some other point, 4I.739.954+ " The difference is

$$
114219.758 \text { ، }
$$

If the larger diameter be divided by this difference the quotient will be $366.4355+$, and this is numerically that value springing from the Parker elements of $206.12 \times \frac{4^{2}}{3^{2}}=$ $366.4355+$, which, as he says, is " the exact value of the passage of the earth about the sun over one complete circle in space in circular days;" and used otherwise for pyramidal purposes, is in 36643.55 inches the standard circumference of the pyramid.

## §57. Effect of Putting the Pyramid in a Sphere. io3

[The question has been raised, by what authority Parker points this value at $366.4355+$, and in truth he is not clear as to this. But a way can be shown, by throwing the values from inches into feet, thus : $\frac{20612}{12000}=1.71766$ fect, or the value of 1 cubit. 120 cubits, then, is 206. $\frac{12}{}$ fcet, and this $\times \frac{4^{2}}{3^{2}}=366.4355+$, as the Parker time day value, thus shown to be in British feet.]

In this formulation, since the smaller diameter taken is less than the dividend by the amount of the divisor, the quotient of the smaller divided by the difference, will be one less than the first quotient, or $365.4355+$ : There results :
where the products are the return of the diameter values of the earth as taken.

But r14219. 758 feet equal $21.63253+$ miles British, and the difference taken up at the center of the sphere as shown, was, numerically, 2 I. 6330 ; which, if it be taken as representing this miles value of difference, shows a discrepancy of $\frac{4}{\text { IOOOO }}$ of a mile, or of 2 feet, as the difference of the earth's diameter as taken.
[Here it will be seen that 4 r 854174 feet $i s$, to all intents, the equatorial diameter of the earth. This being so, the numerical datum of 216330 found as equal to a miles elliptical difference value may be one assumed as being thus found, and on which, as one true value is already obtained, the other may be had.]
(b.) It has been shown that $36643 \cdot 55+$ is obtained by use of $20612 \times \frac{4^{2}}{3^{2}}$. Since 21632.53 is numerically nearly the same as 206I200, and yet is taken as a miles value, transformation may be made of 21.63253 into the terms of the formula $20612 \times \frac{4^{2}}{3^{2}}$, or by use of the factors 3 and 4. As it appears that-
(土.) $206.12 \times \frac{4^{2}}{3^{2}}=366.4355+$,
so it seems that-
(2.) $21.63253 \times \frac{3}{4^{2}}=365.04894+$.

Substitute this value in (a) (2), and, formulating, we have-
(3.) $\overline{3^{666.4355+} \times 365.04894} \times \frac{4^{2}}{3^{3}}=7926.92686$,
where, in place of the resultant value appearing in feet, it is now produced in miles British, of the equatorial diameter of the earth ; and-

$$
\text { (4.) } \overline{365.4355 \times 365.04894} \times \frac{4^{2}}{3^{3}}=7905.2943+
$$

where the result, in place of feet, is now produced in miles, value of the other diameter, as taken.
(c.) But now there appears a co-ordination of values; for, since, by the above formulation, (b) (4), it is-

$$
365.4355+\times 365.0489+
$$

this is precisely the same as the square of the mean of these values; thus-

$$
\text { (I.) } \overline{365.24225}^{2} \times \frac{4^{2}}{3^{3}}=7905.2943+
$$

and hence, for the larger diameter, there is(2.) $365.24225^{2}+\overline{36504894 \times 100000} \times \frac{4^{2}}{3^{3}}=7926.92686+$.

In these last formulations, $365.24225+$ is the value of the mean solar year.

Note, that $7926.9268 \div 24=330.2886$, and by Professor Smyth the length of passage through ante-chamber to king's chamber, from edge of great step, is $330.3 \pm$ inches; and as it is seen that this miles' value is a time value through the mean solar year, the key of this passage-way measure seems to be found, as a co-ordinating onc, of these very elements.
(d.) But thus far, in these formulations, the equatorial value alone has been obtained. In $\S 56(b)$, above, it is shown that the sine value, or O E , of $30^{\circ}$, compared with the $\frac{I}{4}$ of the base side of the pyramid, taken at the standard,
gives for use the value of $190.237816+$ feet, which reduced or scaled to tenths of inches, and multiplied by $4^{2}$, or 16 , to get the variation on the entire circumference of the pyramid of $366435.5+$, in tenths of inches, the standard value, gave, as a result, the almost exactly true solar year value of in thousandths of day's, $365256.383+$.
The elements there used are directly connected with those herein used-viz., the circumference of $366435 \cdot 5+$ is so varied as to produce 365256 , the truc solar ycar; whereas here the mean solar year value has been used, and that as coming from use, in part, of the same value of $3664355+$. The miles value is numerically represented as a difference taken up in the center of the sphere, in which the pyramid, in the original Parker numbers, has been placed. From this same center the radius line of $30^{\circ}$ is taken, which gives the sine value of 1go.614035, whence 190.237+ was obtained.

Make use of these values so connected:
(I.) Standard circumference value in inches, $36643.55+$.
(2.) ${ }^{190.237816}$ feet (the variation on the $\frac{1}{4}$ side of the pyramid, used above) $\times 4=760.9512$ (the variation on the value of the full base side of the pyramid).
(3.) Now, if the $\frac{I}{\text { IO }}$ of this last, in a scale of inches for feet, or $76.09512+$, be taken from $366.4355+$, or the $\frac{1}{100}$ of the full circumference of the base, in inches, the difference is $290.34043+$; and let this be considered, on a scale of feet for inches, as the number of times the difference between the equatorial and polar diameters is taken, instead of $366.4355+$, the number of times the difference between the diameters already used was taken.
(4.) Then the larger diameter divided by this value will give the new difference, the ultimatum sought, or,
$4^{1854174+\div 290.34043=144155.5, ~}$
in place of $114219.758+$ as already taken [§57(a.)].
(5.) Then the larger diameter less this difference will give, say, the numerical value of the polar diameter, or, 41854174 feet,
less
equals 144155 "
or, in miles British,
$4^{1710019}$ "
In fact, this resultant value is to all intents the true value of the polar diameter of the earth. Comparison gives as follows :
(6.) Equatorial diameter assumed, $41854 \mathrm{I} 74+$ feet, As ascertained,

Difference, Polar diameter assumed,

As ascertained,
Difference,
$\frac{41852864+}{1310+}{ }^{6}$
$4^{1710019+}$
$\frac{41708710+}{1309+} " ،$

Nots.-While there is enlargement as seen, yet this scarcely affects the difference of the diameters, thus:

Equa. found, 7926.9268 miles.
Polar, " $7899.624^{8}$ "
Difference, 27.3020 "
Equa. received, 7926.6789 "
Polar, " 7899,3768 "
Difference, 27.302I "
Now, while there is very much elaboration in the working out of the polar value results, in the way of scaling of measures, it must be borne in mind that in architectural, or object, or block building in of such problems, just this class of work is to be expected of necessity ; therefore, this elaboration is in full harmony with the genius of the problem making of the entire pyramid structure-in fact, it may be expected in a far greater refinement of elaboration than here shown, as is testified to by the greater and greater amount of subdivision, and change of scales, as one progresses from the outside to the coffer in the king's chamber; also, by the refinements of measures displayed on the walls and in the works of the ante-chamber, the recess of the queen's chamber, and the wall courses of the king's
chamber. It seems evident that just this nature of working of values was made, but unfortunately for us, our highest efforts, at present, can only reach to a study as to the keys of the method of calculation employed. The above may be the exceedingly detailed elaboration of results somehow, by some architectural device, plainly set forth in the concrete, in natural exactitudes.

All these results depend upon the placing of an original pyramid in a sphere, in the Parker values, giving the elements shown, and especially the final difference of-

$$
216330 .
$$

As to the extraordinary combinations shown, all harmonious among themselves, and in full accord with the genius of the whole pyramid system, as it has been, and as it will be seen, in its further developments, they seem to claim recognition as the real mental intent of the architect, rather than as the results of a happy inventive faculty. It is thought that it is almost impossible to conceive of the possession of a power of inventing such co-ordinating harmonies as are above set forth, especially where all the steps are so fitting to architectural work, where the object would be to obtain correct numerical data, which obtained, the harmony of kinds of measure would, as has been said, be preserved, by changes of the scales of measure.

$$
\text { NOTE TO §57 }(d) \text {. }
$$

The processes stated are somewhat strengthened, as being rightly taken, from the following : The circumference of base of the pyramid is $36643 \cdot 5555+$ inches, or 3053.629629 feet. Take $\frac{2}{10}$ of this. It is-

$$
\text { (土.) } 610.725925+\text { feet; }
$$

whereas, the radius of the sphere, as shown, is 7327 . $6588 \mathrm{I} 6+$ inches. This reduced to feet, is(2.) 610. 63823 feet.

Raise both to pyramid circumference values-
(I.) becomes $3053.6296+$ feet.
(2.) becomes 3053.19II + feet.

Raise both to radius of sphere values-
(土.) becomes 7328.7111096 feet.
(2.) becomes 7327.6588 I 6 feet.

The placing the pyramid framed from the original numbers in a sphere is evidently done, for one thing, to get a variation on the circumference of the base of the real pyramid.

Now, $7327.6588 \mathrm{I} 6 \div 20=366.3829416$, as a variation on $366.4355+$. Take the earth's equatorial diameter, as received, at 7926.67897 miles. Then, $7926.67897 \div 366 .-$ $3829416=21.6349+$ miles, different, numerically, from the 216330 taken up as an elliptical difference in the sphere .oorg.
Such correlations can not be accidental. It goes to provethat the processes are those of nature, and that the pyramid constructors knew the processes.
(§58.) If the conclusion be well taken, that the architect of the pyramid recognized in this value of 216330 , numerically, a miles difference in value of earth's diameters, whence, with the solar year time values, the earth's actual equatorial and polar diameters were numerically obtainable, the grades of measure springing from the inch and foot British, and these, with the cubit, from the Parker elements, then the overwhelming importance to man, as man, of this fact, is explainable.

This measure is just that one that, with the ancients, seems to have stamped the whole system as natural or divine, i. e., showing that man was but dealing in measures, in some sort shadowing forth mechanical principles of construction, which it had pleased the Creator of all things to adopt as the law of crcation. Man seems capable, for instance, of arriving, by use of his own powers, to a knowledge of the abstract truths of this system, just as is evidenced by the works of John A. Parker. By observation, the application of this system to the measures of natural periods of time could be arrived at. But if the attempt was to be made to apply the system, so that, in the planet-
ary system, measures of time were to be co-ordinated with the actual material extension of the planets, before man could recognize or realize this, it would become necessary for him to establish some unit of measure for practical use as an inch, for instance, marked on a rod or rulc. Whatever such measure he might adopt, he would have, of necessity, to abide by its results. What, therefore, would be the chances, that, in the practical adoption of such a measure, as by the avcraging of barlcy-corns, or taking the measure of the average langth of the thamb, he would actually take that very measure by which the recognition that, in mechanical construction, the planets, $b y$ lazv, were to co-ordinate in measure with their times, in terms of measures growing out of a common system, would or could come to him? The answer must be that they would be millions to one against the hitting on the exactitude. Therefore, a measure being in use, and found to answer this purpose and end, would be the pronf, above all others, of man's possession, however he came by it, of the actual, practically adopted, material measure, by which, under the laz of cration, the Creator mechanically or materially constructed the earth and all other planetary bodies.
(§59.) As, however, to this number, among other places, it is found that this very numeral, 216330 , found, at first, as notating the difference of the elliptical diameters of the earth in miles (which diameters are measurable in terms of the square of the mean solar year period, and by means of the true solar year value), again develops itself quite a number of times in very important measures, one of which is on the level of the base of the grand gallery, the approach to the king's chamber, where the earth measures and the earth time measures come together to be measured on a circumference (of subdivisions) of the number 6 , as of $360^{\circ}$, growing out of the factor 6 (and, by change, on a square of $\overline{6 \times 6}$, to co-ordinate round with plane measure), which is the circumference to the height of this chamber as diameter; which, again, springs from
a circumference of $I$ to a diameter of $318+$, which $318+$ is, or was, the Gnostic value of the term Christ, and was what was intended by the 3 I 8 trained servants or circumcised men of Abraham, in the Hebrew Bible. And all this comes directly in harmony with the elevation of the floorlevel of the king's chamber above the base of the pyramid, which is $137.509+$ feet; for this value is in inches I650.116+, which is the diameter to a circumference of 5184 , which is the characteristic value of the subdivisions of a solar day into thirds, that full value being $5184000^{\prime \prime \prime}$; which value, again, is only evenly divisible into the acre value of the British land measures, which acre value is the base of the mile's British value.

## SECTION IV.

THE KING'S CHAMBER AND THE SQUARE ROOT OF THE SOLAR yEAR.
(§60.) In $§ 57(c),.(d$.$) , it is seen that the use of the$ 216330 , connected with the pyramid, involves the numerical value of the earth's diameters in miles, in terms of the square of the year value in days; and it is stated that the king's chamber levels involve this number. In §5I, §53 $(a)$, it is to be seen that the height of the king's chamber is a diameter to a circumference of 60 ; and involves, agreeably to the measures of that chamber coinciding with the Hindu formula for obtaining sines, cosines, tangents, cotangents, and planetary orbits, as per Mr. Bentley, the circle of $360^{\circ}$, with its divisions for measuring the solar year, and also the hour values on the earth's circumference in milcs. The height of the king's chamber, spoken of, is in feet, and is a diameter value of $19.0985+$ to a circumference of 60 . This, in inches, would give a circumference of 720 , and this squared, or the area of that height, equals 5 I8400, or the $\frac{I}{10}$ of the subdivision of a solar day
in thirds. The $\frac{\mathrm{I}}{5}$ of 720 is 144 , or the square of 12 . The height of the chamber is divided into 5 courses of masonry, and though, unevenly, on account of a difference caused by filling in on the lower course, may be taken as symbolizing the use of the number 5 , as thus used (also, $\frac{I}{5}$ of 60 is 15 , as of $15^{\circ}$ to an hour's time on the earth). The above division is exactly that of the Egyptian equatorial, according to Seyffarth, and borrows strength from a peculiarity of the Hebrew Bible numerical system. The word Adam is 144 , and Elohim (in a circle) reads 314 IF $^{\text {5 }}$. But the radical of Elohim is $E l$, which is 3 I . The solar day value is 5 I 84 in one of its subdivisions, and this is a multiple of 144. Subtract the value of $E l$, or 3 I, from 144 and 5 I 84 , thus-
(土.) $144-3 I=I I 3 . \quad$ (2.) $5 I 84-3 I=5 I 53$,
and in (I.) there remains a diameter to a circumference of 355, which is the Hebrew word Shanah, for lunar year; and in (2.) there remains the Parker area of the circle inscribed in the square. All these are pyramid numbers, and, as seen, involve the value of a day, ycar, mile, and foot. Thus, 144 and 5184 are the extremes of the British long and land measures, inasmuch as one is the square of 12, and the last, which is the number of inches in the square yard multiplied by 4 , is evenly divisible only in the acre value in inches, which acre value is the base of the miles value. Thus, in this king's chamber, is a mingling of co-ordinations of use of the inch, foot, yard, and miles value, with those of days and years. One means is, as seen, by means of the square of the solar year value; and the number 216330 , which involves this use, is also made use of in the levels of approach to the king's chamber, as is shown in $\S 75$, thus bringing this relation of the square of the solar year to bear upon that chamber in the use of its dimensions.
(§6I.) (I.) Professor Smyth discovered a persistent variation in the lengths of passage-ways and dimensions
of the chambers and of the coffer; that is, they all presented these variations on a mean of measure taken as a standard. He was forced to the conviction that this was purposed, and, if so, it was as a scheme for the exhibition of variation of measures. The ability of the workmen to work to exactitude in these respects was amply displayed, and especially in the king's chamber, whose walls are in the hardest granite, polished to the highest reach of art, and whose joints are to be likened to the thickness of goldleaf.
(2.) The king's chamber is, as shownin height, $19.0985+$ feet.
(a.) The true solar year is, 365.2563835
(b.) The mean solar year is, $365.24225+$

$$
\begin{aligned}
& \sqrt{ } \text { of }(a .) \text { is ig.1II68 } \\
& \sqrt{ } \text { of }(b .) \text { is } 19.11131
\end{aligned}
$$

The variation on the height line of the king's chamber of .OI28 of a foot, or of $\frac{15}{100}$ of an inch, affords this value; that is:

$$
19.0985+.0128=19.11 \leq 3 \text { feet },
$$

or the square root of the solar year day value.
(3.) Then, on this extremely small variation, which is within the limits of those observed by Professor Smyth, the square of the height of the king's chamber equals that very quantity, or the year day value, of which its height, at its first intention as an enlargement on the standard, affords the subdivided measures on the celestial circle of $360^{\circ}$. So, the square of the solar year is involved in the miles value of the difference of the earth's diameters, as connected with the king's chamber; which, by one of its dimensions, exhibits in the square root of that value a measure of the circumference of the celestial circle of $360^{\circ}$.

So, conclusion can be drawn that one function of the measures of the king's chamber was to set forth the correlation of solar time with the material extension of the earth, in terms of the British inch, foot, or mile.
§62. (a.) The Hebrew Biblical scheme correlates
strongly with this: Take the last letter of the alphabet, or tau; its mark is that of a cross, or + , and its numerical characteristic is 4. The word Garden of Eden, taking the characteristic values of its letters, and adding them, equals 24 . Divide this by 6 , and the result is 4 , or $24 \div-6$ =4. Consider this as descriptive of the cross letter, or tau-i. e., that it represents four lines in the form of a cross, each line having the value of 6 . On this, as a frame-work, finish out the large square, and there results four squares of $\overline{6 \times 6}$ each. This equals four areas of 36 each, and the whole equals a square area of 144 , or Adam, who was placed in the Garden of Eden. But it was found, § 35 (3.), that-

$$
\text { (I.) } 113: 355.0001+:: 36: 113.0973,
$$

where II3 is a form of Adam, in the word "man," or aish; from which form, as Adam himself says, Eve, or the woman, or the mother of all living, was called or named, because she was taken out of this form of $\mathrm{II}_{3}$, or " man," or aish. Instead of an arca of 36, then, extend the cross marks, so that the four arms shall represent four straight lines of 36 each, agreeably with the value of 36 in (r.), and perfect the square. Now, there are four squares of $36 \times 36$ each, or, in area, i2g6 each, or the numerical value of the square yard, based on lines of 36 in length. The four squares, then, equal $1296 \times 4=5184$, or one solar day sign; and, in fact, the Garden of Eden is the seventh day, thus utilized. The week of seven days is a circle of time. Bend them into the form of a circle, and the count is as of the golden candlestick of scuen lights, of two sets of three days, and one in common, the phenomena when the cross-bars of the cross are counted as already shown. Each 26 , as a straight line, is a derivative, as enlargement on II3, or "man," in (r.) above, as having for its circumference $113.098+$, which is a parallel use to that of the height of the king's chamber, for exactly the same end of getting the use of the factor 6, except that, in this case, it obtains it in right lines, or shifts circular into rectilinear and square measure, which use of right line for
il4 Construction of the Great Pyramid. § 63 .
circular measure is notoriously true of the Hebrew Kabbala.

It is evident that the like uses, and variations, can be made on this, or the Hebrew form, with the Egyptian. But, in fact, it would rather seem that both forms were made necessary as developments of each other.
(b.) The value of the word Arets, or Earth, adding the characteristic values of the letters, is I2. It was, however, the dry, or arid, or unfruitful earth. To become prolific it had to assume the Adam form, which it did by squaring it, or $12 \times 12=144=$ Adam. This form as I $44 \times 5=720$, and $720 \times 5=3600$, becomes the word Adam-h, or $H$-Adam-h, or the fruitful Earth, or the form of Mars generator. Here it can be seen how the Garden of Eden seems to contain all the elements on which to frame a cosmogony, by the help of other forms to which it is cognate-viz., those shown as connected with the pyramid.

## SECTION V.

## THE BASE OF THE PYRAMID.

$\S 63$. In $\S 55$, in the diagram, $\mathrm{D}^{\prime} \mathrm{C}^{\prime}$ is the length of $\frac{\mathrm{I}}{2}$ side of base of the pyramid, taken at the standard, or $763 \cdot 4074+$ feet, divided by 2 . The actual base side is the enlargement on this as shown, or, $763.9433+$ feet, divided by 2. The actual construction is a pavement of one cubit in thickness, or, x.71766+ feet; which thickness is included in the height of the structure. Col. Howard Vyse places the base of the pyramid on the plane on which the pavement rests, and gives the thickness of the pavement
at
or in decimals, $\quad 1.75$ feet.
As above r.7176+ feet.
Difference, . 0324 of a foot.

I foot, 9 inches;
§ 64. Location, etc., of Descending Passage-Way. ilf

## SECTION VI.

LOCATION AND LENGTH OF DESCENDING PASSAGE-WAY, WITH RESPECT TO THE INCLINED OUTSIDE, TO THE BASE, AND TO THE VERTICAL AXIAL LINE OF THE STRUCTURE.
§64. (土.) Let $\mathrm{E} \mathrm{A}=$ the inclined line of the sloping

side of the pyramid from base to $A$. Let $E F=$ the $\frac{I}{2}$ side of base. Let $\mathrm{AB}=$ the length of the floor line of the descending passage-way, intersecting EA at A, and extending to $B$, or to the foot of $D B$. Let $A C=$ vertical height of A above EF, the base of the pyramid. And let D B = the vertical height of the base above the point $B$, or foot of the floor line of the descending passageway. The measures of these various lines, the exactness of which will be shown hereafter, are as follows:
(2.) A C equals 3 I cubits standard, or 5 I. 53 feet, plus the thickness of the pavement, of one cubit, or 1.71766+ feet, or a total of $53.24766+$ feet, or 638.972 inches. Since the height to base side is as 6561: 10306, the height to $\frac{\mathrm{I}}{2}$ base side is as $656 \mathrm{I}:{ }^{5153}$; and to find EC there is the proportion,
6561 : 5153 : : 638.972 inches, or AC : EC, or 501. 847693339 inches, or 4 I. 82064 IIII feet.

Then E C equals, in length, 4i.82064irif feet.
(3.) D B equals, in length, or height vertical, soo feet, or 1200 inches;

Then A C + D B equals, in vertical height, $153.2476+$ feet.
(4.) A B equals 200 cubits enlarged on the standard. The standard being $343.5333+$ feet, or standard length of the king's chamber, the enlarged value will be 4125.2940+ inches, or $343.7745+$ feet.
 $\sqrt{\mathrm{AB}}^{2}-\overline{\mathrm{AC}}+\mathrm{D} \mathrm{B}^{2}=\mathrm{CD}$, or $\sqrt{343.7745^{2}-153 .-~}$ $2476^{2}=307.727248+$ feet, or $3692.726982+$ inches.
(6.) $\mathrm{EC}+\mathrm{CD}=4 \mathrm{I} .82064 \mathrm{IIII}+307.72724^{8}=$ 349.547889 feet, and 381.97166669 feet, the half base side of the pyramid, less $349.547889=32.42377$ feet, the distance from D to F , the center of the structure. The distance from B to $\mathrm{F}^{\prime}$ is the same.

Then, the distance from the foot of the descending passage-way to the central axial line of the pyramid is $32.42377+$ feet .
(7.) With these data, the angle A G C, or that which the floor-line of the descending passage-way makes with the base line of the pyramid, can be readily found, as follows :

$$
\begin{aligned}
& \log \cdot \mathrm{A} \mathrm{~B}, 4 \mathrm{I} 25.29 \text { inches },=3.615454 \\
& \log \cdot \mathrm{~A} \mathrm{C}+\mathrm{D} \mathrm{~B}, 1838.97=3.264576 \\
& \operatorname{Sin} \cdot 90, \\
& \text { Sin. } 26^{\circ} 28^{\prime} 24^{\prime \prime} \mathrm{IO},
\end{aligned}
$$

( $\$ 65$. ) It is well enough to give the measures and data for measures from Col. Howard Vyse and Professor Smyth. Col. Vyse excavated the rubbish heap laying over EA, and, at the foot, took the measures of the pavement as to its thickness, which he calculates in the measures of the mass. At E , he found a casing-stone in place, which gave him the position of E and the line EA . The floor line of the passage way terminates in a broken edge, which, measuring from E, for perpendicular height, he gives at 49 feet above the bottom of the pavement. Continuing from this edge, downward, 162.3 inches (Professor Smyth's
measure, who says: "From the beginning of the roof dropped onto the floor line to the edge of basement sheet is 162.3 inches"), along the floor line, brings one to the place where the roof of the passage-way commences, in the, at present, broken masses of masonry. Thence, Col. Vyse measured down 3850 inches. As to this last distance, he says: "Or present length inclined of whole entrance passage, 3850 inches. But ancient length must be increased for an extent of more than 276 inches broken away at the beginning, with the exterior of the building, and is therefore more nearly 4126 inches." That is, his estimate of the restored distance AB is 4 I 26 inches. The measure here taken is $4^{125.294}$ inches, differing from his estimate by the amount of $\cdot 706$, or $\frac{7}{10}$ of one inch, in that many thousands of inches.

He gives the angle of the casing-stone found as $5 \mathrm{I}^{\circ} 50^{\prime}$
He gives the angle A G C (§64) as
$26^{\circ} 4 I^{\prime}$
(§ 66.) Following down the lead of the descending passage-way, he gives the distance A D to the subterranean chamber, at 27 feet; for he measured along the roof line, not the bottom line. He does not give the distance BE, but on Perring's plates of Vyse's measures, which are very faithfully done, while A D shows as 27 feet,


B E shows as 29 feet, which goes to confirm the opinion that the line G B is parallel to the exterior inclined line of the pyramid. The height of A C he gives at three (3) feet.

Taking Col. Vyse's data just as he gives them, and for BF, that is, from the foot of the descending passage-way to the center of the pyramid, the values are-

| B to $\mathrm{C}=$ | $2.358+$ |
| :---: | :---: |
| C to $\mathrm{E}=$ | 27.000 |
| E to $\mathrm{F}=$ | $3 \cdot 56899+$ |
| Or a total of | 32.92699 |

While this is so, he says that F , instead of $3.568+$ feet, is distant from E 8 feet-a manifestly erroneous calculation, from his own data. The difference between the results of calculation from the data of Col. Vyse, and from those stated for this distance, is as follows:

Col. Vyse's estimate, 32.92699 feet.
As given above, $\quad \frac{32.42377}{.50322}$ "'
Difference,
and this is to be accounted for by the difference of the angles taken, his being stated at $26^{\circ} 4 \mathrm{I}^{\prime}$ while that resulting from the data herein taken is
There is very strong confirmation as to the correctness of this last stated angle. Without any certain data to go by, the only method of obtaining the relations between the interior and exterior lines of the structure, was by means of this angle; and therefore it was of the greatest importance to obtain it correctly. Aware of this, Professor Smyth prepared for its determination to within very close limits. He found a material difference between the real angle, and that as stated by Col. Vyse, of $26^{\circ} 4^{1^{\prime}}$. He used three different instruments, and made a number of separate trials for each instrument; and his determinations may be looked on as, for the condition of the passage itself, as close an approximate as may be expected to the true angle-the correction being the obtaining those original elements of construction, which gave rise to this angle. His results are as follows:
(r.) By one method, $\left.\begin{array}{l}26^{\circ} 27^{\prime} \\ 26^{\circ} 26^{\prime} 5\end{array}\right\}$ mean, $26^{\circ} 26^{\prime} 5$
(2.) By another " $26^{\circ} 25^{\prime} 20^{\prime \prime}$ " $26^{\circ} 25^{\prime} 20^{\prime \prime}$
(3.) By another "6 $\left.\begin{array}{l}26^{\circ} 27^{\prime} 58^{\prime \prime} \\ 26^{\circ} 28^{\prime} 16^{\prime \prime}\end{array}\right\}$ " $26^{\circ} 28^{\prime} 7^{\prime \prime}$

The admeasurements used to obtain these moans are themselves the means of measures, some of which exceeded that angle here used. Professor Smyth while averring that the true angle is very closely connected with the results given by him, lays no stress upon any particular set, considering them all as equally worthy. But compare one set of his with that angle resulting from the data herein used for locating the floor of the passage-way :

$$
\begin{aligned}
& \text { (4.) Professor Smyth's, } 26^{\circ} 28^{\prime} 7^{\prime \prime} \\
& \text { (5.) That stated above, } 26^{\circ} 28^{\prime} 24^{\prime \prime \prime} \text { го }
\end{aligned}
$$

showing a difference exceedingly small, as may be realized if one will try to read it on the face of an instrument.
§ 67 . The genius of the pyramid demands that the angle of the side incline be,

$$
5^{I^{\circ}} 5 I^{\prime} I 4^{\prime \prime} 5
$$

Col. Vyse got by the measure of one stone, $51^{\circ} 50^{\prime}$
Compare these, and then the agreement of the angles,

$$
\begin{aligned}
& 26^{\circ} 28^{\prime} 24^{\prime \prime} \text { Io } \\
& 26^{\circ} 28^{\prime} 7^{\prime \prime},
\end{aligned}
$$

then the restored length of the descending passage-way by

$$
\text { Col. Vyse of } 4126 \text { inches, }
$$ with that above of 4125.294 "،

then the restored height of the intersection of the floor line of the passage-way with the slope exterior line, as made by Vyse with his own angle of $26^{\circ} 4^{1^{\prime}}, 53.648+$ feet,
and with the angle of Smyth, say, 53.1975 "
and that above,
53.2476 '6

Consider with these data that the measures here obtained tre from use of the Parker measures of the pyramid, harnonizing with the gencral measures of the mass, and of he king's chamber; and there is necded but slight confirmtory cvidence that the general data taken are the original and veritable ones used.
§68. There is another numerical value, having an elemental value, closely related to that of A C, in § 64 (2.)viz., 53.05162 , say, feet $=636.61944498$ inches; as to which something is to be said in the way of its application to the vertical height of the descending passage-way, as an inch value-viz., $53.05+$ inches, to the breadth of the same,
and to its height perpendicular to the floor line; of which hereafter. The half of $636.6194+$, or $318.309722+$ inches, is a diameter value to a circumference of 1000 . This is more noticeable since roo, the height in feet of BD , is a circumference to a diameter value of $3 \mathrm{r} .830972+$, and $31.830972+X 12=381.9716+$, or the value of the half base side of the pyramid in feet, which is a diameter value to a circumference of 1200 . Somewhat in this connection, the length of the line $A B$ of $343 \cdot 7745$ + is just equal to 10 times the length of the actual measure of the king's chamber, or an enlargement on the standard of $34 \cdot 3533+$. The number $343.7745+$ is a diameter value to a circumference of roSo. Taking this as feet, then, reduced to inches, or $4125+$, it becomes a diameter value to a circumference of 12960 inches, which number 1296 is the number of square inches to the square yard British.
§ 69. There is something strongly confirmatory as to the location and length of the floor line of the descending passage-way, as given, if there are showings to confirm the fact of the distance from the foot of that passage to the central axial line of the mass, being, as taken, $32.42377+$ feet.
(r.) One justification of this is in its connected use with the length of the top line of the horizontal subterranean passage-way to the subterranean chamber. Now, the above length can be taken at $324 \cdot 2377+$ tenths of feet; the length of the said top line is given by Col. Howard Vyse at 27 feet. This, in inches, is 324 . So that, by comparison, the distance along the top line to the subterranean chamber is 324 inches; the distance along the bottom line to the central vertical axial line of the entire mass is 324 tenths of feet. The variation from the exactitude of comparison is .org 8 of a foot (for 27 .oIg 8 feet $\times 12$ $=324.2376$ inches) -an amount so small that it may be that this was or is included or embraced in the measure of the top line. Right here, too, it will be remarked, by reference to the table § $53(b$.), that 324 is a circumference to a diameter of ro3.132+, which, in inches, is the half width

## § 69. Location, etc., of Descending Passage-Way. izi

of the king's chamber, as enlarged on the standard, or the enlargement of 5 cubits; as, likewise in $\S 55$ (a.), it is seen to be circumference to the base of the ideal pyramid placed in the sphere (enlargement on the standard being made).
(2.) There is another harmonic relation, which seems to place the location of these lines and limits beyond question, and thus to close these lines as located. The bare showing of the relations serves to confirm the purposed use.


The floor line of the descending passage-way, as shown, from A to B, has been stated to be $343 \cdot 7745+$ feet. From B to C, the vertical axial line is $32.4237+$ " It seems evident that the use of 343.7745 is a use in connection with the half base side of the pyramid enlarged, or $381.97166+$ feet, as shown in § 64 (6), and § 70 .
With B C, find the length of BD, or AB protracted to D, the vertical axial line of the pyramid ; then $\mathrm{BD}=$

$$
36.22189 \text { feet. }
$$

Now, if the value $38 \mathrm{r} .97 \mathrm{r} 66+$ is in contemplation in the use of this floor line, add A B and BD together, to see what is wanting to make up the distance $381.97166+$ and so- (I.) 343.77450 36.22189

$$
\text { I. } 97527
$$

The deficit is seen to be I. 97527 feet. But, instead of summing up the total longths, take the line B D alone, which is the hypothenuse to the distance BC ,
or the measure $32.4237+$ feet in question, and to it add the surplus required, or deficiency, I.97527-

$$
\text { (2.) } \begin{array}{r}
36.22189+ \\
1.975^{27}+ \\
\hline 38.19716+
\end{array}
$$

and here, numerically, is the same value as obtained by adding the totals. Here, $38.19716+$ feet is obtained, which is just the $\frac{I}{\text { IO }}$ part of $38 \mathrm{r} .97 \mathrm{I} 6+$ feet. The harmony is such that it is thus deemed conclusive that the floor line of the descending passage-way, as to length, and as to its location relatively to the exterior slope line and to the vertical axial line of the structure, has been taken agreeably to the mental conception of the architect. In the final closing of the lines of the interior works, this, it is thought, will be confirmed.
§ 7o. Note to above. The distance from the foot of the descending passage-way floor to the center of the pyramid, is stated at, numerically, $3242377+$. There are very strong reasons in the harmony of relations, going to show that this is the exactitude intended; indeed, it seems to force conviction to that effect upon the mind. Whatever other uses, or interpretations, may have been ascribed to the pyramid numbers, there certainly seems to have been a wonderful play upon them. Take $381.97166+$; the half base side of the pyramid; deduct from it the length of the floor line of the descending passage-way-viz., $343 \cdot 7745+$; and the remainder is $38.197166+$, simply showing that this floor line is just the value of half base side less one-tenth, $\frac{1}{10}$, of itself. If from $\mathrm{E}, \S 64$ (1.), $343.77+$ be measured toward the center of the pyramid, there will remain next to the center a distance of $38.197166+$ feet. Besides this, this $343.77+$ is just ten (10) times the numerical length of the king's chamber ; and in this connection, especially for the purpose in hand, the height of the king's chamber is another play upon this value-viz., $19.09 S_{5} 8_{3}+$ feet.

But to the present purpose of showing some possible uses of $324237+$, which may help others in this study.
(a.) Construct a pyramid out of the original Parker elements, which shall be in the proportions of the one in question: the height will be 6561, and the base side will be $5153 \times 2=10306$.

If this pyramid be placed in a sphere, the axial line of the pyr-amid-that is, its vertical axial line, or 656 - -to become the radius of such a sphere must be extended until its length becomes $7327.658816+$. If this value be divided by 20612 , the quotient will be $355.5045+$. $7327 .+$ being in inches, divided by 20.612, the quotient, or $355 \cdot+$, is in the value of cubits. Take the height of the king's chamber, and to its numerical value add this quotient as follows:

$$
\begin{array}{r}
1909853_{3}+ \\
\frac{355504+}{19454087}
\end{array}
$$

Divide this sum by 6 and the quotient will be $3242347+$.
(b.) But, again, the enlargement, so much used throughout the pyramid works, on the cubit standard value, in inches of 20.612 is $20626.470017+$. This $\times \frac{16}{9}=330023.520272$; and this divided by $20.612=1779.0248$, as the enlargement of the standard cubit value of the circumference of the pyramid-viz., ${ }^{1} 777.777+$. One-fifth $\left(\frac{1}{5}\right)$ of this enlarged value 355.8049 , is the enlargement on the corresponding division of $1777+$ divided by 5 , or $355.555+$. Now take, again, the numerical value of height of king's chamber, and add this enlarged cubit value to it-

$$
\begin{array}{r}
1909 S_{5} 83 \\
355 S_{0} 99 \\
\hline 194543879
\end{array}
$$

and the one-sixth $\left(\frac{1}{6}\right)$ of this is 32423979 .
(c.) Take the mean of the resultant values in (a.) and (b.):

$$
\begin{gathered}
32423979 \\
2 \begin{array}{c}
3^{242347} \\
64847449 \\
3^{2} 4^{2} 372+.
\end{array}
\end{gathered}
$$

Compare with this the numerical value of the distance from B in $\S 66$, to F , or $32.42377+$ feet. The difference seems to be $5 \mid$ iooooo of a foot.

On the face of the workings of the numbers, with their seen relations-viz., (t.) to the value of the circumference of the pyramid, and (2.) to the extension of the axial line of the same to obtain the radius of its containing sphere, and (3.) to this shown o be related number down in the subterranean, as it were toward

## 124 Construction of the Great Pyramid. §7i.

the center of this sphere : add to these the general marvelous ac curacy of adjustment of the various measures through which this measure is attained, with the best measures of these various parts with the angles of direction ; and, again, that these are every one of them Parker and pyramid elements. This done, the effect on the mind is strong that the measures taken, with their uses as shown, determine the location of the central axial line of the pyramid, agreeably to the mental conception of the architect. It must be observed, however, that this very number may have various uses, agreeably to the wonderful interplay of these pyramid numbers at every turn.

One thing further is worthy of consideration-viz., the different lengths of lines, or measures, of rooms, passage-ways, coffer, and, by inference, of the whole mass of the pyramid, raising a system of variations, very minute it is true, but nevertheless, pointing to a system of recognition of variations on some standard or standards. Agreeably to this, all the above results might have been in contemplation, as the difference, or variation, between $32.42347,3^{2.42397}$, and 32.42377 could not possibly be given in any mechanical work ; for the differences .00047, 00097, and 00077 of a foot are inappreciable.

## SECTION VII

TIIE DESCENDING PASSAGE-WAY IS SET OFF TO TIIE EASTWARD OF TIIE VERTICAL AXIAL LINE OF THE PYRAMID A DISTANCE OF 24.42190 FEET.
(§7x.) The mouth or entrance of the descending passage-way is upon the north face of the mass; and while its end or foot terminates at a distance of $32.4+$ feet to the north of the center, the whole passage is set off to the eastward of the same center. Agreeably to the estimates of Col. Vyse, this descending passage-vay, as to the center longitudinal line of its floor, is set off from the vertical axial line of the pyramid a distance of 294 inches, or 24.5 feet. Col. Vyse must have taken this measure of 24.5 feet relatively to his estimate of the length of the side of
the base, which was 764 feet. Corrected at $763.9432+$ feet, which is supposed ta be the exact measure intended, works a correction on 24.5 feet, as follows: 382 - 38 r.$97166=.028_{4}$, to be deducted from 24.5 feet, leaving, as the corrected distance, as Col. Vyse must have made it, had he used these data, the sum of $24 \cdot 4716+$ feet.

It appears that the passage-way was set off to about this distance, as designative of the final difference of 216330 , obtained by placing the pyramid in its standard dimensions in a sphere, as already set forth. As this number has been shown to be instrumental in giving one value, toward the center, of 32.42347 , so it appears, likewise, by use of the same numerals, but under another form, to fasten the location of the other distance from the center.
(a.) The radius of the sphere in which the pyramid was placed was shown to be $7327.6588172+$, which, reduced to feet, is $610.63823+$. From $7327.6588172+$, there was taken the difference of 216330 , as an elliptical prop erty. It seems that this number, as such, was preserved intact (on different scales of measure), and was deducted from 6io. + as follows :
(土.) $610.63823-.216330=610.42190$ feet, leaving a base of calculation regulating several governing measures of the interior works.
(b.) Let the pyramid inclosed in a sphere be taken at the standard height-viz., 486 feet. Add to this the depth of the floor of the subterranean passage-way of 100 feet, below the base of the pyramid. The sum will be $5 S 6$ feet. Let it be taken that the intention was to use these values so that a mark would exist in the works, that this process had been gone through (a.) (I.) From the 610.42190 feet take the 586 and it will show the distance from the top of the pyramid, taken from the radius of the circle, less the amount of the ellipticity shown, or 216330 , thus:
(土.) $610.63823-586+.216330=24.42190$ feet.
Thus showing the bottom of the subterranean passage-way to be above the true center of the sphere a distance of
(2.) $24.42190+.216330=24.63823$ feet.
(c.) From the center axial line set the central longitudinal line of the passage-way off this distance of 24.42190 feet, as indicating the above process, and let this be the fixed limit line for the interior works. By Col. Vyse's measures as corrected, this limit line is shown to be fixed at 24.47 I + feet from this axial line. By comparison, then, Col. Vyse's distance, $24.47 \mathrm{I}+$
By above, 24.4219

Difference, .O491
or $\frac{6}{10}$ of one inch; an amount to be allowed as his error of measure, provided the assuming the above distance be supported as correct by other showings, in related measures.

While, therefore, the foot of the descending passage--way has been shown to be distant from the vertical axial line of the pyramid, to the northzoard $32.42347+$ feet, the same, from calculations growing out of the like governing data, is assumed to be set off to the castward of the same axial line

$$
24 \cdot 42190+\text { feet },
$$

as indicating the geometrical conditions, or relations, made by placing the pyramid in a sphere; modified by the rejection of the value .216330 .

## SECTION VIII.

## THE DIMENSIONS OF THE DESCENDING PASSAGE-WAY.

§ 72. The question as to the dimensions of the descending passage-way may now be taken up. It has been seen that all the measures of the structure have their origin in the relation of circumference and diameter values of a circle It would be exceedingly appropriate that in the act of entering the passage-way, one should, as a matter of fact, enter through the actual expression of those values. Such seems to have been the case.

Col. Vyse's measures of this passage are:
(I.) Breadth, 41.5
Height perpendicular to incline, 47.0

Professor Smyth's measures are grouped together, as means of a series, and are as follows:
(2.) Breadth near bottom, 4 I. 6 I to 4 I .46 inches.

$$
\begin{array}{lrr}
\text { "، top, } & 4^{\mathrm{I} .63} \text { to } 4^{\mathrm{I} .4 \mathrm{I}} & \text { " } \\
\text { Mean of all, } & 4^{\mathrm{I} .53} & \text { ، }
\end{array}
$$

(3.) Height perpendicular to incline :

West side of floor, 47.16 to 47.30 inches.
East side of floor, 47.14 to 47.32 "،
Mean of all, 47.24 "
But he characterizes this measure as 47.3 inches.
(4.) Height vertical to base of pyramid:

In one place, 52.68 inches.
In another " 52.36 "
There seems to be very little, if any, difference between the dimensions of the descending, and of the ascending, passage-way; and, as the red granite portcullis blocks seem to have been intended to give these measures, it is well to give Professor Smyth's measures of the same-viz:
(5.) Height perpendicular to incline, 47.3 inches. Breadth, 41. 6 "

Height vertical to base of pyramid, 53.0 "
(a.) In § 64 , the point $A$ being the intersection of the floor line of the descending passage-way, is in vertical height above C, 3I cubits, or $53.24766+$ feet; while E C is 41.82064 feet. Attention was called to a numerical value very near to this height line-viz., 53.05162, say, feet. Had the value been this last one, its meaning would have been a very peculiar one, for, in inches, it is 636.61944+, and the half of this is, namerically, $318309+$, or the value of diameter to a circumference of unity, or one.

Take the proportion (see diagram, § $6_{4}$ ):
(土.) (A C : E C), or $53.2476: 4 \mathrm{I} . \mathrm{S} 206:: 53.05162:$
41.6666+;
and here in the last terms are to be found the vertical height, and the breadth of the portcullis blocks, (5.) above,

> Univ Calif - Digitized by Microsoft ©
as given by Professor Smyth, in the scale of an inch to the foot; and a minute change upon the dimensions of the descending passage-way, as given by him.

It must be noticed that the vertical height of the passage is simply dependent on the accident of its angle of elevation, and that angle being $26^{\circ} 28^{\prime} 24^{\prime \prime}$ Io, for a vertical height of 53.05162 , the height of the passage perpendicular to the incline must be $47.4877 \mathrm{I}+$ inches, instead of 47.16 or 47.32 , the extremes given by Professor Smyth ; showing thus a difference of $\frac{16}{100}$ of an inch on his extreme.
(b.) If it is as stated by Professor Smyth, that there is throughout the works the exhibition of two sets of measures through biased lines, let it be taken that while there is in the dimensions of this passage-way the relation of circumference of one to its diameter, as seen, it was intended to display the reverse relation, also, of circumference to a diameter of one, then :
(г.) $314159+\times 2=6283184 \div 12=52.3598+$ feet. And, carrying out the proportions-
(2.) $53.0516+: 47.48778+:: 52.3598+: 46.8684+$; in which the last term is the height perpendicular to the incline.
(c.) Suppose both of these measures to have been inferred by the exhibition of their mean values, then there results the use of two sets of measures, as follows:
(I.) Height vertical,
$53.05162 \quad 52.3598$
$\begin{array}{lll}\text { Height perpendicular to incline, } & 47.48778 & 46.868 \\ \text { Breadth, } & 4 \mathrm{I} .66 & 41.1\end{array}$
of which the mean would be-
$\begin{array}{ll}\text { (2.) Height vertical, } & 52.7057 \text { inches. } \\ \text { Height perpendicular to incline, } & 47.1778 \\ \text { Breadth, } & 41.39\end{array}$
The measures of Professor Smyth give like values, as-
(3.) Height vertical, $\quad 52.68$ to $52.3^{6}$

Height perpendicular to incline, 47.16 to 47.32
Breadth,
$4 \mathrm{I} .4^{1}$ to 4 I .6 I
where, in $5^{2.68}, 47.16$, and 4 I .4 I , this set of mean values,

## §72. Dimensions of Descending Passage-Way.

had it been intended, would hardly have been more nearly measured than thus shown. It is worthy of notice, too, that the portcullis blocks are in the color of the king's chamber, which, in its height, is a diameter to a circumference of 60 , the base of $360^{\circ}$, or time measure. Now, the measures of these blocks, as given, denote, in 53.0, the relation of diameter to a circumference of unity-the very change on which the king's chamber height is founded.

There is much to be said in favor of these results. They grow out of each other, and are proportional to the pyramid relations A C : C E. In doing so, they involve three relations of dimensions in this passage-way, and developeach relation, as it has reference to the actually measured one, with the accuracy seen. Besides, the germ of the measures is in perfect harmony with the use of all the measures used in and about the structure; and gives the unit values of diameter and circumference of $1: 314159$, and of $1: 318309$ as relations, which, for extended cosmical uses, are used in the integral forms, 6561 : 20612, and 113 : 355.
(d.) There is a very strange coincident, and real natural relation, which goes very far to support, not only what has been said, but serves to strengthen the general scheme as to the use of the pyramid measures, as co-ordinating time and distance values. This $53.05126+$ feet, or $636 .-$ $61944+$ inches, shows the relation of -

$$
\text { (г.) } 636.61944 \div 2=318.309+,
$$

or of diameter to circumference of 1000 , or of one. Take the received value of the carth's equatorial diameter in miles, or $7926.6789+$ miles. Square this value, and there results $62832238.3837+$ miles in arca. Divide this, as in (1.) above, and there results-

$$
\text { (2.) } 62832 \div 38 \div 2=31416119 \text {. }
$$

Compare this result with the relation of circumference to a diameter of unity as an abstract one-

$$
\text { (3.) } 3 \text { I4I6II }-3141594=0.000017,
$$

and this shows an amazing relation between the square of the earth's equatorial diameter in miles and the abstract relation of diameter of unity to its circumference, the exacti-
tude being included in the variation of the measure of this passage, or between its limits. Take it the other way, with Parker's ratio of circumference to diameter of unity, and $\sqrt{31415942 \times 2}=7926.565+$. While this is so, as has been seen, the other relation of circumference as one to diameter as 318309 was made use of to raise from 6 the value $360^{\circ}$, or the measure, geographically, of this selfsame equatorial, as to its circumference, to make it coordinate with solar time value on the celestial circle of $360^{\circ}$. So, it thus seems that the above processes were likely used as recognizing and making practical use of these relations.

On assumption, then, with this showing, the measures of this passage-way are taken for a mean value of, for

Height vertical, $\quad 52.7058$ inches.
Height perpendicular to incline, 47.1778 "،
Breadth, 4I.39 "،
and it will be seen that this intention was carried out.
(e.) It is necessary to obtain some of the above dimensions before one can make any study of the works connected with the ascending passage-way, as to their relations to the descending passage-way, and to the mass of the pyramid.

The fact of the dimensions of the descending passage-way being constructed on biased lines, the mean of which are given above, might be accompanied by a biased condition of the ascending passage-way ; so that a choice as to elevation of the foot of the ascending passage-way, could be made between the extremes of 46.868 and 47.4876 , the mean being, as has been stated, 47. $1777^{8}$.


For connection of the upper works, the perpendicular

## § 73. Tie Location of Ascending Passage-Way.

A C, from the roof end of the descending passage-way to the floor of the horizontal passage-way to the subterranean chamber must be had in its measures. Let the values of the lines in the diagram be as follows:
(土.) B D, Height perpend. to incline, 47.30836 inches.
(2.) A B, parallel to slope line of pyr., 48.30736 "6
(3.) A C, perpend. to horizon. passage 37.9908 " A reason for this becomes manifest. Take the two relations of diameter of $I$ to a circumference of 314159 , and circumference of I , to a diameter of 318309 . Their sum is 632468 , and their mean value will be

$$
316238 .
$$

37.9908 inches, $\div 12=3.16590$, showing a difference of .00352 of a foot, to verify all that has been said. The use then is the mean of the abstract values stated $\times$ by 12 .

## SECTION IX.

LOCATION OF INTERSECTION OF FLOOR LINE OF ASCENDING PASSAGE-WAY, WITH THE ROOF LINE OF DESCENDING PASSAGE.
§ 73. The dimensions of the descending passage-way give the mean measures,

Height vertical, $\quad 52.7058$ inches.
Height perpendicular to incline, 47.178 "،
A variation on the last of these measures, to locate the ascending passage way, is taken at

Height perpendicular to incline, 47.3083 inches.
(Professor Smyth's measure, 47.3000) "
Having these data, the next step in order is to ascertain the point of intersection of the floor line of the ascending with the roof line of the descending passage-way.
(a.) The author found a point in common between the measures of Colonel Vyse and Professor Smyth of the de-
scending passage-way; which point turns out to be of importance as to the location of the ascending passage-way.

Colonel Vyse commenced his measures from B, giving the total length BD at 3850 inches. (The edge of the

roof stone $B$, is a broken and an uneven edge, and for a finish may have projected beyond its present face). From $B$, he says, to the junction of the first ascending passageway is 758 inches. Professor Smyth measuring from A, gives $A B^{\prime}$ at 162.3 inches, then from $A^{\prime}$ to $C^{\prime}$, that is, " from basement beginning to joint 18 situated up in a hole which is the continuation of portcullis blocks," (or of the upper line of the ascending passage-way), "of first ascending passage-way, and in their inclined line," 98r.9 inches. $\mathrm{C}^{\prime}$ is at this point, or joint. Then from B to $\mathrm{C}^{\prime}$ by Mr. Smyth, is 98 r. $9-162.3=8$ r9.6 inches. He gives the distance from O , or joint $\mathrm{I}_{7}$, to $\mathrm{C}^{\prime}$ as 60.0 to 60.3 , inches; then from $B$ to $O$ is $819.6-60.2=759.4$ inches.

Take it so, 759.4 inches.
It is to be seen that the point $O$ is at the junction, and Colonel Vyse says it is distant from $\mathrm{B}, 758$ inches. This seems to raise a common objective point of measure for these gentlemen, with a difference of $759.4-758=\mathrm{I} .4$ inches; which perhaps may be accounted for in their points of beginning to measure, respectively. It is from these data
that, it is thought, the location of the point C can be recovered.

Colonel Vyse gives it, $\mathrm{BD}-\mathrm{B} \mathrm{O}=3850-75^{8}=3092$ inches $=\mathrm{OD}$.
This lastresult suggests, at once, a Parker (and pyramid) measure-viz.,

Standard circumference, 206r.2 inches.
Increased by its one-half, rozo. 6
Together, 309I. 8 "
By Colonel Vyse, 3092.0 "،
Difference,
$.2 \quad 66$
or $\frac{2}{10}$ of one inch, in this many thousands of inches.
Let it be taken that this measure of $206 \mathrm{I} .2+1030.6=$ 3091.8 was intended, as in inches, for the distance from O to D. Professor Smyth gives the value $\mathrm{OC}^{\prime}$ at 60.2 inches, or 5 .or feet, and the distance $\mathrm{C}^{\prime} \mathrm{C}$ measuring from the basement beginning, at $1022.2-963.0=59.2$ inches, or 4.933 feet ; or $\mathrm{OC}^{\prime}+\mathrm{C}^{\prime} \mathrm{C}=60.2+59.2=119.4$ inches; or $5.01+4.933=9.943$ feet. Then for the distance CD, 3091.8-119.4 $=2972.4$ inches, or, 247.70 feet.
By calculation, Colonel Vyse's measures of this distance would have been, $\quad 247.7$ I feet.
Let the distance C D, then, be taken at, 2972.4 inches, or
247.7 feet.

Floor line of ascending passage-way, with relation to the base of the pyramid, to the levels of the quecn's and king's chamber, and to the vertical axial line of the mass. (b.) From data obtained

$$
\mathrm{AC}=247 \cdot 70 \text { feet. }
$$

Angle B A C $=26^{\circ} 28^{\prime} 24^{\prime \prime \prime}$
" $\mathrm{ACB}=63^{\circ} 3 \mathrm{I}^{\prime} 35^{\prime \prime} 9$
، $\mathrm{B}=90^{\circ}$


Then A B will equal
" BC " ،
$\mathrm{CH}(\S 72, e, 3)$,37.9908 inches $=3 \cdot 16590 \quad$ "
Then $\mathrm{CB}+\mathrm{CH}=\mathrm{BH}=\quad \pm 3.58535 \quad$ "
Note.-To get BC and A B, there are proportions to be found in $\S 64$ : for there $A C+D B=153.2476$, and $A B=3+3.7745$. Now, AC being given at 247.70 , and being part of the same lines, we have the proportion,
$343.7745+: ~ 153.2476+:: 247.70: 110.419458$ feet, and, $343.7745: 307.7272: 247.70: 221.72687 \mathrm{I}$ feet.

But, from H to $\mathrm{K}^{\prime}$, the base of the pyramid, is 100 feet, as has been taken; then, $\mathrm{BH}-\mathrm{H}^{\prime}$ will equal $\mathrm{B}^{\prime}$, or the vertical elevation of the point $A$, or intersection of the floor line of the ascending with the roof line of the descending passage-way above the base.

This distance, or $\mathrm{BK}^{\prime}=113.5853-100=13.5853+$ feet.
(c.) For the measures of the lines in the diagram, connected with the ascending passage-way, reliance is had on the measures and results of Professor Smyth. His care and painstaking, one may say, even increased, as to the accuracy of his measures, as he ascended. Very great re-
liance is evidently to be placed in his results, even to hundredths of inches. He gives, as elements to work by-
(r.) The distance A M. of the floor of ascending passage,
123.683 feet

The angle NA M $=$
$26^{\circ} 6^{\prime}$
(2.) The distance $M L$ of length of grand gallery floor line, to where it strikes the south wall of same,
The angle $L M R$,
From these angles, $\mathrm{A} M \mathrm{~N}=$
156.9 feet.
$26^{\circ} 17^{\prime} 37^{\prime \prime}$
and MLR=
$63^{\circ} 54^{\prime}$
$63^{\circ} 42^{\prime} 23^{\prime \prime}$; and, with these angles, the following are the values of the lines:

$$
\begin{array}{ll}
\text { (3.) } & \mathrm{A} \mathrm{~N}=11 \mathrm{I} .07 \mathrm{I} \text { feet } \\
& \mathrm{N} \mathrm{M}=54.413 \\
\text { (4.) } & \mathrm{MR}=140.666 \\
\mathrm{LR}=69.502
\end{array}
$$

(d.) $\mathrm{A} \mathrm{N}+\mathrm{MR}=111.07 \mathrm{I}+140.666$ $=\mathrm{AF}=$
251.737 feet

C H, taken at 37.9908 [§ 72 (e.) (3)], G H will be 29.8379 inches, or, in feet,
The distance from $G$ to the vertical axial line of the pyramid was

$$
32.42377 \text { ، }
$$

Deduct G H, equals from, say, H or B to the axial line, 2.48649 "

$$
\text { ، } 29.93728
$$ or $\mathrm{AB}+$ this distance $=221.72687 \mathrm{I}+$ $29.93728=$

$$
251.66415 \text { ، }
$$

A F has been shown to be Difference,
2.48649 "

$$
251.737 \text { ، }
$$

. 073 ،
or $\frac{7}{\text { IOO }}$ of a foot, to which distance A F is made to project beyond the vertical axial line of the structure; or this approximation would go to show that the south wall of the grand gallery and the vertical axial line were in common, because so slight a variation was hardly to be intended. At any rate, this is considered to have been the case, from the showing.

## i 36 Construction of the Great Pyramid. § 73

(c.) Take the vertical distance of $L$, on the soutth wall of the grand gallery, above the base of the pyramid-

$$
\begin{aligned}
& \text { (土.) } \mathrm{L} R=\quad 69.502 \text { feet } \\
& \mathrm{NM}=\quad 54.4 \mathrm{I} 3 \text { "6 } \\
& \mathrm{B} \mathrm{~K}^{\prime} \text { to base of pyramid }=13.5853 \text { " } \\
& \text { or a total of } 137.5003 \text { " }
\end{aligned}
$$

as the height at which the floor line of the grand gallery strikes the south wall of the same, above (vertically) the base of the pyramid.

Take 4 times the length of the king's chamber, or $34.3774+\times 4$, and it is equal to
137.50980 feet

Compare these results-
L K on the diagram, $\quad 137.5003$ "

| 4 times the king's chamber length, | 137.5098 "، |
| :--- | ---: |
| Difference, | .0095 " |

or $9 \mid$ iooo of a foot.
It may be taken, then, that the intention of this height, as to what it should be, was, that it should be four times the length of the king's chamber, as cnlarged on the standard, or four-tenths the length of the descending passagezvay.

This value has already been referred to ; for $137.5097+$ feet, are 1650.1176 inches, and this value is a diameter to a circumference of $518_{4}$, or the characteristic value of the solar day, which is $5 \pm 84-000^{\prime \prime \prime}$. Here we can see a linking together of values; for the dimensions of the descending passage-way, are of a nature that seems to bear relation to the square of the earth's equatorial diameter ; and they are so framed, and located, as to give this vertical height, of a diameter of a solar day value. A result of this kind, fitting so accurately to the uses of the Parker forms, fully compensates for the detailed trouble of arriving at it.

## SECTION X.

## ABSTRACT GEOMETRICAL ELEMENTS.

§ 74. As all of the elements of measure indicated are seen to spring from the use of one geometrical problem, it is necessary to group the results springing from that problem, as applicable to these various locations, together.
(a.) The discovery of an enlargement on the standard measure, that is, standard 20612, enlargement 20626.470017 ( $\$ 43, \S 51, \S 54$ ), growing out of a principle-viz., to obtain from 20612, circumference, to 6561, diameter, the formula-
(土.) 20612 : 6561 :: 1 : 3183097224917 ,
by which there is obtained a circumference of unity, to a diameter of $318+$, becomes of greatest consequence in the construction of the pyramid. The application of this enlargement on the standard has served, as shown, to develop the measures of the king's chamber, with other features; and now, in connection with a geometrical exhibition, it will serve to bring out the various relations indicated at the heads of this section.
(b.) The standard base of the pyramid is $763.4074074+$ feet. 31.8309722491t, the numerically new diameter value to a circumference of unity, if multiplied by 24 , $=$ 763.943333980 + feet, as the enlargement on the standard for that base side. Take the standard measures of the pyramid, viz., height 486 feet to base side $763 \cdot 4074$, and find, with these, an cxtreme, of which 486 is a mean proportional, as follows:
(г.) $763.4074+: 486$ :: $486: 309.3970502$, and represent this geometrically, where, as per diagram, $\mathrm{A} \mathrm{D}=763.4074+, \quad \mathrm{D} \mathrm{B}=309.3970502$, and $\mathrm{CD}=486$. It is seen that the diameter of the circle to represent this mean proportional is $763.4074+309.397=1072.80445+$; and the radius is $1072.80445 \div 2=536.40222+:$ and these measures are in reality a commingling of standard and en-
largement ; for the proportion is of the same nature with (I.) in $(a)$.


Length of King's Chamber Level.
§75. Let A be the edge of the great step, in the upper and south end of the grand gallery; A B, the passage-way level to the king's chamber, and BC, the width of the king's chamber.


It has been shown that the width of the king's clamber is an enlargement on the standard of $17.17666+$ feet, or ten cubits, and is 206.2647 + inches, as enlarged on 206.12. Professor Smyth gives the measure A B as $330.3 \pm$ inches. Add the two lengths: $206.2647+330.3=536.5647$ inches. Compare this with the radius value above:

Radius value, 536.40222 inches.
This level length, 536.5647 "
Difference, . 1625 "
Consider the king's chamber width as used for this purpose at the standard, and then add the lengths $206.12+$ $330.3=$

$$
536.42 \text { inches. }
$$

Radius above, 536.402 "،
Difference, .OI8 "،
These correspondences are thought to show the origin of this line.

Note, that if this .or 8 of an inch is taken as the correction of 330.3 , as 330.2 S 2 inches, then we had the equatorial diameter of the earth as $7926.926 S \div 24=330.2866$, thus showing a wonderful exactitude of relation. $330.28 S 6-33^{0.2} 22=.0066$ of one inch difference. This is a very strong corroboration of the truthfuhness of all the measures taken as chccked by this result. As seen, this result is the half the equatorial diameter of the earth, as radius, divided into 12 parts; showing a measure of time and earth distance relations. How exquisite and exact this is, in connection with the Hindu system, displayed in the king's chamber, for working out sincs, cosincs, tangents, co-tangents, and planctary orbits!

## Elements of Dimensions of 迅ucen's Chamber.

§76. This geometrical form gives also the grand outlines of the queen's chamber. The form contains, as seen ( $\$ 74$ ), the standard elements of measure of the outside shape, and this outside was clothed in white as a color. Now, the queen's chamber is in white, in contrast with the king's chamber, which is in red. The white of the queen's chamber may, then, indicate a relation coming from the same source or elements with the measures of the exterior. Take it that this is so, and that the angle of the roof of that chamber is but a copy of the geometrical form and angle C B E, § 74. The angle C B E $=57^{\circ} 3 \mathrm{I}^{\prime} \circ 6^{\prime \prime} \cdot 3 \times 2=$ $115^{\circ} \mathrm{O} 2^{\prime} \mathrm{I} 2^{\prime \prime} 6$, and this is taken to represent the angle of the roof of the queen's chamber. The line CE corresponds with the north and south length of the room, and Professor Smyth gives this length-

On the east side, at 206.5 to 204.7 .
On the west sidc, at 206.0 to 206.3.
These but serve to indicate the real measure of 206.12 inches, as a radical standard measure. There is given, then, the length $C D=103.05$, and the angles $C, D$, and $B$, to find the lines D B and C B ; and these are-

$$
\text { (土.) } \quad \begin{aligned}
& \mathrm{D} \\
& \mathrm{CB}=65.5766 \text { inches. } \\
&
\end{aligned}
$$

As this is but a reduced form of the geometrical problem, then-

I40 Construction of the Great Prramid. $\quad 76$.
(2.) $309.397: 65.5766:: 763.4074$ : 161.8о3, and the circle of the queen's chamber, thus indicated, would have a diameter of $161.803+65.5766=227 \cdot 379+$ inches ; and, in fact, this does indicate the measured length, east and west, of this very chamber, for Professor Smyth gives this measure at-

On the south wall, $\quad 227.4$
On the north wall, 226 to 226.5
Compare this measure, $\quad 227.379$
with Professor Smyth's, $\quad \underline{227.4}$
Difference $\left(\frac{2}{\text { IOO }}\right.$ of an inch $)$, .O2I
Thus the proportionate and basic measures of the queen's chamber, as to all but the heights from the floor, which is in the rough and unfinished (which seems to show that the elements of measure as relates to the floor zucre not to be taken into considcration), become restored in terms of this geometrical problem, and in the use of the standard measures (as in contrast with those of the king's chamber, which are in measures enlarged on the standard), as follows :
(3.) Length of the room north and south, 206.12 in. " " " E.\&W. (one meas.), 227.379 " " of incline of roof, 122.108 " Height of room in the gable, 65.5766 "
Not only so, but these measures are all connected together under one problem, inasmuch as the height line rejected as indicated by the unfinished floor, is, yet, set forth in another element-viz., the length east and west-as 227.379 , as the diameter of the circle, of which the extremes are 161.803 and 65.5766 , to copy the form in § 74. Subject to the different measures raised by reason of the biased line, the beautiful harmony and outcome of these measures from these proportions, seems to stamp them as correctly taken, agreeably with the basic or standard idea of the architect.

It is but right to say that there is a serious discrepancy between the measures of Colonel Vyse and Professor Smyth as to the measured height of the walls, and of the gable, or D B distance. Colonel Vyse gives the total

> Univ Calif - Digitized by Microsoft ©
height at 243 inches from the floor (or from some recognized mark or line above the rough and unfinished bottom).

He gives the distance D B as 66 . inches, closely approximating 65.5766 , considering the difficulty of obtaining this measure. How he took his measures is not known; but it is strange that in the number 243 he has hit upon the exact numerical value of the half height of the great pyramid taken at the standard, and $243-65.5766=$ 177.4234, which is extremely close to $355 \times .5=177.5$, to a diameter value of $113 \times \cdot 5=56.5$, which is the foundation measure of Moses in the construction of the Tabcrnacle. Had these proportions been intended, the gable would have been 65.6 , and the diameter would have been 227.46 ; differing from Professor Smyth's by $\frac{.06}{100}$ of an inch-an allowance very readily to be made in the difficult conditions of the room.
(a.) (It is well to note here, that in this queen's chamber seems to be the use of the 113 to 355 , or Hebrew form, with relation to, or in connection with, the Parker or pyramid relations 6561 to $5153 \times 4=20612$. One such relation has just been shown. Great stress is laid in the Bible upon the word for hecl, occurring as it does in the Garden of Eden, and being the name of Facob, who was the father of the division of the year into 12 and 13 months. Reading the values of the letters of this word which is $\mathcal{P}$, and there is 712 (which may also be used as 217). Mark the uses, or one use-

$$
\begin{array}{rlrlrll}
355 & : & 113 & : & 712 & : & 226.63, \text { or } 113.31 \times 2 . \\
20612 & : & 356 & : & 356 & : & 113.31 \\
20612 & : & 712 & : & 6561 & : & 226.62 \\
6561 & : & 20612 & : & 113.355 & : & 356.115
\end{array}
$$

It thus appears that 712 is a circumference to 226.62 as a diameter. It was shown that $113+$ was a circumference to 36 , and that two were used in the Garden of Eden, or $113 \times 2=226$. (See $\S 62(a),. \S 86, \S 87$.) Now, it is most strange that in the Hindu personified representation of this garden, a female is represented as bending the heel of the left foot before and touching the mouth of the pudenda, which of itself is characterized by the number 7 , as the female time originating number, and circle of

## 142

 Construction of the Great Pyramid. §76.the week; so, thus 7 I 2 , or the heel, in this use, thus becomes marked as the pudenda, or a circle of time $[\$ 92,(a).(b).(d)$.$] .$ In fact, Hargrave Jennings, in Rosicrucians, page 332, says: "The late Dr. Donaldson has a dissertation upon the word $\beth$ py, Facob, which is translated 'heel,' in Genesis iii. 15. He adduces Jeremiah xiii. 22, and Nahum iii. 5, and comparing the words made use of in the original, shows that the 'hecl' is a euphemism, as are the 'feet' in Isaiah vii. 20. His exhaustive argument demonstrates that the part intended to be signified by the word is pudenda muliebria." One value of the words Garden of Eden, as added, is 177 , and this is the height with the gable of 66 , which Colonel Vyse takes to make up his 243. When Jacob had his name changed, it was to $\mathcal{F} s$ (or $\mathcal{F c s}), R A L, \mathcal{M}$ or 13-213; where, from " $\mathcal{F}$ (or $\mathcal{F}$ ah), is hecl," or 712, it now becomes " $\mathcal{F c s}$ (or $\mathcal{F e s u s}$ ), is 213 ," which is also the Hebrew word head, or $\because N ゚ 7$, or "Fes ( $*$ ', a form of 'man'), is head;" and head, or 213 , is $355 \times 6=213.0$, the form of the first word in Genesis.)

There is some confusion in the methods employed by Professor Smyth. He takes the height of the walls at

| ' 182 ? | 184.5? | Mean, | 183.2 |
| :---: | :---: | :---: | :---: |
| ISI? | I82? | ، 6 | I8I. 5 |
| Mean, |  |  | 182.4" |

apparently bringing out the value $182.5 \times 2=365$. It is possible that this was intended as permissible, in a variable height, or as leaving an open value. Independently of this he takes the gable measures at

| 245.4 | 244.9 | mean, | 245.2 |
| :--- | :--- | :--- | :--- |
| 244.2 | 000. | ، | 244.2 |
| 243.9 | 000. | " | 243.9 |
| Mean, |  |  | 244.4 |

which show that there may have been some indication or mark noticed by Colonel Vyse, fastening him to the measure 243. Professor Smyth then works out $244-\mathrm{IS} 2.4=62$. inches, for the gable height, in place of 66. by Colonel Vyse.

There is but this to be said, that where the floor is in the
rubblc, and evidently uneven, it would seem that a set of measures on the sides, averaged, would not be at all a certain measure to be deducted from the gable measures, taken in the conter of the room, because one is not sure of a common planc of measure. Any departure from accurate measuring, however, or from a sound judgment as to probable relations of parts, would be a wonder in the practical labors of Professor Smyth.

## Passage to Quecn's Chamber.

§ 77. Bearing in mind that the level of the floor, from the edge of the great step to the king's chamber, comes from the geometrical formula (\$74) (b.), (2.), (see also § 75), and that, by a proportional use of the same, the proportions of the queen's chamber are produced, the following, giving the length of the passage-way to the queen's chamber, from the use of the values in the same problem, seems to have weight.
(a.) The number 309.397050 is but an enlargement on the value, as to its kind, of 20612, as follows: Add to the latter the half of itself, and there results, in standard measure-

$$
\text { (1.) } 20612+10306=30918 .
$$

The enlargement on the king's chamber, taken at the standard measure of $34.3533+$, was-
(2.) $34 \cdot 3577450$, and this $\times 9=309 \cdot 397050$,
as above. Then, 309.397050 is but an enlargement on the standard measure 309.r8. The difference is .217050. Raise this difference, thus-

$$
\text { (3.) } 217.050 \times 7=1519.350 \text {. }
$$

If this be taken as 1519.350 inches, it agrees with the length of the passage-way from the north wall of the grand gallery foot to the entrance of the queen's chamber, as fol-lows-
(4.) Professor Smyth's measure of same, 1519.400 inches. From (3) above,
1519.350 ،

Difference, of an inch,

Hence, it would seem that this passage-way is seven times the difference between the standard 30918, and the enlargement on the same of $30939705+$, or the extreme of the geometrical problem.

There is a slight confirmation of the fact of 1519.350 being used as a multiple of seven times this difference, in the closing description of the length of this passage, as to its being marked off in certain divisions. Professor Smyth says: "The above measures for length being the mean of two sets, nowhere differing more than 0.3 inch, and having been further tested for the whole length, by a third measuring carried on by rod lengths of ioo inches, may be pretty safely depended on. Hence, whole length of horizontal passage from north wall of grand gallery to north wall of queen's chamber (inches),
1519.4
" One-seventh of the above,
" South length of passage with low level,
" North length, without roof, measuring to mean
place of the two cuts-off in grand gallery floor,

$$
217.8 . "
$$

It may, then, be taken that the source whence this length of 1519.35 is obtained is as stated; and that, very likely, it has something to do with seven of the spaces or stripes of the grand gallery.

## Heights from Floor of Subtcrrancan Passage-Way to the Gable Roof of Campbell's Chamber.

§78. (a.) A still further application of this same geometrical problem, it is thought, can be made as to the heights of the various chambers terminating in Campbell's chamber, above the floor level of the king's chamber; that is, from the gable of Campbell's chamber to the king's chamber level. Upon a careful examination of the angle of the roof inclines of Campbell's chamber, on Perring's plates of Vyse's measures, it measures $I I 5^{\circ} \pm$, and appears to be the same angle with that of the queen's chamber roof. That they are intended to represent this same angle, is, in a measure, confirmed by the fact that, while the rest of the
chambers，up to this one，are in $r e d$ granite，return is made， in the roof of this chamber，to the white of the exterior， and of the queen＇s chamber．Referring to the geometrical problem（§74），it is seen that the angle spoken of is made by use of the number 309397050 ，which has been shown to be an enlargement on the standard of 309．18，which last is the measure giving rise to the point of intersection of the descending with the ascending passage－way．

Take，now，the standard and enlarged lengths of the king＇s chamber，and multiply them by 9－

$$
\begin{aligned}
& \text { (土.) } 34.35333+\times 9=309.18 \text { feet, } \\
& \text { (2.) } 34.3774 \times 9=309.397050 \text { feet, }
\end{aligned}
$$

giving these identical values．
（b．）By the Parker time problem－

$$
\text { (土.) } 20.6 \mathrm{I} 2 \times \frac{4}{3}=27.482666+
$$

which，agreeably to Mr．Parker，＂is the exact value of the passage of the moon round the earth over the value of a complete circle，the time being in circular days of 23 h ． $5 I^{\prime} 23^{\prime \prime} 20^{\prime \prime \prime}$ each（ $5153-000^{\prime \prime \prime}$ ）；and therefore $27.482666+$ $\times 5^{15300 o^{\prime \prime \prime}}$（the value of one circular day）$=$ I41618181．－ $333+\div 5184000^{\prime \prime \prime}$（the value of one solar day）$=27 .-$ 3183220164 ，which，reduced to the proper divisions of solar time，equals 27 d． $7 \mathrm{~h} .28^{\prime} 23^{\prime \prime} \mathrm{I}^{\prime \prime \prime} 20^{\prime \prime \prime \prime}$ ，which，I say，is the exact time of the passage of the moon around the earth．＂ To this is to be added $4^{\prime} 40^{\prime \prime} 46^{\prime \prime \prime}$ ，or the difference between one circular and one sidereal day，as shown in § 13.
（c．）Divide the Parker formula by 12 ，where 20.612 is taken to be in inches，and there results－

$$
\text { (土.) } \quad 1.717666 \times \frac{4}{3}=\frac{27.48266}{12}
$$

where the first term has become the value of one cubit in British feet，and the last term has become the circular value of $\frac{1}{12}$ of one lunar month．Multiply by ro，and there re－ sults－

$$
\text { (2.) } 17.1766+\times \frac{4}{3}=\frac{274 \cdot 8266}{12}
$$

where the first term, or standard width of king's chamber, has become to cubits, and the last has become $\frac{10}{12}$ of one lunation.

Clear of fractions, and there results-

$$
\text { (3.) } \quad 206 . \frac{12}{4} \times \frac{4}{3}=274.8266+
$$

where the first term has become 120 cubits in British feet, and the last has become to lunations. (As to the great estimation of the Parker form 20612, raised to the value of I 20 cubits, or 206. $\frac{12}{-}$ British feet, see Appendix, III.)

But while this result is so, agreeably to Parker, the standard length of the king's chamber multiplied by 8 gives this very value, or-
(4.) $34.35333+\times 8=274.8266+$ feet.
(d.) The standard circumference of the
 pyramid is $36643.55+$ inches to a height of 486 feet. But $366.4355+$ is that value which Mr. Parker says is "the exact time of the earth's motion round the sun, over the value of a complete circle in space, the time being in circular days," on which he proceeds to give the exact value of the year in solar time. One-fourth of this 36643.55 , reduced to feet, is $763.4074+$, the base side of the pyramid; and, by the geometrical problem(г.) $763 \cdot 4074+: 486:: 486: 309 \cdot 397050$, whereby it is seen that this $309 \cdot 397+$ is a reduction of the measure of solar time, while $274.826+$, or 8 times the length of the king's chamber, is a measure of lunar time. It is also seen that while 763 . to 486 is in the form of 1 : 314159,486 to 309.397 is in the form of .318309 : I.
(e.) Take, then, the following measures for comparison :

$$
\text { (土.) } \begin{aligned}
34.3533 \times 9 & =309.18 \text { standard. } \\
34.3774 \times 9 & =309.397 \text { enlargement. } \\
34.3533 \times 8 & =274.826 \text { standard. } \\
\text { (2.) Let } \mathrm{A} B & =309.18 \text { feet. } \\
\text { Let } \mathrm{C} B & =274.826+\text { feet. }
\end{aligned}
$$

Then $\mathrm{AB}-\mathrm{BC}=34.3533+$ feet, or the standard length of the king's chamber.

With C as a center, and A C, or $34.3533+$, as a radius (see preceding diagram), describe the inner circle AD; then-

$$
\begin{aligned}
& \text { (3.) } \quad 274.826-34.3533+=240.4733, \\
& \text { or } 34.3533 \times 7=240.4733 .
\end{aligned}
$$

Now, instead of the standard measure 309.18, make use of the enlarged measure 309.397050 ; then-
(4.) $309.397050-274.8266=\mathrm{CE}=34.570383+$. Then, with C as a center, and CE as radius, describe the outer circle $\mathrm{E} \mathrm{E}^{\prime}$; then-
(5.) $\mathrm{EE}^{\prime}=34.570383 \times 2=69.140766$ feet ;
and this is taken to equal the height of the gable of Campbell's chamber from the level of the floor of the king's chamber; while E B is taken to be the total distance from that gable to the floor of the passage to the subterranean, by the rejection of the number value of 216330 , on which value the entire pyramid works seem to be founded.

A B. Roof of Campbell's chamber to level of king's chamber floor.

B C. Space filled above C.
C D. Distance to base of pyramid.
D E. Distance to subterranean passage floor.
E F. Distance of 2.16330 .


## i48 Construction of the Great Pyramid. §79.

(6.) From A to F , the dotted line, probably marked in the subterranean chamber, is 309.397050 feet.
$A B$, as taken in (5.), is
BC is the filling of the king's chamber level above the intersection of the floor line of the grand gallery, with the south wall thereof. Professor Smyth makes this 7 inches, or .5833 of a foot. Take it at .583183
$\mathrm{CD}=(\S 73, \mathrm{E})$ (to base of pyramid) 137.509800
$\mathrm{D} \mathrm{E}=$ (to floor of subterranean passage), 100.000000
$\mathrm{EF}=$ as taken, $\quad 2.163300$
309.397050 feet.

Thus it is seen that the detailed measures, as variously found, as to vertical heights, amount in the aggregate to the extreme of this geometrical problem, which is embraced in the angle of $115^{\circ}(\$ 76)$, and is marked on the diagram as D B (§74). All the values have been worked out and accounted for, save, only, the 183 of .583183 for .5833 , where $\frac{\text { II }}{\text { IOOOOO }}$ of a foot has been borrowed, or rather taken from Professor Smyth's measure. What is of the greatest significance seems to be the number value of 216330,
to make up the perfect value of $309 \cdot 39705$.
Height of Level of Passage to Quecn's Chamber, above the Center of the Sphere, in which the whole Pyrainid is Supposed to have been Placed.
§ 79. Rejecting 216330 from the radius of the circle $[\$ 55(a)$.$] , or 610.63823-.216330=610.42190$, that radius becomes 610.42190 feet. From this deduct 586 (the
standard height of the pyramid, or 486 , plus the distance vertical, from base of pyramid to bottom of subterranean passage-way, or roo feet), and there remains, from the bottom of the subterranean passage-way to the center of the sphere ( 216330 rejected), the distance of, as shown24.42190 feet.

Add the distance from bottom of subterranean passage-way, less the height of the passage, or $100-3 \cdot 16590,=$ Add from the base of pyramid to the level of the intersection of the ascending and descending passage-ways $=$
Add height from this intersection to level of queen's chamber passage $=$
Add, as borrowed, one cubit,
And there results a total of

$$
96.82530 \text { ، }
$$

$$
13.58535 \text { ، }
$$

$$
\begin{array}{r}
54.4 \mathrm{I} 300 \\
\mathrm{I} .71766 \\
\hline 190.9632 \mathrm{c}
\end{array}
$$ or, a wonderfully close approximation to ten times the height of the king's chamber, or 190.98583 feet.

Compare the value $\frac{190.96321}{}$ " ${ }^{\text {" }}$ "
or, numerically, just one of the lengths of the queen's chamber itself, or $\mathrm{I} 13 \times 2=226$. Let the formula be recalled from § 35 (3), as follows:

$$
\text { (土.) } 113: 355.0001+:: 36: 113.0973+\text {, }
$$

where, as was shown, the object was to get 36 , or the factors $\overline{6 \times 6}$, as a straight line value, in place of a circular value, as in the king's chamber, where 19.0985 is proved to be a diameter to a circumference of 60 . Multiply this fourth term by 2.

$$
\text { (г.) } 113.0973+\times 2=226.1946 \text {, }
$$

and the above difference is found to be the $\frac{5}{1000}$ of one.
It is quite interesting in this connection, as to the dimensions of the queen's chamber, that while its $\frac{\mathrm{I}}{2}$ basic length north and south has been shown to be $5153 \times 2=103.06$ inches, or twice the value of the area of the circle inscribed
in the square, under the Parker forms, in its basic length cast and zucst it is thus seen to be $113 \times 2=226$ inches, or twice the Metius diameter.
(a.) The rejection of 216330 , and the use of a cubit value of $1.71766+$ to produce these singular results, calls to mind a phase of the self-same nature in this strange work. Refer to the diagram, $\S 55$ (a.). Take the full radius line of the sphere;

It is 610.638234 feet.
Reject from this
And there remains $\frac{.216330}{610.4}$

Enlarge this by one cubit, r.717666 "،
And let this be a new radius of $\overline{6 \mathrm{IINO}_{2} 139570}$ ،
Then making use of the formulation in § 56 (b.):

$$
\begin{array}{ll}
\text { Sin. } \text { II }^{\circ} 5 I^{\prime} 144^{\prime \prime} 5 & 9.995595 \\
\text { Sin. } 38^{\circ} 08^{\prime} 45 . " 5 & 9.790754 \\
\text { Log. } 612.139570 & 2.786850 \\
\text { Log. } 381.955^{17}+ & 2.582009
\end{array}
$$

as the value of the line of $30^{\circ}$ to F , to that extent $\mathrm{OD}^{\prime \prime}$, at which it intersects the slope line of the pyramid. The sine of this as an angle of $30^{\circ}$, is $\frac{1}{2}$, or $190.975+$ feet, or .oIo of a foot less than ten times the king's chamber height.

Take the values found above, and add them.

$$
\begin{array}{ll}
\text { (土.) } & 190.985 \\
& 190.963 \\
\hline & 381.948
\end{array}
$$

The mean of these values is 190.975 feet, or this very result, thus arrived at by another way, but at the same time by use of the same rejections.
(b.) This number 216330 becomes again manifested in very important measures-viz., those of the king's chamber level, and those of the base of grand gallery-thus:
(I.) From edge of great step to south
wall of the king's chamber ( $\$ 75$ ), $\quad 536.402$ inches.
(2.) M.R on the diagram [§73(b.)],
or base of the grand gallery triangle,
to south wall of same,
Or a total of

$$
\frac{1687.992}{2224.394} \quad \text { ، }
$$

Univ Calif - Digitized by Microsoft (®)

But there has been in these additions a lap of the length of the great step, which by Professor Smyth is measured at 60.8 to 6 I inches. Deduct the larger measure,
And the result in inches and decimals of an inch is 2163.394 ، or the appearance in this quarter of this remarkable number.

A Mcthod of placing a Salient Height Line for the Interior Construction of the Pyramid.
§ So. Take a line equal to the standard length of the base side of the pyramid. On this line raise a square, which divide into four equal squares. And, on the base line, construct the exterior lines of the pyramid.
$\mathrm{AB}=763.4074$ feet. Then $\mathrm{F}^{\prime} \mathrm{D}$ will equal 38 x .7037 feet, as will also A F $^{\prime}$. On A B raise the pyramid in the standard measures. Then $\mathrm{CF}^{\prime}=486$ feet. At $D$ with $\frac{I}{2}$ the standard height, or $\frac{486}{2}=243$ feet, measure down to F ; then with the value 243 for height, draw in the pyramid DEE , and it will be, as to its dimensions, reduced
 by just one-half from the original--that is, its half base side, now, will be 190.8513+, on which the enlargement $190.985+$ has been shown to play so great a part in the pyramid measures. By this process, it will be seen that the works on the $\mathrm{E} \mathrm{E}^{\prime}$ level, with these proportions, would be precisely as if they were located on the base of the larger pyramid ; while, at the same time, an elevation has been obtained to work out other results.
(土.) In § 73 (e.), the vertical distance from the base of the pyramid to the level of the true floor of the king's cham-
ber was shown to be four times the length of the king's chamber taken as enlarged,

$$
\begin{aligned}
& \text { or } 34.3774 \times 4=\quad 137.5096 \text { feet. . } \\
& \mathrm{DF}^{\prime} \text { is equal to } 38 \mathrm{r} .7037-243 \quad 138.7037 \text { " } \\
& \text { Difference in excess, 1.1941 " }
\end{aligned}
$$

In § 73 (a.), to obtain the distance 247.70 feet, from the foot of the roof line of the descending passage-way to the point of intersection of the floor line of the ascending passage-way, we had the primary distance 3091.8, and from this there was deducted to get the point desired, 1 I9.4 inches, or

$$
\begin{aligned}
309 \mathrm{I} .8-119.4 & =2972.4 \text { inches }, \\
& =247.7 \text { feet }
\end{aligned}
$$

The distance of the remove, then, of this point was by a deduction from the primary value of

$$
119.4 \text { inches. }
$$

To obtain a like remove to get a particular vertical height, as just shown, requires a deduction from a primary value, of 1.194 feet.
All which goes to show, that probably all the interior work of the pyramid, is to be obtained by use of squares, in their subdivided parts.
§ 8 I . It is thought best to close the effort at reconstruction of the great pyramid at this point. Many more measures and harmonies could be shown-as of the coffer and as of the descending passage-way relations; but it is thought that all has been shown that is necessary for this work. Now, let the reader reflect upon what has been done or exhibited. (土.) An abstract elemental relation of geometrical shapes. (2.) A special numerical integral relation is shown, as applying to the notation and working together of these shapes. (3.) With this relation, as connected, it is thought, with very beautiful geometrical displays, the pyramid structure, as to its outside and as to its inside works and measures and proportions, has been reproduced in measure after measure, little and great, in angle after angle, and in general relations of parts to parts ; all, so that, one may say, the results answer absolutely to the British measures as
taken. Surely, then, the diagrams and intentions of the architect have been displayed and set forth, as to the practical architectural work. But, what is more, is that it is just as certain that his mathomatical, and astronomical, and geographical, measuring intents have been disclosed in a general sense; and even more than that. It only remains to discover those curious underlying laws for cosmical construction, certainly known to him, by which the cosmos could be so outlined that the sizes and times of planets could be numerically notated, and, by a practicable, realizable, unit of measure, co-ordinate one with the other. If this statement is true, then it must be admitted that all that has been set forth has depended upon the work, and numerical elements applied to geometrical shapes, of John A. Parker.

As to what the extent of ancient knowledge really was, modern opinions are becoming more and more liberal with increased research.

Mr. Rawlinson, in App., Book II., chap. vii., says : "No one will for a moment imagine that the wisest of the Greeks went to study in Egypt for any other reason than because it was there that the greatest discoveries were to be learnt, and that Pythagoras or his followers suggested, from no previous experience, the theory (we now call Copernican) of the sun being the center of our system ; or of the obliquity of the ecliptic, or the moon's borrowed light, or the proof of the milky way being a collection of stars, derived from the fact that the earth would otherwise intercept the light, if derived from the sun, taught by Democritus and by Anaxagoras, according to Aristotle, the former of whom studied astronomy for five years in Egypt, and mentions himself as a disciple of the priests of Egypt, and of the Magi, having also been in Persia and Babylon. The same may be said of the principle by which the heavenly bodies were attracted to a center, and impelled in their order, the theory of eclipses, and the proofs of the earth being round. These and many other notions were doubtless borrowed from Egypt, to which the Greeks chiefly resorted, or from the current opinions of the 'Egyptians and Babylonians,' the astronomers of those days, from whose early discoveries so much had been derived concerning the heavenly bodies. Cicero, on the authority of Theophrastus, speaks of Hycetas of Syracuse, a Pythagorean,
having the same idea respecting the earth revolving in a circle round its own axis; and Aristotle observes that, though the greater part of philosophers say the earth is the center of the system, the Pythagoreans, who live in Italy, maintain that fire is the center, and the earth, being one of the planets, rotates about the center, and makes day and night. This heliocentric system (having been lost) was finally revived in Europe," etc.

The trouble was that this kind of knowledge was of the priestly caste, and therefore was utterly unknown to the world; for this caste, with its power of influence, would discourage any theories tending to the truth, and would, if possible, make any one recant a pretended discovery, if it chanced to militate against the hidden knowledge.

Here, it has been shadowed forth, not only how extensive and valuable this knowledge was, but the very nature and groundwork of the knowledge itself. Fohn A. Parker's method of quadrature, and his problem of three revolving bodies, cvidently did lay at the base of the famous Egyptian and Pythagorean systems.

Thus the lines of the admeasurements of the interior work of the pyramid, having their origin from the intersection of the floor line of the descending passage-way with the sloping side line of the exterior, close themsclves; and that so accurately, tested in such various ways, that it seems it can be safely said that this work exhibits the restoration or reconstruction of the pyramid, agreeably, in a general way, to the architectural plan and measures of the original designer-what is left to be discovered being the particularities or minute details of elaboration of his thoughts and measures.

## SECTION XI.

## PYRAMID SYMBOLIZATION.

§ 82. (a.) In terminating this effort at reconstruction of the pyramid, it is well to give symbolic representations, with their
meanings, of its elements. It is scen in $\S 55$ (a.), that the original pyramid from whence the real pyramid of the Nile springs, is directly constructed from the original elements of relation of diameter to circumference of a circle. This is circular elements one. On the lines of this original pyramid springs another, whose elements are circle two. In §74(b.), out of the elements of two, another set of elements is obtainable, governing the interior work of the pyramid proper; these elements are these of circle three.

The elements of one are:
(r.) Height, 656

| $\frac{1}{2}$ base side, | 5153 | 6 | $429.416+$ |
| :--- | :--- | :--- | :--- |
| $\frac{1}{2}$ base diagonal, | $7287.44+$ | $"$ | $607.28+$ |
| Radius, | $7327.65+$ | 6 | $610.63+$ |
|  | 6 |  |  |

The elements of two, as has been shown, are taken from the elements of one. Whereas, the full circumference of base of one is $5153 \times 8=41224$ inches, or one hundred times the length of the king's chamber, the circumference of the pyramid proper is $\overline{5153 \times 4}(=20612) \times \frac{4^{2}}{3^{2}}=36643.55+$ inches; and on this the pyramid proper is constructed.

The elements of two are:

$$
\begin{array}{lllll}
\text { (2.) Height, } & 5832 & \text { inches, } & 486 & \text { feet. } \\
\frac{\mathrm{I}}{2} \text { base side, } & 4580.44 & \text { " } & 38 \mathrm{I} .70 & \text { " } \\
\frac{\mathrm{I}}{2} \text { base diagonal, } 6477.72 & \text { "6 } & 539.8 \mathrm{I} & \text { " } \\
\text { Radius, } & 6513.47 & \text { " } & 542.78 & \text { " }
\end{array}
$$

The elements of three are:
(3.) Height, $\quad 3712.76$ inches, 309.39 feet.
$\frac{1}{2}$ base side, $\quad 2916 . \quad$ " 243.00 "

| $\frac{1}{2}$ base diagonal, 4123.84 | " | 343.65 | " |  |
| :--- | ---: | :--- | :--- | :--- |
| Radius, | 4146.60 | " | 345.55 |  |

Where these elements are derived from elements in (2.) ; and where the height is one of the extremes of the geometrical problem, § 74 (b.)

These are the circles whence the complete pyramid, as to its
outside, and as to its inside, is fitly framed, and put togetler, giving the measures of the heavens and the earth.

The symbol, then, should be of three circles, one within the other, with the triangular representation of the pyramid contained, or else a pentagon, or the pentapla of Solomon; but the triangle would be more pertinent. While the triangle represents the pyramid, the triangle and circle represent the elements from whence the plane measure of the square, of the base of the pyramid, is derived.
(b.) Now a unit of measure is desirable, for translation of geometrical combinations of shapes into their proper numerical equivalents, for working out the co-ordination of time with distance relations.

While the two sets of values, 6561: 20612, and $113: 355$, are essentially connected together, and are in some way but variations on cach other, so that 113 and 355 carry with them by implication a decimal value, as springing from 6561 to 20612 , yet, as they stand, they bear a beautiful differential relation to each other, as follows:

$$
\begin{aligned}
& \text { (r.) } 6561: 20612:: 113: 355 \frac{1}{6561} \\
& \text { (2.) } 20612: 6561: 355: 112 \frac{20611}{20612}
\end{aligned}
$$

In this last formulation, the fourth term is a diameter or straight line value ; and, as regards $\mathrm{II}_{3}$, is seen to differ from it by just one unit as a straight line (or diametcr value) one, of the denomination of 20612, the clements of a perfect circle or circumference, and this diffcrence is implicd in the Jehovah or ${ }^{\text {M }}$ ' value, which, as will be seen hereafter, springs from in 3 . This difference of r - 20612 implies the entire pyramid scheme, for a right line, as | or 一, signifies a solid unit or cube, whose edge is | or 一, or one; and here the denomination of this one is 20612 , the perfect circumference value, and for original measure taken as inches; therefore, the straight line one, or $\mid$, is of the value of an inch cubed, or is a cube of an inch to the edge. Take off the value of the 20612 onto the edges of this cube, and each edge (there being iz) will be of the value of r. $71766+$, which is a reduction by scale of the cubit value in terms of the British foot. This has been before set forth; the difference is that here the scale is reduced from the least unit measurc, viz., that of the inch. This reduced form of subdivision is actually to be found in the coffor measures of the king's
chamber, as, for instance, one line of that measure, by Professor Smyth,

$$
\begin{aligned}
& \text { is } \quad 90.175 \text { inches. } \\
& \text { Now, } 1.717666+\times 75=90.1774 \text { "" }
\end{aligned}
$$

where 1.7 I 766 is the cubit value reduced to the scale mentioned.
Thus can be seen the magnificence of the value, because the exactitude of the Jehovah diameter value lays in the implied use, which will derive a perfect, yet combined, unit value, which, as seen, is $\mid$, as a straight line of the denomination of 20612, which is an abstract perfect circular and circular area value.
(c.) This is shown to have been the case otherwise. To express this value by symbol, the picture would be of | as a straight line and a O as a circle, or, together, ro, which is the perfect form of one, and at the same time expresses the value of ten, or ro. With the Hebrews, it is kabbalistically said that the ten is the one, and the one is the ten.
"Kabbala says: 'This number io is the mother of the soul, and the light and the life are there united; since the number one is born from the spirit (in the New Testament, spirit is Fohn the Dove, and Fokn the Dove, or Fonak, by the fish use, becomes Jehovah), thus the unity (1) has made the ten (io), and the ten (10) the unity (1)." (Hermes xiv., quoted from Sod., p. 57.)

The reason of this definition can be made obvious. The primal one contained all the elements of generation, and therefore included the male idea and the female idea in itself. Thus, I contained | as a male, and O (a circle) as a female, yet it was, as a primal conception, but one. But these two, as separated parts of one, arranged together, were io, or ten; therefore, the interrelation of $\mathrm{I}=\mathrm{I}$, $10=\mathrm{I}$. But, again, with the Hebrews, I was taken by itself, under a nother form, as combining in itself two, i. e., it was susceptible of division into two parts which should make one, and each of these parts was necessarily $\frac{1}{2}$, or $\frac{5}{\text { Io }}$, or .5 , which was the letter $\boldsymbol{\pi}$, or the womb letter, from whence, the rabbins say, God created all things. But add .5 and .5 , and we have $\mathrm{I} \| \mathrm{o}$, or the male-female again, or the perfect one. Again, this io, or the perfect one, was denoted by the Hebrew letter , a sacred letter, denoting the word $\mathfrak{F a h}$ or $\mathfrak{F}$ ehovah, meaning what has been said (among other things) ; for' stands for I, the male, and o, the female. But o was esteemed (as female) to be equal to the word for a fish, taken as female, or the letter raised
to another scale of value, $\mathcal{J}$, or $n$, or from .5 to $.5 \times 10=5.0$, where we have $5-\mathrm{o}$, or $\boldsymbol{A}$ feminine, and o feminine. Now, the letter !, or $n$, was named, and was the word $N \bar{u} n$, or fish, or ןly, and its values were 565 , which word and values are considered feminine, because raised from a feminine source. But 565, or fish, or womb of $5-0$, or 3 (for .5 or 7 ), is equal to $113 \times \cdot 5=$ 56.5 , where 113 is man (a straight line or phallus value) multiplied by $\boldsymbol{\pi}$, or the womb value; and this, as seen, equals 113, or fish, or 5 - o. Now, the equivalent of 919,565 , is הוה, or 565, and הוה is the female part of the great word הוה , or Jehovah, which thus assumes this word form as the equivalent for the malc-female uses above shown. But as the parallelism must be maintained to preserve the unity of the God-head, as malefemale, and yet its separated condition, we have the values, 56.5 $X 10$ (as a form to show this) $=565$, where, by the letter forms, for $565 .^{10}$, we have (הוN' ; yet, after all, this amounts to $56.5 \times$ $10=565$, by completing the multiplication, or reproduces $\boldsymbol{\pi}$, or the phallus is thus concealed in the primal emptiness or nothingness, which is Bohu, וב , or Muth, mother, Jiף, or Venus, or Eve, i. e., the primal emptiness out of which reality sprung. (And this concealment is allied to, and in exact harmony with, the same idea in another form, or word form, and number form combined, for the flux word is Nun, in, or, in itself, the femalc, as fish. This is O , and because its value is 56.5 (II3, man $\times .5$, woman), it is the equivalent of the same, with הודו, which also equals 565 . Thus, הוה ה is the female, by this equivalence; but, being so on its word face, it nevertheless conceals within itself the value 113 (because $113 \times 5=$ הוה), which is a straight line or diameter value, or "man," and therefore, as opposed to O, is male. Therefore, the harmony.) And this shows that the mother idea was, after all, the primal one, and that the Roman Catholic conception is right. How exceedingly beautiful the display is. For while we have the full form $\boldsymbol{H}^{-9}$, as malcfemale, yet it so springs that this form is evanescent, as $56.5 \times{ }^{10}$, because, completed, the perfected form becomes $\boldsymbol{7}$ Tו, or 565 , the ro, or ', having vanished or concealed itself.
(d.) Then, here, we have man= II3 diameter (phallus) to a circumference of 355 , multiplied by $\cdot 5$, or womb $=\boldsymbol{N}$, the female part of Jehovah; and this, as 56.5 (or fish, $\dagger \mathrm{l}$ ) multiplied by io equals $56.5 \times 10=$ 'הוה, the great name, which, after all, is 10, or primal one. As seen, when 113 : 355 is compared with 656r : 20612, the perfect circular element, we have to
make up the 113 , as $112 \frac{20611}{20612}+\frac{1}{20612}=113$; where the differential is a one straight line (phallus) of the denomination of the perfect circle (yoni), or 20612; and this is thus seen to be necessary to make the 113 . But $113 \times .5=56.5$, or הוה; thus, it is also necessary to make this value: but $56.5 \times 10=$ הוהה; therefore, it is also necessary to make up this valuc. But this value is Jehovah; wherefore, the necessity is a straight line onc, of a denomination of 20612, or the perfect one, and Fchovah has been shown to be this.

So, while $\mathfrak{F c h o v a h}$ expresses this perfect one, under the Parker forms, through the Metius use it also expresses a larger diameter value, as $565^{1}$, derived from ${ }_{11} 3 \times .5=56.5$, and $56.5 \times{ }^{10}$ )= $=565$, where 113 is diameter to circumference of 355. The involution of the Parker and Metius forms seems to be in the quecn's chamber in the pyramid.

Besides this, the two words of which Fchoval is composed, make up the original idea of male-female, as the birth originator (for the' was the membrum virile, and Hovah was Eve). So, it is seen that the perfect one, as originator of measures, takes also the form of birth origin, as hermaphrodite one; hence, the phallic form and use.
So the perfect symbol is made up of three circles-one within the other-a triangle inscribed, and in this the word $\boldsymbol{i}$, as the originating one of all things.


As I H S, or $\boldsymbol{\sim}$, or (the values being added) 3 18+, it would give diameter to a circumference of one; and, therefore, I H S is a Fchoval form.
(c.) It would take up too much space to go into particulars; but it could be shown that the word יהוה should be placed in the darkness, around the borders of which an intense light, above the brightnes of the sun, should reside as issuant from the Word. (Also, that in the symbol 10 , the 1 , as another symbol,
may be supposed to represent the word Fohn, and should stand on the western or autumnal side of the celestial circle.) If, instead of the word, a diameter line is drawn across the circle, this form, of itself, would be expressive of the great word, and thus the circle, with its diameter line, would again express the number io. Another, and very beautiful symbol, might be placed in the pyramid triangle, viz., that of an oblong, or two squares, bearing the form of an open book; but this is more appropriate, as including the ark of Noak in the pyramid symbol. This figure is, by cutting it in two, the origin of the Hebrew letters $\boldsymbol{\pi}$ and $\boldsymbol{\pi}$. The value of $\pi$ is 8 , and that of $\boldsymbol{\pi}$ is 5 . The number 5 was the birth number, as its letter $\boldsymbol{\pi}$, its sign, was the symbol of the womb. The number 8 signifies the use of 5. In the Hebrew conception, everything made by the Creator was a perfect one, and by this method was a perfect cube, as one. But birth necessitates the two opposites of male and female, each of whom had to be in itself perfect. . To combine these two so that the duality may be preserved, and yet a perfect one result, if the originating cube be used eight times, the result is another perfect cube, combining the two opposite or separated capacities for production within itself. This is exemplified in the family of Noah. To make a perfect productive one, they had to be eight; and so, in fact, they were, as they entered the ark. Now, the values, as applied to Noah, would give us his name as הח (or 8-5, and the larger cube from 5 wculd make one of to to the side, or a Jehovah cube), whereas it is $\boldsymbol{\Pi}$, and for this reason: there is no change determined on the value of 5 (as $\boldsymbol{\pi}$ ) by the use of $\boldsymbol{j}$ or $n$, because $J$ is 5 only enlarged from N , in the ratio $.5 \times 10=5.0$, or $5 \times 10=50$. The $\mathfrak{d}$, or $n$, is used to get the fish letter, as nun, or ${ }^{j}$ リ, or 565 , the Jehovah form, as shown; and this, taken as a cube, eight others make up the equivalent larger one, or io, or Jehovah. Showing the Noah glyph to be a Jehovah one, or Fah-is Noak, or יצ, which is the British inch--that cubic one above shown forth.

Note that this is of great importance. Take the origin of in הח ; this, by synubol, is $8-.5$, where .5 is a womb cube ; but to fructify, it must combine male and femple in one ; so it takes 8 to make the next larger perfect cube, whose face will necessarily be $.5+.5=1.0$, or a unit one. Jehovah is also a unit onc. Then, Ychovah and Noah are equal, or one equals one; and, by contraction, the expression of this will be $\mathrm{J}^{-\quad,}$, I-nch, where the concrete form is " $\mathcal{F a h}$ (or Jehovah) is (or equals) Noah," or, to-
gether, they signify $I$-nch. If J is taken for A , this only changes the value by ciphers, which, instead of enlarging, can be taken as smaller subdivisions; or, in fact, the ciphers may be dropped by Hebrew usage. The pyramid is built on the British inch, as shown ; the Garden of Eden, etc., is the expression of the same thing under another style of setting forth. It seems, then, clearly evident that our English word $i n c h$ is, in fact, from the combination of the Hebrew unit designations, viz., $\mathcal{F a}$ and Noak, or $\mathrm{I}^{-י-\text {, }}$ or, literally, I-nch.

The ark of Noah was, in dimensions-

$$
\text { (1.) } 300 \times 50 \times 30=450,000 \text { cubits. }
$$

The cubc of .5 , or the letter $\boldsymbol{T}$, or $\boldsymbol{g}$ (its equivalent), is 125 ; then(2.) $450 \div 125=3.6$, or 36 ;
and $36=E l-h$, $\boldsymbol{\text { s }}$, or Elohim, while 125 equals the Hebrew word אבץ, abn, stone, or Peter; so, here, we run directly back to a Jehovah use, and to a factor base of $\overline{6 \times 6}=36$, and which, as will be shown, is the Garden of Eden form. So-

$$
\text { (3.) } 360 \div 8 \text {, or } \Pi=45
$$

the characteristic value of the cubical contents of the ark itself. Once, again, the woman is דוה, and ', is the male-together, the perfect number io; but io is a circumference to a diameter of 3 IS+, and this, in one form, took the idea of the birth of time, as of the year; therefore, in this form, $\boldsymbol{\text { M }}$, would indicate also the perfect year; and $3 \mathrm{I} S$ was a Christ value. As the perfect year, the circle divided by a horizontal diameter line, would be the symbol of the perfect one, or הוה', while, to denote the scparated functions, the upper or sunny half would be ', while the lower half would be the הוה, or dark, or Eve portion of the year.

## The Trowel Face.

§ 83. It has been seen that the commencement of the pyramid proper is by means of placing an ideal pyramid, constructed on the elements of (土.), §82, in a sphere. The results there displayed are through geometrical proportions. The base of the interior construction is seen to rest upon the geometrical problem displayed in (b.), §74. In that problem, all the pyramid elements of construction are displayed; for $A B$ is the standard base side of the pyramid, CD is the standard height, and DB , with the angle CBE , are seen to enter into the aggregate height lines, and the
roof lines of the interior levels, and chambers. Moreover, AD and CD are but reductions from the original forms as given by Mr. Parker. The shape of the inclosed figure A C B E, could be changed so as to display the exact pyramid standard relations; for by doubling the line AD, or $763.4074 \times 2=1526.8$ I48+, the proportion of CD : A D $\times 2$ is that of diameter to circumference of a circle, and is the exact proportion, and in the exact numbers of height to twice the base side of the pyramid. Architecturally, this is valuable for symbolization; for by doubling AD, and inclosing the extension by the lines $\mathrm{AC}, \mathrm{CB}, \mathrm{BE}$, and A E, the new form displayed would be that of the mason's trowel face: so that a trowel constructed after these proportions, and on the scale of the British inch, would afford to the mason the whole elaborated plan of his work with the relations of the elements from whence these plans took their rise.

It was an old tradition that in the accomplishment of any great and good work involving the more abstruse and recondite knowledges, the workmen would be beset by the powers of the realms of darkness, with their frights, and horrors, and scares. As against these, the master workman would protect his work by the display of the seal of Solomon, the wise man, and the king, even over the Efrects, the Finn, and the Fann. But even here, he had to summon up an amazing amount of resisting force; nor could he do this unless by the assistance of the unseen powers of light, of truth, and of goodness. As encouragement to the failing power and courage of the master workman, on whom the whole charge rested, a voice, like as the Bath-Col, Daughter of the Voice, would come, in terms, like the following which were given to Hasan El Basrah in his terrible trials :
"I disposed thine affair at the time when thou wast in thy mother's womb,
And inclined her heart to thee so that she fostered thee in her bosom :
We will suffice thee in matters that occasion thee anxiety and sorrow ;
So, submit to us, and arise: we will aid thee in thy enterprise.

## CHAPTER IV．

## TIIE TEMPLE OF SOLOMON．

§ 84．Kabbalistic tradition，passed down in Succoth， states that when Solomon was about to erect the temple，he found the measure wherewith to build it，by placing the name of $\mathfrak{F}$ chovah，הוה＇，upon the round mouth of the well－hole in digging the foundations；and，again，it is said，by placing this name upon the bung－hole of a cask．The＂round mouth＂and the＂bung－holc＂were circles．The Israelites converted circular and spherical measures into square and cubic measures，in their representations of them．It will be shown that the，or one of the，values of the name $\mathscr{F}_{c}$－ hovah，was that of the diameter of a circle ；and it espe－ cially meant the unit measure of a right－line，or squarc－ surface，or cube－solid，having a purely circular value． Hence the definition of the architectural idea of construc－ tion is thus conveyed in Succoth，if this was the channel of the tradition．

The description of the temple measures are to be graded in the following order：
（土．）From the Book of Kings．（2．）From the descrip－ tion of the Tabernacle；because it was perfect in all its proportions，and Solomon could do no more than to repro－ duce it，however much he might vary the style of archi－ tecture．（3．）From the Book of Chronicles，not so au－ thentic，but rather a targum，or paraphrase，on Kings；and （4）from $\mathfrak{F o s c p}$ 保 ．

## The Dctails of Description．

（a．）The entrance to the temple faced toward the cast， and the holy of holies was in the extreme west end．

As to the ground plan，the description in I Kings，6，is concise，plain，and specific．This ground plan has three distinctly separated parts：（土．）The house，＂Bayith．＂（2．）

The temple, or open vault of heaven, before the face or door of the house, "Hécal." (3.) The porch before the face or door of the temple, "Olaum." Verse 2 says: "And the house which King Solomon built for the Lord (Jehovah), the length thereof 60 cubits, and the breadth thereof 20 , and the height thereof 30 cubits." Verse 3 says: "And the porch before the mouth or door of the temple of the house, 20 cubits was the length before the face of the breadth of the house, ro cubits the breadth before the face (or door) of the house." Verse 17 says: "And 40 cubits was the house, that is to say, hua, the temple, before its face (or door)."

There is, then, the housc, bayith, 60 cubits; the temple, hécal, 40 cubits; and the length of the porch, olaum, 20 cubits, one length connected with another, for the ground plan, or a total length of 120 cubits. This gives, or embraces, in the house and temple inclosure, the length of the tabernacle and court inclosure, of roo cubits. As to the porch, olaum, in front of the temple, 2 Chronicles, chapter iii, verse 4, says: "And the porch that was in the front, the length was according to (or agreeing with) the breadth of the house, and the height an hundred and twenty (I20) cubits, and he overlaid it within with pure gold." Here, it is observable that the holy of holies was lined with gold; it was at the extreme end of the length of 120 cubits. Here, the base of the porch, or bottom of a height of 120 cubits, of the same dimensions as to the length, and one-half the width of the most holy place, is also lined with gold, going to show that the connection of these gold lined rooms had to do with the distance of r 2 O cubits. Josephus says there was a superstructure above the house equal to it in height ( $30 \times 2=60$ ), and then doubled, making a total height of 120 cubits.

What the inclosure of the temple, hécal, part was, as distinguished from the house, bayith, is not specified; but it is simply stated that the door of the house opened into the temple part, and the door of the temple part into that of the porch. It may have been an intermediate court like
the court of 60 cubits before the tabernacle structure; the difference not being in the sum of the lengths, which, in either case, was $40+60=100$ cubits, but in the one case the court is 40 , and in the other 60 cubits long. The temple, likely, was a court looking to the open vault of the heavens, and surrounded by other inclosures. But what became of the altar of incense? Of the table for show bread? Of that for the golden candlestick? These supposed to be placed in the most holy place before the vail, as in the tabernacle, then the only further change of arrangement seems to have been simply in the location of the brazen sea in the northeast corner of the house inclosure, part of the court before the tabernacle, now, or here, placed under roof; the great brazen altar being located before the house in the temple part. 2 Kings, 16 , 14 , mentions this as in the forefront of the house, and this is again implied in I Kings, 8, 64. It could not be located within the house, as there would be no space around it. This fact of its being before the house, gives a distance between the house and the porch, as the temple part. I Kings, 6, says that there were two pillars-Fachin, which, according to Josephus, was on the south side, and Boaz, which was on the north side of the porch entrance. They were 18 cubits in height each, or, together, 36 cubits, or the $\frac{I}{\text { IO }}$ of $360^{\circ}$; and they girded 12 cubits.

The holy of holics was a cube of $20 \times 20 \times 20$ cubits, located, as stated, in the west end of the house, bayith. Five colors seemed to be involved about and in it. It was, according to Josephus, built in white, or the color of the ether. Inside, it was lined with red cedar. This, again, was lined with orange gold. The interior was closed against light, and was in the blackness of darkness, as the proper place for the ark of the covenant (or the meeting together of two opposite principles). It is thought that these colors were typical-rcd, of the earth; golden, of the sun in general, or the sunny part of the year, when, or as, contrasted with the brazen sun of winter; white, or silver
color, of the moon: and black, of the night, of the womb, of the nadir. The condition of the room as to colors would seem to indicate time and earth measures, and also the place where those earth measures were to be found, or to be originated, as down in the depths at the center of a mass, in the dark; like finding a starting point of construction by placing a pyramid in a sphere.
(b.) The holy of holies was divided, as to its cubical contents, by the placing of the chcrubims. There seems to be no especial meaning to this word, fitting it for such a place. The meanings usually assigned, though perhaps proper enough, after a fashion, as man, angcl, cherub, are really not proper to the term. The word comes from 2 Iר $=$ Carab, or Carab, meaning prehcnsile, to scize, grasp as with talons, or betwecn talons; as substantive, it means a bird (as a griffin or eagle), fierce, because of its quality of closing upon something, or anything, with its talons. It is the British word crab, that seizes with its circular pincers; also the word grab, as closing the fingers upon something. On looking at the zodiac signs for $\mathscr{F}_{\text {une }}$ and October, it will be seen that they are represented as closely alike-one as the scorpion, and the other as the crab; and, in fact, for the zodiac, these two answered, as stretching over or embracing the two cubes representing that quadrant of the year between cancor and scorpio, just as the chcrubims stretched over and embraced the covonant or meeting of the two halves of the ark. This word is especially used as to the Garden of Eden, guarding the way to the tree of life in the center of the space, the place of covenant or of mecting. In one sense, they may be taken as the hooks barring the opening of the sistrum. It is used as spanning half the space over the ark of the covenant; and the same use is here made as for each one spanning half the space over io cubits. The real value of the word is thought to be in its mumerical value, which is $\beth=20$, $9=200, \beth=2$, or a total of 222 . These cherubims were ro cubits in height, and stood with outstretched wings of 5 cubits in length, each touching, as to each, the wall upon
one side, and the tip of the wing of the other, in the midst. Underneath the meeting or covenant of the wings was the division line, either of separation or of meeting of the two rectangular solids of the ark of the covenant (signifying the two sexes).

> Comparison of the Mcasurcs of the Tomple with those of the Pyramid.
(c.) (土.) As to the pillars. 18 cabits $=20.612+10.306$ feet, or 30.918 feet; and these are the numerical values, divided by 10 , to give the standard measures of the vertical axial line of the pyramid, to embrace the distance between the top of Campbell's chamber and the base of the pyramid, and between the base and subterranean ( $\$ 78$ ). $30.9 \mathrm{I} 8 \div \frac{10}{12}=25.765$, and $\frac{\mathrm{I}}{2}$ the length of the ark is 25.765 inches. The girth of the pillars was 12 cubits $=20.612$ feet, showing that the circumference was in terms of a perfect circumference value. Whether the sum of the heights, or 36 , was to represent a reduction of the circle of $360^{\circ}$, is a matter of conjecture; but it is strengthened by the fact that Boaz was the representative of Typhon, or the North, or the dark or winter part of the year, and Fackin was the opposite, and as a division of the standard circle of $360^{\circ}$, each would indicate the half, or $180^{\circ}$ : and they are each noted as I8. If the conjecture is right, one entered the temple through the gateway of the birth of the year circle. This is perfectly paralleled by the qualities of the descending passage-way in the pyramid, as it involved both the circular elements and their application to the measures of the earth in its equatorial value of $360^{\circ}$, by its diameters in miles, and then the measures of the time circles about the sun made by this very equatorial. As to these applications, see $\S 72$. This view is partly confirmed by the name given to the location, or olaum, or porch; for, by the interchange of $\mathfrak{N}$ for $\mathscr{y}$, and this is rulable, this may, as אולם for , עולם, be taken for the otherwise similar word which means
time without end, eternity, rcvolving time, or Acon, or Agc. "The Oalomim (Acons), Voice, and Spirit, and word." (Jetzira, 9, io). "The fools did not know that the Aion (Aeon, age) is not any essence (ousia) existing, but some division indicative of time." (Theodoret Hæret. v, vi.). Wisdom says : "I was effused from Oulaum (Aeon, time), from the beginning, from the earliest time ( $m i-$ kadmi) of the earth." (Proverbs viii, 23.) (All from Sod. p. 76.)
(2.) The porch was 120 cubits high, or 206. $\frac{12}{}$ feet, that so familiar value of the pyramid. It was 20 cubits long, or $34.3533+$ feet, or the standard length of the king's chamber in the pyramid. It was ro cubits broad, or 17.1766+ fect, or $206 .{ }^{\text {I2 }}$ inches, the standard width of the king's chamber. (3.) The porch, temple, and house lengths, together, were 120 cubits, or $206 . \frac{12}{}$ feet, also; while the holy of holies plus the most holy place, or 40 cubits in all, or 68.7064 ft ., was, as to measure, and comparative location, the veritable measure of the king's chamber region, with respect to its like location in the 120 cubit height in the pyramid. (4.) The temple and house lengths, together, or $60+40$ $=$ Ioo cubits $=171.766+$ feet, or 2061. 2 inches, was that beautiful proportion, as extending from the base of the pyramid to the point C , marking the center point of the king's chamber region (refer to $\S 78$ ). From the base of the pyramid to A is $137.509+68.7066=206.12$ feet, or I2O cubits (taken at the standard measures). The king's chamber region taken from the point C , with a radius of $34.3533+$ feet, is 68.706 feet, or 20 cubits $\times 2=40$ cubits. There can be no mistake as to the sameness of intention as regards these like measures. (The value $206 . \frac{12}{}$ feet, or 120 cubits, was a great governing measure, and as it implied also the full numerical value 20612, being constructed from it, it was the great number and value, after all, of all construction, as is fully set forth in this work. This number of 120 cubits, then, thus composed, is 206 , and
its use thus, and in its original term of 20612, is implied in the great measuring word throughout Scripture and Kabbala. That word is Dabvar, דבר, or 206, and is the Logos word.)
(5.) The holy of holics, as a cube of 20 , was just $\frac{1}{8}$ of the cube of the king's chamber region in the pyramid, or the full cube of the length of the king's chamber. (This use, emblematically, is referred to elsewhere; but it is of so curious a nature that it is well to state it again. The primal one, or cube, was taken as containing all material and all life within itself. It was male-female; but when disintegration took place of the one into two separated and opposed existences, as of male and female, each had to be a perfect one, also, in its special construction. To make, therefore, a perfect one, which will combine these opposed relations, they are to be used together, and it requires just 8 of the smaller cubes, viz., 4 males and 4 females, together to make the larger. The king's chamber region is the great cube of this union; and the king's chamber, as to its length of 20 cubits, was the eighth part of the whole cube, and, of itself, was, as to its length, an oblong of two cubes, or, in itself, male-female.) The division by the cherubims divided it into halves, making a nearer approximation to the king's chamber proportions. The ark, though similarly a small rectangular solid or oblong, placed in the holy of holies, as the coffer was in the king's chamber, was differently proportioned, showing a difference of use in measurement.
(6.) As to colors, the white, and red, and black of the temple tallied with the like of the pyramid, the golden being an exception.
(7.) As to the $a r k$, it was $2 \frac{\mathrm{I}}{2}$ cubits long, or 5 r. 53 inches, or, numerically, the area of the circle inscribed in the square of 656 r . Its height added to its breadth $=3$ cubits, or 5.153 feet; showing, for one thing, that it was so contrived as to be reducible back to the elements whence
its, and all the temple measures, were derived; and this could not be done, by possibility, except by the intervention of two grades of measure, and those were, respectively, the British inch and foot.
(8.) But the sameness of relations of the temple with those of the pyramid seems to be confirmed by the use of the cherubims. They were 10 cubits high, and by their use marked out the division of the holy of holies into io cubit measures. Take some pyramid developments :
(土.) 5 I $53 \times 8=41224$ inches, the circumference of the base of the pyramid placed in the sphere.
(2.) $5153 \times 2=20612$. $\frac{206.12}{12}=17.17666$ feet, or 10 cubits. $\quad$ 17.17 $7666 \times \frac{4^{2}}{3^{2}}=3053+$ feet, or 36643.55 inches, or the circumference of the base of the pyramid proper. $\frac{1}{8}$ this circumference is $38 \mathrm{r} .7037+$ feet, or,

$$
222.222+\text { cubits. }
$$

It is thus secn that the use of the 1o cubits value develops the $\frac{\mathrm{I}}{2}$ base side of the great pyramid in the measure of 222 cubits. It is seen that in the development of the holy of holies, the ark contains the original measures. It is placed in a space of ro cubits. This 10 cubits measure of division is made by the use of the כרב, or chcrub, and the numerical value of cherub is
222.

There is a most strange and far-reaching value connected with this cubit value of 444.444 for the base side of the pyramid. The 4 sides would equal $1777.777+$ cubits. The pyramid was constructed from that value of the Parker elements of $20612 \times \frac{4^{2}}{3^{2}}=36643.55+$ for circumference value, and $656 \mathrm{I} \times \frac{4^{2}}{3^{2}}=\mathrm{Ir} 664$ for diameter value, or for height. Now,
(1.) $36643.55 \div 20.612=1777 \cdot 77$, and
(2.) $11664 . \div 6.56 \mathrm{I}=1777.77$;
or, numerically, this very pyramid base value. This is brought about by the factor $\frac{4^{2}}{3^{2}}$ as common to both. $\frac{4^{2}}{3^{2}}=$ $\frac{16}{9}$; and, as was shown, this expression embraces the factors of the square foot British, because $16 \times 9=144$. The reverse use or $16 \div 9=1777.777+$, showing that these factor numbers, by another change of use, at once lay the foundation of the pyramid and temple works; the knowledge of the scales of measure, and the use as applied to geometrical elements, being implied. Somehow, all the systems-Hindu, Egyptian, Hebrew, and British-belong to one another, and are, in fact, one system.

So, here in this temple, and its holy of holies, and its ark, we have the ear-marks of the full use of the pyramid measures, under another style of architecture. Was there ever such a concordance of measures, unless attended by a similarity of use?
(d.) The representation of the holy of holies, in vertical cross section, is as follows :


The ark was the residence of Jehovah, and he specifies his place as at the meeting of the cubes of the ark, be-
tween the cherubims. What was his numerical essential, to accord with all these measuring properties? He was the perfect one, or I-O, or a straight line, one, of a denomination of the perfect circle, O-viz., 20612; reduced evenly and by scale, to an inappreciable minuteness, not to be seen by the eye, nor conceivable by the senses, yct, newertheless, this perfect one.

## Kabbalistic Matters Connected with the Temple Description.

(e.) The astronomical features about the temple were plain. The entrance was toward the rising sun, or the vernal cquinox. The holy of holies was in the west of the structure, toward the place of the setting sun, the autumnal equinox. The great quadrangular was oriented and faced to the four winds, or N., E., S., and W. The brazen sea had on its ledges the ox, the cherub or man, and the lion. The lion was the sign of the summer, the man of the wintcr, and the ox of the spring. The sign of autumn, or Dan, was left out-that worm all-devouring, never-dying, the scorpion. This has an architectural parallel. Nork relates that the temple of Notre Dame, in Paris, was formerly a temple of the goddess $I s i s$, or the sign Virgo. On this temple was sculptured the zodiac with its signs; that of Virgo (Isis) was left out, because the whole temple was dedicated to her. So with the temple. The whole religious cultus of the Israelites was located in the sign $D a n$, or Scorpio, for it was here that "I have waited for thy salvation, O Lord (F̌chovah)." Under another form, Scorpio was the gate of the zooman, for it was the door of the cvening, or darkness. In Genesis, God says of the cvening, or darkness, that it should be called Lilah. Prefix the letter $D$, or hieroglyph of a door, and there results $D$-lilah, or "Door of darkness," or gate of the woman, or the place of the nezv conception-that gate into which Samson, as the sun shorn of his beams, his 7 golden locks, type of the 7 sunny or prolific months, had to enter in the autumn of the year. It is said that anciently the signs

Virgo and Libra were somehow held as one; then there would run the three months of July, August, and September, as embraced between the signs of Cancer, the crab, and Scorpio-that is, Leo and Virgo, or the male-female, would be embraced between the two similar creatures, the crab and scorpion, or between the two cherubims, just as were the two cubes of the holy of holies. Water was a female element sacred to the womb, or producing power. "Born from the womb upon a flood." Brass was a metal symbolizing the nether world, or the winter sun, or the darkness of the year, which was that of the womb where life should be given to the new year. The recurring year was symbolized by a serpent swallowing (one or more units of its length) the end of its tail ; and thus was a female emblem as reproducing itself. The word for serpent was, in Hebrew, Nakash. But this is the same term for brass, and has, also, these singular meanings in this connection: "Properly the firm, hence the basis, ground-support of the bottom of a kettle standing on the fire; figuratively, the female pudenda." The brazen sea was Typhonic then. The brass works belonged to Dan, who held the gate to the depths of darkness. All this is conveyed in the description of the building of the temple. Take the two squares of the zodiac, representing two quarters, or quadrants, of the year ; one lorded over by Leo, the lion, next to the summer solstice, and then going west and downward, the second quadrant is reached, extending to the winter solstice, and lorded over by Dan, the scorpion, who holds the entrance. This upper square, or cube, is golden, the male, full of the fructifying power of the sun ; the lower one is the female, and black, the womb, the brazen part. Now it will be seen that Solomon, the son of David, of the tribe of Judah, whose sign was the lion, made all the gold work. But it was Huram that made the brazen sea and all the brass zoork. Who was Huram? The son of a widow, a woman of dark or black weeds, of the tribe of Dan, whose sign was the Scorpion. He made the work pertaining to his portion of the zodiac-that is,
the place of Typhon, of winter, of darkness, of woman, of the womb, etc. So, here is represented the western half, and the summer and winter quarters of the celestial sphere, squared, or cubed. Hur is the same with mount Hor, as opposed to Mt. Sinai, where the two mountains represent the same types as above, under the forms of fire and cold. This same figure is attached, also, to the building of the tabernacle. Touching the male and female cubes, the name יהוה', as embracing both, is also male and female in his name, the two being married. Separated, ', is the phallus, and הוה is Eve, or the womb, or the darkness, or brass, or serpent. Separated so as to be distinct, and הוה becomes widowed, or a widow, with a right to weeds as dark as the blackness of the depths which her quality represents (yet cunningly enough carries the, concealed). The year, personified by the sun, was as God, supposed to be thus married, but at Scorpio the worm was represented as separating the male from the female parts, whereby one and the female part of the deity, going down to her own place of the dark womb, into the waters, became, as brazen rays, or rays deprived of the golden fructifying power, widozved. And thus the astronomical types are expressed. This double cube, red as representing the earth, seed measure of construction, should be, one black, and the other, white; and, in fact, the earth was supposed of itself to be made up of like double cubes, fitly framed and matched, to its full and just proportions.

Solomon, who built this structure, was the son of David, who was the son of Jesse. In Hebrew, this word is ' $\because=$ ', or ISI. In Hebrew, the word $\mathscr{U}$, or being, existence, is puncted so that in English it reads $\mathcal{F}$ cs. From this ${ }^{\prime \prime}$ was derived ' $\because \cdot \prime$ ', or $\mathcal{F}$ esse, and this, in the New Testament, is the Hebrew name of Jesus. The English word, and the Greek translation, is $\mathcal{F} c s$, with the idiomatic suffix $u s$, and cus, not belonging to the word. In many cases, and in many manuscripts, this word $\mathscr{\bullet}^{\prime \prime}, \mathcal{F} c s$, is written $\ddot{\bullet}^{\prime} \boldsymbol{N}$, aish, man, from the form $\mathbf{\bullet \prime}$, fire. There is but little doubt but that all these words are organically and generically the
same. The implication is that, while man is a being, he is also of the primary flame, or firc. Carried to the extremes of meaning, and Jesus, as God in the personification of man, was also the highest essential fire, which, by parallelism from the spiritual to the real, in the matcrial zoorld, is the sun in the heavens. While the derivation is good as $\mathfrak{F}$ es-us from $\bullet^{\prime \prime}$, the other was a positively intended alliance in the name, by the framers of the New Testament, because by them he is called "son of man," the Ben Enosh of Daniel, and son of Seth ; and this necessitates the other form of derivation. "Son of man" was Enosh, and in this name, as relates to the fire and sun meaning, there is a determinative enforcement, for the letter values read $365-\mathrm{I}$, or the phases of the solar year.

There is something peculiar as to the opening of the 6th chapter of I Kings: "And it came to pass, in the four hundred and eightieth year after the children of Israel were come out of the land of Egypt, in the fourth year of Solomon's reign over Israel, in the month Zif, which is the second month, that he began to build the house of ( $\mathfrak{F}$ chovah $)$ the Lord." The chronological date here pointed out has been a very great vexation and stumbling-block to commentators. It is generally looked on as a date falsely taken. But it is well enough a determination of the meaning of the structure which was about to be built, for $480+4+2=486$, which, in feet, as coming from $656 \mathrm{I} \times \frac{\mathrm{I} 6}{9}=11664$ inches, was the height of the great pyramid, or sun measure, the interior works of which were copied after in the temple, as has been shown.

Univ Calif - Digitized by Microsoft ${ }^{\circledR}$

## APPENDICES.

The ancicnt knowledge will again abound, and overflow, as water, upon the earth. The remains of this knowledge are everywhere about us, in every-day use, and perfect. Its revival will point to the restoration of the period prior to the confusion of lip. The prophet saw a valley filled with a confusion of dry bones; but the bones were perfect and all there: so with us are the vestiges of this knowledge. At the word, bone came to its bone; the perfect framework of the man. "And he said, son of man, can these bones live? . . and behold a shaking, and the bones came together, bone to his bone: . . Then, thus saith the Lord God; come from the four winds, $O$ breath, and breathe upon these slain, that they may live." This is coming to pass. Then shall the people know $\boldsymbol{N l O}_{7}$ "

## INTRODUCTION TO APPENDICES.

§ 85. It is claimed that, in and under the letters and words of the narrative form, the Books of the law of Moses, as the foundation of the whole Bible, contain the same cosmical developments with the pyramid, and that by means of numerical values; that this is enforced in illustrative and determinative ways by the narratives, and by the hieroglyphic values of letters and words running parallel with the narratives, but by change of meaning pointing to and determinating the cosmical lessons, or exact problems; that while the three ways-viz., narrativc, mathematical, and hieroglyphic-are diverse from each other, yet they all display themselves without harm to each other, in its special way or sense : that is, the narrative may be true, the mathematics may be well taken, and the hieroglyphic reading may be exactly defined and true to its scope. While this is so, each method may in some sort help the other, by, in some way, setting it forth.

## The Opening Sentcnce in Gencsis.

(a.) The first sentence in Genesis is, בראשׁית ברא אלהים את השׁמים ואת הארצ:
It must be borne in mind that in the scroll-reading the letters are not separated, but run together, without point divisions, from which fact there are two rcadings to this sentence, as follows :
(I.) B'rāshith bara Elohim eth hāshamayim v'eth h'arets.
(2.) B'rāsh ithbara Elohim eth hāshamayim v'eth h'arets. where the verbal bara, to create, instead of the perfect of Kal, may be thrown into the third person singular future of hithpacl. (This reading pointed out by Rev. Dr. Julius Goldammer.) The translation of this sentence is, "In the beginning God made the heavens and the earth ;" and
this is the narrative form of the sentence. Suffering a closer analysis, this narrative form assumes a cosmical interpretation, thus : " $B$ " is a prepositional prefix, signifying in the largest sense in, and with matcrial, carrying the idea of in, or out of, or from, as of material. Rāsh $=$ head, and is a masculine noun, but here used with a feminine termination, it signifies with the prefix and the terminative, "in the substance of," or "out of the head, as a matcrial, or essential." Elohim is a compound made up of El, a masculine singular, meaning the all-embracing God; to this B , or $h$, is added, as separating the elements of El , and out of them constituting El-h, or male and female. It is the compound of two characteristics, involving the use of two opposites from whence to mold, as, in sexes, the duality of man and woman; as, in forces, the duality as centripetal and centrifugal-for example, electricity combining two opposites under the maniiestation of modification of one initial force. To this El-h, thus combining these two opposites, a plural termination is added, indicating the two in combination, thus, "God in the (assumed) double relation of two opposites." Then follows, not "they created," as of gods, but "He created:" and then, not the heavens, as we laxly take it, but "the two, or duplex heavens;" for in Hebrew, from the force of a double construction, the term is dual, not singular. So the sentence reads, "In (or out of) his own essence as a womb, God, in the manifestation of two opposites in force, created the two heavens, and the earth," as to the heavens, the uppcr, or light, and the lower, or dark; signifying the opposites of heat and cold, day and night, expansion and contraction, summer and winter; in short, the all-embracing cosmical relations.

By this reading, a mere meaningless abstract enunciation assumes a general form of shadowing forth the means and use by which creation was effected.

## Its Parallel Numerical Reading.

(b.) Now comes the basis of a more specialized and exact reading, yet supported by the narrative style and the
closer reading. Referring back to § 34 , there is shown the great use of the differcntial El, as 3 , to link together circular with plane measures, all of which are turned to cosmical uses; for, taking the limits of the British measures, and differentiating by $E l$, or 3 I , we have

$$
\text { (土.) } 1_{44}-3 I=113 \quad 5184-3 I=5153 \text {, }
$$

thus introducing two bases of relation of diameter to circumference. Now, $E l$ is the first god-name, and the great working number 3 I ; and, by parallelism, in the construction of the pyramid interior works, where the cosmical enunciations are made, the starting point is the intersection of the floor line of the descending passage-way with the exterior slope line of the outside of the structure, and on this starting point all else interiorly is made to depend. Now, it is seen, § 64 (2), that this point of opening into the interior is located at a vertical height of 31 cubits; the 31 thus being the starter number of the entrance. But this being so, the dimensions of the descending passage-way depending on this point, are seen to be, $\S 72(c)$, a combination to get a mean between diameter of I to a circumference of $3^{1} 4$, and a circumference of $I$ to get a diameter of 318 ; so that the end, or foot, may give a line of a slight variation on this same mean value, looking to the expression of the value of the square of the earth's equatorial diameter in miles. It will be further noticed that the pyramid itself is a change on the standard values, so that its $\frac{1}{4}$ base side and the height of its king's chamber shall 4 obtain the factor 6 , of 36 ; and so likewise here after the radical, and radical use, of $E l$, or $3 I$, is had, it is made hermaphrodite by the addition of the letter $\pi$, or 5 ; together framing the number $\overline{6 \times 6}=36$. So these two numbers, $3 \mathrm{I}+5=36$, denote the pyramid work for cosmical measures.

Take, now, the more exact enunciation of this sentence: $B^{\prime}-r \bar{u} s h$ is $213-2$, and 213 is 355 (one of the pyramid forms of circumference to a diameter of 113 ) $\times 6$, or
$355 \times 6=213-0$; where also 355 is the Hebrew word shanah for the lunar year. But, by § 35 (3),

$$
\text { (土.) II3: } 355.0001:: 36: I I 3.098 .
$$

Take, therefore, a circumference value of 355.0001 , and cross it by 6 diameters of $113 \cdot 100$, thus subdividing it into 12 compartments ; and, by means of the form of 36 : II3.098, as denoting a straight line diameter value in 36 , the whole value can be changed into square forms of $\overline{6 \times 6}$, or $\overline{36 \times 36}$. The word $r \bar{a} s h$, signifying this, the letter $B$, or 2 , shows that this form is to be used twice, either together or separated. If this is done, then 113.098 becomes 226.2 ; and, as to this, see the measures of the queen's chamber, §79. Kabbalistically, the form is used twice as signifying the " measure above" and the " measure bclow" of the heavens and of the earth; that of the heavens being the celestial circle of $360^{\circ}$, and the circle of the same value served to belt the earth.

Now, this use is determined by the use of the full word form Elohim, אלהים, used numerically, and. in a determinative form of what is being done in a general way; for, place the word in a circle,

and then reading the values from left to right, we have 31415 , or the relation of circumference to a diameter of one; which word, as a whole, then, is made to signify the effect of the detailed values of the radical words 3 I, and 5 , or $E l$, and $h$. This enforces the parallelism made. But the use of these forms in the pyramid are shown to develop the measures of the heavens and of the earth ; so here, for the narrative says, that in them (take the hithpacl form of the verb) developad themselves the heavens and the
earth, a perfect parallelism in one way and use, as will be seen, of the same forms. Beyond this, taking the words "hcavens" and carth:" hcavens is shimayim, D"מư, and add the letter signs, we have $3+4+1+4=12$. Earth is Arcts, $\mathfrak{\Im} \mathfrak{N}$, and add the letter signs, and we have $\mathrm{I}+2+9$ $=12$. Then each of these words, for one value, sets forth the value 12. Both words are used with the definite article $\boldsymbol{A}$, or 5 , and this can be used either as 5 or .5 ; so that the words may denote the use of 12 with the factor $\cdot 5$, and $12 \times \cdot 5=6$, where the factor 6 is again indicated as twice used to form a line of 12 , showing use of the same factor value as to the heavens and the earth, with a fixed relation 12.

Thus, out of the opposite relations of diameter, or straight line, to circumference, or curved line, a factor value is raised to apply to a comparative knowledge of the heavens and the earth, the word Elohim detcrmining the details of work, and the use of the exact circular relation ; therefore, the narrative form justifies and shadows forth the exacter mathematical and astronomical use.

This use and factor form underlies all that follows. Take the unit value 6 , as connected with the British measures, § $30(a)$, and let it be the factor number of the hours in a day. A day was a circle, and was divided into day or light, and cevning or dark, and these qualities were sexed, as light $=$ male, and $n i g h t=$ fcmalc. By the Hebrew usage, circles were displayed as squares, and a day, of day and night, was a perfect square; but, as each perfected work had of itself to be perfect, and the day was male, and the night femalc, here was (by division of the 6 factor cubes, or squares, into two parts each) an oblong for each, which would not do, so the perfect square was divided into 4 others, which were perfect in themselves-i. e., two perfect males and two perfcet femalcs. Now, the division into smaller circles of hours carried the same necessity of perfection, and therefore, in hours, the perfect day was divided into 12 males and 12 females. (The factor square divided $=2$, one male, one female, each an oblong; divided
again, and each factor square becomes divided into four parts, each a perfect square, or two males, two females, or, for the whole 6 factor squares, twelve males, twelve females.) Such being the condition of preparation after 6 days have elapsed, on the sixth day the results of the sixth day's labor culminating in the fructifying principles of sacr, membrum virile and nekabvah, yoni, (see Gen. i., v. 27), are commanded to multiply. In 6 days there are thus made 72 hours of $n i g h t$ and 72 hours of day, and $72 \times 72$ $=5184$, or that subdivision of a solar day, which, with 144 , constitutes the limits of the British long measures, 144 and 5184;
and these limits are here united in the sixth day, for now the number of hours are 144 , and the multiplication or square of their division into 72 and 72 produces the other limit 5184. Then, as above, by use of $E l$, or 31 , we have

$$
144-3 I=113 \quad 5184-3 I=5 I 53 ;
$$

thus showing that the sixth day introduces us to the use of the Parker and Metius forms of

$$
6561: 20612 \text { and } 113: 355
$$

on which the pyramid relations are all based. And, in fact, this does introduce to the seventh or circular day.

Arets, carth; Adam, man; and h-adam-h, carth; are cognate to cach other, have a like signification, and are personificd under one form.
(c.) Now, there should be some enunciation, which would, in a generalized or narrative descriptive way, recognize this numerical or measuring use as connected with the phallic or fructifying form; some term which, by stated qualities, would cosmically embrace all under these uses. This was the case, and the showing will prepare one to enter into the further meaning of the combination of the measuring with the phallic scheme. (1.) An carth form was built on a man form in the Bible, for the word Adam, for man, by a suffix $h$, became $\operatorname{Adam-h}$, or $h$-adam- $h$, or the fruitful earth. These words were founded on the radical $\quad$, $d m$ for blood, whence Adam (which radical un-
derlies the word Damascus, connected with Eliczer, or 3IS, the steward of Abraham's house). Now, from $\square$, $d m$, there comes the form $A d a m, \square \boldsymbol{\Sigma}$; and this, as a verbal, has the meaning to be red or blood-colorct, and also to bind, to fit firmly to one another. The Hifil participle is ם, מ־ארים, or Müdim, and this, among the Hebrews, was the name for Mars. [Sec Nork's Wörterbuch, under "Esau," and in other places. He quotes from Jalkut Rubeni. The Rev. Dr. Julius Goldammer has furnished, also, as authorities for this: (r.) Talmudic; Pirke, of Rabbi Eliezer, c. IS; Midrash on Proverbs, c. 9. (2.) Maimonides, in his "Moreh Nebuchin." (3.) Solomon Ibn Gabricl, in his "Crown of the Kingdom." (4.) The Sohar.] Seyffarth says (Chronology, page 33) : "In what language did the ancient Egyptians write? This was, of course, the Coptic. . . . Now, it has been ascertained that the ancient Coptic was far more nearly related to the ancient Hebrew, or Chaldee, than to any other language in the world; that a great many grammatical forms, and nearly all the Coptic (Egyptian) roots, are derived from the ancient Chaldee," and more also to the same effect. He certainly establishes this by the constant occurrences of examples.

Now the Egyptain god-name for Mars was Artes, Aot\%s, Ertosi, E.pztort, and the word is but the use of the Chaldee, or Hebrew form Arets, or carth. This can be seen at once by taking the consonants of the word and dropping the accessory vowels: thus the Egyptian word is ARTS, and the Hebrew word is ARTS ; and just as in the case of Adam for man, Mars, and carth, here there is Arets for carth and Mars. The fact seems to be that the word Mars was not so much a person as a gencralized term for the cosmical phases of production and destruction, or birth and death. Blood was lifc, and the shedding of blood was as much the type of conccption as of dcath, or slaughter. And so, in fact, did the Egyptians esteem this god as the Primal Generative Principle, combining the springing of all things of heaven, of earth, and of humanity, in himself. As to this, Seyffarth (Beitraege zur kenntniss), under "Artes,"

Mars, quoting, says: "Addit Cedrenus (Salm. r, C.) : Stella Martis ab Egyptiis vocatur Ertosi (plantare, generare). Significat autem hoc omnis generis procreationem et vivificationem, omnisque substantiæ et materiæ naturam et vim ordinantem atque procreantem." So, it seems, that his being the god of war, and of bloodshed, was but a secondary idea flowing out of the primary one of shedding of blood in conception, for the first time. Thus, the words, are the same for ARTS, Hcbrczu, and ARTS, Egyptian, and combine the primal idea of carth as sourcc; precisely as in the Hebrew itself, under another form, Adam, and Médim, Mars, are the same, and combine the idea of earth, with Adam, under the form of $h$-adam- $h$.

Now, Mars was the Lord of birth, and of dcath, of generation and of destruction, of ploughing, of building, of sculpture or stone-cutting, of Architccture, of the origin of measurcs, and of their uses; in fine, of all comprised under our English word ARTS. He was the primal principle, disintegrating into the modification of two oppositcs for production. Astronomically, too, he held the birthplace of the day and year, the place of its increase of strongth, Aries, and likewise the place of its death, Scorpio. He held the house of Venus, and that of the scorpion. He, as birth, was Good; as dcath, was Evil. As good, he was light; as bad, he was night. As good, he was man; as bad, he was woman. He held the cardinal points, and as Cain, or Vulcan, or Pater Sadic, or Mclchizadck, he was Lord of the ecliptic, or balance, or line of adjustment, and therefore was The Joust Onc. The ancients held to there being seven planets, or great gods, growing out of eight, and Pater Sadic, the Fust or Right One, was Lord of the eighth, which was Matcr Tcrra. The picturcd, or delineated, symbols of his power, were: Mcmbrum virile, of "Martis gencratoris;" Testis and Yoni, "truly the female pudenda sacred to Mars," and equal to the $\epsilon g g^{g}$ with the central germ, or the circle zvith the central point, a Pythagorean emblem; the triangle; the pontapla, or the outlined form of the pyramid with its
apex and base corner-points ; the Scala for measures; also, the rota, or crossed-wheel or circle; and many others.

Thus, the Mars idea is a generalized one, comprehending, by parsonification, all the properties hereinbefore combined; and is an enunciation which will, in a general way, recognize the numerical, or measuring system, with the phallic, as combining the heavens and the earth, and man and woman. This is a brief outline of the volume of facts derived from historical records, from hieroglyphic, and Egyptian, and other, sources, to be found in the work of Professor Seyffarth; which work seems to be of great value as to the real truths regarding these matters.

So, Arcts, earth, and Adam, man, and Adam-h, or h-adam-h, carth, are cognate under the primal form of source, in Mars. The idea was to commingle and commonize all things, whether earth, man, woman, time, distance, and solid shapes, under a one; yet, again, to separate the one into a working, living, fructifying two.

## Enigmatical Constructions appearing in the First FaceRcadings of the Bible Narratives.

(d.) Besides the class of readings of the narratives of the Bible mentioned, there are still others, which, while not being of much depth, are yet removed a little from the first face-reading, and require for non-orientalists some little instruction to realize. These serve to take one a step further in the development of the first face-reading. In regard to the Garden of Eden, for instance, it appears on the first face simply as a locality for the construction of the woman ; whereas, by an orientalism, it appears as an initiation of the knowlcdge of the sexes. The allegorical use or purpose of the Garden of Eden description of the disintegration of one into two, in its descriptive terms, for the elaboration of production, is very happily illustrated in a note to " The Story of the City of Brass," in Lane's elegant translation of "The Thousand and one Nights." It is as follows: "A certain king saw a beautiful damsel upon the roof of her house, and was captivated by her charms,
and learning that she was the wife of his Wezeer, he sent this minister to examine the state of one of the provinces, and went to pay her a visit. But he received from her a reproof which confounded him. He quitted her abode abruptly, leaving his seal ring by mistake, in his confusion, beneath the cushion against which he had been reclining; and when the Wezeer returned to his house, he happened to put his hand beneath the cushion, and there found the king's seal: so he separated himself from his wife for the space of a whole year, not even speaking to her. She knew not the cause of his anger ; and at length when she was wearied by his conduct, she complained to her father, who went in to the king, and finding the Wezeer in his presence, and the Kadee of the army before him, accused the Wezeer in these words: 'May God (whose name be exalted) amend the circumstances of the king! I had a beautiful garden, which I planted with my hand, and I expended upon it my wealth, until it bore fruit, and its fruit was ripe, when I gave it to this thy Wezeer, and he ate of it what was pleasant to him, after which he abandoned it ; so its flowers withered, and its beauty departed, and its state altogether changed.' And thereupon the Wezeer said, ' O king, this person hath spoken truth in that which he hath said. I guarded it, and ate of it; but one day I went to it, and saw the footstep of the lion there; so I was afraid of him, and withdrew myself from it.' The king therefore understood that the footstep which the Wezeer had found was the king's seal that he had left by mistake in the house; and upon this he said to the Wezeer: ' Return, O Wezeer, to thy garden, and thou wilt be safe and secure; for the lion drew not near it. It hath been told me that the lion came thither ; but he did it no injury, by the honor of my fathers and my ancestors!' So, the Wezeer, on hearing this, said, 'I hear and obey.'" It must be remembered that the mental characteristics of the orientals are the same to-day, as they were when the description of the Garden of Eden was drawn; not only so, but there are very strong evidences that " The Thousand and

One Nights" are of enigmatical construction, containing even the same pyramid problems, based on the same system, herein set forth: this being the method of its handing down. The author has never examined very carefully into this matter; but refers, as instances, to " The Story of Noor-Ed-Deen and his Son," and to that of "Hasan-ElBasrah," in Lane's edition.

For the purpose of merely showing an allegorical display, barely concealed in the narrative, take the following two instances, which will amply suffice the purpose: (I.) The word Samson means the sun, and the narrative is a history of his travel in his orbit. Samson, root value
 mightest be bound? And he said unto her, If thou weavest the seven locks of my head with the web." Again: "If I be shaven, then my strength will go from me.
And she called a man, and she caused him to shave off the scven locks of his head (i. e., the seven months of the fertilizing power of the sun) ; and his strength went from him. But the Philistines took him, and put out his eyes, and brought him down to Gaza (or Goat, zodiac sign of December, or winter solstice), and bound him with fetters of brass! (the change of color from the golden rays of summer;) and he did grind (or continue his orbital path) in the prison-house. Howbeit the hair of his head began to grow again after he was shaven (his power increased after the winter solstice). And they called out Samson out of the prison-house, and he made them sport; and they set him between the pillars." (2.) Job was the personification of the history of the year. The prosperity of Job was checked: (1) at the time of plowing; (2) at the time of the summer solstice; (3) at the time of the disposing of the harvest; (4) at the time of the vintage. At this last time a whirlwind came from the desert, and blew down the house. ( Tsauphon $=$ Typhon $=$ Typhoon $=$ the North, the cvil side of nature, as also the arid heats. Teman was bounded north by the desert. The desert was significant of Typhon. Typhon, the brother of Osiris, held sway beyond the gates
of Sheol, and was also represented in the whirlwind.) "Then Job arose, and rent his mantle, and shavcd his head." (The priests of Baal, the sun, were tonsured.) And said, Naked came I out of my mother's womb, and naked shall I return thither. The Lord gave, and the Lord hath taken away. . . . And he sat down among the ashes." (A cloud of fresh ashes is much like a fall of snow.) "Now, when Job's three friends heard of all this evil that was come upon him, they came every one from his own place." This "from his own placc" is extremely significant, and is explained by the meanings of the names of his three friends to properly carry out the astronomical allegory. Take the names as they come: (r.) Eliphaz $=$ = God of Gold = Pluto; Temanite = טמטן = תמטן = The Conccaled. The place of Pluto was, then, the five sections under the royal arch, the Pit, the Inferno, of which, as an Evil, Typhon held the gates bordering on Libra. (2.) Bildad $=$ בץ לדר = son of latco $=$ = $=$ = Pluto; Shuhite $=\boldsymbol{U}=$ Grave, or cave, or dark place, or, again, the
 of whom the Rabbins say: "She was the mother of the demons." Thus explains itself the declining of Job under the portals of the royal arch into the five of winter. This expression, "to his ozen place," is also made use of as to Judas Iscariot in the Acts. Seyffarth says that as the hieroglyphs of one sentence might contain the necessary consonants of one or more other sentences, to avoid confusion, the special use was settled by a determinative hieroglyph. So with Job. To fix more determinatively the recurrence of the seasons by law, to Job was at the last given three daughters $=$ the Three Fates (what had happened to him was fated by the necessities of the seasons) $=$ (1.) Kerenhappuch $=$ Cornucopia $=$ zucaving or beginning of life. (2.) Jemima $=$ = day $=$ cnlarging the days of life. (3.) $\mathrm{Kezia}=\boldsymbol{y} \breve{\square} \mathbf{~ P}=$ cutting $=$ the cutting the threads of life: and this betokened that the same history was continually to be repeated.

The sameness of Arcts, earth, and Adam, man, and

> Univ Calif - Digitized by Microsoft ©
h-adam: $k$, the carth, and the Gardcn of Edcn, and the zoman, and the scventh day, can now be shown, and in such a manner as to confirm what has been taken above, as the numerical system of the Bible. It must be stated that the differing meanings based on the hieroglyphic idea are so conflucnt and so radiating from one to another subject, yet all united, that it is extremely difficult to place the results of deciphering in course; and, therefore, a little repetition here and there in these appendices, and a little running off here and there into matters not specially germane to the proper subject-matter in hand, at any place, must plead this difficulty as an excuse and an apology.

## APPENDIX I.

## The Garden of Eden.

§ 86. The earth was of two qualitics, one named sub)sequently to, and in sequence of, the other ; as (r.) Arcts, and (2.) Adam-h, or $I I^{\prime}-$ Adam-h. Commentators have made of (土.) the dry, arid, unproductive earth; of (2.) they have made the soil, or the prepared form to germinatc. Proceeding out of the basic numerical values, as abstractions, it has been seen that the factor value 6 has been made to spring. Take the word II'Arets in its numerical use of $12 \times \cdot 5=6$. Here the factor base is 6 , while the desired number is the aggregate of 12 , of which there is no even square root. It is given as an abstract quality, in itself an idea, and in itself dry, or unfruitful. But from the transcendental form of a number, as of a line having length, but without breadth or thickness, or any other substantive quality, or reality, chonge the use (preserving the length idea), by converting it into the arca, or positive, or real form ; and so, $12^{2}=144$, or the square of 12 equals an area of I44. But this value is a word, and the word is Tis, or Adam. Supply the suffix $i$, or $k$, or 5 (which, as the half of one, or of tcn, can be used either as .5 or 5), or the female quality, making the word hermaphrodite,
 the word carth, alike with Arcts, carth; and, as thus seen, proceeds from its use. Proceed as if the form meant multiplication, and so $144 \times \cdot 5=72$. Taking this as an abstract number, and turning it into an arca form, and $72^{2}=$ $5_{184}$, or the characteristic value of one solar day. But the word used for carth, thus derived, is, as it were, the completed form $H$-Adam- $h$, or Adam, with a prefixed as well as suffixed $ה$, or $h$, or 5. Having $7^{2}$, as $A d a m-h$, then for $H-A d a m-h$ there is $72 \times 5$ or by $\cdot 5$, and this equals 360 , or 36 , or the great measuring, astronomical, and geo-
graphical circle. So, Arets, or $\overline{6+6}=12$, the abstract form, becomes Adam-h, or 144-5, and $h$-Adam- $h, 5-\mathrm{I} 44-5$, another or squared form of itself, with the factor value 5 attached. Now, it is said that Elohim took Adam, or man, as a fractional portion, from $h$-Adam-h, the earth; or, he took him as I44 from 5-I44-5-that is, Adam, man, or I44, is thus derived, and is the square of $\overline{6+6}=\mathbf{1 2}$, or is a square of four squares of $6 \times 6=36$ each; and $36 \times 4=144$, and $144 \times \cdot 5=72$; and 72 is the square root of one solar day value; which 144 is the area value of the British foot in square inches. Here Arcts, carth, Mars, becomes Adam-h, carth, Mars, and also Adam, man, Mars; while the paralleled mathematical use is seen to event. It may be observed that the word 7 ע, ophr, for "dust," is rather broken, or fractional parts, the idea of dust being secondary, as a comminuted condition of parts of the earth.

Take the word $\boldsymbol{\square} \boldsymbol{\square} \boldsymbol{j}$, Gan-Oden, or Garden Eden, and add the letter signs as they run, or $3+5+7+4+5=24$; the numerical value is 24 , and, to show the factor 6 , this becomes $\overline{24 \div 4}=6$, or the 24 indicates four parts, of 6 each. Cross 12 , or a line of 12 , on itself, and there results the sign of the letter $\boldsymbol{\Omega}$, or tau, whose sign value is 4 , and whose symbol is + . Complete the square on each factor of ' 6 , and there results the completed square of $\overline{12 \times 12}=$ 144, composed of four small squares of $\overline{6 \times 6}$, or 36 each. This is the nucleus form of the garden. In this garden, the Lord God-that is, Jehovah Elohim-placed the man, as Adam. As Adam, he zuas 144, and thus he is himsclf the nucleus of the garden. Up to this Biblical phase, the god-name has been Elohim, among whose indications was that of circumference to a diameter of one, or 31415 . Now, the other god-name is brought forward, or $\overline{\text { ' }}$, or $\mathfrak{F}$ chovalh. For one use, this is to indicate a diameter value, either as a straight-line one of a denomination of 20612, as has been shown, or else as follows: The running values of the word are $565^{1}$, as the letters read. It has been seen in Adam-/c how suffix or prefix may be used as the factor

5, or $\cdot 5$. So here the use of ' may be similar. Take the form II3: 355 , where 113 is the diameter value. $113 \times \cdot 5=$ 56.5. The letter values for this are הוה, or Eve, or woman, and, as a word, this is the half of this word , יהוה $=$ I or io. Then $56.5 \times{ }^{10}$, or the full letter form יוהה, equals in $3 \times 5=565$. Thus it is seen that this word is from the value 113 , a diameter value. The use of the two words, Jehovah Elohim, or Lord God, then denotes this character or condition of values of shapes in this Garden of Eden production. In § 35 (3.) is to be found the form(土.) 6561 : $20612:: 1.90985: 6$
(2.) II3 : $355.0001:: \overline{6 \times 6}=36: 113.098+$, where these circular values are made to produce, and involve themselves with the factor 6 .


Take the form of the nucleus of the garden, or four squares of $\overline{6 \times 6}=36$ each; all equal to one square of $12 \times 12=144$. Change 36 from arca into line value, then the cross + becomes extended so that the four arms are each 36 in length, or as to each arm, have now become equal to the third term of (2.), for a diameter value to a circumference of II3.098 (or a circumference value to the king's chamber height number of $1.9085 \times 6$ ). Complete the large square; and now, Adam, or I44, being the nucleus, the garden has enlarged to four squares of $36 \times 36$ each, or 1296 in area each, the numerical value of the square yard British; or, again, each one is now Jared, or 7ר', or Yard, the source of descent (§33, (6.) note). 'The
aggregate of the four squares is $1296 \times 4=5184$; or the Garden of Eden is now become a unit measure of time, based on the value of the solar day, raised from the factor 6 , through the terms of land measure-viz., the inch, the foot, and the yard; and, as to this last, it has been seen that it indicates the other limit of the British measuresviz., that of the acre, and that of the mile value. ( $\$ \$ 58,59$.

This being the framework, and these being the different kinds and qualities of measures involved, proof can now be made that all that has been said has been well taken as the Biblical intent. Our cross line has now become 36 and 36 , together equal to a length of 72 ; but 36 comes under the form $113.098+$ circumference : 36 diameter, which form was derived from another, as foliows:
(3.) $113.098+: 3^{6}:$ : $355.0001: 113$.

There is now to be exhibited the collateral use of the last part of this form-viz., of 355.0001 : 113 .

The Production of the Woman from the Man.
§ 87. Eve was the wife of Adam, and she was taken out of his side. And H'Adam, ה־אדם, the man, said: "She shall be called woman, because she was taken out of man (or aish, or $\boldsymbol{N}$ ); " where, for the man out of whom zooman was taken, the word now becomes changed from Adam to Aish, from אדיש. And this is the basic determinative of the process of construction of the woman; for aish, or $\boldsymbol{\bullet} \boldsymbol{N}$, is, adding the letters 3 II, or reading them as the word runs, and the numerical value is 113 ; which, under this word aish, gives for use the form of $113: 355.0001$, connected, as seen, with the other form of $113.098: 36$; which last form, in the value 36 , eventuated above, from the placing of Adam in the garden. So, from Adam, man, 144, comes aish, man, II3.
(a.) It is observed that this 113 is a straight line, or diameter value, and, as the cross line, which is 36 and 36 , indicates 113.098 for each 36 , we can take the 113.098 for, or as, the equivalent expression of 36 ; and then the variation of $\mathrm{II}_{3}$ for 113.098 ; both belonging to the same form.

$$
\text { Univ Calif - Digitized by Microsoft © }{ }^{(B)}
$$

Then we have for 36 and 36,113 and II3. Now, this is an abstract, or mere length relation. Convert it into an area value, either by raising a square on the line $I_{3} 3$, or else by taking the square root of this value. Take the latter plan, and so-

$$
\text { (土.) } \sqrt{113}=10630+,
$$

as the value of the side of the man, or of the square, thus reduced, far enough for the purposes intended. Divide this resulting square into four others, thus producing the crossed condition of the interior, making the figure similar to the Adam form above; then, each side of this square, of the value of ro630, will be divided into two values, each of which will be-

$$
\text { (2.) } 10630 \div 2=5315 \text {; }
$$

and this is the sought for result that shows that this was the process of obtainment. For, place the Hebrew letters to this result, as-

$$
\text { (3.) } \begin{array}{ccccc}
\text { ה } & \text { ה } & \text { N } \\
5 & 3 & \text { I } & 5
\end{array}
$$

and this word thus framed, in Hebrew, is by translation(4.) The zoman.
(b.) In form, the geometrical figure now conforms with the others made of the garden, thus-

the interior cross lines, showing the division made, the horizontal cross line cutting this rectuced form of man, or $\mathrm{II}_{3}$, in his sidc. The side thus shown is the middle of his height. Now, after having the grand determinative of the basic value 113 given, as that the zeman was to be taken
out of aish, man, or II 3, this determinative is accompanied by a natural one, running with the narrative. II3: 355 is a circular form denoting diameter to circumference. The reduced form of man shows that the zoman value is but a reduction from this original form, and, as shown, it is the half cross line of the square, indicating a radius, or half diameter value. Under the form, this would correlatively indicate a scmi-circumfercncc. Now, the narrative reads that the woman was taken not only out of the side of the man, as shown, but also that she was thus taken as a rib. And this is the determinative, for the rib of a man extonding from the backbone around to mid-front, is a scmicircumfercnce.

The Woman Form of the Garden, the Source of the "Holy of Holics," and of the Four Typical Rivers.
(c.) (I.) Draw a square, crossed interiorly, to exhibit to the eye what has been clone, and on the cross lines, place the numerical values of the results (i. e., the woman or 5315 ), thus-


The woman, or the definite article the, or A , and woman, or $A s h-h$, or $\boldsymbol{H} \boldsymbol{N}$, is produced from man, if3. Separate the definite article, or $\boldsymbol{i}$, or 5, from the remaining figures of the word, into the central square shown, now triangulated with respect to the large one. There results two cross lines of $5+5$ each (or, if the central figure be made to assume the form of a square, on these lines, there results a square of $5+5=$ Io to the side), as to its dimen-
sions. But the number 10 is the perfect one, and a $\mathscr{F}$ chovah value ( $\$ 82$ ), and by Hebrew Kabbalah, the letter T, or number 5, is the womb. "The Rabbins have a saying that God made all things out of the letter iT." (Sod. Genesis, p. 196.) " ה and 'wedded (that is, ה, zvomb, and , mombrum virile), begot the 1 , or letter vau, which stands as the center pillar of the visible." (Dr. Goldammer, as from Sohar [The World].) Thus, also, the number ro, or letter ', as of ro cubits, is the value of the holy of holics in the temple, as to its most sacred precincts, between the cherubims. Here this holy of holies, this io combining in its pictured form both phallus and yoni, is the perfect one cube composed of eight others of the value of 5 , or N , each, the total forming the male-female in one, ro, as here the womb of the Garden of Edcn, or Paradise. Plainly, the woman part of woman is the womb; all the rest is connected with its egress-way to the light: therefore, the four ways marked from the center, are the four grat rivers, as denoted in the narrative. In the narrative, these rivers are designated as flowing from the garden, and are taken as having their rise in its midst.
(2.) But, as one kind of symbolization but leads to another, and as the mathematical and geometrical system is the essential one, these arrangements, while perfectly conforming to one or more other kinds of conditions, should become subservient to the more essential uses; and such is the case. Having dropped the prefixed letters, or numbers, in the center, where they especially belong, make use of those left, in the order found, by placing them in a circle, thus :


And here, by reading the values, one finds the form 113 : 355
ready made to his hand. Compress the values to read tzo and $t w o$, from right to left, and the form of

| 5 | 5 | 3 |
| :--- | :--- | :--- |
| 3 | I | I |

results; where, in addition to the above, we have the great differential value 3 I , connecting the extremes 144 and 5184 of the British measures, as long and time measures, with the forms 113 : 355, and $5153 \times 4=20612: 6561$ (§ 35 (3.) (4.), actually accompanying the forms it thus gives rise to ; for, while the form is 113 to 355 , after reading the differential 3 I , there follows the reading 5153, the Parker area of the circle inscribed in the square of 6561, and the base of the form 20612: 6561. Thus this form of the crossed garden raises those forms of original measure, which are emblematically displayed by a man fastened or nailed to a cross. §21.

## Other Determinatives.

(d.) Besides the determinatives given, there are others, here and there in the narrative, pointing and determining the process of elaboration of the numerical and geometrical forms, as being correctly taken. Some can be given. (I.) When Adam is placed in the garden, preparatory to the woman being taken from his side, it is said: "And the Lord God caused a deep sleep to fall upon $H^{\prime} A d a m$, and he slcpt." The verbal and he slcpt is the determinative of the process. The word is $\ddot{U}^{\circ} \cdot \boldsymbol{\prime}$, , v'yishan, and, supplying the values, they run 6ir35. Supply a cipher for the 10 in 9 , and we have 6oII35, which, bent into the circular form, runs, or reads, IO6I35, where 106 is the running determinative of the $\sqrt{ }$ of $\mathrm{II}_{3}$, the first three figures of which are 106, and the remaining figures, or 135 , are the result to be derived, or woman, or $\boldsymbol{\cup M N ゙}=135$. (2.) At the close of the process there is the following statement: "And he brought her unto the Adam." This is a double determinative, connecting the woman, who has been taken from aish, man, with the other, form of man-viz., Adam. The Hebrew words are האלהאדם, Ha El Ha Adam, and
the running values are $5 \mathrm{I} 35-\mathrm{I} 44$, or the zooman with Adam, the other form of man. (3.) Besides otherthings, there is reference to a small square in the center, on the crossed lines, giving rise to further reference values. The smallest squared division of the square of 144 is the small square of $3 \times 3=9$. Four of these on the crossed lines in the center of the Adam square give a unit square of $\overline{6 \times 6}=36$, as a total. There are then 4 squares of the square of 3 , where the factors 3 and 4 are designated, or, together, the equivalent of the golden candlestick arrangement of $3+4=7$. But each small square is of $\overline{3 \times 3}=9$. Then the numbers 7 and 9 are used, or can be used, in relation to this smaller square. It is observable that this small square is the one, then, at the center of the Adam square, or at the cleft or division lines of the garden. The Hebrew values for 7 and 9 are characteristic of the letters $\boldsymbol{y}$ and $\ddot{\zeta}$. Put them together, and there results $\$ \Sigma$, or ots, or the word for the tree in the garden. But, as by the division, it is two trees twisted or bound in one, then $7 \times 9=63$, which, read in the reverse, is 36 , or the value in area of this small square, or the unit factors $\overline{6 \times 6}=36$; and this, reading in the reverse, is rulable by Kabbala.
(c.) In the forms (土.) $113: 355$ and (2.) $36: 113.098$, while the first, or (I.), is used as the abstract form, there is an indication that, under the form of $a i s h, \ddot{\bullet} \times \mathbf{N}=113$, the circumference value of 1 I 3.098 is implied ; also, the 113 in ( I .), as seen, is a diameter value. The indication of the second use is thought to be in the word anashim, אנשיט, $m e n$, plural of $\ddot{\bullet \prime \prime}$, man ; for, bend this into a circle, and we find a reading of the continuous numbers 31415 , or of circumference to a diameter of one.

## The Garden of Eden as the Seventh Day.

§ 88. It will be shown how 355 , as the circle of I 3 , was used for the purpose of correlating natural periods of time with this abstract circular value. It has been seen how this form, with that of Mr. Parker, is connected with square
measure in the use of the factor 6 . It has just been shown how the Garden of Eden assumes the function of assimilating both methods. Now, with the 6 days closed the square measure form, and with the $7^{\text {th }}$, came its application to the circular relation. This $7^{\text {th }}$ day was the day set apart as the woman or circular day. Just as it has been seen that the holy of holies and the sacred io are designated sexually as connected with the substance of the garden, as being the womb, or productive element, so the 7 th day, in its turn, is but a correlated form of this same garden, in the form of a circular day. The sameness is observable in one respect, for it is seen that the numerical value of the largest extension of the garden is the value of four square yards, or $1296 \times 4=5184$, or the characteristic value of one solar day. Then the 7th day is the Garden of Eden, and is allied in holiness with the holy of holies and the perfect value 10. Of this day it is said that Elohim (3I415) blcssed and sanctificd it. Just as the word zacr, or sacr, the special word for monbrum virilc, is translated by the generalized term malc, just so the word sanctificd is, by translation, wrested from its proper specialized meaning, as having relation to this day. The sacr was that with which the Lord should be momorialized. The custom was to make memorial before the Lord with the sacr. The word being retained, but losing its primitive use and force, became the Latin sacr-factum, then sacrifacio, then the English sacrificc; and is at the foundation of the word sacrament. The signification is obvious: Just as the sace denoted the means of germination of a ncw cxistence, so its use, as related to man's connection with another realm of life, shadowed forth, in whatever other use was being made, as of bread and wine, that in these means resided the g. grom of that existence, and that, like the sacr, these (bread and wine) were the vehicles of its planting. The word sanctificd is kodcsh, for holy purposes, at the temples-esteemed to be a pure and sacred use. Kodcsh, קדּ , to be ficsh, ncw, purc, shining, is the same with hodesh, or chodesh, $\boldsymbol{\sim}$, to be fresh,
pure, new, young; which last word, as substantive, has the meaning of the time of the new moon, which period of time in nature regulated or marked the recurrence of the menstrual flow, as $7 \times 4=28$ days. The character of the meaning exactly fits to the meaning of the word as applied to the 7 th day. Here it has reference to the quality of the 7 th day. The word blessed is the verbal b'arak, or ברך, and giving its values is 222 . While this is the same value with ברב, cherub, which is taken to signify the cubit half base side of the pyramid structure [ $\$ 84$ (b.)], and which measure is specified in the narrative description of this garden, it is thought here to have reference to a like relation to the number 7 , as this 7 th day, for $2.22+$ is the diameter to the number 7 taken as a circumfercnec. Now, it has been seen that the idea of the garden was that it should be a source of birth of time, and of distance measures, under a womb usc. It was a part of the cosmogony, that all things arose from a common unit source, to which, by links, they could be made to refer co-ordinately. Having thus symbolized the use, how was it to be made good? Here, again, comes corroboration of the system ; for it was only through the woman that the proper relation could be arrived at and shown. As the factor 6 lay at the foundation of other kinds of measure, so did the number 7 for this especial use: for $7 \times 4=28$ days, a menstrual period; $28 \times 10=280$ days, a period of gestation, and $28 \times 13=$ 364 days, a luni-solar, or week, year, as $52 \times 7=364$. And this was the numerical factor, which, as applying to human birth, would practically co-ordinate human birth with the other system of measures set forth in this garden. Such being the use of the 7 th day-viz., harmonizing it to show forth this especial use-there is very much to confirm what has been said regarding this use. In the second volume of Sharpe's history of Egypt, page 202, he says:
"The Elensinian mysteries, within the temple of Ceres (bread) and Proserpine (gate of Scorpio, autumn, and wine), in the southeast quarter of Alexandria, which had been brought into the city in the reign of Philadelphus, had now lost their sacredness, and
very much of their secrecy. The priestesses had, for four centuries, walked in procession through the streets, carrying a sacred basket; and, latterly, it had become known that this basket held a lize serpent, supposed to be the author of $\sin$ and death."

IIe quotes from Euscbius pracp. Evang., Lib. III. I2. He also copies from a coin in the Pembroke collection, which represents a basket with raised lid and a serpent issuing forth. The basket is surrounded by a wreath of flowers and fruit, but the flowers are of a kind that bloom but once a month, and the fruit is the basket or scrotum representation.
"The mystic basket" of the mysteries contained, among other things, "the figure of a serpent." (De Sacy, 3IS, 3I9.) "Also, in the most ancient mysteries of the Greeks, they shouted Eva! and at the same time a scrpent was shown. (Orelli, Sanchon, pp. 14, 45.) "The Bacchi celebrate the mysteries crowned with the serpents, shouting aloud Eva!" "The name Hevia (Evia) roughened, is interpreted the femalc serpent"-that is, chouza,
 (Quoted from Sod. pp. 105, io6.) "The cry made by the females in their lamentations in these mysteries was 'Eva!'" (Landmarks Freenıasonry, Vol. II., p. $4^{\text {So, note.) }}$

The letter $\dot{\sim}$ is the symbol, at the same time, of a serpent and a basket. It is $\overline{3 \times 3}=9$, and is at the center of the garden. The name of David was baskct, "prop. a thing woven, for figs." A very slight change from this word DUD, or DUDI, is the same in meaning as baskct, but in the plural is "love-applcs," etc. (Song of Solomon, vii. I4.) Thus the scrotum is signified with the male-female combination, which was sin, and by a figure was birth under a form of dcath; just as it is a fact that the, to some lugubrious, symbol of scull and crossed bones, as signifying dcath, to bthers is the most precious emblem of life. See also Dr. Inman's pictured descriptions of the asheras or groves. A vertical narrow door, closed with thongs, surmounted by a radiating fan-shaped ornament of 7 rays, surrounded by bunches of flowers, the number of the bunches being $6+7=13$. This is a symbol of the Garden of

Eden. The Hindu representation of the garden is still plainer.

Notc.-The mystery of the cross deepens, rather than clears, as uses of it are found here in the substance of this garden, and also primordially. The Hebrews have handed down by targums, readings which have been obscured by translation. Joshua viii. 29, they read in the Arabic, and in the targum of Fonathan, "The Fing of Ai he crucificd upon a tree." The Septuaginta rendering is of suspension from a double zwood or cross. (Wordsworth on Joshua.) The word is תתל־ה, Tülah, and may derive the cross idea from the $\Omega$, or + . The strangest expression of this kind is in Numbers xxv. 4, where, by Onkelos (?), it is read, "Crucify them before the Lord (T̛ehovah) against the sun." The word here is עP', to nail to, rendered properly (Fuerst) by the Vulgate, to crucify. The very construction of this sentence is mystic. The symbolization of the connection of $113: 355$, with $20612: 6561$, by a crucificd man, is unmistakable, and here it is found as essential in the structure of the Garden of Paradise. The theoretical use of crucifixion, then, must have been somehow connected with the personification of this symbol. But how? And as showing what? The symbol was of the origin of measures, shadowing forth creative law or design. What, practically, as regards humanity, could actual crucifixion betoken? Yet that it was held as the efligy of some mysterious working of the same system, is shown from the very fact of the use. There seems to be deep below deep as to the mysterious workings of these number values. Not only are they shown to work in the cosmos, but also they are made use of by Daniel, the prophet, as the guide to his prophetic utterance. By sympathy, they seem to work out conditions relating to an unseen and spiritual world, and the prophets seem to have held knowledge of the connecting links. Reflection becomes more involved when it is considered that the power of expression of the law, cxactly, by numbers clearly defining a system, was not the accidcut of the
language, but was its very cssence, and of its primary organic construction; therefore, neither the language, nor the mathematical system attaching to it, could be of man's invention, unless both were founded upon a prior langzuage, which afterward became obsolctc. For instance, the word aish, $\mathfrak{U \prime} \mathbf{N}$, man, is probably the primordial word-the very first word possessed by the Hebrews, whoever they were, to carry the idea, by sound, of a man. The csscntial of this word was $1{ }^{3} 3$ from the beginning, and carried with it the elements of the cosmical system displayed. Whence then the language, and its power as the vehicle of a natural cosmical system, unless from an unsccn spiritual source? And if this is so, all that pertains to the showing forth the conditions of the working of this law, as by these symbols, and their real personification, would seem to have determination in the same spiritual realm.

## APPENDIX II.

Time Calculations foundcd on Abram, Mclchizedck, Hebron, Joshua the Son of Nun, and Caleb the Son of $\mathfrak{F}$ ephunneh, as Connected with the Narratives relating to these Personages.
§ 89. Thus there has been unveiled, in the opening of Genesis, the Parker and Metius forms, used in and about the construction of the pyramid, with also the blending of circular with square measure, by means of the factor 6 . So there has been shown a numerical use involving, cxactly, the scales of positive land measuring as contained in the British measures, founded on the square inch; which, in the pyramid, is shown to be the practical unit of measure raised on the source of the cubit valuc, in the number 20612, a circular value, which, cubed and unfolded, presents the symbol of the cross. Undoubtedly the work of construction in the Bible is, in scquence, the process of calculation of time and distance running co-ordinately together with geometrical construction, until the perfect pyramid is to be found at the period described as that of the flood, as will be shown. But, because of inability to trace clearly this building process, with its detailed applications, another method must be resorted to-viz., that of closing back to these conclusions, by setting forth salient positive exhibitions of uses of this system, which can be found in the text. The exact method resting on the Parker and Metius forms are the furtherest off, and the most carefully obscured. On these, however, collaterally, were raised calendar systems, exact enough, and for general use, subject to correction, at long intervals, by means of the deeper and more obscured knowledge of cosmic construction. The showings of both methods run parallel with each other ; and the commoner or calendar methods involve such
uses of the other system, that their presentation will help to lead one to the recognition of the elaboration of the profounder method. One of the phases of calendar calculation is so marked and prominent, so wide in its limits, embracing such an extent of the Scripture narratives, that it is well and instructive to give it.

Mr. John Bentley, in his Hindu Astronomy, sets forth the war in heaven, as given by the Hindus, as but a figure of the calculations of time periods; and goes on to show, that among the western nations, this same war, with the like results, took the form of the war of the Titans. This was the same (Sir William Drummond) with the war of the kings, in 14th Genesis. All the results are but identical with time calculations of the pyramid, or Parker numbers. The key of the position is in the names, among which the most prominent are those of Abram and of the royal Mclchizcdcc. The uses of the numbers involved in these names, to produce time periods, bring in the Gnostic value of Christ in the New Testament, and consequently, serve to show the prevalence of this kind of knowledge, down to the times of the Christian era. Mr. C. W. King, in "The Gnostics and their Remains," page 13, says: "The relations of the Sephiroth, or Æons (Ages), to one another the Kabbalists represent by a number of circles intersecting in a mysterious manner, ad infinitum, or else by the figure of a man, or a trec, formed out of such circles. This figure of the man, Seir Anpin, consists of 243 numbers, the numerical value of the letters in the name Abram signifying the different orders in the celestial hierarchy. The original idea was apparently taken from the Hindu figure of Brahma, and the various castes typified by the several parts of his body; in fact, the names Abram and Brahma are equivalent in numerical value." From the writings of Godfrey Higgins, quoting from St. Barnabas, it is to be seen that the value of 318 was a great value of Christ, as was also the number 608. This is to be found, also, in " Edipus Judaicus," by Sir William Drummond; and also, as to 608, in the work of Professor Gustav Seyf-
farth on "Chronology;" and also in the hymn of Martianus Capella. The 318 is the same with the 318 trained or instructed servants of Abraham, in I4 Genesis; or, as by another version, the 318 circumaizcd men of his household. It is to be found in the same place, obscured in the name of Eliezer of Damascus, or the 318 of the Pit-a foil against the promise of offspring that should be the 318 of the vernal ascendency. The value 318 has reference to the base of astronomical calculation, used, as shown, so much in the pyramid numbers, as a diameter value to a circumference of unity; 6 times the amount of which, or $\overline{318+\times 6}$, gives the height of the king's chamber, which height involves the square root of the solar year, and the measure of that year upon the celestial measuring circle of $360^{\circ}$, as shown.
(a.) Now the value of the name of Abram, as given in the Hebrew, is 243 , and 243 is the one-half of 486 , the height of the great pyramid, in its standard measure, as shown in the text. This was a sun measure. But a change was made in the name of Abram to Abraham; by which, numerically, 5 was added to 243 , so-

| Abram | $=$ | 243 |
| :--- | :--- | :--- |
| Abraham | $=$ | 248 |

(b.) One Gnostic value of Christ being 318, another was 608; and this last involves the personage Melchizedec, to whom St. Paul likens Christ, saying of him that he was a priest forever, without beginning or ending of days, after (or in likeness of) the order (or number) of Melchizedecthat is, he was an Aeon, or oulaum, or [see § 84 (c.) (r.)] porchway of the temple, or the continually recurring flux and rebirth of time without end. The Hebrew word for Melchizedec is a compound word, composed of 'صלכ, "melchi," my king, and צ's, "tsedck," in the construct, meaning the quality of exact probity, rightcousncss, or the equivalent exactitude, rightness. (He was as Cain, or Vulcan, Patcr Sadic the Fust One, holding the balance of the year, and the distributor of its fruits of bread and zuine.) The word comes from a verbal, and has another
co-ordinative derivative ציצ ציק, tsadik, having the precise same meaning, with one remarkable difference noted in the dictionary as "spcc. miscricors"-that is, the specialty of mercy, or pity, or forgivencss. Christ was especially represented as having all the attributes of an exacting God, under the law (so Paul), softened by these very qualities.
(I.) Now, the word Mclchizedck, or $=40+$ $30+20+10=100,+90+4+100=294$, while the cor-
 $+20+10=100,+90+4+10+100=304$. As seen here, the word Melchizedek can be changed to Melchizadik, by which change mercy, and pity, and forgivencss are worked as additional qualities on the first word, by the addition of the value of to the perfect one. As a fact, the narrative determines this very change, for Abram is represented as paying tithe, or the tcnth, to Melchizedek, or io to the number 294, thus making it 304. (Now, Abraham is represented as pursuing with his 318 , to Dan. But Dan, as will be shown, is astronomically in Scorpio, the zodiac sign, the gateway to the descendant, the place of the crucifixion of the year; the place where D-Lilah received Samson (the sun) into her, so represented, dark and treacherous embrace; the place called shiac, $\boldsymbol{\Pi} \cdot \boldsymbol{6}$, or the pit, a word from that verbal, the hifil participle of which is M'siach, מששיח, as he who causes to go down into the pit, as here, astronomically, for the salvation of the world.)
(2.) Abram, then, is 243 , the half of the sun measure 486; and Melchizadik (the tithe, or 10, being paid) is 304, the half of 608 , or the other Gnostic value of Christ, or M'siach. Give the other value as of Abraham, or 248, and make use of the values found.

$$
\begin{array}{rll}
\text { (a.) } \begin{array}{ll}
\text { Abram } & = \\
\text { Abraham } & = \\
243
\end{array} 4^{8}
\end{array}
$$

Make use of these with $\overline{304 \times 2}=608$, the Christ value.

$$
\text { (b.) } 608-243=365 \text {; }
$$

or the solar year value,

$$
608-248=360
$$

--the value of the celestial circle of three hundred and sixty degrees, or that on which the year is measurable.
(c.) Cassini, in the last century (according to Godfrey Higgins), discovered the great cycle of 600 years as belonging to the Hebrews, as well as to Hindus and Siamese, and shows that Eusebius' (who, with Constantine, secularly founded the Christian Church) chronology agrees with its use. It is the great divine avatar, or incarnation period. The greatness of its value consists in the fact that it serves to measure the time of conjunction of the sun and moon in the heavens, in the same place, by recurrence; whereby, by astrology, a new birth should ensue. Cassini said of this, that it was one of the finest astronomical periods known, and worthy of all praise. It is one that remains perfect from cycle to cycle, by the intercalation of $\mathrm{I} \cdot+$ days in 600 years.
(I.) Here, again, the pyramid values come into play, for $190.9853+$, the numerical value of the $\frac{1}{4}$ base side of the pyramid, or 10 times the height of the king's chamber, or 31.8, the Christ value, $\times 6$, is the diameter to this very value as a circumference. So, also, as a straight line value, it is represented for circumference by $1130.98 \div 6$.
(d.) Now, Godfrey Higgins finds 608, also a cycle index, connected under the system with that of the 600, and attributes the difference to difference of value of precession of the equinoxes discovered. But in this he seems to lack strength of proof. Cassini, as has been said, showed the value of the 600 , as co-ordinating lunar with solar cycles. If you wish to measure solar time as of days in the year, for 600 years, on the great circle of $360^{\circ}$, the formula will run-

$$
\text { (土.) } 365 \frac{1}{4} \times 600=360 \times 608+\text {; }
$$

whereby the 608, or Christ, or Mclchizadik, value becomes a measure of transfer, or of equivalence of solar time into the division of the zodiac into degrees. Hence, both these personages, under the number form, were means of meas-
ure of transfer of solar time in days into degrees of the time circle．
（c．）Here，however，it will be said，or objected，that a foreign value has been introduced to bring about this re－ sult，viz．，$\frac{I}{4}$ of a day has been added to the 365 obtained by the use of Abram and Melchizadik－that is，that the year is now used as corrected in the calendars，viz．，by the intercalation of 1 day in 4 years ；or，by another showing， to $365 \times 4=1460$ days，one day has been added，making the period that of the bisscxtilc，or lcap ycar，or a full period of 146 I days．This is true ；and，true to the need， this very correction is provided for，and most prominently marked，in the place of residence of Abram，which was Ilcbron，formerly called Kirjath－Arba－which latter name means the city of 4 ．

Hor Apollo says：＂They（the Egyptians）further rep－ resent it（the year），by a quarter of an acre，＂or aroura； and，＂The acre，divided into four，denotes the bisscxitile period of four ycars＂（Volney＇s Ruins，page I34）．It is thought that this is also noticed by Professor Seyffarth．So， the city of 4 ，or Hcbron，or Kirjath－Arba，the place of Abram＇s residence，would serve to denote the measure of the bissextile year，and was thus the proper place of resi－ dence of Abram，the sun measure．When the three men （angels）came to see Abram，he was seated in the opening of his tent，representation of the pyramid，the time being spoken of as midday．Here was the sun directly over the apex of the pyramid，of which the height was indicated by 243．The contrast of this kind of measure is in Lot， Abram＇s brother，being seated in the gates of darkness，or Sodom，or woman＇s lust，at evening．（There is a very curious affinity between the words for Hcbrcw，for Hcbron， or rather Chcbron，and for Hcbron．The word for Hebrew is רコリ，which，as ober，means to pass over；but，also，a mion，a joining logether－and this word equals $H c b c r$ ，or Chcber，דコ，whence Hcbron or Chebron，the residence
of Abram: but this is in affinity with Hcber, הבר, "to divide in picces; hence, figuratively, to divide off, to determinc the hcavens, after the manner of astrologers." Hence the glyph of Hebron, as a united yet parceled-off heaven, appears in the run of the word.)
(f.) But the above statement does not rest for its support upon its intrinsic strength, or upon its curious fittings in the connections made. It is fully confirmed. Of the children of Israel who left Egypt, only two were permitted to enter the promised land. One was Foshua, the son of Nun, or of the fish, and the other was Caleb, the son of Fcpinnneh, or the dog the son of the fcmale dog. Both were astronomical types. (Nork, in Wörterbuch, says that Joshua . . . is the biblical Æsculapius sotcr, inasmuch as 长sculapius had the dog for a companion, even as Joshua had Caleb (the dog) ; also Hermes Kunocephalus, the fire $\operatorname{dog}$ in the summer solstice, in the month of the lion, when Sirius rises heliacally with the sun, and dogs are offered to Æsculapius; for Caleb's father is the solsticc, or turning-man (פען, Strophios, Vergilius), and to the dogheaded Anubis the predicate Strophaios (hinge) belonged.) Joshua was a type of the sun, and Caleb was a type of the great cycle of the sun, which cycle, as the Sothic period among the Egyptians, was marked by the rising of Sirius, the dog-star, in Egypt, heliacally with the sun. (Joshua, as fish, was also a Jehovah numerical form, for Nun, fish, is $=565=$ also, $113 \times 5$.) The Sothic period was that of the vague year of 365 days, corrected to the true solar value. Falling back $\frac{1}{4}$ of a day each year, in $146 x$ years the correction would take place, by dropping a vague year from the count ; it being simply an enlargement of the bissextile correction of 1460 and 1461 days in the period of four vague years. So, Caleb was the dog, sure enough; but he was the dog-star, to determine a point for bissextile correction, or for correction of the Sothic period or
cycle. When he entered the promised land, where, in it, was his possession assigned to him? Why, of all places, he was assigned just that one that proves all that has been said-viz., Mcbron, or Kirjath-Arba, the city of 4 , the residence of Abram the sun measure, significant of the bissextile correction in days of 146I for 1460, and of the Sothic cycle correction of 1461 for 1460 years: "which place," the record goes on to state, "before that time, was KirjathArba, which man was great among the Anakims." That is, the city of 4 , which (man, or II3 circumference to 36 , or 4 squares of $\overline{6 \times 6}$ each, for the city of 4 ), was great among the cabiri, or strong oncs (Gibborim), or planets, or cycles, for the correction of their recurring periods.

A hint is observable in the Bible as to indications of time cycles. "Enoch," connected with the year circle, "walkcd with God, and he (was) not: for God took him." Noah was " perfect in his generations; Noah walked with God." Noah was pre-eminently a period marker. "Hcbron, therefore, became the inheritance of Calcb, the son of Jephunneh, the Kenezite, unto this day; because that he wholly follozecd the Lord God of Israel ;" and Calcb was the detcrminator, by correction, of the leap year and the Sothic period. Of Melchizedek (Pater-Sadic), Hebrew learning has handed down that he was without beginning or cnding of days. True, but he was a means also of determining both by correction, holding the balance of the ecliptic. (As to the value of Melchizedek of 294, this is $49 \times 6$; and as to the number 49 , or $7^{2}$, attention is called to "Proposition 2, Theorem," and to "Proposition 3, Theorem," of a "Quadrature of the Circle," and "The Square Root of Two," by W. A. Myers, of Louisville, Ky. (Wilstach, Baldwin \& Co., Cincinnati.) It may be that Mr. Myers has reproduced an ancient method for the calculations of circular elements as sines, cosines, etc. His Proposition 3 is as follows:
"(1.) If a circle be described with the square root of two for a radius, and the one-fifticth of the square described on the radius be deducted therefrom, the square root of the remaining forly-nine fifticths can be extracted exactly. (2.) The square root of the
$\frac{1}{50}$ so deducted will be the sine of the given arc. (3.) The square root of the remaining $\frac{49}{50}$ will be the cosine of the given arc."

In many respects, his work is well worth attention.)
§ 90 . Commentators are struck with the marked simi larity of the histories of the lives of Abram and Isaac. They seem to be phases of some one underlying subjectmatter. Suppose this to be so, and that this subject-matter is astronomical, or numerically connected with astronomy ; then it is observable that the age of Abram, or 175 years, added to the age of Isaac, or 180 years, amounts to just 355 , the Hebrew word for ycar, or shanah, or $\boldsymbol{W}$; and also the circumference of a diameter of $1 \pm 3$, together the Garden of Eden measures. So Abram and Isaac, together, are but one circumference, and that a year circle, for astronomical determinations.

Take, therefore, the calendar keys here presented in the showing of the bissextile and Sothic cycle correction. As a whole there is 355 the combined value of Abram and Isaac, the abstract circumference value of which 113 is the diameter. II3 is man, and from him in the Garden is worked out the connected Parker form of 6561 : 20612, with other uses. While II3 is man, however, 355 is the. Hebrew word shanah, or year; and here, in Abram-Isaac, the man, 355, as the year, eventuates. But with Abram as part of this year value, the natural year of 365 days is worked out, and also its measure circle, 360 degrees. But 360 was also with the ancients a year day value. So there is elaborated in this use three year day values-

$$
\text { (土.) } 355 \quad 360 \quad 365 \text {; }
$$

where, by the order, and very relation shown, the reason of the form, as applied to time measure, is shown; for it is a comparison of an abstract circumfercnce value, 355, with the natural year volue, 365 , and is also connected with it by use of another year value, 360 , which is also a celestial and geographical measure. The beauty of the form consists in this, that 360 is the mean between the abstract and natural ycar circle value.

It is seen that while ordinary calendar systems can be formed on this form, so, also, it links, in 355, with the forms for exact cosmical determinations.

Now, with the ancients the picture of a year was of a serpent swallowing the end of his tail (or one or more units of its length). Take the woman form of time production. It is-
(2.) $7 \times 4=28$, and $28 \times 13=364$,
and this is the luni-solar year day value. This is seen to be one day less than 365 , the vague year day value. A serpent of 365 , then, swallowing I unit of its length would symbolize the expression $365-1$, or, in Hebrew, אֲנוּש, or Enosh son of Scth, the son of man (Daniel), or the combination of the two kinds. By sympathy, 355 would take the same form as $365-\mathrm{I}$ : so the numerical formulation for the different year values, combined into a system, connecting itself with land measures, and pyramid, and Garden of Eden, and temple, and tabernacle, construction, would be-
(3.) \(\left.\begin{array}{c}355 <br>
I <br>

354\end{array}\right\}\)| 360 |
| :---: |
| I |
| 359 |\(\left\{\begin{array}{c}365 <br>

\mathrm{I} <br>
364\end{array}\right.\)

In truth and in fact, while 355 , or shanah, is the Hebrew word value for ycar, the true Hebrew and ancient ycar value of this kind was-

$$
\text { (4.) } 355-I=354 \text { days. }
$$

And here its origin is laid bare. So, also, the working of the woman sexual form of the garden is seen to harmonize with every other, or connect with every other. In truth, in calendar calculations, the woman sexual use, under the number 7 , seems to have been a fundamental one. It is true, too, that while the Garden of Eden involves 355 through II3, so it has aiso reference to this very value 354 as a circumference instead of 355 , or as well as $355 \cdot$ Take the form $113: 355$, multiply by 5 , and there results 565 and $\mathbf{1 7 7 5}$. But take $355-\mathrm{I}=354$ and multiply by 5 , and there results $177-0$. Now, by adding the full values of the letters in the words Garden Oden, or
there results $3+50=53,+70+4+50=177$; which is significant of this change, for $177 \div 5=35 \cdot 4$. Strange it is that bend this into the form of a circle, and 354 may be read 345 , which is the name Moses, מעשׁ , or 345. But this name seems rather to have reference to the radius value of circular elements (3.), § 82, having reference to the interior works, of calculation of astronomical admeasurements, in the great pyramid.

Uses of and developments of this form (3.) will be shown hereafter, with confirmations as to its ancient recognitions.

## APPENDIX III.

The Word, or Logos, conncting with Yokn, or Yonah, or Dove, with $\mathcal{F}$-hovah, and with $\mathfrak{F c s}$-us, through the Fish.
§ 91. (a.) Attention is desired to the formula of(I.) $206 . \frac{\mathrm{I} 2}{}$ feet, $\times \frac{4}{3}=274.8266$, as arising from the original Parker formulation of -

$$
\text { (2.) } \quad 20612 \times \frac{4}{3}=27482.66+\text {, }
$$

in $\S 78$ (c.) (3.), valuable as giving the standard height from the base of the pyramid of $137.4 \mathrm{I} 32+$ feet, + the standard height of the king's chamber region of 68.7068 feet, equal to 206. ${ }^{\mathrm{I} 2}$ feet; or 80 cubits +40 cubits $=120$ cubits : and also developing the same measure in $\S 78$ (c.) (2.), in $274.826-206.12=68.706+$ feet, or the king's chamber region.

The use is the origin of measure 20612, where it is worked into a foot and cubit value of, respectively, $206^{12}$ feet and 120 cubits, to obtain a form of measure for regulating the interior works of the great pyramid, having reference to the comparison of lunar with solar time, and the correlation of distance measure-all cosmical, or of divine adjustment. It is seen that the form retains, numerically, the origin of masure, in the abstract number 20612, then uses it as 20612 inches (seen in $\S 78$ ), then as $206-{ }^{12}$ feet, which is 120 cubits. In I2O cubits there is the number 12 , or $6+6$, the means of application of the Parker forms to carth measures; which, as composed of 6 , is indicative of the change worked on the standard measures to obtain actual, or real pyramid measures : for 6 is circum-
ference to the well-known number $1.90985+$. This condition, then, of the number form, as of 206 . ${ }^{12}$ feet, or 120 cubits, is a great controlling one, as at the base of cosmic and earth measures, in construction. In this form of 206. $\frac{\text { I2 }}{}$ it carries the decimal $\frac{12}{100}$ as implied; that is, to express the value 120 cubits, one would say, "It is 206 feet," meaning, or intending to mean, the exact value of 206 feet and $\frac{12}{100}$ of a foot. This numeral 206, thus used, gives the interpretation of the great word Logos, or The Word, used so mysteriously in the Scripture. This is from and but another form of the Hebrew word 7 , dābvar, or word. Kabbalistically it was, that by the Word, or dabvar, God created all things. The value of dābvar lays in the numerals, or values of its letters, which, added, are 206,
having reference to the perfect circumference 206I2, under the form of that part of the expression-viz., 206, used as a whole number, in feet, for the expression of 120 cubits.

The New Testament being, after all, but an unfolding of the mysteries of the Old, under another dress, is the best illustrator we have of the mysteries outside of the ancient books; the Hebrew Kabbala being of less use, because of the care used to conceal its teachings. Therefore, the New Testament can be resorted to, to exemplify and teach the hidden wisdom of the Old. What is stated as to this value (which also implies the Jehovah value of a one of the denomination of 206I2) is exemplified in the opening passage of the Gospel, "according to (or agrceing with) Fohn;" premising that the Greeks translated Elohim by Theos, and Fchovah by Kurios, as the English do, respectively, by God and Lord. This opening sentence is a type of the opening sentence of the first verse in Genesis. John says:
"In the beginning was the Word, and the Word was with God, and the word was God."

It has been seen that the word Elohim stands for the re-
lation of $3 \mathrm{I}_{4} 5$, or circumference value to 1 , or diameter of unity. Now, the Word, or Dübvar, its Hebrew prototype, is the expression of a whole number of 120 cubits, under the value of 206 feet and $\frac{12}{100}$ of a foot. It thus carries with it the numerical value
20612,
or the value of a perfect circumference, raised to just that value, on which such sublime results as have been traced could be produced.

John, then, was simply setting forth the law of creation, in the terms of 314 I 5 , or circumference to a diameter of unity, raised to this very form or value. The Word, then, as 20612, was but a play upon Elohim, or God, as 31415 .

## Fohn the same with Fonak.

(b.) The use of the name "Fohn," as this opening sentence is "according to $\mathfrak{F} o h n$," is perfectly appropriate to the expression; for John, in Hebrew, is lונ", or Fonah. The value of the name, adding the letter values, is

$$
7 \mathrm{I} \text {; }
$$

or the $\frac{\mathrm{I}}{5}$ of 355 , the circumference of 113 (which raised, as stated, is a Jehovah value). So that, while the Word implies the relation 20612: 6561, Fohn shadows forth that of II3: 355 .

## The Word "Bcginning."

(c.) The word "bcginning" is also appropriate in the connection, and is here as the first word in Genesis. It is used for the equivalent Hebrew word שִּ hcad, or substance, or beginning. The value of the word, in Hebrew, is 213 , and is equal to $355 \times 6=213-0$ : so that $\mathfrak{F}$ ohn, or $7 \mathrm{I} \times 5=355$, and this $\times 6=213-0$, or $b \epsilon$ ginning, or head.

Fohn and Fonat as Dove.
(d.) This word fokn, in Hebrew fonah, is also the Hebrew word for

Dove,
which last word, as used in the description of the flood, symbolized the use of this very circumference value of 355 , because, it will be seen, on the reading of the narrative, that the word is used in the connection just 5 times, or in all $7 \mathrm{I} \times 5=355$. For this reason, with others, it became one of the greatest symbols among all the ancients.

The Fish, as connected with the Dove, or Fohn, or Fonah.
(c.) By a most curious, but exquisite use, this word Dove, thus indicating a circumfcrence value, was made convertible into a diameter value, through the intermediation of

## The Fish;

of which Joshua was the son. The relation of this word fish to the divinities is also not only to be found among the records of the heathen, but at the base of the Christian Books. One derivation of its value is from a mathematical postulate, that any two quantities which, relatively, are equal to a third, are equal to each other. The Hebrew for fish is ${ }^{\dagger} \boldsymbol{1}$, mun (the ecclesiastical English word nun, a female devotee), and giving the values of the letters as they run, the power of the word is

$$
565
$$

## נון.

But the word for woman, or Eve, or the feminine part of J-hovah, is הוה, and, giving the values of the letters in the same way, the word and value is

$$
565
$$

הוה.
Thus it is seen that $n u n, f i s h$, becomes equal to, and thus is the same with Eve, the woman, or hovah, or הוה, the feminine part of J-hovah, as a diameter value, because $113 \times 5=565$ (which, by change of enlargement, as seen, becomes circumference to a diameter of 36 ). Now, place the numerals over the letters of the word $\mathfrak{F o h n}$, or $\mathfrak{F o n a h}$, or Dove, as

$$
\begin{aligned}
& 556^{1} \\
& \text { יונה, }
\end{aligned}
$$

and it is seen that all the values of J-hovah, as $565^{1}$, are used, but the arrangement is changed in the last part of the word as to the order of the number hovah, or 565 , leaving the ', or I , or 10 , which is the $\mathcal{F}$, or $\mathfrak{F a h}$, of $\mathfrak{F}$-hovah, standing isolated. If, therefore, the fish swallows the word, and casts it up from its belly, it symbolizes a birth of the subject-matter in the fish or mun form, or 556 becomes 565 ;
or the dove as $7 \mathrm{I} \times 5=355$, a circumference value, is, by use of the fish as a womb, or flux, made to assume the value of a diameter to this very circumference, for

$$
113 \times 5=565 .
$$

To 565 as the re-arrangement of the 556 of the fish form, or birth, add the head of the word-viz., the $\mathcal{F}$, or $\mathfrak{F}$ ah, or male part, which has suffered no change-and now
Jonah, or John, or Dove, as 556-r,
becomes J-hovah, as 565-1.
So much for the fish or mun use. (When John, or Jonah, or Dove, Baptist, was beheaded, his head, or ', or jod, was delivered, or added to, the woman, or hovah, whereby, by typical change, she became, gnostically, J-hovah; but his body, or 556 , or his equivalent hovalh part, was buried in mothor earth, or went into the gate of Scorpio, or the womb, or the fish's mouth, which of itself was hovah symbolically carrying the phallus concealed. It was but a play upon these types. Astronomically, also, while J-hovah stood as the emblem of the complete circle of the sun's circuit, or the year, the $\mathcal{F}$, or ${ }^{\prime}$, represented the pozecr of the sun above the equinoxes, while the hovah, or female part, represented all below, as the winter, or water, part. So, Facob, the hcel, § 92 (b.), after his before morning struggle with that angel, who was Esau, passing upward, had his name changed as the morning sunbeams fell upon him. He changed his before feminine qualities, and now became
 the Greeks would have had it. The mark of separation between the two conditions was the brook Penuel or Jabbok. A very happy illustration of the dove and fish use to
make $\mathscr{F}$ choval can be given from ancient sources．＂The Syrians，or Phenicians（says Nigidius），assert that a dove sat several days in Euphrates（one of the rivers of the Garden）on the egg of a fish，whence Venus was born．＂ （Note to Volney＇s Ruins，p．168．）Here the whole trans－ formation is shown by symbol．The result is woman as Venus，the primal concoption，or הוה，or Eve，which is ${ }_{1} 3 \times 5=565$ ，concealing，as shown，a man value；the whole being יוֹוה．）

## The Te Dcum and the Birth of the Savior．

（f．）The early church recognized just such uses，as can be gathered and shown from Clemens Alexandrinus．Nor， indeed，was there any departure，in so doing，from the most perfect reverential observance．In the $T c$ Dcum，a song of praise to the Deity，in the recognition of His works，it says：＂We praise thec，O Elohim！we acknozulcdge thee to be the Fohovah．＂Then，speaking of the Savior，it is averred that He was，as a man，not only born of a woman， but，further，that that woman was a virgin．How，then， could such a thing be，consistently with the truth and the laws of nature．It has been seen that the woman could be truthfully，and most perfectly mathematically，taken as a rib from the side of a man，without the exercise of any natural procreative function；and，in fact，from the same source，it was just as easy to produce man，or aish，or $\mathfrak{F c s}$ ， from the woman，by the slightest possible use of change． The woman，as coming from the man，or $\sqrt{\sqrt{I I} 3}$ ，was

## דּガッ

$$
53 \text { I } 5 \text {; }
$$

but if man is to be restored from the elements of the woman， add the values of the letters composing her name，and there results $\boldsymbol{N}=5,+\boldsymbol{U}=300,+\mathbb{N}=\mathrm{I},+\boldsymbol{N}=5$ ，＝a total of 3Ir．Now，$\because ゙ N($ man，is，adding the values， $\mathscr{U}=300$ ， $+^{\prime}=\mathrm{IO},+\boldsymbol{N}=\mathrm{I},=$ a total of 3 II ；or，reading the values as the letters run，the value is ir3．The woman then is，
in this phase, 3 II, or man. Place her thus, with man as II3, and they stand face to face

$$
3 \mathrm{II}-113 \text {, }
$$

just as they are described in Genesis. Thus, however, it is seen how the man, $\mathscr{H} c s$-us, could be born of a virgin. But so born, he is as aish, also II 3 , and $113 \times 5=565$, or nun, who was the mother of Joshua the Savior. As to the first expression-viz., "We praise thee, Elohim; we acknowledge thee to be the F̛chovah"-it symbolically becomes, "We praise this principle of I : 31415, of which the working values are $56.5 \times{ }^{10}=$ הוה", or $113 \times 5=565$; or, in the other form, as exhibiting a perfect one, straight line, of a denomination of 20612 , the perfect circumference.

## The Dove used in Calculations of the 1ear.

(g.) The dove was one of the divinity emblems throughout antiquity, in its character of 7 I , as the $\frac{\mathrm{I}}{5}$ of 355 . The calculations of time for the solar year sprung from the taken value of the lunar year, which word in Hebrew was Shanah, or שישה, the value of which was 355 . It is precisely the same whether a circle of 355 is exhibited divided into subdivisions of 5 each, of which the factor will be 7 I ; or whether the original circle be taken as 7 I , or the dove, which, by subdivision, as 355 will exhibit the same ultimate subdivision by 5 . In fact, the values $70,71,72$, and 73 , were famous values as denoting $70 \times 5=350,7 \mathrm{I} \times 5$ $=355,72 \times 5=360$, and $73 \times 5=365$. The ancient method of symbolically exhibiting the year, was by a serpent swallowing one or more units of its length. Take 7r as the value of the circle to obtain the lunar year. Let it be subdivided into $7 \mathrm{I} \times 5=355$ parts, or Shanah. Bend this into the form of a circle, represented by the serpent swallowing one unit of this amount, and the resulting value is

$$
354 ;
$$

which was the universally accepted value, anciently, of the lunar year. And this was because it correlated the human
method of obtaining this value，viz．， $52 \times 7=364$ ，which is $365-\mathrm{I}=364$ ；and to compare，or correlate， $355-\mathrm{I}=$ 354．These interpretations are interesting as unraveling the meaning of the source of ancient mythology，and as showing a common possession，and common origin，as stated by Clemens．By tradition，the origin of religion in Greece was held to have been by the introduction from Egypt of two black doves．By the change worked on the dove value by the fish，two doves would become two fishes as 565 ，and 565 ，the zodiac sign of the fish month；or like use could be made of the value 7 I ，through circumference values，etc．

> Nezv Testament Usc.
（h．）In the Christian form，the man，or aish，or $\boldsymbol{\sim ゙ ⿻ 心}$ （this form gives the other of $\mathscr{F}$ cs，from $\mathscr{\bullet} \mathscr{C H}^{\prime \prime}$ ，or in Greek or English Jes－us，signifying the fire，or stm，or Dcity，or man．This word by the masoretic points，which point al－ most undoubtedly to the true former pronunciation，was pronounced $\mathscr{\bullet \bullet} \mathfrak{N}$ ，or $i s h$ ，or $\mathscr{F} c s$ ，for man；the feminine form was $\boldsymbol{N}$ © A collateral form was $\because \ddot{\bullet}$＂，or $\mathscr{J}$ csse，or Isi；feminine Egyptian，Isi－s．But Isi was Jesse，the father of David， who was the father of Jesus，as Isi．So，indeed Isis， Egyptian，was the feminine form of Isi，or $\mathfrak{F}$ cs－，He－ brew，as a form of aish，man，）was $\mathscr{F} c s-u s$ ．But an－ other form for Jesus was by Christian tradition，and Gnostic use，Ichthus，the fish．Now the river Jordan is derivable from the Hebrew ר＇，Fared，to descend，flow down；hence，river，with an appended $g$ ，or $n$ ，or $n u n$ ，or fish；or by name and determinative letter，fish－river：or it may be taken as Iar－Dan，or $\overline{7}$－Iar，and $\dagger 7$ ，Dan，or the river－Dan．Jesus the man descended into and stood in the waters of this river Dan，or fish．Now in fact both Dan and fish symbolized the same thing．The zodiac sign of the tribe of Dan was in Scorpio；and to the tribe of Dan was geographically assigned the place Dan，embrac－ ing the sources or springs of the river Dan，which，as com－ ing up out of the nether world，was the manifestation of the
fabled river Styx．So，indeed，as it signified the place of entering another condition of existence by dcath，it also represented the allied condition of a new birth．So $\mathscr{G} c s-u s$ ， the man，descending into the waters of this river Dan， Scorpio，or gate of the woman，where，by a new birth，＂I await thy salvation，O Jehovah＂（Gen．49，18），was，as to his body，become a fish，or mun，whereby the man becomes Fchovalh．But in standing in the water the body is the fish，or in the fish＇s mouth，while the hcad is the＇，or num－ ber ro，or a circumference to a diameter of $3 \mathrm{I} 8+$ ，which number was a Gnostic value of Christ．But who causes him to go down into the water？Fohn，or Fonah，or Dove． And here the transformation is gone through with by sym－ bol．Then the man，having become hermaphrodite，half male，half female－i．e．，half＇，and half fish，or nun，or hovah，הוה－came up out of the water（type of the resur－ rection），and immediately the Holy Spirit descended on him in the form of a dove；which is simply a final deter－ minative indexing the perfecting of the ritual or symboli－ zation．A voice is heard：＂This is my beloved son．＂He was now become the son of both Elohim and Je－hovah； he was both diameter and circumference．His hcad was $R \bar{a} s h$ ，or $213-0=355 \times 6$ ；and as he＂was about 30 years （shanahs，355）of age＂（Matthew， 16 ），then $7 \mathrm{I} \times 30=$ 2130：or the dove，7I，coming down on his head，multi－ plied by his shanahs，or years，equaled $7 \mathrm{I} \times 30=2130$ ， or the head，or bcginning of creation in the first word of first Genesis．He was called son of man，after the words of Daniel the prophet．This word is taken by Daniel from the 26 th verse of $4^{\text {th }}$ Genesis：＂And to Seth（ $\sim \cdot{ }^{\circ}$＂，the
 under שנה），was born a son，whose name he called Enosh，＂ or Ben Enosh．This Enosk was the＂Son of Man，＂and placing the values of the letters as the word runs，one gets the meaning of the solar year， 365 ，and the luni－solar year


א゙ぶル

$$
365-\mathrm{I}=364,
$$

which last is the woman year of $52 \times 7=364$. And, indeed, Seth, $\mathcal{M} \cdot \boldsymbol{M}$, implies this form of use for $3+4=7$.

## Note as to Fishes.

The symbol of the " $f$ ish" was a favorite one among all the ancients. Mr. Bryant shows its origin, in the mythologies, to have been in the figure of the Deluge; the type being of a fish with the hcad of a man. In Phenicia, especially, it was of great import in the idol Dagon. The Christian Kabbala, or Gnosticism, deals very largely in the mention of fishes; in such sort, that it may be said to be rested upon the symbol, though its use everywhere is made to appear as incidental and natural. The New Testament narratives have been so highly colored by the kabbalistic import, that, commonly, too sweeping or embracing a quality has been given to the idea of fishermen, as applied to the apostles. The character of fishermen, it is true, is attached to Peter and Andrew, to John and James; but, beyond the little that is said of their catching fish with nets in boats, no great stress is laid on fisking as a trade, or fixed occupation. There was sufficient to introduce the use of the ancient symbol, without departing from what might truthfully have been the case as to fishing in the Jordan. The fishing, as conducted by these men, was in the sea of Galilee, or of Tiberias. This lake, or sea, is but an enlargement of the river Jordan, where it spreads out into wide water, or small lake, or rather pond, of some ten to twelve miles in length by about six miles in breadth. The fishing carried on in it was in ships, or small fishing vessels, with sails, by means of seines or nets. The population to be supplied was a dense one at that time, and the occupation is represented as pertaining to quite a class, thus exhibiting a settled business. It seems impossible that this could have been the case. The only condition by which fishing of that kind could have existed, and could have been carried on as a trade, in such a piece of water, would have had to depend upon a constant supply of fish to catch, from some large body of water as a breeding-
ground, the fishing taking place in what is called the run of the fish, at stated seasons. Communication with such a body of water-as, for instance, the ocean-would stock such a pond with a few fish at all times, but not in such quantity as to justify an occupation as described, save at certain seasons of the year. This is a simple and truthful statement, justified by all the registered experience in such matters. But the conditions of the Jordan river are fearful for sustaining fleets of fishing vessels plying the trade on the waters of the sea, or pond, of Tiberias. It is almost a straight stream, with a very rapid descent from its source to its mouth (it is called The Desecnder), save when it enlarges out in the morass of Merom and into the waters of this inland sea. Its condition parts of the year is that of a brook. It rises in the springs of Mount Hermon, and, after a run down hill of 150 miles, empties into the asphaltum lake, in which no fish can live or brecd. If the country was far enough north, brook trout might abound to some extent in its waters ; but these would have to be preserved with care, for it would require but little angling to depopulate it of this species. The whole of the fisheries of the Sea of Galilee would, therefore, have to depend upon its own breeding-grounds, of which, it may be said, there can be none, save of the species of what are called mud or cat fish, which were prohibited from use, as having no scales, and a few others, utterly unfit to found a fishery on, as a business of continuous calling. The conclusion seems irresistible, that to have supported a mode of fishing, such as commonly thought and taken to have been the case, would have required a continucus miracle of keeping up the supply.

All this seems to confirm the idea that the relation of fishing was to raise a symbol, comporting with and necessary to display ancient uses and meanings.

## APPENDIX IV.

## A Method of Construction of the Fulian Calendar, from the Different Year Values of the Ancients.

§ 92. (a.) An advanced step can now be taken, even to a way of the construction of the Julian calendar, from means obtained from the Garden of Eden data. By Nork, the Garden of Eden was one of the birth of time and of man. Nork was right, and his conjecture is supported by the hidden reading in the description of this garden. It is shown elsewhere that one numerical form for this garden was for the production of the woman from man, or 5315 from II3. The woman having been thus formed, from her, again, as a source of generation, the production of man commenced. But it has been seen that II3 is diameter to a circumference of 355 ; and that 355 is converted into a ycar measure under its value in the Hebrew word shanah, year, while, also, II $30+$ is a circumference to a diameter of 360 , which was the standard year. So, while one phase of the garden glyph is given up to the production of humanity, under another phase, by another numerical system, there is shown a springing of time measures. The two phases touch each other in a numerical link. The full form, as already given, is
\(\left.\begin{array}{c}355 <br>
I <br>

354\end{array}\right\} \quad\)| 360 |
| :---: |
| $I$ |
| 359 |\(\quad\left\{\begin{array}{c}365 <br>

I <br>
364 ;\end{array}\right.\)
where, from 355,365 , the first being the Hebrew shanah, or year word of 355 , and the second the solar vague year, by a reduction of one, there is obtained the ancient lunar year of 354 , and the luni-solar year of 364 . It is seen that, through the value 355 , the man value, and through it the woman value, is linked on to a system of time measures. Now, the Garden of Eden, under another phase, is but the
use of the number 7, as the 7th day, and is, in the display of this use, pictured variously by the different ancient nations. That of the Hindus is the most clearly marked, as descriptive of the Hobrew intention. The picture is that of the woman hermaphrodite, Indrance-Indra, the nature goddess, or the Issa of the Hebrews, which, in all probability, was the Isis of the Egyptians, seated on the ground, the top of a tree, which springs from her back and shoulders, spreading over her head, thus indicating her as the comnecting link between the measures of the heavens and of the earth; the top of the tree indicating the celestial circle of $360^{\circ}$. She is but a play upon the values $113: 355$. But passing from these values to the display of others: In one form of this woman, the hecl of the left foot is bent forward, so as to be presented to, or before, the mouth of the pudenda, which is closed by bands, distinctly marked as 7 in number. Of course, this location is significant of birth, and here the basic numerical value is 7 , thus attaching this as the holy number of generation. How is this number, then, connected with any feminine trait, having relation to the generation of man and of time? Very simply. 7 is the number of natural days in the week, and a day is a natural measure of time. $7 \times 4=28$ days, the time period in days for the occurrence of the menstrual flow, which is indicative of periods of conception. $28 \times 10=280$ days, is the period indicative, in medical jurisprudence, of the birth of man, whose value is II3 diameter to a circumference of 355 , as shown. $28 \times 13$, or $52 \times 7,=364$ days, which is the period indicative in nature of the birth of the year. The number 7, then, as at the base of these, is the holy birth number factor. The method of deriving the year values has been shown as

$$
355-\mathrm{I}=354 \quad 360 \quad 365-\mathrm{I}=364
$$

and here through the use of 7 , the mark on the pudenda of the woman (who is elsewhere shown to be derived from the man as II3 or 3 II ; and, in fact, who becomes by adding up the values attached to her name 3 II, or the value of the man again in this number, so that the two stand face
to face, the counterpart (17ココ) of each other as 3 II-II3, yet so that read either way, and the one is the other, the hermaphrodite idea again cropping out), is seen to spring the time value 364 , which thus is shown to be a connecting link, worked up to, through the meihods of use. In other words, there is shown to be a correlation between the birth of man and the birth of time. Such being the case, the circle of the pudenda, once being selected as correlating time with human birth, can be taken as symbolizing any stage or condition of such birth : either it may be 28 , as a mark of conception, or 280, a mark of human birth; or taking the result for the process, it may be taken as II3, man, this as a diameter value implying its circumference of 355 , and also the scale of time measures 355,360 , and 365 , proceeding from it; or, again, as 364 , a year time value; and so on, agreeably to any connecting value. Anciently, this same idea was displayed, by implication, in the Egyptian astronomical charts of the 28 lunar mansions, as the birth circle of time. This subdivided for the 28 , into 13 each, would indicate the 364 ; and this last would be represented by a séspent of 365 , bent into a circle and swallowing one unit of its length. In Hebrew, both scrpent and brass, for another meaning, had that of the female pudenda; but the serpent had the hieroglyph of the letter 0 , or 9 , which is also the base of 6561 , the Parker form.
(The mouth of the pudenda, as signifying the place of birth, or source of all things, is also significant of another striking feature, in this, that, as virgin, no conception, and therefore no birth, can take place without, first, the shedding of blood. This perhaps may have been the source of doctrinal teaching, as affording a type of the spiritual birth, in the phrase that "without the shedding of blood there can bc no remission of sins,"-i. e., no birth unto righteousness. The very word sin, in the Garden of Eden scene, conveys the idea of sexual intercourse, and this idea is held to modèrnly, in the phrase "Marie conçue sans péché." Of this
intendment, circumcision, or the bloody circle, was but a type.)

Advancing from the source to the development of divisions of the year, if the forms
$\left.\begin{array}{l}365 \\ 364\end{array}\right\} \quad 360 \quad\left\{\begin{array}{l}355 \\ 354\end{array}\right.$
are taken as measures of year time, where the year value of 365 is based on another of 360 days, of 12 months, of 30 days each, with the intercalary number of 5 days, with the other forms arising from the number 7 , as indicating the woman use, from these there can be derived, it is thought, a scheme for the construction of the Julian calendar.
(I.) One style of year is that of 364 days, based upon the menstrual month of 28 days, as follows:

$$
28 \times 13=364 \text { days }
$$

(2.) Another style is that of 360 days, based upon the month of 30 days, as follows :

$$
30 \times 12=360 \text { days }
$$

(3.) (2.) was taken as the standard, to which, at the close of the year, 5 days were to be added, to make up the full solar year of

$$
365 \text { days. }
$$

(4.) Therefore, take the standard at 12 months of 360 days, of which one month had to be the characteristic of the style under (r.), or of 28 days. Then there will be II (eleven) other months of 30 days each, or 330 days, with a needed surpius of 2 days, to make the full year of 360 days, and a requirement of 5 more days to make up the solar vague year of 365 days. It will be seen that the surplus days thus needed, are in number 7 .
(5.) Now, to make combination of all these subdivisions, so as to make a one year circle of 365 days, divided into 12 divisions, or months, and yet so as to indicate the process, proceed to the distribution of these 7 days, as far as possible, among the months, isolating the one month of 28 days, then there will result :

I month of 28 days,
$2 S$ days.
7 months of 31 days, 4 months of 30 days, left as a residue over, of the standard year, 120 "

Making a total of the Julian calendar year, 365 " agreeably to its known divisions; which, in fact, was the work of an Egyptian, and which, anciently, belonged both to the Egyptians and Hebrews. "Macrobius says that Cæsar was indebted to Egypt for his correction of the calendar: ' Nam Julius Cæsar . . . siderum motus . . . ab Ægyptiis disciplinis hausit.'" (Rawlinson's Herodotus, note 6 to Book II, chap. 51.) See also Sharpe's Egypt, Vol. II, p. $5^{2}$.

The Possible "Hecl" Mcaning of the 217 Days.
(b.) The word heel, of which, or as to which, the real substance is placed as noted in the Hindu picture of the Garden of Eden, is also of very great moment in the Hebrew
 notoriously, in his children, was the founder of the year of 12 and I3 months. (See Nork, Wörterbuch, under "Jacob.") It is used significantly, among others, as to these very relations, in the garden description, in the phrase " Thou shall cover to it a head, and it shall cover to thee a heel." It is seen that the heel is placed before, as touching the mouth of the pudenda. In the above scheme for the formation of the calendar, the mouth of the pudenda is taken as the woman month of 28 days. Then there is taken seven months of 30 days each, plus the distribution among them of a week of seren days, in all 217 days. In Hebrew, the word heel is $\boldsymbol{P} \boldsymbol{P}$, okbv, the character values running with the word being 712 , or, in the reverse, 217 ; so that this heel standing before the woman month of 28 , as a foundation, may be added to it, as, in fact, an additional value of 217 (or 712) of the pudenda, the two amounting to $28+217=245$ days. For another style of calculation to make up the standard year of 360 , there will be lacking

115 days; the 360 being, perhaps, indicated by the spreading tree top over the woman-man's head, indicating rīsh, or 213 , or, as the number 113 , the diameter 36 or 360 . Then $28+217+115=360$, and adding the epagomenai 5 , the year value becomes 365 . Thus this hecl, or 217 , seems, by change, to become the pudenda itself, with 28 (and, as has been noted, Dr. Donaldson ascribes this meaning to the word).

This leads to hazarding a suggestion as to possible determinative sentences in Gencsis as to this purpose. It is stated in the fourth chapter: "And she conceived and bare Cain, and said, I have measurcd (otherwise, gottcn) a man (It3), even Jehovah." It is extraordinary that, in the Hebrew, the word $\mathscr{F}$ chovah is here in apposition with the word man, there being no such reading, by possibility, as "from the Lord." Man, as 1 I 3 - O , is circumference to a diameter of 360 ; and $\mathfrak{F}$ chovah, for one of its symbolizations, is the ycar. Now, the pudenda, or woman, having become $28+217=245$, it requires just 115 days to make up the full complement of the perfect standard year of 360 . Now, she says as to Cain, that having borne him, she has measured a man, or a circumference to a diameter of 360 , even the perfect year, or Jehovah; possibly meaning that she had produced the full complement to make up that amount, or, in other words, that in bearing Cain, the full standard year was completed: for the value of the word Cain, 19 , is, as the letters run, II5, or just the number required to make this complementary number good. This view is strengthened by that which follows consecutively on this-viz., the birth of Scth (or $\boldsymbol{\sim 1}$, the year), and the birth to him of Enosh. It is stated: "And to Scth, to him also, there was born a son; and he called his name Enosh: then began men to call themsclucs Fochovah." The two passages are, beyond doubt, connected together for an occult purpose, by, in one, the term "mcasuring a man cvon Fchovali;" and, in the other, the term "mon calling themsclucs Fehovah:" for these are the only such uses of the word "Jehovah" in all the Bible. Seth being, as the word
can be taken, the $y \operatorname{car}$ (Fuerst under שנה), the name of his
 of the year, in the expression of the values of the letters, as they run-viz :

$$
\begin{aligned}
& 365-1 \\
& \boldsymbol{ש} \text {; }
\end{aligned}
$$

where there is the full vague year, with the unit one, by which can be taken the form $365-1=364$. In this special connection, the word Jehovah must be taken as the glyph of the perfect year circle of 360 .

The above Use somewhat strengthened by the Zodiacal Sign of the Fishos.
(c.) Man and woman, in the garden scene, being but a play upon the value II3, on which 355 is raised, the other scheme connected with the pudcnda of the woman is but a play upon the use of this number as a foundation, the ramifications of which have been somewhat set forth. The above method of construction of the Julian calendar is in a measure clinched as rightly taken, when the character sign, or symbol of the month of 28 days, or the monstrual month, is considered. On the astronomical charts, the symbol of the month of 28 days is the fish. In the glyph of Fonah and the fish, the Hebrew name for Jonah is also that of the dove. This is but a play upon the ark of Noah and the dove. Jonah goes into the fish's belly, and, correlatively, the dove goes into the ark. In the description of the flood picture, the word dove is used just five times. The value of the word dove, or Jonah, is 7 I , and 5 times this value is 355 , or the circumference value under consideration. Now, five times the value of the man, or aish, is II $3 \times 5=565$. The word for fish, or mun, is 565 , also, or in fact, the multiple of 113 , this very diameter value. In this symbol of the month of 28 days, the reference is very salient, as the astronomical sign of this month in the ancient zodiac was that of two fishcs, or $565 \times 2=1130$; and, as has been shown, II30 + is circumference to a value of 360 , the value taken as standard for the year. Then, indeed,
the sign of the menstrual month of 28 days is 360 ; but this month is based on the pudenda as 7 , and as a time measure this is also the heel, or $217 . \quad 28+217=245$, and $360-245=155$, or Cain, of whom the woman says he is the measure of Jehovah (or even Jehovah himself), which can stand for the year circle. Then 360 being the standard, and 28 and 217 being already had, to make the full vague year requires 120 days, or just 4 months of 30 days each, so that $28+217(=31 \times 7)+120(=30 \times 4)=365$, the Julian year in its known divisions.

The zvord Paradise, as having a Bcaring on this Subject.
Another confirmation of the time birth use of the Garden of Eden is to be found from kabbalistic sources, in the meaning of the term Paradise. This word, so far as commented on, has no meaning, and is supposed to be derived from a foreign source. By Fuerst, it is a word used for metaphysical purposes, or for mystic uses. It is a word for which the reputed authority of the Savior is given as being correctly used for the heavenly Garden. It is the word used for the Garden of Eden by the Seventy. The meaning of the term is a very simple one. It is a Hebrew compound of the verbal Pūrad, פּר, to divide, and the appended letter samech, $D$, signifying the circle bounded by one side of a square. The letter samech stands for 60 , and the face of a square being 60 , the full cube (to represent the full sphere) having 6 faces, would represent $\overline{60 \times 6}=360$; so that the term Pardéss, or Paradise, would signify the division of the circle of 360 . In fact, Kabbalism takes the samech as the divided circle, which the Hebrews represented in plane forms, as of the square for circle, and as of the cube for sphere. Taking the Garden of Eden, under this Paradise use of 360 , then it becomes the year value of 360 days of 12 months, of 30 days each, as a standard on which to construct the changes mentioned through the man-woman. So, also, 60 designates the height of the king's chamber in the pyramid, as also $\frac{I}{4}$ its base side.

The Heel Valuc, appearing as Conncetcd with the Mcasures of the 2 uecn's Chamber.
(d.) Hccl is, as said, 712 , the reverse use of 217 having been used above. Making use of the value as 712, it adapts itself directly with the pyramid measures in the queen's chamber, for

$$
56.5: 177.5:: 72: 226.1946:: 226.63: 712 ;
$$

or 7 I 2 is thus exhibited as a circumference to a diameter of 226.63, which is the length of one of the sides of the queen's chamber in this pyramid. It is a very curious circumstance that the length of the opposite side of this room is given at $227 \cdot+$, and, in fact, the Hebrew word for membrum virilc is 7 I , or, reading its values in the reverse, 227. It is very curious also that $217(\mathrm{hecl}) \times 3=65 \mathrm{I}$, or, numerically, recurrence of the Phenix time period, marked by the crossing of the disc of the sun by the planet Mercury; as also, by Parker, the complete travel of the magnetic pole about the earth.
(c.) How strange it is that, whether the keys of these matters, as connected with the Garden, are taken from the narrative, or from numbers, or from the elemental geometrical elements, the phallic use is always to be found as the underlying one. The Parker forms rest on the relation (transcendental) of the equilateral triangle, and of the circle, as being at the opposite extremes of nature ; and so, because the former is measurable, the latter through it can be made measurable. The measure itself becomes manifest in terms of the square. Now, by Kabbala, of the interlaced triangles, the one with the point down is female. So is the circle. The pointed obeliscal shaft was squared, and was universally looked on as phallic. The uses then carry these emblems as the enunciations of the uses of these geometrical forms. It is the phallus which is the vehicle of enunciation; and truly enough, as the sacr, or carrier of the germ, its use passed down through ages to the sacr-factum of the Roman priest, and the sacr-fice and sacr-ment of the English-speaking race. It is perfectly
true that, anciently, even with the Hebrews, the highest religious or spiritual types were (to us grossly) sexual. The Christian type of a spiritual birth was, by the rite of baptism, a wonderful refinement, while the symbol of the same means of birth. But more anciently, the same type was, by circumcision, a right performed on the sacr. It, too, symbolized a birth, or rather marriage, indicative of birth. The great symbol was in the shedding of the blood of separation, and yet of union, typifying generation by marriage.

As this is descriptive of a simple fact of ritualism, its force, as casting light on what has been said as to marriage conversation, is manifest. A wonderful illustration of the underlying meanings of the rite, as sexual, can be offered. When the sons of Jacob offer conditions to the Schechemites, they say (Gen. xxxiv. 14) : "Der eine vorhaut hat, denn eine schmach wäre das für uns," which is a better, because more literal, translation than the English. But the word schmach, in the English, "for that (were) a reproach to us," is not a literal, nor is it a good translation. The Hebrew word is חרפה, charaphak, which is translated schmach and reproach. The primary and ral meaning of the word is " (土.) prop. fissure, split, therefore zagina, fomale pudenda." (Fuerst.) The proper translation is: For he-"' who has a prepuce,-that (or the prepuce, הוֹ) is a mark of a vagina to us (כי־חרפהללנו)." In other words, and in short: He who has the prepuce, is a woman to us. This idea is continued to modern times, for Lane (at the time of his translating the Thousand and One Nights) notices, in a note, as to the preparations for the performance of the rite of circumcision of youth, that, up to the time of the ceremony, they are paraded around, dressed in girls' clothes, or, to use his expression, in fominine attire. The type of the spiritual rebirth, by circumcision, was the shedding of blood in the consummation of the marriage rite. This view is fully enforced. Under חת, chathan, Fuerst says:
" Properly, one allied, married ; hence ( r .) at a marriage feast,
a bridegroom, who rejoices in conducting home the bride, $\dot{I}_{s}$. 62,5 , and, like the latter, exults in that day (see פל), fer. 7 , $34 ; 16,9 ; 25$, 10; who wears a chaplet, Song of Sol. 3, 11, and encircles his head like a priest, Is. 6r, ro; who, with joyful spirit, and full of life's enjoyment, goes forth from the bridechamber (חררחפה) with the feeling of vigor, $\mathfrak{F o}$. 2, 16; Ps. 1.9, 6 ; after he has become, in the wedding night, by the offering of the maiden's blood, a חתן דמים, chathan damim-i. e., one allicd by the maiden's blood (Ex. 4, 25, 26), an idea which was subsequently transferred to circumcision. (2.) A bridegroom of circumcision-i.e., who is allied to God by the dedication of the blood of circumcision, called from the consummation of marriage."

## APPENDIX V.

## The Flood and the Ark of Noah, with their strange Kabbalistic Biblical Relations.

§ 93. It must be borne in mind that the substance of the Old Testament lays in the books of the Lazv. All the remainder is but expansion, explanation, targums, enforcements, etc. The $L a w$ is divided into the framing of the ritual, and the enunciation of moral precepts, as the correlated enforcements of the law in the workings of the souls of men. There is far more space taken up in the establishment of the ritual than in the inculcation of the moral precepts. The ritual properly rests upon the construction of the great pyramid, with its contained measures. The building of the pyramid in the books of the Law occupies all the first chapters of Genesis, to the construction of the ark of Noah. The determinatives marking the completion of the pyramid structure are very marked, and are contained in very brief compass. The Parker and Metius measures, in the queen's chamber especially, and elsewhere in the pyramid, unfold the Jehovah, or, more properly, the Mosaic or Pharoah measures of II3 to 355 . It would seem, then, that the queen's chamber answers to a special part of the Biblical Garden of Eden.

## The Biblical Containment of the Pyramid Structure.

(a.) It has been shown how the numerical formulations, on which the pyramid is to be constructed, are to be found in the hieroglyphic construction of the Garden of Eden. Leaving out that which intervenes as having no recosnizable key of solution, the detcrminatives marking the completion of the pyramid as to its mass, are, as above stated, very marked and strongly outlined.

From Adam to the flood embraced an interval of 1656 years (or shanahs, or 355 's). It is most likely that these numbers had a use, just as they read in value; but there was another and kabbalistic use of, on occasion, reading a value backizurd, or, for 1656 , reading, as the more occult and more exact meaning, 656I, and this is the Parker square, the source of the enlarged measures of the pyramid of Egypt, as has been fully shown. Such a use, were it intended, should be accompanied by other determinative marks of the correctness of its being thus taken. In this instance, these are abundant enough, and salient enough, and far-reaching enough. Some of them may be given.

The use of the names Shem, Ham, and Faphet, as Determinative of Pyramid Measures, in connection with the 6oo Year Period of Noak, and the 5oo Year Period to Shem, Ham, and Faphet.
(b.) Noah, or the Stop, or End, or Rest, was 600 years of age at the time of the flood (years, shanahs, $355 \times 600=$ $\left.{ }^{213}, R \bar{u} s h\right) .6561$ is the source of the enlarged values of the pyramid as seen. Now, 600 is just the circumference to the height of the king's chamber multiplied by 10 , or $190.985+$, or to the $\frac{1}{4}$ the base side of the pyramid as $190.985+$ feet; and the variation on this, or 190.237+, raised from feet to inches, and multiplied by $4^{2}$, to equal the variation on the entire circumference of the pyramid, equals the true solar year; while the correlations of this value give the earth's diameter in miles. So also this 600 is the period of Divine incarnation, by the conjunction of the sun and moon, as by Cassini :-that measure of which Christ was the foundation, in 3 I 8 , and the measure of transfer onto the celestial circle of $360^{\circ}$, in the number 608.

But this period of 600 years is signalized by another of very great value-viz: "Noah was (500) five hundred years old, and Noah begat Shem, Ham, and Faphet." (Years, shanahs, $355 \times 5=1775$.) This is a great determinative sentence. The number five (5) is the $\boldsymbol{i}$, or the
womb, or fructifying number; for the rabbins have a saying that God made all things out of the letter ה. Two of these fives in the center of the Garden were equal to the numerical value io, which is the perfect one, or $\mathfrak{F} a h$, which is the number of the holy of holies, in its divisions by the cherubims, and which is a circumference to the Christ value of 3 I 8 . The pyramid thus shadowed forth, in its familiar number measures, is now strongly lincd out, beyond all mistake, by use of the power (or number values) of the expression of the three names of the sentence-viz., "Shem Ham, and $\mathfrak{F}$ aphct." The Hebrew expression is-

(土.) | $\square$ | $\ddots$ |
| :---: | :---: |
| 0 | $\square$ |
|  | $\square$ | ת פ

Give the character values to correspond with this position :

(2.) | 4 | 3 |  |
| :--- | :--- | :--- |
|  | 4 | 8 |
|  |  | $I$ |

$$
4 \quad 8 \quad 6
$$

And let these values be read as they stand, thus: 444 is the numerical value of the side of the base of the pyramid, in cubits (or chcrubims $=222+222=444$ ); 38I is, in feet, the half base side of the pyramid; and 486 is, in feet, the height of the pyramid :-all in the standard measures of the same, as coming from the original Parker elements, which, in the construction of the Garden of Eden, have been seen to be shadowed forth, by the use of the Metius values of 113: 355. And so, the work completed, or the pyramid mass outlined, it was the completion of the grand Stop, or Rest, or Noak; a condition which, by Bryant, was the origin of all mythology.

## Mcthod of Calendar Corrcction contained in the Flood Narrative.

But while the means were occultly being laid for the exact determination of cosmical phenomena, such as astronomical times and earth measures, agreeably to the Parker method, to co-ordinate, it would seem also that the narra-
tive contains other methods more popular, though less exact. The description of the flood seems to contain curious methods for the correction of time periods, and the fastening them to the earth.

## Correction of the 600 Year Period.

(c.) One of the commonest methods for the computation of time was by taking the number of degrees of the celestial circle, for the number of days in the year-viz., 360 degrees were made to stand for 360 days. Correction was made by the addition of 5 days, called epagomenai
 lestial circle of 360 degrees, for 360 days, there was made a stop, or rest, or Noah, and five days were allowed to pass by without count. As the day was marked by the rising and setting of the sun, the giver of light, and the circle of the day, the process was symbolized by, as it were, placing five days in a box or ark, thus consigning them to oblivion, by blotting out the light, or letting the day pass without count. It was the necessary step to the rebirth of the year. The process was that of setting a watch by the sun. If the watch has gained, say, five minutes on the sun, correction will be made by stopping the watch for five minutes, and then starting it again. The similitude between the watch and the sun lays in the connection of the passage of the sun through the signs, as it has relation to the seasons; that is, from year to year, the sun's place in the signs should be accompanied by a corresponding condition of the seasons, whatever that might be, as spring, summer, autumn, or winter. If there is a constantly recurring need of correction, the quantity should be known, so that, being made at the appropriate time, the coalescence between the sun in his signs, and the proper season, should always be maintained.

It is very evident that, prior to the time of the flood, as narrated, the 365 day value of the year was known; and it may be taken that the correction, by means of the epagomenai, was in use. The relation of the 365 day period
to the 364 , or luni-solar year, seems to be pointed at in the name Enosh, or $365-\mathbf{I}$, as seen, especially as the name $\Omega \dot{0}$ may be taken as the year. Also, by Philo, Enoch, son of Jared, was the father of the solar year, marked by the 365 years of his life. The period of the flood seems to mark the Stop, or Noah, for a greater correction. If the correction of 5 days in the year be followed some length of time, it will be found that the seasons will begin to fall back $\frac{I}{4}$ of a day a year, or a whole sign in 120 years. Now, the celestial sphere, with the earth, was divided into 12 compartments, and these compartments were esteemed as sexcd; the lords, or husbands, being, respectively, the planets presiding over them. This being the settled scheme, want of proper correction would bring it to pass, after a time, that error and confusion would ensue, by the compartments coming under the lordship of the wrong planets. Instead of lawful wedlock, there would be illegal intercourse, as between the planets, "sons of Elohim," and these compartments, "daughters of H-Adam," or of the carth-man; and, in fact, the $4^{\text {th }}$ verse of 6 th Genesis will bear this interpretation for the usual one-viz: "In the same days, or periods, there were untimely births in the earth; and also behind that, when the sons of Elohim came to the daughters of H-Adam, they begat to them the offspring of harlotry," etc., astronomically indicating this confusion. Such being taken to be one of the objects of the glyph, the astronomical period taken is that of the Stop, or Noak, which was 600 years. How many days would have to be put in a box, or ark, as consigned to oblivion in count, to work the correction of this period; so that the seasons, now in confusion with respect to the planets, or signs, lording over them, would come back to their proper places in the original scheme, or every woman come back to her proper lord? Or, how long should the watch be stopped before starting again, at the corrected period? The number of years being 600, the period of confusion,
or error, at $\frac{\mathrm{I}}{4}$ of one day a year, would for this time amount to

$$
150
$$

days, as the amount of the Stop, or Rest, or Noah. Truly enough, this was just the length of duration of the flood over the compartments of the earth, wiping off the old marks, and again setting the seasons right with the stations of the sun. The idea conveyed by the termination of the flood was that the scheme for the correction of the 600 year cycle was perfected; and the whole is contained in the closing verse of the 8th chapter, which is, as it were, a general determinative of the process, use of the same, and the result. The Lord, or Jehovah, says, as it can be read : "Circling, winding, or turning in circles, all the days or periods of time of the earth-viz., sced time and harvest, and cold and heat, and stimmer and winter, and day and night, they shall not be separated from the accomplished condition of correction." They should not cease to be in their proper and appropriate places, with relation to the sun. Before this, by error, the seasons, by name, had become inappropriate to, or incongruous with their meanings; but now, harvest, by name, should apply to the actual season of harvest ; summer, to the actual season of summer, and so on, without further change or alteration, for the proper amount of correction and its use was now known.

The fuxing a Limit for the Closing and Opening of the Year at the Winter Solstice Point, by the Figure of the Subsidence of the Flood and the Grounding of the Ark.
(d.) But while a cycle correction for 600 years was thus made, it seems to have been upon such grounds as to admit of accommodation to a fixed point or location in the circle of the simple year. Bearing in mind the method of correction of the 365 day year on that of 360 days, by means of the epagomenai, or the putting of 5 days in a box, a scheme can be suggested as of ancient use of deter-
mining such a point and location at the winter solstice. In the form

$$
355 \quad 360 \quad 365
$$

360 being the mean between 355 , the abstract circumference value (connecting the year calendar forms with the Garden of Eden and the pyramid forms of $113: 355$ and 20612: 6561) and the solar year value of 365 , because of this, seems to have been used as a standard of measure of time. The equivalents of these forms are to be found in the numbers $70,7 \mathrm{I}, 72$, and 73 , by considering them as circles, to be subdivided in five units for each unit of their values, respectively, as $70 \times 5=350,7 \mathrm{x} \times 5=355$, $72 \times 5=360$, and $73 \times 5=365$.
(d.) (r.) Take now the standard measuring circle of 360 , and fasten some point on it to correct the year time to some phenomenal point of the solar year proper, say the winter solstice. Then, having counted 360 days to this point, the five epagomenai days are put in a box, or blotted out, with respect to this measure circle; but, on the other circle of 365 days, are continued on to make the full solar year, now made correct with the seasons to a definite end or stop; from whence, after the lapse of four years, the bissextile correction of one day can be made. This seems to be a scheme of subordinate showing under the large correction of the 600 year cycle in the flood narrative-that is, while, upon some base of calculation, the 150 days of the prevalence of the flood was the correction of the 600 year period, denoted by the beginning of the rain of 40 days + ro days of the bearing up of the ark, this very subdivision of time was also to denote a point of the year in which the correction should be marked, as thereafter to be the close of one and the beginning of another year.
(2.) The detailed relations of the flood are interesting. As usual in Hebrew, there were different words expressive of the same idea in the English translation. The word "flood" is used in various places, but the special word in Genesis is mūbul, or $m \cdot b u l$. The root word is $b \bar{u} l$, and this was the name of the month, or sign, of the occurrence of
rain, or of the rainy month; and, as one of the moon, run from the new moon of November to that of December (Fuerst.) This month is set down as the eighth in the Jewish calendar, or it was probably the third month of the ancient year, extending to the winter solstice, or birthplace of the year; just where, for correction, the stop should be made-viz., at the end of the old year, by the ark being raised up from the earth so that the earth might pass on under it, while it remaining still, or stop, or Noah, would at last, with the sinking of the waters, drop at that time, and place, on the earth, where the signs were thus made to become correct with the seasons. This place was similar with our Easter period, which, regulated by lunar time, oscillates between certain fixed solar limits. The count for correction of the great calendar period of 600 years, run from the entering the ark, or box, and continued 150 days; but this latter space of time was divided for some reason. There is a count from the 17 th day of the second month (sun in Scorpio) of 40 days, which would carry to the 27 th day of the third month, or Būl, or the solstice month, as presented on the Egyptian charts. It looks as if the word for flood had reference to this month word ; and apparently this view is confirmed.
(3.) Noah entered the ark, or Theba, or box, on the second (2d) month, the 17 th day of the month. Referring to Seyffarth's Chronology (p. 211) he says: "November 8th, Julian style, i. e., 17th day of 2 d month, the deluge commences in the 600th year of Noah." It seems that Epiphanius specifies the date on which Jesus received his baptism at the hands of John, on the Sth November likewise, so that Jesus went down into the water, or type of the pit, or womb, or of death and birth, on the anniversary of Noah's going down into the hollow of the ark. Seyffarth (same, p. i82) says:
"The baptism of Christ, and the beginning of his prophetic ministry, are, first of all, determined by the testimony of St . Luke. For, since the fifteenth year of Tiberius, in which the Baptist entered upon his prophetic ministry, is, by our present
calculation, brought down two years later (than by Petavius), Christ must have been baptized in the 29th year after the commencement of our era, 'at an age of nearly ( $\omega$ ©ei) thirty,' to enter, forty days later, upon his prophetic office. On the same day, the 22d December, Christ was thirty years of age; and as Christ was, as he says, 'born under the law,' and consequently obliged to enter the priestly office on the first day of the 3 ist year, he must have commenced his public ministry on the 22d of December, A. D. 29, and received his baptism on the 13th November (that is, 40 days earlier). Epiphanius specifics the 8 th November, simply because, on account of the shifting of the epagomenai (the intercalary days) his Sth November corresponds with our I3th."

This quotation is made to show how the 40 days from the 8th November terminated at the limit of the 22d day of December, of our day, the point of the winter solstice, under the explanation of Seyffarth, of the correspondence of the 8th day of November of Epiphanius, and the r3th November of the solar year, by use of the five intercalary days; which would go to show that, by Epiphanius, the 360 year period closed November 8th of the solar year, or the 17 th day of the $2 d$ month, then by blotting out or reserving from count five days, the 17 th day would continue over this period, so that it (the 17 th day) would correspond with the 13th day of November of the solar year. Just what has been said above as the count on a circle of one kind (360) stopping, the days thus blotted out would still be counted on, on the circle of another kind (365); in this case to the commencement of the flood.
(4.) Now, Noah entering the ark on this ifth day of the 2d month, or the 13 th of November, solar year time, it rained 40 days, the ark not as yet being lifted up. At the end of 40 days the ark is lifted up, and at the end of 150 days from the beginning of the flood (the full correction of the 600 year period), or ino days after the end of the 40 , it descends on the peaks of the mountains, which could not have been very high, as the depth of the flood is stated at 15 cubits, or $25+$ feet. This arrangement is simply to designate where in the year the landing was to take place,
viz., December 22d, the winter solstice, for it is to be considered that it was at that point when it was lifted up, and afterward simply remaining stationary, while the earth passed on under it, the remainder of the time of the 150 days-viz., iro days-was perfected, or brought to a close, the waters abated, and the ark made its landing on the 22d of December of the solar year, the winter solstice. This then was the great turning point, or $\sigma \tau \rho 0 \varphi a i o s$, or hinge, fastened by the flood calculation, in a calendar way.
(It is to be noted here, what is constantly the case, that the data connected with the working out of some one particular phase seems to be fitted for radiating off to the accomplishment of some other or others. The number 110 is extraordinary in other relations. Joseph died in Egypt, being "an hundred and ten years (iro) old ; and they embalmed him, and he was put in a box, or ark, in Egypt." (Gen. 50, 26.) The narrative of his burial is reserved to $24^{\text {th }}$ Joshua, $3^{2}$, as it were, to be mentioned in connection with the death of Joshua, the son of Nun, of whom it says, in the 29th verse, that he "died, being an hundred and ten (rio) years old;" showing a bringing together of this number 110 , thus twice used, and once as connected with an ark or Theba. So, as to this number: $365-354=11$; and $365 \times 11=4015$, and $355 \times{ }_{11}=3905$; and $4015-3905=110$, this very number. This shows some subtle use, as to which Joshua, as the son of Nun, or $565=113 \times 5$, may have been connected. It has been shown that $27+217=245$ days $+115($ Cain $)=360$. Taking the same ground form, $27+217=245$ days +110 days $=355$ days, or the Dove year, or $7 \mathrm{r} \times 5$; and this is probably the use of the ino.)

## Other number Rests, or Stops, in the Flood Narrative.

(c.) It is a curious matter to mark some of the other uses of the number rests in the description of the flood.
"The history of the deluge is based upon the solar months of 30 days each" (Seyffarth, Chronology, p. 170), with which statement the foregoing workings agree. From the Ist day of the ist month, therefore, to the 17th day of the second month, was 47 days. The flood prevailed 150 days. Then the raven and dove were sent forth, the dove returning. A lapse of 7 days. The dove was
sent forth again, and returned with the olive branch-r day. Then a lapse of 7 days. That is, in all, $47+150+40+$ $7+\mathrm{I}+7=252$ days. Then, to make a full solar year of 365 days, would require the additional number of 113 , or the famous diameter value of 355 , or the Hebrew word for ycar. But to make this year of 355 days would require an additional number of 103, or one-half of 206 , one of the lengths of the queen's chamber.

If, however, instead of following the count thus, in days, as mentioned, the months and days be taken, then"On the tenth month, were the mountains seen ;" io months,

$$
300 \text { days. }
$$

"And it came to pass at the end of forty days," 40 "
"And he stayed yet other seven days," 7 " Dove sent out and returns, I day. A lapse of seven other days to the end, 7 days.

## Or a total of

which is the lunar year circle itself; precisely a similar occurrence with that of the sums of the ages of Abram and Isaac, being 355 , showing a power of unification of many various matters with one concrete form.

## The Number Valucs of the Birds.

( $f$.) The term Raven is used but once, and taken as cth-h' orcbv, ת $=678$, or $113 \times 6$ : while the Dove is mentioned five times. Its value is 7 I , and $7 \mathrm{I} \times 5=355$. Six diameters, or the raven, crossing, would divide the circumference of a circle of 355 into 12 parts or compartments ; and 355 subdivided for each unit by 6 , would equal 2I3-o, or the head in the first verse of Genesis. This divided, or subdivided, after the same fashion, by 2 , or the 355 by 12, would give $213-2$, or the word B'āsh, or the first word of Genesis, with its prepositional prefix, signifying the same concreted general form, astronomically, with the one here intended. Moreover, $213 \times 2=416$, or, as shown, the width of the descending passage-way into the pyramid.

Mount Ararat, or Fared, or Yard, and its Significations.
(g.) (I.). The mountain on which the ark rested was called Ararat, and this has been shown to be Mount Jared, 77', or the Mount of Dcscent, a figurative expression for the basic source of calculation; as it is the square yard, four of which, or the one solar day value, conslitute the Adam form of extension of the Garden of Eden, as based on the square of $\overline{3 \times 3}=9$, and $\overline{6 \times 6}=36$; the key enlargement of the Parker and Metius forms, to work a change to the factor 6 , to convert circular into astronomical and earth measures, in the squared or plane form. Here it would seem to imply The Mount of Descent, having reference to the like uses of the various kinds of measures found in the pyramid mass; and it is to be likened to the three mountains in one-viz., of Ibarim, or heavendividers, or Hebrews; of Nebo, or the wisdom behind the arch of the sun, and of Pisgah, or the apex whence one would stand to review, or look down on, a system of divisions made, which were those, combined in one, on which Moses went up to review the astronomical and geographical work which he had done.

The Place of Ararat, or Mount Fared, in the Adamic Chronology.
(2.) Take the place of Jared as the mount of descent, in its position, for another phase, in the Adamic chronology. As to its order, it will be thus found:

1. Adam ; 2. Seth ; 3. Enosh; 4. Cainan ; 5. Mahaleel ; 6. Jared;
2. Enoch; 8. Methuselah; 9. Lamech; io. Noah; ir. Shem, Ham, and Japhet ;
where Jared stands as the connecting link between two systems of 5 . Two $5 \mathrm{~s}=10$, and 10 is circumference to $318+$, and $318 \times 6=190+$, and $190+$ is diameter to a circumference of 6 , and 6 is the factor connection between circular and plane shapes. Here Jared, or yard, or $6^{2} \times 6^{2}=1296$, stands as the center or apex of the system. Curiously enough, as
the 6 days of the week, and then the 7 th day, stand as the base of various calculations as shown ; so here, Jared, the yard, and Enoch, the father of the solar year (as 365 ), stand, respectively, as the 6 th and 7 th in the order of this table. Add the ages to Jared, inclusively, and the sum, up the mount, to give its character, in one phase, is

$$
130+105+90+70+65+162=622 \text { years }
$$

622 is the sum of two men-viz., $3 \mathrm{II}+3 \mathrm{II}=622$; but while 3 II is man, aish, it is also the. woman, as $5+300+\mathrm{I}+5$ $=3 \mathrm{II}$; and, as another form of aish is II3, we have the 622, as exhibiting-

$$
3 \mathrm{II}-1 \mathrm{I} 3,
$$

or the zoman-man, or man-zoman, or hermaphrodite form of the source of the Garden of Eden, reproduced, which, in its extension under the Adam form, we have seen to be Jared, or yard, squared, and multiplied by 4. Thus the numerical enunciations of the types are seen constantly to head the various phases; from whence, in detail, the various ramifications arise from the concrete form. Reverse the reading of 622 , as 226 , and this is diameter to the circumference of 712 , the heel of Jacob, and found in the queen's chamber measures. The use of in3, as a measure, is reinforced in its use in the post-Adamic chronological table, where, of Peleg, it is stated that in his days the earth was divided. The value of Peleg, פלג, equals $80+$ $30+3=113$.

## Astronomical Personification.

(3.) Thus, Ararat is shown to be Mount Farcd, or yard, and also to be the monumental sign of the mark in the year, of its changes from old to new, or of the hinge or cardinal point of the winter solstice, or the 22 d December. What is the personification of this? Is it not Janus Bifrons of the Romans? Who stood with double face, looking upon the past, and, prophetically, upon the coming year? If there is any one thing clearly shown in the books, it is that the Roman Catholic Church holds Janus Bitrons as St. Peter. It was Peter that first hailed Jesus
as the Christ. Christ founded the Church on Peter. Peter was but a form of Ararat, or Mount Jared, marking the winter solstice as December 22d. While the triumphant Christ, as Mcshiac, sat in Leo, holding under his control the cross (origin of measures), Peter's place was below his, or at his denial, holding also the cross. Reference to this is certain under the tradition of Peter being crucified head downzard, as the opposite of his Lord. Peter as a stone was the cube of that letter 17 , or 5 , by which the Hebrews say that God created all things. "Thou art the stone," and "on this stone" are the words. The Hebrew word for stone is $\mathfrak{j}$ א, $a b n$, and reading the letters as they run, it is 125 ; and 125 is the cube of 5 . Five and five are ro, or the space between the cherubims, or the cube of 1 o. See! to make this cube of 10 , or the perfect one, uniting within itself the perfect male and perfect female, in their conditions as separated from the hermaphrodite form, as shown, requires just 8 cubes of 5 each. But the 10 , as the perfect one was Jehovah. Under the Noah form, this is represented by 8 persons, 4 males and 4 females, going into the ark, and Noah's name as החת , or , is the hieroglyph of this use. Then, Mt. Ararat, or Mt. Jared, or Mt. Janus Bifrons, or Mt. Peter, or Mt. Cubical stone of 5, the foundation stone, and the winter solstice mark as the 22d December, were all one. The whole was founded on Peter, or 125, and in building, 8 of these cubes became the io, or perfect one, or F̛chovah (and for this use, while abn is 125 as the letters run, by adding them the sum is 8 ); and 10 is circumference to the diameter 318 , which was the Gnostic Christ. How strange it is that it is left to the Epistle of Peter-r Ephes., chap. 3, verses 20, 21 ; 2 Ephes., chap. 2, v. 5 ; and chap. 3, v. 6-to make reference to Noak and the Flood. But as to Jesus, in this connection, his baptism by John, or the dove, in the River-Dan, or FishRiver, was an answering to the entering of Noah, or Peter, into the ark. The 40 days elapsing to his entering upon his ministry, corresponded to the 22d December mark of
the lifting up of the ark, and the place of its descent IIO days thereafter, whereby all things became new.

## Other Types and Teachings.

(h.) The figures, or displays, however, of one class of problems were co-ordinately made to serve the purpose of explanation, or the teaching in astronomical figures of others. A most striking and far-reaching teaching or feature of the astronomical circle of the signs was in the conditions of the sun, agreeably to his station in the signs of his acquired power, and of his death. The balanced signs were Arics, the lamb, and the balances, $\bumpeq$, opposite. Out of Aries, the lamb, the sun now having acquired his fructifying power, enters the sign of the Bull, presided over by Venus, the type of love and of germination. The border of the sign of the Lamb, then, was that of Taurus. Opposite to this, the sun, descending from the lower edge of Libra, or the balance, entered into Scorpio, presided over by Mars, with his hasta (as Libra was by Cain, or Pater Zadic, the Just One, who, being. a Mars form, and carrying the hasta, as the sun descends to the lower edge of the balance, picrccs it with his spear, just as it is described as to Abel ; for it is not the word to slay, or kill, but to picrce, that is there used) ; the mark of the use being not only to picrce, but also as impregnating the place Scorpio, or the gate of the woman, or Delilah, with the germ of a new life. The whole type was made to answer to the life of man. The point of greatest anxiety, and of dread of expectancy, was of course that in Scorpio, or of the death of the sun. Personified, the tribe to which this sign was appropriate was Dan; yet it was in Dan that "we await thy salvation, O Lord." (The sign Scorpio, being the gate of the woman, is opposite to the sign Taurus, and they meet at a point in the center of the sphere just where they are met by the line of the balance or Pater Zadic.) The place Scorpio was the pit, or the Hebrew word $\Pi$ TיU, shiac, the place of death, the door of Hades, or of Sheol. But true to the type, as the sinking sun was held to be a dead
sun, on entering the door of the devouring worm, the night, or Lilah, or woman, prepared to give birth to the new one. So, by parallelism, the soul only passed the door as a preparation for resurrection or new birth. In the heathen representations of this place of condition, under the form of a woman, over the mouth of the womb, was drawn the picture of the scull with crossed bones. The symbol was that of the door of life, as but a note of change from the condition of death. As death was to be considered the greatest evil, the place was hateful, and considered bad, and full of $\sin$; so that here all that was evil, dreadful, and sinful, was the very accompaniment of all that was to be most hoped for, most delightful, and most enjoyable. This at once makes plain the unaccountably horrid qualities anciently attributed to woman, down to as late a period as the early church fathers.

The author of "The Origin and Destiny of Man," page 145, has collected various holy statements as to this: "Corpus mulieris ignis est," says a holy person. O malum et acutissimum telum diaboli, mulier! exclaims St. Chrysostom; Per mulierem Adam in Paradiso diabolus prostravit, et de Paradiso exterminavit. St. Augustine says: Mulier docere non potest, nec testis esse, neque fidem dicere, neque judicare, quanto magis non potest imperare? St. John of Damascene says: Mulier jumentum malum, vermis repens, atque in Adamo domicilium habens, mendacii filia, Paradisi custodia, Adami expellatrix, hostis pernitiosa, pacis inimica. St. Peter Chrysologus, Bishop of Ravenna, says that she is malis causa, peccati auctor, sepulchri titulus, inferni janua, et lamenti necessitas tota. St. Anthony: Caput peccati, arma diaboli. Cum mulierem vides, says he, non hominem, non belluam, sed diabolum esse credite. Her voice is serpentis sibulus. St. Cyprian would sooner hear basilicum sibilantem, than a woman singing. St. Bonaventura compares women to the scorpion, which is always ready to sting man. They are, he says, arma et balista diaboli. Eusebius of Cæsarea says that woman is saggita diaboli. Gregory the Great : Mulier
recta docere nescit. St. Jerome: Si mulier suo arbitrio relinquatur, cito ad deteriora delabitur. And again: Optima foemina rarior est phoenice. And again: Janua diaboli, via iniquitatis, scorpionis percussio, nocivum genus. The church's opinion of women would be something fearful to contemplate, in connection with the necessity of their being the only mothers, sisters, and refining companions of man, were it not that this opinion was taken from these ancient glyphs and unificating necessities.

The word $\Pi \cdot \because \cdot \operatorname{U}$, shiac, is in Hebrew the same word as a verbal, signifying to go down into the pit. As a noun, it also means pit, place of thorns; also, the complaining word. The hifil participle of this word is מישיח, or Messiach, or the Greek Messias, or Christ, and means "he who causes to go down into the pit," a manifest attributed function of the Savior as held by Christian teaching. A very careful analysis and comparison of the Hebrew and Greek forms leads to some almost astounding developments, as to the twofold conditions of the Messianic character. Nork says most truly of Jesus, that he never was anointed cither as high priest or king, where he is showing that the term Christ is not applicable to him as the one anointed, as high priest or king. A setting forth of the Messianic meanings will throw a flood of light on the New Testament narratives. There are two words in the Hebrew from whence the Greek word Messiah can be derived. The first is the verbal מעשח, mashach, or participle passive, משוח, Mashuach, made to read equivalently Maim, Mashiach, or Meshiac, the very word used by the Greeks for Messiah. This verbal means to besmear, to anoint as with oil in dedication (Fuerst). The second word is $\Pi^{\prime \cdot}$, , shiac, same with שוּM. As a noun it has the meaning of pit, grave; hence, to sink as into a pit or grave. It also has the meaning to speak; hence, as substantive, word, or speech, lamentation, grief, humiliation; further, to walk among bushes, thorns. The hifil participle of this word is $\boldsymbol{\Pi} \cdot \boldsymbol{M}=$ Meshiac, or Mcssias, naturally, and without making any equivalent change whatever. Now, with what has been
said as to the woman character, or quality of the sign Scorpio, which is so often confounded by the early church fathers with the woman; especially as to its being the pit of the grave, while it is the ragina, as indicating resurrection, and now birth: and, with the remark of Nork, that Jesus never was anointed as high priest or king, take this circumstance of his life into consideration-viz., $/ I c$, as mortal, zuas never anointed but once; then by a woman; and not as hig-h pricst, or king; but, as Hc said, "She did it for my burial,"-which of the two Hebrew words giving the term Méshiac is most fitting and appropriate? But the fact is there were two Messialks: Onc, as causing himself to go down into the pit, for the salvation of the world; this was the sun shorn of his golden rays, and crozened with blackencd ones (symbolizing this loss), as the thorns: The other was the triumphant MYessiah, mounted up to the summit of the arch of heaven, personated as the Lion of the tribe of $\mathfrak{Y} u d a h$. In both instances he had the cross; once in humiliation (or the son of copulation), and once holding it in his control, as the law of creation, He being Jehovah. As strange as this development is, its strangeness is enhanced, when it is to be shown that the Greeks had also a double form of derivation to run parallel with that of the Hebrew as given. Fuerst, in noticing the powers of the two Hebrew letters $\boldsymbol{i}$ and $\boldsymbol{\pi}$, likens the first to the smooth, and the second to the rough, aspirate of the Greeks, and says, moreover, that $\Pi$ can be taken as the Greek $\%$. Then for the double form: In the Greek there is the word $\chi_{\text {pic }}$, whence $\chi_{\text {porazos }}$, to anoint with oil; therefore equivalent to the Hebrew Meshiac, having the same meaning. Now, considering what Nork says, as to there having been no such anointing, and what is said as to the real anointing for burial by the woman, take the equivalent of $\%$, in the rough breathing (in fact, Hadley gives $\chi$ as the rough aspirate), and we find the word $\delta_{\tau} \sigma \epsilon 5$, or $\chi_{\rho} \rho \gamma_{\rho} \tau_{\zeta}$, a word, specch (taken as from $\rho \varepsilon(\omega$, and $\varepsilon \rho(\omega)$. Passing from this to the other form of the rough aspirate, or $\%$, and considering these as equivalent forms, we do find $\chi_{0}{ }^{o \alpha} \omega$, " in
the earliest examples of the active, of the gods and their oracles, to give the necdful answer, give a response;" then $\chi_{i} \gamma_{\sigma} \sigma \eta_{n} n o s\left(f r o m ~ \chi_{i} \alpha(\omega)\right.$ of or belonging to an oracle; then $\chi_{i}$, $\sigma$ oripeov, the scat of the oracle, an offering for the oracle, generally a sacr-ficial victim, a sacrifice, victim. Thus the fated sacrifice of the word. Then came the shortened use of this form in $\chi_{\rho} \rho \sigma \sigma \sigma 0 s$ (from $\chi_{\rho} \beta \alpha \omega$ ), to run parallcl to $\chi_{\mathrm{s}}^{\rho \kappa \sigma \pi o s . ~ T h u s ~ t h e ~ p a r a l l e l e d ~ d o u b l e ~ f o r m ~ i s ~ c o m-~}$ mon to both languages. While, also, this is appropriate to the structure of the Greek language, Godfrey Higgins, in Anacalypsis, Vol. I, p, 569, gives authorities confirming the fact of the double use of the two terms Christos and Chréstos. The learning is very singular, as showing the gradual suppression and elimination of the esoterism, by which Scripture teaching has been thrown into confusion, and its real system has been subverted. The Greek of I Pet. II, 2, is: "If so ye have proved that ( $\chi_{\rho} \gamma \sigma \sigma \tau \grave{o}_{5} \dot{o}$ $\left.x^{\prime} p_{0}, 0_{5}\right)$ Chréstos is the Lord." To prove that the reading has been that of a proper name, Bishop Marsh says: "I Pet. II, 3: $\chi_{1} \sigma \sigma \sigma 05$, others $\chi_{\text {poratos." St. Paul, in }}$ Philipp. 1, 2I, is made to say: "For me to live is Christ, to die is gain." Dr. Jones says of this, that the sense " requires $\chi_{i}$ nioros in the scnse of $\chi_{\rho} \eta_{\sigma} \sigma \tau \sigma_{5}$, to correspond with थs ṑos (gain)." St. Paul seems to mean here, "For me to
 erence to the resurrection in Christ, or $\chi_{,}, \sigma \sigma \tau 05$. It involves the idea of sacr-ifice, or new-birth, by death unto righteousness, or this very $\chi_{i}{ }^{\rho r} \sigma \tau 05$, or Méshiac, condition. Justin Martyr calls the Christians by name of $\chi_{i}$ oratodot. And so on. To a late day, the terms Chréstos and Christos for Christ, were used interchangeably. The two conditions were necessary to the full proportions of the whole Christian system. Jesus, as the sufficring sacrificc, could not be the triumphant Christ until he had passed through the sacrificial Chrést condition. At Scorpio, he was Christos, in the pit, among the thorns, or blackened rays; but thence, passing around the circle, until the summit was attained, at Lco He became the triumphant Christos, as the

Lion of the tribe of $\mathfrak{F u d a h}$, who had subdued all things under himself. The cross was common to both conditionsonce to denote suffering, and the phallus, and then to denote the origin of measures, or Creative Law, or Fchovah.

The Meshiac Condition connected with the Geographical Location of the Head-Waters of the Fordan River.
(i.) To the tribe of Dan, geographically, was assigned the place in which were the head-waters of the Fordan, or the River-Dan The word, in Hebrew, bears this meaning, and thus it becomes the River of Fudgment (for Dan is judge, or judgment), or Dan, or of Sheol, or of Hades, or of Styx, where was located the place of judgment of the departed spirits. Therefore the river fordan had its headwaters in the springs of Scorpio, or the gates of death, or the vagina of the woman. Baptisms in this river, as can he seen, were therefore but types of the going down into the pit, and of the resurrection therefrom. The word Jordan also may bear the analysis of the word, as 77', to flow down, with an appended $\}$ final, which may be taken as a determinative, in the hieroglyph, of the fish; for this letter is $N_{2 \iota n}$, or $f i s h$, and thus determines the river as the Fish River.

Now, it can be seen how perfectly the Christian scheme was made to answer to its ancient prototype. When, for the first time, Jesus asks his disciples, "Whom do men say that I the Son of Man am ?" (Son of Man is the Ben Enosh of Daniel, and the Son of Seth (the year) in Genesis,) Simon Peter (Simon Bar Jonah, or the son of the Dove, and also as Peter the stone, $A b n$, אֹ, 125, or the cube of 5, or letter ה, or womb) answered, and said: "Thou art the Méshiac, the son of the living God." (Matthew 16.) Now, all this depends for its real significance on just that on which no stress would ever be laid without instruction. The verse (13) is: "When Fesus came into the coasts of Casarea Philippi, he asked his disciples, saying, Whom do men say that I the Son of Man am ?" The location gave rise to all the rest. Cæsarea Philippi was the sitc
of ancient Dan, out of which very spot welled forth the great spring of the Jordan river. He had gone to the localized type of the pit, the gate of death, or of Sheol. Jesus in Dan was in the shiac, or pit. He had caused to go there, therefore He was the משטיח, the Méshiac. He was enacting His going down into the pit agreeably to the ancient types and symbols. Astronomically, it was the death of the sun, but a death which was the precurser of the Nezv Sun. The death planted life in the womb of darkness, of Lilah, or of Egypt, and " Out of Egypt have I called my son."

A consideration of the salient dates in the life of Jesus seems to strengthen the astronomical exposition made. From Seyffarth is to be gathered:
"According to solar months (of 30 days, one of the calendars in use among the Hebrews) all remarkable events of the Old Testament happened on the days of the equinoxes and the solstices; for instance, the foundations and the dedications of the temples and altars" (and consecration of the tabernacle). "On the same cardinal days, the most remarkable events of the New Testament happened ; for instance, the annunciation, the birth, the resurrection of Christ, and the birth of John the Baptist." "And thus we learn that all remarkable epochs of the New Testament were typically sanctified a long time before by the Old
 Testament, beginning at the day succeeding the end of the Creation, which was the day of the vernal equinox." "During the crucifixion, on the 14 th day of Nisan, Dionysius Areopigita saw, in Ethiopia, an eclipse of the sun, and he said, Now, the Lord (Jehovah) is suffering something." "Then Christ arose from the dead on the 22d March, ${ }_{17}$ Nisan, Sunday, the day of the vernal equinox (Seyf., quoting Philo de Septen.) -that is, on Easter, or on the day when the sun gives new life to the earth." "The words of John the Baptist, 'He must increase, but I must decrease,' serve to prove, as is affirmed by the fathers of the church, that John was born on the longest day of the year, and Christ, who was 6 months younger, on the shortest,"-22d June and 22d December, the solstices."

This only goes to show that, as to another phase, John and Jesus were but epitomizers of the history of the same sun. under differences of aspect or condition; and one con-
dition following another, of necessity, the statement, Luke ix., v. 7, was not only not an empty one, but it was true, that which " was said of some, that (in Jesus) John was risen from the dead." (And this consideration serves to explain why it has been that the Life of Apollonius of Tyana, by Philostratus, has been so persistently kept back from translation and from popular reading. Those who have studied it in the original have been forced to the comment that either the "Life of Apollonius" has been taken from the New Testament, or that the New Testament narratives have been taken from the "Life of Apollonius," because of the manifest sameness of the means of construction of the narratives. The explanation is simple enough, when it is considered that the names $\mathscr{f} c s u s$, Hebrew : $\because \because$, and Apollonius, or Apollo, are alike names of the sun in the heavens; and necessarily the history of the one, as to his travels through the sigus, with the personifications of his sufferings, triumphs, and miracles, could be but the history of the othcr, where there was a wide-spread, common method of describing those travels by personification.) It seems also that, for long afterward, all this was known to rest upon an astronomical basis; for the secular church, so to speak, was founded by Constantine, and the objective condition of the worship established was that part of his decree, in which it was affirmed that the venerable day of the sun should be the day set apart for the worship of Jesus Christ, as Sun-day. There is something weird and startling in some other facts about this matter. The prophet Daniel (truc prophet, as says Graetz), by use of the pyramid numbers, or astrological numbers, foretold the cutting off of the Meskiac, as it happened (which would go to show the accuracy of his astronomical knowledge, if there was an eclipse of the sun at that time) ; which fastens the event, say, of the eclipse of the sun at that time. Now, however, the temple was destroyed in the year 7r, in the month Virgo, and 7 I is the Dove number, as shown, or $7 \mathrm{I} \times 5=355$, and with the fish, a Jehovah number. Is it possible that the events of humanity do run co-ordinately
with these number forms? If so, while Jesus Christ, as an astronomical figure, was true to all that has been advanced, and more, possibly, He may, as a man, have filled up, under the numbers, answers in the sea of life to predestived types. The personality of Jesus does not appear to have been destroyed, because, as a condition, He was answering to astronomical forms and relations. The Arabian says: "Your destiny is written in the stars." So also, in this connection, while from Adam to the flood was $1 \sigma_{5} 6$ yearsa mark in the reverse reading of the Parker astronomical square, or 6561 -the late Dr. Mahan, in "Scripture Numerals," shows that, from the establishing of the Levitical Dispensation to the destruction of the Temple, was also ${ }_{1} 656$ years, or, reversing again, a torminal square of 6561 ; thus showing the squaring out, or cornering out, of the entire Dispensation from Adam to the destruction of the temple, in the mystical values of the measuring square.

## Other Méshiae Types and Shadozus.

(i.) (I.) The application of the same type accounts for the means of conversion of St. Paul. He was Saul of Tarsus before that event; that is, he was Shcol, Hebrew for Saul, and Tarsus was a city founded by the Ionims, or the pcoplc of the Dove. He was on his way to Damascus, the pot of blood; and when struck with blindness, or darkness, a type of bcing in the pit, he was in Dan, through the territory of which he had to pass on his way. In the old pictures of the scene, he is represented as being thrown from a horse, falling backward, because of the vexing by a serpent of the horse's heels; and the Bible says of Dan, " an adder in the path, that biteth the horse heels, so that his rider shall fall backward." The horse was, by reason of his four legs, symbol of a square, or of the four cardinal points, the one bitten being of Scorpio, or Dan, so the serpent biting the heel carries back to the Garden glyph. Saul was undergoing the Méshiac, or Chrést, condition; having passed out of which, straightway he preached $M F^{\circ}$ shiac, or Christ, to which he had arrived by his initiation ;
and afterward his name is changed to Paul, the Little (so said), or smaller type of Christ, having dropped the Sheol characteristic.

It must be borne in mind that our present Christianity is Pauline, not $\mathfrak{F}$ csus. Jesus, in his life, was a Jew, conforming to the law; even more, He says: "The scribes and pharisees sit in Moses' seat ; whatsoever therefore they command you to do, that observe and do." And again: "I did not come to destroy, but to fulfil the law." Therefore, He was under the law to the day of his death, and could not, while in life, abrogate one jot or tittle of it. He was circumcised and commanded circumcision. But Paul said of circumcision that it availed nothing, and he (Paul) abrogated the law. Saul and Paul-that is, Saul, under the law, and Paul, freed from the obligations of the law-were in one man, but parallelisms in the flesh, of Jesus the man under the law as observing it, who thus died in Chréstos and arose, freed from its obligations, in the spirit world as Christos, or the triumphant Christ. It was the Christ who was freed, but Christ was in the spirit. Saul in the flesh was the function of, and parallel of, Chréstos. Paul in the flesh was the function of, and parallel of Jesus become Christ in the spirit, as an earthly reality to answer to and act for the apotheosis; and so, armed with all authority in the flesh to abrogate the human law.
(2.) The same types are to be seen in the histories of Saul and David. Saul was Sheol, the son of Kish (or of II3). By name he was Hades, or the pit, as Paul was under his Saul name. He was the type of the going down, and down he went. David, on the other hand, was the ruddy blooming youth, growing in his strength to the becoming the Lion. The types are Aries, Leo, and Dan. The determinatives of the types are, in part, as follows: Saul was taken to be king while hunting for his father's asses, while David was taken to be king from following his father's flocks of sheep. The sheep mark was the symbol of the sun in Aries; while the ass was the symbol of Typhon, or the devil, lord of the descendant.
(3.) The acrostic use is to be found in the mysteries of the Bible. The irth verse of the 96th psalm is an instance of this kind :

## ישמחו ה"שמים ותגל הארין

"Let the heavens rejoice and the earth be glad." The first letters of the words, put together, form the great word הוה', or Jehovah. This play upon words is confirmed as proper by Christian usage, in the acrostic forming the ichthus, or fish, as Christ.

As the words "Shem, Ham, and Japhet," have been shown to be determinatives of the pyramid structure, so they are types, setting forth, by way of acrostic, the Jesus and the Christ meanings. The first letters of the names are $\mathrm{S}, \mathrm{H}$, and I .
(土.) These, read in the reverse, are IHS, the monogram of Christ, as given by St. Barnabas. The values are, by adding, equal to 318 , and this is the numerical value attributed to Christ by St. Barnabas, meaning a diameter to a circumference of onc.
(2.) Placed agreeably to the reading of 318 , and the arrangement of the letters becomes changed to SIH, or MiU', Hebrew shiac, the pit, or source of the Méshiac.
(3.) Changing the brcathing, and the $\Pi$ becomes $\pi$, or changed into the Latin or Greek $\varepsilon$, and there results IES, or $\mathfrak{F} e s$-us.
(4.) If the character values of IHS are taken in the reverse, they are 38 r , the half base side of the pyramid.

Jesus zuas $I$-am before Abraham was born. But, further, since the shiac was the $p i t$, and the pit was in the sign Scorpio, and the shiac is convertible into IHS, one great monogram of Christ, the whole becomes explanatory of the great badge of the Roman Catholic Church; and which, according to Godfrey Higgins (Anacalypsis, Vol. II., p. 202), is placed on the breast of the Pope. The badge is--

or it is the monogram of the earthly condition of the repre-
sentative of the spiritual Christ. It is the Jesus condition of Chréstos, or $\chi_{i} \tau_{i} \sigma \tau o s$, or descender into the pit, under the astronomical sign Libra. The sign Scorpio, which is that of the Shiac, this birthplace, or causer of the Christ condition, is directly under and bordering on Libra. Hence the glyph. The Church temporal-i. e., every member thereof-headed by the Pope, must obey this sign before assumption can be made of the blessed Christ condition.

## APPENDIX VI.

## Grand Detcrminative at the Close of the Flood.

§ 94. (a.) The grand work of construction of the means of setting forth the creative law of God, both as to the measures of the heavens and the earth; of the ways of showing man's spiritual obedience to this number law of creation; and of laying, through this law, the foundation for the power of prophetic utterance, was finished. Then came a grand explanatory determinative, showing that the scope of the knowledge of this creative law was universal. It was not confined to any one part of the earth cxclusivcly, but belonged to all peoples and to all races. This knowledge was a commonality for the guidance of the world. Briefly, the Great Book discloses a secret in the eleventh chapter of Genesis. The first words are:

## 

"And all the earth was of one lip, and of one form of making an orderly use of the pozucr letters or numbers of the alphabet;" where the basic word for an orderly stringing together of words or syllables into one whole (see Fuerst, under 7ד), as might be expected, is the Logos word רבר, or dābvar, or 206; and where the power of enunciation is termed lip, to denote merely the instrumentality of the voice, as one mode of expression of the uses of 206 , or of the 7 .

The inhabiters said, one to another, Let us build us a tower. What for? Architecturally to set forth the same problem, just finished. From the narrative one would suppose that they did build the tower, but not completely the city. Then it is said: "And the Lord said, The people is one, and they all have one lip. . . . Go to, let us go down, and there confound their lip, that they may not understand one another's lip." What is determined? Nct
that their knowledge of the dabvar, or 206 , or of the creative law, was to be confounded, but simply that their means of expression by lip, or voice, of this knowledge should be diversified into different forms of oral commenication. All had the like knowledge, but by confusion of lip, one part became Phenician, or Chaldee, or Egyptian, or Etruscan, or Pelasgic, and so on. It is most likely that some one portion held to the original form, and the Phenician seems to have been that form. But, notwithstanding this confusion of oral expression, the lesson is taught that the esoterisms displayed in the Hebrew Bible, were likewise the property of other races; and this abundantly displayed even in our day. Of course, it is not a matter for discussion here, as to how greatly this esoteric knowledge might, or did become confused, or even perhaps, among some peoples, lost.

## An Evidence of Common Possession.

(b.) An evidence can be furnished of the commonality of this knowledge, in such form, also, as to guide toward unraveling the Bible glyphs. The thought of the ancient Jew may, perhaps, have been to spurn the devotee of Bacchus as an idolator; and perhaps, at that time, he was. But see: Bacchus was saved out of the waters of the Nile, in an ark, by Io, or Ino, the daughter of Luna. Such was the tradition. Moses was saved out of the same waters by the daughter of Pharaoh. The mystery begins to clear away, as also the distinction, when the numerical meaning of the name Pharaoh, פרעתה, is known to be 355 , or the value of that circular term of the Hebrews, shanah, שנה (equals 355), the name of the lunar year period. The serpent, symbol of ever revolving time, swallowing one unit of its length of 355 , becomes 354 , the ancient, or Hebrew, or Egyptian, or Pharaoh lunar year. The daughter of Pharaoh, then, was the daughter of the lunar year, or of Luna, equally with the savior of Bacchus. The power of explanation is in that the pagan glyph is less obscured
than the Hebrew one, inasmuch as a lunar quality is plainly given; but once taken, the Hebrew is by far the most valuable, inasmuch as it gives the very value of the qualityviz., $355-\mathbf{x}=354$. Faintly, the mission of Moses before Pharaoh can now be disclosed. Moses stands before the pyramidal flame. His name, משטה, equals 345. To what the value refers is a mystery. It may be taken.as the radius of the elements of circle three, § 82 (3.), as connected with the pyramid interior works; or as the numbers 3-4-5, for the sides of a right-angled triangle; or as 435 , for 217 $\times 2$; or it may be taken in connection with the problem of Mr . Myers, given in his Quadrature, connected with $7^{2}=$ $49+\mathrm{r}=50$ (and as to which there is curious rabbinical learning in Land Marks of Free Masonry, Vol. 2, p. 432, note, London ed.) The pyramidal flame may involve the word shaddi, , שיׁי, the god-name, as 318 ( 7 doubled by dagesh), or 314, diameter to a circumference of one, and circumference to a diameter of one; the mean being 316, a great value connected with the foot of the descending passage-way in the pyramid, or 38 r . The Lord, or Jehovah (a diameter value growing out of 113 , and the perfect one of a denomination of 20612), appears to him. He says he has selected him to go before Pharaoh, or 355 , the circumference of II3. As a proof, he tells him to throw the rod (a diameter) he has in his hand (value 5) down upon the ground ( $\operatorname{II} 3 \times 5=565=$ הוה of Jehovah). It becomes a serperit. He tells him to take it by the tail (the value 5 for hand is also the letter $\boldsymbol{\pi}$, or the womb, and taking the tail of the serpent in the hand is equivalent to the process of making the year scale, as $365-5=360-5=355$ ), and it is now the year value. But having done so, it becomes again a rod, or diameter value, or the lesson is taught. Here are numbers, values, and symbols of the calculations, in terms of the lunar year values, for the serpent is one symbol for the calculation of the lunar year in the terms of the values $113: 355$. With these, Moses is to go before Pharaoh, who is the lunar year, as 355 .

Egypt was darkness, or the womb, or mother, in opposition to Mount Zion, which was malc. It was out of Egypt that God deigned to " call his son." (Seyf. Chro., p. 191.) She was the woman of the garden, or rather the garden itself, whose number was that of the 7 th day, or 7 , and which was based on II3: 355. The river Nile was one of the passage-ways from the center of the garden, or the place of the birth of time. Pharaoh, or 355 , was Egypt, because he was lord of Egypt ; and Moses was the calculator, or Hermes. Again, from these connections, it now becomes plain why Solomon (the son of $S h c b \bar{a}$, or 7 , and who afterward entertained the queen of darkness, or Shcbū), together with his other buildings, erected a porch (type of revolving time or aeon) for Pharaoh's daughter, adjoining his judgment (Dan) hall. It is but a figure for calculations of time, the hall of judgment being the place of Hermes, or the Egyptian Thot, the god of knowledge, and the calculator. It is possible that light is thrown by the Moses glyph upon the shipwreck of St. Paul. Paul shipwrecked, while kindling a fire, the rods or sticks being in his hand, a serpent escaping from the flame (mystic), or pyramidal sun measure, wraps itself around his forearm. Here seems to be the recurrence of the type under a change of form, after a fashion approximating the tphillin use, a note as to which is to be found in the conclusion to these appendices.

## The Construction of the Tabernacle.

§ 95. The greatest expansion from the Garden of Eden (on and in which it is rabbinically said that the whole law rests, but that its containments are too subtle to be found), architecturally, was the tabernacle, which Moses built just after his serpent exhibitions before Pharaoh. In various places, especially see Smith's Dictionary of the Bible, where a most beautiful eye-pleasing structure is framed, and the Bible corrccted by an F.R.S., descriptions of the tabernacle are to be found, as an apparently pleasing tent structure to the eye; but a careful reading of its descrip-
tion in Exodus, with an attempt to put it together, will correct the ardent desire of most to have of it a stylish oriental structure. They will soon see, who try this, that the setting forth and combining of measures was the object of the mention and detail of its various parts. The grand object of this tabernacle was that it should be a residence of Jehoval. Now, the work was made up by the offerings of the people. There were just $60355^{\circ}$ people enumerated as offering a bekah apiece. There were two bekaks to the shckcl; therefore, there were offered-

$$
603550 \div 2=301775 \text { shekcls. }
$$

But there were 3000 shckcls to the talent. So there were just-

$$
\begin{array}{lr}
\text { In talents, } & 100.00 \\
\text { With remainder over, of, in shekels, } & 1775.00
\end{array}
$$

It may be stated in another way. There being 603550 bckaks, there being 6000 bckahs to the talent, then there are soo talcnts, with a remainder over of 3550 bckahs (where the use of II3: 355 crops out as II30: 3550, where II 30 is circumference to a diameter of 360 ). $355^{\circ}$ shekels $\div 2=1775$ shekels, as above.

This was the actual division made; for, of the soo talcnts were made the sockets of the pillars, and of the remaining 1775 shckcls were made the hooks of the pillars. These last words, the hooks of the pillars, ווי העמודים
are said to be of very great kabbalistic value ; so much so (it is said) that, in the scrolls of the law, the commencement of a section is, where possible, made by the letter van, the page itscif being considercd as the omudim; because, it is said of them, that they carry the key power of the tabernacle construction. By the same authority, it is said that the word עמודים, omudim, can be taken as meaning cubits; hence a meaning of mother and forc-arm. In one way, apart from this departure, the difficulty is not very great, with the helps we have of construction. The house was to be the place of residence of Jehovah, and Jehovah is but a play on the value II3, or diameter to a circumference of 355 , or Pha-
raoh; while it is also the value of the straight line one, of a denomination of 206i2. We have the form-

$$
\begin{gathered}
\text { (土.) } \quad 113: 355:: 56.5: 177.5 \\
\text { and }
\end{gathered}
$$

(2.) $56.5 \times{ }^{10}=$ 'הוה : $177.5 \times 10=1775:: 360: 1130+$. In the 3550 bckahs, whence the 1775 skekels, we have circumference to II30+; which last is circumference to 360 , the standard year or Jehovah year value, as a perfect circular element. Here, in (2.), we have the form of the 1775, or hooks of the pillars of the house of fohovah, directly connected with Jehovah, in the form $56.5 \times{ }^{10}=$ הוה', where Gehovah is shown to be the diameter to this very 1775 as a circumference: so, in fact, the Jehovah value is being raised, in pari passu, with the 1775 shekel value of the hooks of the pillars. In heathen mythology, the hooks of the pillars may have indicated the hooks binding together the opening of the sistrum, sacred to Isis, or the woman; and this, as the Garden of Edcn, was the womb of time, virgin, because it was productive of itself. The origin of measures, however, was also a Jehovah expression, as io, or picture of a circle, with its diameter straight line, the perfect or straight line one, hermaphrodite, and of the perfect circular value 20612, the source and begetter of all things, the infinitely small, but of the same realizable proportional value as $\mathrm{I}-206 \mathrm{I} 2$, invisible, intangible, yet resident at the meeting of the male and female cubes, over the ark, and between the cherubims. As the 7 th day was the kodeshed day, the pure virgin day or circle, so also, when the tabernacle was completed, as a badge of all its containment, the high priest wore on his forehead a plate of pure gold, bearing the inscription

## קדיש-ל־יהוה

where the same feminine trait as of the 7 th day is predicated of the great word. Kodesh l' Gehovah was holiness to the Lord. By the various hieroglyphic powers of this combination, the various purposes of the tabernacle, for measure, sacrifice, and worship, are to be found indicated.
(a.) There is one fact in regard to Moses and his works
too important to be omitted. When he is instructed by the Lord as to his mission, the power name assumed by the Deity is, I am that I am, the Hebrew words being

## ;

a various reading of יהוה'. Now, Moses is מ״שה , and equals 345 .
Add the values of the new form of the name Jehovah, $2 \mathrm{I}+5 \mathrm{II}+2 \mathrm{I}=543$, or by the reverse reading 345 ; thus showing Moses to be a form of Jehovah in this combination. $2 \mathrm{I} \div 2=105$, or, reversed, 5OI, so that the asher or the that in Iam-that-Iam is simply a guide to a use of 2 I or $\overline{7 \times 3} \cdot \overline{501}^{2}=25 \mathrm{I}+$, a very valuable pyramid number, indicating the distance from the intersection of the passage-ways to the central axial line of the structure. The analysis of this form really conducts one back, by reference, to the Garden of Eden form, on which the pyramid resulted. Very frequently, however, the simplest form of symbol use is the most important. Bend 345 into a circle, and we can read 354, which is the result of Enosh, as אנוש, or $365-\mathrm{I}=364$, which has for the other extreme $355-\mathrm{I}=354$, where 364 comes from the kodeshed use of the 7 th day, as $7 \times 4=28$, and $\overline{28 \times 13}$, or $\overline{52 \times 7}=364$; thus showing Kodesh L' $\mathcal{F}$ chovah truly enough! And, again, it can be read 435 , and $435 \div 2=217+$, or the heel use.

## APPENDIX VII.

## The Fourth Chapter of Genesis.

§ 96. The attempt at guiding one's way through one set or kind of hieroglyphic readings spurs out, here and there, hints which may be used as helps to other kinds of construction. Rabbinically and kabbalistically, it is averred that the entire Biblical knowledge is held in the first four chapters of Genesis ; but it is also taught that the subtlety of teaching, or its comprehensiveness, is such as to prevent recognition in many ways and details. One great cloak to blind as to determined readings of the narrative style is in the making use of the hermaphrodite condition; for instance, a personification combining the idea of male and female may be treated of as a feminine quality, through determinative construction, while at the same time it may be characterized by superficial description in its other quality as male. Thus the name $\mathfrak{F a c o b}$, $\boldsymbol{Z P V}$, or $\mathfrak{F} a h$ is $h c c l$, is hermaphrodite, where, as regards the whole concreted name, Jah (or Jehovah) is masculine, while hecl is the feminine part. Jacob evinces this by seizing with his hand ( $\quad$ ' $=1+4=5$ ) the heel of his brother. The word 7 ', or hand, has a sexual meaning masculine, while the heel is feminine, and yet as a pictured hieroglyph, and as 5 , it is the womb, a creative number. Thus a double combination of Jacob's hand, male, with Esau's heel, female; or of Esau, male, with Jacob, in his feminine quality of hecl, as female, which betokened the changes of relationship which they should take to each other on the celestial circle. So also with relation to the glyphs of Sodom. Nork shows, clearly enough, that the controlling characteristics of the Sodom description are feminine. Its geographical location was at the salt lake, and Venus sprang from the salt foam. It was the aspraltum or bitumen lake,-to that extent a Typhonic
emblem of darkncss, or the pit,-also feminine. It was at cuoning, when the angels went over from Abram, the sun measure (who, as typifying this measure, was at midday seated in the door of a pyramidal structure, under the vertical rays), to his brother, or counterpart (or sister), Lot, seated in the gate of a fortress-all feminine traits. The recondite meaning connected with the place was as of the abyss, ecclesiastically paralleled to woman's desirc; and thus " those" (men?) of Sodom who attempted to seize the male guests of the patriarch's brother, though his daughters were offered a'sacr-fice, are clearly enough determinative of the real natural fact that they ("those") were women. Further determinations are made. It is Lot's wife that turns back with longing desire, and is converted into a pillar of salt, a monument of combination; while it is Lot's daughters to whom the impulse of repeopling the world is given. The tracing of the subtle substitutive involutions of these qualities becomes the necessity for the reading of the more important teachings of the esoterism. It is under just such a cloak that the feminine character of Hebcl, or Abcl, is concealed in $4^{\text {th }}$ Genesis.

It has been seen that the Garden rested on the Adam or 144 form, as 4 squares of $\overline{6 \times 6}=36$ each, around a central point; then the crossed lines are extended out, so that the area 36 is expressed in line measure of that number ; which 36 is diameter to $1130+$; which brings up the $113: 355$, from whence the woman and the Parker numbers, constructive of the pyramid. Now, subdivide these lines of 36 by 4 , or $36 \times 4=144$ each, and in number we have 4 of them. The operation is indicated by $4^{2}$, or $36 \times 16=$ 576 , as $144 \times 4$, and the letters of Can's name, ${ }^{\prime} p$, added as to their full values, gives the character value of 16 , as $100+10+50=16-0$. The Garden has now become, under this use, one of a square of 144 in the center, or Adam, expanded into four such squares, or, together, a large square of $144 \times 2=288$ to the side; or, $c u b c d$, the Adam or hermaphrodite cube, as a primal one, is, in separating into male and female, each a perfect one, enlarged
by 8 other cubes into another perfect one, where, however, it is composed of the separated unities. The circumference of this large square is $144 \times 2=288$ to the side, and $288 \times 4=1152$ for circumference, and as indicating this we have the first values II5, by reading the letter values of Cain's name, as they run, in ${ }^{9} p$, or 115 . The measure of a horizontal line passing through this garden, then, will be noted from verge to center, as 144-44I ; counterparted, so as to exhibit separated qualities, just as it was in the expression of woman-man, as $3 \mathrm{II}-\mathrm{II} 3$; and this is the meaning, or source of meaning, of the kabbalistic use of roverse readings. It was always the double cubc-i. e., male-female, i. e., white-black ; and it explains the reading given of $1656-6561$, or $6561-1656$, already had. But a most interesting feature now presents itself in this subdivided value of this garden. 144 is $\overline{12 \times 12}$, and the side of the great square of $144-44 \mathrm{I}$ is $12+12$, or 24 in length, where I44 is taken as, say, inches, and reduced to fect. 24 is four sixes, or $\overline{6 \times 4}=24$. Now, this is cxactly the measure of the base of the great pyramid in this identical scalc of measure; for $190.985+f$ fet, which is diameter to a circumference of 600 feet, is numerically just $\frac{I}{4}$ of the side of the base of that structure, and $600 \times 4=2400$ fcet, as the circumference to the base side in fect, taken as a diameter value.
(Perhaps a simpler way of explaining the likeness is this: The pyramid base side is diameter to a circumference of 2400 fect, which can be used as its equivalent; and 24 foct is the characteristic of this base side. 24 feet is 288 inches, or $144 \times 2$. 144 is Adam, the nucleus of the garden, and may be taken as the square of 12 , for area, or as 144 for the side of a square. Place this in the center of four squares of like size, and the side of the larger square, so framed, will be 288 , or the characteristic of the base side of the pyramid in inches. $2 S 8 \times 4=1152$, the total circumference. Besides this, this $I_{152}$, as designative of this circumference, is symbolized by the letters INRI, standing for earth, air, fire, and water, the elements composing the cosmos which the pyramid measures. Bend these letters into a circle, and their
number values read 1152 . This is referred to in the last part of this Appendix.)

Here the characteristic value is taken in 24 feet. Again, referring to the garden form of the crossed lines being $36-63$, these indicate $113-311$, for $113.0+$ is circumference to 36 as a diameter ; and $113 \times 5$, if this be so subdivided, equals $5^{6} 5$, or הוה, or Eva, or hovah. But to indicate the cube of 8 , enlarged from the cube of one, the letters $\boldsymbol{\Pi}$ and $i \rightarrow$ are, together, an oblong of two squares (p. 160), or the Phenician fence, giving these two letters-viz., dividedand one part of this oblong is $ה$, and the other $\pi$; but $\boldsymbol{i}$ is the womb letter, or 5 , as showing the half of the primal onc, and taken as the single cubc, it requires just 8 others for the enlarged cube, and the letter $\boldsymbol{\Pi}$, the other part of the oblong, is 8 . Therefore, דוה, or primal Eve, and חוה, or Eve separated to be the producing mother, are simply determinative of this, as the one is (or 5), Eve, and the other $\boldsymbol{\Pi}$ (or 8 ), Eve. This enlargement is based on the idea that for every perfect woman there must be a perfect man ; hence the combination is a black cube and a white cube, the practical value being in the mecting of the cubes or covonant: so that while (H)-ouva, or $\boldsymbol{\pi}(\boldsymbol{H})$, is woman, (Ch)-ouva, or $\boldsymbol{C l}(\boldsymbol{\pi})$, is woman having a husband. But this doubled form is an oblong, and, to make it a perfect square, four must be taken, or 8 such alternating cubes, to make another perfect cube. The commingling of Adam with Eve produced the welding together of the two Garden forms in Cain, or Fchovah, who was the divider, or measurer, or distributor. Cain was Vulcain, and Vulcain, with the Egyptians, was the greatest of the gods, or of the Cabirim. Vulcain was Pater-Sadic, the Right One, or the Just One; and by Fuerst: "Sanconiathon calls one of the
 with Melchi-Sadic, the Just One)-i. e., Jupiter;" which simply shows that Mitsar, or Mitzar, רע. Egypt, was the same with Mizar, 7 , and was both zuife and sister of Fupitcr, who was the Melchizadik of the Hebrews. Seyffarth, Part 2, p. 74, gives Cabirim as Gibborim, "the
mighty men of renown in those days," in 6th Genesis. And Fuerst says of the Cabirim (planets): "A name of the 7 sons of P's,", or Pater Sadic, or Cain, or Jupiter. As the expression "Adam (144) knez Eve (56-5 or $56-8$ ), is but the commingling of the Garden of Eden elements, and as the Cain form is but another use of the same elements, it is most interesting to read the teaching of Irenaeus (xxxiv) (Adam and Cain being one), that "the father and the son lie with the woman, whom they call Mother of all that live (Eva)." (Sod., p. 74.) How true it is here, for it is the intermingling of the squared forms of earth measure (Adam-Cain) with the circular measures
 Eve, as shown.

Before proceeding to the reading of $4^{\text {th }}$ Genesis, a governing determinative should be taken into consideration. Cain has, in one respect, the same quality with Adam-viz., he is " a divider of the Adam-h," or tiller of the soil," and as with Adam, it may go to show the use of measures in right lines, though connected with circular values. This seems to be determined by the fact that Cain is said to be Fehovah; and the other fact that in all the conversations in this glyph, the god-name Elohim (or 3I415), circumference value is dropped, and Fohovah, ' (or II3 $\times .5=56.5 \times{ }^{10}\left(=\right.$ Bin $\left.^{4}\right)=565$, Eva), a diameter value is alone used. Such being the main idea (whatever the uses under it, which no doubt involve time and earth measures), when this special phase of the problem is worked out, and perfectly ended in the Cain glyph, as a variation on the general workings of the main problem, the subject is resumed under the other form ; for, as determinative of this, the דוהי form is dropped, and that of circumference is again taken up in the expression "for God hath appointed me another seed instead of Abel," where, for the first and only time in these connections, the term Elohim (3I4I5), God, is used. The seed was $\boldsymbol{R}^{\circ}$, Seth, the year, ts values being $\overline{3 \times 4}=12$, and, as an origin, $3+4=7$.
(a.) (土.) The first sentence in 4 Gen. 1 , is: "And Adam
knew Eve, his wife; and she conceived and bare Cain, and said, I have gotten a man from the Lord," agreeably to the accepted translation, which is manifestly a false rendering. A better and more literal rendering is: "And Adam knew Eve his wife; and she conceived and bare Cain, and said, I have measurcd a man, even F̛chovalh." The reading is ka'nithi aish cth fchovah, or

## קניתי אי゙

Here the proper name is taken as a measurc. Wordsworth, in a note on 4 Gen. $\mathbf{r}$, on this passage, says:
" Cain-I have gotten],-Kain, from Ka'nithi, I have gotten. Here is an instance of the principle on which names were given in primitive times-namely, a desire to indicate some leading characteristic of the person, or thing, to which they were given. See (Genesis) ch. iii., v. 20. Kain intimates acquisition, and Eve's next son was called by her Abel-i. e., vanity, weakness."

This principle, as laid down by Dr. Wordsworth, is found everywhere to be a right one. Here, while the name may stand for a great variety of uses (a phenomenon of the hieroglyphic), one fundamental recognition is of the fact denoted by the act of Eve-viz., I have mcasurcd, is followed by the substantive form, a masure, or Cain, or $\mathcal{F} e$ hovah. The word of the text is derived by Wordsworth from ka'nithi, I have gotten. The derivation is good, for the verbal is känūh, קנקה קנה, a substantive, meaning measuring stick, or rod, the bcam of a balance, from the verbal קנק of Wordsworth, which is "identical in its organic root with כנה, or Cänäh, to divide, scparatc." (Fuerst.) So, also, Sir William Drummond takes the same derivation-viz., as a measure. (EXdipus Judaicus, p. 196, on chap. 15, v. 22, and chap. 17, v. 9, of the Book of Joshua.) The derivations run off into other significations; as, for instance, כנה, Cānāh, to dividc, scparate, is same as חנה, chānāh, both meaning to pierce, as "הןד, chānāh, (1.) to incline, to bend; (2.) to pierce of a zucapon, organic root of which חנ־ , chn-h, also lies in $\mathrm{i}^{\boldsymbol{\beta}}$, Kn (ק, Kün), belonging to i'p, Kayin, Cain (proper name)." (Fuerst.) As exceedingly pertinent to this sub-
ject, after $\boldsymbol{M}$, chānāh, and next in order of words comes the word " " $\boldsymbol{\Pi}$, chanoch, noun proper, (I.) of the son of Cain (meaning Instructor, Initiator), by LXX, ह̀v $\omega$, (2.) of the son of Methuselah, who founded the 365 year." (Fuerst.) It is so pertinent, because of showing Cain to be the measure, in Chanoch his son, the instructor, or initiator, of the astronomical circle and the solar year. And also, likewise, "The god of time was worshiped under the names of $\boldsymbol{j} \pi$, chiun, by the Egyptians; clearly taken from زI , ciun" (Fuerst, under $\dagger 9$, ciun, a name of Saturn, or Seth); and 1 y , ciun, is same with ${ }_{j} \mathrm{p}$, Cain. The pillar was a mark of the year, and Nork says of Cain that he was as the German pfcil, pfeilcr, spear, or pillar, or the god with the hasta or spear point. Thus one has the word Cain as a dividing, splitting, or piercing measure of time; and, besides, he was the earth measurer. Now, Vulcain was the Pater Sadic, or Melchizadik, and as a form of Mars, with the Egyptians, he held the ccliptic, Libra, or the balance, and also was the piercer, with the sign of Mars, or the hasta, or spear. Tubal-Cain, son of Cain, has been taken by commentators as Vulcain, but there was no need of going so far for the sameness. The very name Vulcain appears in the reading, for in the first words of 4 Gen. 5, is to be found V'elcain, or V'ulcain, agreeably to the deepened $u$ sound of the letter vau. Out of its immediate context, it may be read as, "and the god Cain," or Vulcain. If, however, anything is wanting to confirm the Cain-Vulcain idea, Fuerst says: "阬, Cain, the iron point of a lance, a smith (blacksmith), inventor of sharp iron tools and smith work." Cain, as a number value, is, as the letters run, 115 ; adding the full values 160 , or character value of 16 , or adding the character values (as $\mathrm{I}+\mathrm{I}+5$ ) is 7 . He is at the head of a system of calculation, as Seth is; Seth, $\boldsymbol{\Omega} \boldsymbol{\bullet}$, being 3-4, as the letters run, adding the character values, is 7 , or multiplying them, $3 \times 4=12$. But Seth seems to be the more perfect value, for it is composed of the productive numbers 3 and 4 . Mars and Vulcain, or Cain, or Pater Sadic, are forms of
each other. Under the Egyptian forms of the celestial system, by one or other form, Mars held the solstice and equinox points. But Mars was the generator, while Vulcain was the divider or measurer.
(2.) Cain, as son of Adam, I44, zuas Adam; and, as son of the woman, he was II3, man; and $113 \times \cdot 5=$ $56.5 \times{ }^{10}$ (יהוה $)=565=$ = הוה = Eva; where, in 56.5 $\times{ }^{10}$, Ychovah springs from 113, or man: so, thus Cain, the measure, was man, as 113, and Jehovah as $565^{1 .}$. And so, also, Cain thus welding together the Adam and zoman forms of the garden, thus becomes really a determinative of what has preceded in the narrative. He was 144, and its feminine, or circular derivatives; and this is determined, for it is said "Cain was a divider (by measure) of the earth." The words are עעב אדפ־, obed Adam-h. The verbal obcd, is to divide, to separate, to mark by long stripes or furrows; and these are the more radical meanings, the secondary derivation being to till, to cultivate. It is thus expressly said that Cain is a divider of the Adam-h, or of the $144-5$, or 720 . Taken literally, and always in division keeping the counterpart form, the divisions of the square would be $720 \div 2=360-063 ; 360$ $\div 2=180-08 \mathrm{I} ; 180 \div 2=90-09$; where the division has come to its lowest integral terms in the square of 3 . But, virtually, it is seen that this is but the Garden form. It is very curious that the counterpart values present strange co-ordinations with the general subject-matter; for, $\sigma_{3}=$ $\overline{9 \times 7}$, and 7 is characteristic of $\boldsymbol{y}$, and 9 is of $\boldsymbol{y}$, or together $3 y$, ots, the tree of the Garden; 8I is the side of the area square of 656 I , the Parker base; while 9 , the last subdivision, with the 16 of Cain's name, gives $9 \times 16=144$, or a curious restoration of the Adam form of 144 in its subdivision of the cube of 3 , and the square of 4 ; and $16 \div 9$ $=1777.77+$, the cubit value of the base of the pyramid. Cain's function seems to be marked as of the quadrant division lines of the square, or of the cube, or he seems to represent the cross division lines. It has been shown that for calendar purposes, Cain, as II5, was the complement
to make up the standard year of 360 days, or the celestial circle of 360 degrees, as $28+217+115=360$ : and that on this, as a standard, the addition of the 5 epagomenai days made up the full solar year of 365 days. Thus, Cain can be taken as this value of 360 degrees, of which he holds the crossed lines as exactly balanced, because he was the $\mathfrak{F} u s t$ One. This was the standard celestial circle, of which the horizontal diameter was the ccliptic, to which plane all movements of the heavenly bodies were referred. The divisions of the Zodiac (ring of life) were laid off on this circle in 12 compartments. The compartment of Saggitarius bounded on the zuinter solstice, and was called Tobi as a month; then followed the Goat, Waterman, Pisces, Aries, Taurus, and Gemini, six divisions closing up to the summer solstice in Gemini, which was called Pani. But by this distribution Scorpio falls to the second sign below the autumnal equinox. The actual distribution of the full solar year months, on these signs, did not accord with them; but June being Cancer, as a month, to accord with the signs, fell back on to the sign Gemini, of the standard circle or zodiac, 22 degrees, or days, so that June 22, for the month, accorded with the boundary line of Pani. By this arrangement, which was the correct one, Scorpio would also fall back, as a month, to within ten degrees or days of the boundary line of the autumnal equinox (September 22 to end of month inclusive 9 days + the ist day of October) ; which ten degrees, or ten days, was the amount to be added to the 355 year, or Abram-Isaac year, to make up the full complement of 365 days. Putiing these ten days in a box, carried the last day of the 355 -day year over this gap of ten degrees, which, as blotted out, carried or continued the equinoctial to the first day of Scorpio, not as next to, but as the actual first day of October. And, indeed, this was the adjustment as made by the Hebrews; for 355 was their basic year value, and by their squared form, they followed the order of the actual months, so that the third quadrant of the year run : Leo, Virgo as the corner square, and then Libra. By this arrangement, this or the holy
square, or cube, was embraced, between Cancer and Scorpio, depicted as so much alike as to represent the cherubim, measuring the holy cube in the holy of holies. It was the function of Cain, to adjust these unequal qualities, the one to the other: 1. A standard year base; 2. A standard zodiacal circle; 3. The arrangement of the actual year of 365 days for distribution on this circle. But it is seen that under the squared form Scorpio could be treated of as Libra on the standard circle, so that the same phraseology would apply to each. By this month arrangement, also, the same figures would apply to the same seasons perpetually; while, by the fixed value of the signs of the Zodiac, they would fall away from fixed locations of the year by the lapse of time, as they have done.

Thus, under this explanation, one of these cross lines leads from Scorpio, and this was the place of piercing the dying sun, or rather of impregnating the depths with the new sun. Here, at the autumnal cross, as referred to the center of the square, was the piercing of Abel accomplished; but unfortunately for what is called orthodoxy, the bloodshed was chāthan dami, חתן דע, or the bloods of the bride chamber. How exceedingly wonderful the connecting links of this esoterism are! Jesus was the son of man, the Ben Enosh, or Enosh, or $365-\mathrm{I}=364$, the son of the year, or Seth, $\Omega \cdot \mathcal{*}$; but the patriarch Judah, son of Jacob, the Leo or lion of the Zodiac, and renewer of this Garden of Eden glyph, in his phase of working, found Tamar on the same crossed lines, at the same place (the solstice line crosses the equinoctial at the ecnter; the crossing being in common, Judah looked down to his opposite for Tamar, and met her in the center, just as Scorpio met Taurus at the same place), but at harvest, along the solstice line between Leo and the groat, and she was the ancestress of Jesus through Pharez. Now, while Enosh is the year, Tamar was the palm-tree, a recognized symbol of the sun and of the year, in its hollowness, or nothingness, showing another phase of this astronomical picture; so that, both by numbers and by types, and also by derivation, Jes-us
was the sun, as well as a man; and as such, Jesus and Abel were one. The glyphs, as the saying is, run on all fours together. Cain, a Mars form, pierces Abel, and the Roman soldier, a son of Mars, pierces Jesus. Both, by Kabbalism, are pierced at the meeting of the cubes, or covenant, or at the intersection of the crossed lines. Abel is said by some to be the same with Abclion, the sun. In the "Rosicrucians," by Hargrave Jennings, is a representation of the astrological-theological cross. The man Jesus is depicted as half male, half female; the female, or sinister, or dark, or evil side, being blackened. On this cross He is pierced in the sinistcr side, in the venter, which by the chart is Virgo (but should be Virgo, Scorpio), the place of piercing being in the side of the man, or in the approach to the door of Indranee, and just where the woman was taken from the man's side in the Garden. But man, as 3 II , is the woman, or the two are interchangeable under the counterpart form $3 \mathrm{II}-\mathrm{II} 3$, so that the piercing is the type of the consummation of marriage, duplicated in that of the rite of circumcision.

So Cain is Melchizadik, or Pater Sadic, or Jupiter; the Just One, or the Right One, or the Adjuster. He is the ecliptic, and the balance line for equinox, and solstice. He is the divided cube, representing, as to one of its phases, the heavenly measures. It is not a single cube, but is made up of 8 cubes of 144 , each, in its subdivided form, combining distinct males and females, for production.
(3.) The narrative proceeds, "And she again bare his brother Abel;" where the word brother is simply an obscuration of the sex of Abel (he being hermaphrodite), which in reality predominates in this glyph as fcmale. It is observable, too, that no mention is made in this case of knowlcdgc by Adam. It is so in the first verse, and it is so in the close, as relates to Seth, but here there is omission. Abel is הבל, Hcbcl, and, adding the character values $(3+2+5)$ equals 10 , or the perfect one, or $\mathscr{Y}$ chovak, showing that Abel and Cain are but phases of the same form-viz., of Jehovah. As this is so, while הב,

Hebcl, has its significant use as a single word, it is susceptible to division into ה־בל, or $I T-B l$, or $T h e-B e l$, or the sun. In this form the values run $32-5$, and $32 \times 5=160=$ Cain; thus showing the collateral sameness. As a number value 10 is the perfect cube (so was Cain) ; it is also circumference to 3 I. 8 as a diameter, and this was the Gnostic Christ, who was Jehovah. But the double form of Jehovah, as male-female, is here eliminated, because by the determinatives $H e b c l$ is made to assume the feminine side of his own form exclusively. The meaning of the word Hebel is emptiness, nothingness. This is the idea of the primal God. In Kabbala, the first cause, God, is named j's, oin, nothing. (Franck, $\mathrm{Ir}_{5}$, quoted from Sod. p. 67.) Nothingness is used as a mark of the female. Nork says that the beautiful Naamah was an astronomical name for Venus; as she was, also, he says, the Bohu, or word for void in I Gen. v. 2. Take other words of like and kindred and correlative meanings: $\dagger \gg y$, ayin- " 8 from ${ }_{j} \boldsymbol{y}, \bar{u} n(=\boldsymbol{\mu}, \bar{u} n)$, same as $\boldsymbol{j}^{\boldsymbol{N}, \text { aven, nothingness, }}$

 the idea of emptiness, with $\sin$ and cohabitation all combined. This is determinative of the character of the circle as a personage: (I.) That it is but the circle part of the Io, the straight line, or diameter value, being left out-i. e., it is an emply circle; (2.) That, sexually, Abel is feminine, for the purpose of this glyph. This is again determined with a new significance in the description, "And Abel was a keeper of sheep," or follower of cattle. The words keeper of shecp, are $\mathfrak{j x}$, רעת, roch tson. This word rock, kecper, is a compound of $\mathcal{y}$, ra, evil, bad, wicked, malignant-in short, the early church characteristics of woman; and with appended $\boldsymbol{i}$, $h$, is not ouly a shepherd, but a shepherdess. But take the word as a numerical de-
 or zooman. Again under $\boldsymbol{j}$, avon, same as $\mu \boldsymbol{j}$, un (vari ously pointed), not only are the same meanings expressed, but, also, it is used as On, or Heliopolis, the city of the

Sun, which is the hollow circle of the year. But, indeed, , חבל, chebcl, signifies, to conceive, also pains of birth.

And thus a feature of the glyph is of the Garden of Eden: (土.) In its masculine, or right line, form of CainAdam, and (2.) in its feminine, or sun circle, form of Abel; and its object is, in some sort, to show forth astronomical applications of the measuring elements of one to the other. But as Cain, as The Right One, holds the balances, or beams of the balances, and there are two balances-viz., that of the equinoxes and that of the solstices-he as divider, or center crossed lines, of the Adam-h, cuts this circle in its quadrants. It has been shown that the balance opposes birth and death in the Mars form. The chief points were in Aries and Scorpio.

Now, there is a curious reflection. In Hebrew, the balances are $\boldsymbol{\square}$, m-oznim, while the cars of the head are ■'נis, oznim, the precise same word, save the mem, $\Omega$, prefixed. The type is clear enough, for the division of the head at the ears exhibits this very glyph of the Mars form of birth and death, as balanced in the equinoctial scales. To join the two symbols, as significant the one of the other, in the Hindu form, over the mouth of the vagina is drawn the scull and crossed bones, forming a kind of mon-
ogram for life. In church emblems, one finds

or crossed bones with this letter character, which is the letter $p$, kopff, or symbol of the half of the head back of the cars.
(4.) By considering the place of Scorpio, or D'lilah, in its evil aspect, as connected with its feminine quality, then it would come under the adjective form of evil, or $\boldsymbol{\nu}$, ra ; and the opposite to this would be good, or תוב, tobi, as designative of the two opposite qualities. Now, by the ancient Egyptian charts, the zodiac sign of Saggitarius, bordering on the winter solstice, carried the name Tobi, or the Hebrew 21ט, good; while the opposite sign of Gemini, bordering on the summer solstice, carried the name Pani,
or Hebrew Pani, ' ${ }^{\prime} פ$, facc or aspect. The astronomical course of going from Tobi, by way of the vernal equinox, which, as opposed to Scorpio, was good, to the summit, or Pani, would be upward to the highest point, where the aspect or face of the year would change to its reverse declining. From Pani, the course of the seasons would be declining, by way of Scorpio, or evil, toward the winter solstice. Now, taking what is said to be so as to the offerings, Cain being frhovah in this glyph, as a diameter value, or as diameter values, has nothing to do with himself, but does in his masculine capacity shine (for the word is stinc) favorably upon the circle of the year, or zodiac, or lifc; or upon Eve, Venus-Naamah. At the summer solstice point is the intersection of the diameter line with the curve, at the highest reach of the sun. The sun here is vertical, just as at the noon point, and the standing still of the sun at the noon point was called ${ }^{\prime}$, ${ }^{\prime}$, dami, by the Vulgate, and LXX, (Fuerst), and dami, דמן, is exactly the same word for the bloods of Abel, which Cain shed. Here was the fiercest power of the sun looking down vertically along the solstice line to the intersection of the cross lines. At the same time, his aspects change or fall to his declining. This is actually described. It says: "And it burned upon Cain, and his aspect, 'פנ, Pani, changed to descending." Now follows a description of where the sun is going to in descending, by a history of his travel. The words are: "If thou doest well (good, Tobi, בוב), there is exaltation, rising"-i. e., you will rise by way of the good side; "but if thou doest not well (when you are descending), Sin (feminine חטטת, chattuth) is a Lier-in-wait at the door or opening (or Sin is at the quadrant line, at the opening; for $\boldsymbol{\gamma}^{\boldsymbol{\gamma}}$, rbts, the lier in wait, is also the $4^{\text {th }}$ side, as of a cube, or square, as well as a couch to lie on.) Again: "Sin lieth as a copulatrix, at the door or opening;
 down, to couch, but also to copulate. The word for opening is in the same kind of connection, for פּרחון, piththachon, the opening of the mouth, and also פחתחM, p'thach vah,
or " Jah is causer to bear, where E1, or Jah, is conceived of as the creative world-power." (Fuerst.) In other words, "At Scorpio you will find Naamah, as beautiful as wicked, who is, in this instance, the feminine part of your brother Abel." And now comes a great determinative, fastening this interpretation, as of marriage, or the consummation of marriage. In the 16 th verse of the 3 d chapter, as to the woman, it says: "And thy desire shall be to thy husband, and he shall rule over thee," which was the accompaniment of sin, or transgrcssion, or crossing, as a quality determined upon to be the characteristic of woman for all time. Here (obscured under the male-female form) it is said as to Hebel, as Sin, to the man Cain or Jehovah, "And her (his) desire shall be unto thee, and thou shalt rule over her (him)." This seems to mark out an unmistakable character of the glyph. But it is followed by the fact, for it was that they, being in the dividing of the field (ב־שׁה , $B$-sadeh), Cain, the rod, rose up and violated his brother. It was marriage, and the bloods that were shed were the chathan dami, or bloods of the bride chamber; and they were to be found as part of the h-adam-h, or 36000063 . The Cain form of the garden was $144-44 \mathrm{I}$, and the bloods shed are 441, or ' 9 , or by counterpart 441-144, which simply shows that these bloods were, after all, but a means of division of the garden for astronomical and other purposes; and as the sun standing still is vertical, as coinciding with the one Cain division line, is by name ${ }^{1}$, dami, or 441, so the bloods of Abel, shed on the other, and horizontal division line, are also ${ }^{\prime}$, or 44 I . Considering the 144-44I or 44I-144 form of the Garden, and the exact fittingness of these applications, as 44 I and 44 I , for dami, thus twice used, respectively, for solstice and equinox line, with the narrative form of explanation, and the interpretation of the glyph for this phase seems good.
(5.) But the Cain form of the Garden, 144-441, has been shown to be in the reduced form, exactly significant of the base of the great pyramid-i. e., I 44 inches is 12 , say, feet, and $12=\overline{6+6}$; therefore, there being $\overline{144 \times 2}$ to the
side of the Garden, this is, in this reduced form, four 6 s , or $6 \times 4=24$; and indeed the actual measure of the side of base of the pyramid is diameter to a circumference of 24 . Now, since from the very first line of Genesis, through the Garden of Eden scene, there has been a continuous and systematic reproduction of the pyramid elements of construction, in another mode of working them, with also the very foundation principles and numbers on which it was constructed, to be found both in the Garden and in the flood glyph, it might well be expected that this 4 th chapter, likewise, would be really founded on the same method as the exactly correct one laying at the base of all other phases to be presented. And, indeed, the connecting link between the general construction of the exterior and of the interior work does seem to exhibit itself as obscurely hidden away. Cain and Abel are together in the dividing of the ficld. The word is sūdch, , ficld, and rather means a dividing as of a field. With this word is the prepositional prefix 】, or B ; or the whole is $\boldsymbol{ה}-\mathrm{Z}, B$-südch, and for value we find the character values as they run, $345-2$, which may designate the counterpart use of $345-543$. Now consider, however, that we have the exact terms of the pyramid base in the Cain Garden form, as shown, and then that we have the Hebel circle in connection with it. Then here there are the two elements necessary for putting the pyramid in a sphere. Now, refer to the geometrical problem for the construction of the interior works, § 74 . One portion of this problem-viz., that having reference to the great salient characteristics of the interior works-is founded on " circular elcments three," as given in § \$2, namely:

| "(3.) | Height, $309 \cdot+$ feet. <br>  $\frac{\mathrm{I}}{2}$ base side, | $243 \cdot+6$ |
| :--- | :--- | :--- |
|  | $\frac{\mathrm{I}}{2}$ base diagonal, | $343 \cdot+6$ |
|  | Radius, | $345 \cdot+6$ |

"These are the circular elements whence the complete
pyramid, as to its inside work, is fitly framed and put together."

Here the radius value is given at 345 , and the diameter value would be $345-2$. But here in the word $B$-Sadeh, ITM, we have 345-2, this very value. Not only so, but adding the full values of the letters of the word Sadch, and we have $\ddot{\sim}, 300+7,4+\boldsymbol{\pi}, 5=309$, which is just the height of this pyramid three, as shown. Not only so, but the 343 , gives the value 343 of the descending passageway. It is next to impossible to prevent the mind being convinced that these lines of similitude are intentional, where the various corroborative data are taken into bearing. But, really, in connection with these pyramid coincidences, there is one which seems absolutely to confirm or establish the relation. It will be noticed that "circular clements three" are connected with the problem of " interior geometrical construction," agreeably to the diagram shown in § 74 (b). Referring to that diagram, it will be seen that the $309.397+$ referred to is geometrically connected with that angle, which has been supposed to be that of the roof of Campbell's chamber, and of the queen's chamber, in the pyramid. That angle has been shown to be $115^{\circ}$ (see §76). Now the name Cain, or ${ }^{7}$ P $p$, equals, taking the character values as they run, in5, as has been so often referred to. Independently of this, in 345 we find the name Moses, עם עישה, = 345, used as $I$ am that $I$ am, shown also to be 345 , in the Pharaoh glyph. So, also, $345 \times 6=217-0$, or it is a multiple of the hecl, or Jacob value; while if 345 be bent into the form of a circle, it may be read 354 , or the lunar year value. Not only so, but in the $\frac{I}{2}$ base side of these designated pyramid elementsviz., in the value 243 -we find the name Abram. Moreover, in this connection, it has been shown that the height of the intersection of the floor line of the grand gallery with the south wall thereof, above the base of the pyramid, was diameter to a circumference of 5184, the solar day value. Well, $5184=\overline{72 \times 72}$, and this is the division of
the central square of 144 of the Cain Garden, or $144 \div-2$ $=72-27$. So, indeed, here in this combination is Moses, Abram, heel or Jacob, with Jehovah, and Christ ; and all are developed in the pyramid. The divided form of this ficld would take the numerical display of

$$
345-543,
$$

which again presents strange features; for $543 \div 7=63$, and $63 \div 7=9$. But 7 and 9 are the characteristic values of $\boldsymbol{S y}$, or ots, the tree of the Garden, the twining together of the two parts of which indicates the "חתחן רמי, chathan dami, or consummation of marriage, in its attendant bloodshedding. So, also, $\overline{7 \times 7}$, or sevenfold, seems to look toward the scvenfold of Cain, and the 70 and 7 fold of Lamech. $\overline{7 \times 7}=49$, the perfect square, to which if one be added, the result is 50 ; and is the subject of the curious note referred to in Land Marks of Freemasonry. So, 345 $+543=888$, and somewhere this value is given as a Gnostic value of Christ. (Moses, 345 ; I am that I am, 543.)
(6.) If one counts the days of the solar year from equinox to equinox, or from solstice to solstice, he will find that there is not an even division. March 22, to the end of March, inclusive, is io days; this, or $10+30+31+30+$ $31+31+22=185$ days, and $365-185=180$ days, for the other half, showing a preponderance of 5 days in the upper half. Include the solstice days in the lower half, then the upper half has 183 days, and $365-183=182$; showing a difference of I day as surplus preserved by the upper half. As to the solstices, from the 22d June to the end of the month, incusive, is 9 days. Then $9+31+$ $31+30+31+30+22=184$ days, and $365-184=181$ days, showing a difference of 3 days. Reverse by giving the solstice days to the other half, and 184 becomes 182 , and $365-182=183$ days, showing a difference of 1 day. (Take the form in which ISo days becomes one of the sides. This was the number of years of the life of Abraham. Add the life of Isaac $=175$ years, then $180+175$ $=355$; where, to make the $360-y e a r$ period, requires just 5 days. Add this to 175 , and we have for the Isaac side

I8o also, and $180 \times 2=360$, or a year period of an exact balance. To perfect the other, or 365 -day year, another 5 days has to be added; which heretofore we have found to be added to the lower half, or about the time of the 17th day of the 2 d month, giving the preponderance to the lower half of the year of 5 days, instead of to the upper, as above. However, we see that by the addition of the 5 days, the balance is disturbed.) It was, perhaps, this inequality, or preponderance of one side over the other of the year, which went to make up the mark on Cain, who was a nodder, or wabbler, or "wanderer in foreign lands," having reference to the unequal motion of the earth with relation to the ecliptic in its nodding. There had to be a variation from a fixed standard of division, as of an even division, to complete the natural year in its period of days. This seems to be implied in Cain's expression, "My sin is greater than I can bear," where the equivoque is perfect. The two salient words are sin and bear, related with each other by the comparative, i. e., greater. These two words are very remarkable. They are: for my sin, āvoni, or עונ, and for than I can bear, min'sho, or ע-פּוֹא. A better translation is: "My descending is greater than my ascending," or "my left side is greater than my right side." The word $\bar{j} \boldsymbol{y}, \bar{a} v o n$, has the meaning of $\sin$, or of copulation, or of the feminine quality-found in various ways, as nothingness, hollow, as given already; and also the left side by comparison. Rachel, in dying, brings forth Ben-oni, or 'עונ, whom she calls "son of my guilt, or sorrow," as it is translated; but while he is this kind of a son, as related to her feminine quality of woman, he was designated in another way by Jacob, who changes his name at once, or in contrast, to Ben- Famin, or "son of my right side," or of the "light, clcar region, the day side," as contrasted with sin, woman, dark, or left side. So, also, these words give the idea of male side, as contrasted with female side. In $4^{\text {th }}$ Gen. 7, as already used, are the words, " if thou doest well, there is dignity, excellence, lifting up, exaltation," as in contrast with "sin
licth as a copulatrix at the door." The contrast word of
 this word is to be found as applied to Reuben by his father, Jacob, where, by the translation, it is the excellency of dignity, and where the words תN: be the promincnce of my malc part, for immediately before is the sentence, "the boginning of my strength," where for strongth is, 'गlN', avoni, which is the same with Rachel's 'yly, àvoni, or femininity; and can be used as the beginning of my sorroz, in the sense of my source of begattings. This description is laying the foundation for the conclusion, which is, "unstable as water, thou shalt not excel." Why? "Thou wentest up to thy father's bed; then defiledst thou it : he went up to my couch." Here is an instance of what Iranæus says, as quoted above. Paraphrased, the intent is, "Reuben, thou art my first born, my eldest ; who, by right of primogeniture, art the representation of myself: as such, thou art myself as to the place of begettings, and the mean of begetting, because thou dost represent me. . . . Yet wentest thou up," etc. But to this purpose, here scath and avoni are used as mombrum virile and yoni. But further, when Jacob wrestles with the angel, he does so in the dark; and as he caught the heel of his brother, so now Esau as the angel (see Nork, Wörterbuch) wrestles with Jacob. The conclusion of the wrestling is that Jacob's thigh is dislocated, or is wasted, or shrunken, as to its sinczu. This sinew which
 "נコ, (Fuerst.) Now, while $N \bar{a} s \bar{u}, N \cup \cup \cup$, is to raise $u p$, to $c x-$ tend upzoard, to risc highn, nāshā, הüd, is to cxtend, stretch out, showing the sameness of the words as cognate: then there comes, as related, and, in fact, the rabbinical reading of this is, according to Nork, "spannader für den phallus, (See under Jacob.) So also, it could be taken as the assumption of the feminine quality in this wrestling. After this struggle in the dark, his name is changed from its feminine
character of Jacob to Israel, altogether masculine, implying here the change from the dark to the light part of the year, the boundary line between which was the brook which he crossed, or Pani-El, or the division line at the solstice, precisely as in the description of Cain, as going up from Tobi and descending from Pani, the same solstice line is designated. Under "Jacob," Nork says : The cardinal or hinge
 or turning of the (time) god, that place where Jacob wrestled with the demon, in whom the rabbins recognize Esau, from whom the name of the boundary river Jabbok (קב•v. v. to wrestle), and overcome him." Pani-El and Jabbok are used interchangeably.

His going up was Scath, or male, and his descending was on the other side toward the characteristic of that side -viz., fomale. The male was his right side, the female was his left side. Now from summer solstice to winter solstice is $9+3 \mathrm{I}+3 \mathrm{I}+30+3 \mathrm{I}+30+22=184$ days, and $365-184=18 \mathrm{I}$; so that the female side was greater than the male side by 3 days. Or, considering the circle of the year as the form of a man-woman, his left side at the hip would be greater than his right side; or, his $\sin$ side was greater than his male side. And this goes to show that the glyphs of Cain and Abel, and of Jacob and Esau, are to this extent alike, as having reference to the same phenomenon. Now as to the mark set on Cain. The words are וישטם יהוה לקץן אות, V'yāsem Yehovah l'kayin, oth, where the predicate yāsem, $\square \mathbf{Q e m}^{\prime \prime}$, is the apocapated future hifil, from shum, Of this word under (ir.), Fuerst says: " Properly, to be veiled, hence to be obscured, darkencd; metaphor, to be impotent, weak; fig., to be on the left-the left side being regarded as the weak one; the left district as the obscured, concealed one. See [10, Tsaphon; לun, Samacl." Tsaphon "is the dark, wintry hemisphere, the dark region, where the sun and the stars are extinguished, and the light of heaven is swallowed up." Samael " is the veiled, dark region of the north; what is turned to the north, the left side, the left hand."

It was reported, rabbinically, that Kin (Cain) the Evil was the son of Eve by Samael the devil, who occupied the place of Adam.

So the reading of the line is: "And the Lord caused impotence to Cain, or weakness, or loss, on the left side, as a mark or token," etc. ; and this corresponded with the lameness of Jacob, and also with the lameness of Vulcain. This impotence has nothing to do with the left side being the largest, but with its female quality ; for it is ascribed by the rabbins to that of the virile power, which is extinguished in the dark or female part of the year, which commences with the vintage, the sun in Scorpio, just where, by the Persian symbolization, the Bull suffers castration by the Scorpion, or just where the ' of Jehovah conceals itself in Hoval.
(7.) As one after another of the allegorical uses comes up, and is explained, the aggregation all tending to one elucidation, serves to clear away the ambiguity and equivocation from the remainder. It is seen how fitly the Egyptian mode of hieroglyphic expression fits to the Hebrew use. As there was a common underlying use in numbers and geometrical forms, as in the Bible there is constant reference to a mysterious connection between the Hebrews and the Egyptians, so there seems to have been an interchangeable use of a common mode of expression. This accords with the statement of Seyffarth (Chro., p. 34) :
" Now, we know that with Abram, ir50 years after the flood, 484 years after Phaleg, during whose life the Egyptians and all the other ancient nations emigrated from Babylonia-i. e., 2781 в. с.-the Hebrews left their original place of abode. These Abramidæ spoke Hebrew, and consequently this same language must have been indigenous in Chaldea. But as Menes also came from Chaldea only 484 years before Abraham, the ancient Egyptian language must be intimately related to the Hebrew."

And this agrees with what one so frequently finds as to the, by statement, passing over of old Phenician radicals into the formation of hieratic words, to the Egyptians, Babylonians, even Hindus, Greeks, Latins, Germans, and especially British, showing a common reservoir of knowledge
for all these ancient people. Already we have seen this to be the case as to Arcts, Mars, Tobi, and Pani, in especially hieroglyphic coinnections. The equivocation in the narrative scene of Cain and his brother Abel, as to the slaying, as to "cursed art thou," as to " my sin is grcater than I can bear," is perfect. But these are preceded by one just as great in the words of warning to Eve. The Garden scene was the picture of that sinful transgression culminating in the universal fall of man (or better, of woman), bringing upon an innocent progeny unnumbered woes. In the very first exertion of his divine power, God, we are led to infer from the simple narrative, set a trap for his most simple-minded and ignorant son and daughter. There seems to be, on the face of this "as in Adam all fell," a sort of non sequitur, as relates to the honorable and merciful character of the inventor. But, manifestly, and to speak seriously, as relates to humanity, the Garden was the scene of the creation of and first recognition by the sexes of their difference of organism; also of their sexual introduction the one to the other. Now, the little deeper reading of the narrative turns the mask and shows the natural and true intent, thus spoiling the equivocation. While Adam was in the hermaphrodite condition-i. e., before the woman was taken from him-he or she is told as to the forbidden fruit, "for in the day thou eatest of it, dying thou shalt die." (Gen. ii. 17.) מות, mūth, dying, תרכ, Tīmuth, thou shalt die. That this was said to her is clearly implied in verse 3 of the third chapter, where the words are the same. The following, as to the Egyptian, will lend further and singular reflections on this subject:
"Muth, or Mouth, was the Egyptian cognomen of Venus (Eve, mother of all living), or the moon. Plutarch (Is. 374) hands it down that 'Isis was sometimes called $N$ Iuth, which word means mother. Either Man, or Maut, means mursc, mother. Perhaps Wuth is to be derived from Man-tho, mater-terra (Eve-Adam), which being the fact, Muth differs in nothing from Isis, queen of the earth (Issa, Ne̛N, woman).' (Is., p. 372.) Isis, he says, is that part of nature which, as feminine, contains in herself, as (nutrix) nurse, all things to be born. 'Certainly the moon,'
speaking astronomically, 'chicfly exercises this function in Taurus, Venus being the house (in opposition to Mars, generator, in Scorpio), because the sign is luna, D, hypsoma. Since truly it may be taken from this passage of Pintarch, that Isis Metheur differs from Isis Muth, and that in the vocable Muth, the notion of bringing forth may be concealed, and since fructification must take place, Sol being joined with Luna in Libra, it is not improbable that Muth first indeed signifies Venus in Libra; hence Luna in Libra." (Beitrage zur Kenntniss, pars II, §9, under Muth.)

Now there is not a word of this description which is not fitted to the scope of the Garden of Eden glyph. It is part and parcel of the same learning that gives the Egyptian ARTS, as the Phenician and Hebrew ARTS, in the first chapter of Genesis. Now consider the correlating terms, Sin with Intcrcourse, and the symbol of death being but that of birth, as they have relation to the place Scorpio, the opposite to, yet connected in the center, with TaurusVenus, and the conclusion is irresistible, that in the words "dying thou shalt dic" (that is, in Scorpio), we have by correlative reading and meaning "conceiving thou shalt become a mother." And this agrees with the fact related; for she did cat the fruit, she did not dic, and she did become a mother. This shows the double play upon the word Muth, תוּ, by help of which the real intent is produced in the occult way, as intended. Sin, death, and woman are one in the glyph, and are correlatively connected with intercourse and birth. This derivation once stated, finds full confirmation on its own Phenician, or Hebrew soil. The word Bohu, בהו, void, has been seen to be taken for Eve-Venus-Naamah. Fuerst, under Bohu, 17コ, says:
"In this primitive signification was 1ב taken in the Biblical cosmogony, and used in establishing the dogma ( ${ }^{\prime} \mathbf{N} \boldsymbol{N} \boldsymbol{\bullet}, \mathcal{F}$ cs (us), m'aven, F̛es-us from nothing), respecting creation. Hence, Aquila translates oudév, vulg. vacua" (hence vacca, cow), "Onkelos and Samarit, "ריק". The Phenician cosmogony has connected Bohu, , בר , Bañ, into a personified expression denoting the primitive substance, and as a deity, the mother of races
 Bvo-ós, Buto, for the mother of the grods, which passed over to
the Gnostics, Babylonians, and Egyptians, is identical then with Môt (מות, our Muth), properly, Bйけ (בהו־ת), originated in $P$ henician from an interchange of $b$ with $m$."

This view assists also to another facility for interpretation. Each sign to be mentioned was a double sign, or male-female-viz., it was Taurus-Eve, and Scorpio was Mars-Lupa, or Mars with the female wolf. So, as these signs were opposites of each other, yet met in the conter, they were connected; and so in fact it was, and in a double sense, the conception of the year was in Taurus, as the conception of Eve by Mars, her opposite, in Scorpio. The birth would be at the winter solstice, or Christmas. On the contrary, by conception in Scorpio-viz., of Lupa by Taurus-birth would be in Leo. Scorpio was Chréstos in humuliation, while Leo was Christos in triumph. While Taurus-Eve fulfilled astronomical functions, Mars-Lupa fulfilled spiritual ones by type.

The workings out of this glyph of $4^{\text {th }}$ Genesis help to the comprehension of the division of one character into the forms of two persons; as Adam and Eve, Cain and Abel, Abram and Isaac, Jacob and Esau, and so on. It helps, also, to take the horrid blemish off from the name of Cain, as a put-up job to destroy his character ; for, even without these showings, by the very text, he was $\mathfrak{F}$ chovah. So the theological schools had better be alive to making the amend honorable, if such a thing is possible, to the good name and fame of the God they worship.
(8.) Now, as linking together several great salient points in the Biblical structure: (土.) As to the Old and New Testaments ; with, also, (2.) as to the Roman empire ; (3.) as to confirming the meanings and uses of symbols; and (4.) as to confirming the entire explanation and reading of the glyphs as (5.) recognizing and laying down the base of the great pyramid as the foundation square of the Bible construction, (6.) as well as the New Roman adoption under Constantine-the following is given:

Cain has been shown to be the $144-44 \mathrm{I}$ form of the Garden, based upon a square of $144 \times 144$ in the center.

He has been shown to be the 360 circle of the zodiac, the perfect and exact standard, by a squared division; hence his name of Melchizadik. He has been shown to be the distributer or adjuster of the 365 -day year on this square of 360 or 36 . The Hebrew year has been shown to be the base, in Abram, $\mathrm{I} 8 \mathrm{o}+\mathrm{Isaac}, \mathrm{I} 75=355$. This $+5=360$, or Cain, and $355+10=365$, by which the solstice and equinox points of the 360 or zodiac (or life) circle are made to fall back, as to the months of the 365 -day year, so that the equinox points shall fall, as for months, on the first day of October, or Scorpio, and its opposite ; while the solstices are to be marked by Leo and its opposite. This was a Hebrew use and recognition under the squared form ; they taking out the 3d quadrant, cube, of which Leo and Libra, bordering on Cancer and Dan-Scorpio, were the corner controllers. But this corner cube, worked in on to the square of the entire year, was made to preserve this same order, by Leo and Dan-Scorpio being made to hold, respectively, the two controlling corners of the great square. Now, this was all founded on the Cain-Adam square ; or, as shown, the square of the base of the great pyramid. Take this square, as the Cain-Adam square of 144-44I, with the central or Adam square of $\overline{12 \times 12}=144$ (either as a line or as area) ; and, holding the numerical value as inches, take the same square, as reduced to feet:


By the very force of construction, the larger square will be laid off into blocks of $6 \times 6$ feet, and its circumference will exhibit a face divided into 12 of these squares, and $\overline{12 \times 6}$
$=72$ feet, or for a line circumference of $24 \times 4=96$ feet; while the interior or Adam square is shown to be divided into 4 blocks of $\overline{6 \times 6}$ feet each. It has been repeatedly stated that the object of the great pyramid construction was to measure the heavens and the carth; therefore, its measuring containment would indicate all the substance of measure of the heavens and the carth, or agreeably to ancient recognition, Earth, Air, Water, and Fire. (The base side of the pyramid was diameter to a circumference in feet of 2400 . The characteristic of this is 24 feet, or $\overline{6 \times 4}=24$, or this very Cain-Adam square.) Now, by the restoration of the encampment of the Israelites, as initiated by Moses, by the great scholar, Father Athanasius Kircher, the Jesuit priest, the above is precisely, by Biblical record and traditionary sources, the method of laying off this encampment. The four interior squares were devoted to (1.) Moses and Aaron; (2.) Kohath ; (3.) Gershon ; and (4.) Merari-the last three being the heads of the Levites. The attributes of these squares were the primal attributes of Adam-Mars, and were concreted of the elements, Earth, Air, Fire, Water; or $\square^{\prime}=\mathrm{Iam}=$ Water, $נ=$ Nour $=$ Fire,, רוח=Rouach =Air, and $=$ Iäbcshah $=$ Earth. The initial letters of these words are INRI. This square of INRI is the Adam square, which was extended from, as a foundation, into four others of $144 \times 2$ $=288$, to the side of the large square, and $288 \times 4=$ $115-2,=$ the whole circumference. But this square is the display of also circular elements, and $115-2$ can denote this. Put INRI into a circle, or read it as the letters stand in the square, as to its values of 1521 , and we have

which reads 1 I5-2 of this fact. But, as seen, Cain denotes this as, or in, the II5 of his name; which II5 was the very
complement to make up the 360 -day year, to agree with the balances of the standard circle, which were Cain. The corner squares of the larger square are, $A=$ Leo, and $B=$ Dan-Scorpio; and it is seen that Cain pierces Abel at the intersection of the equinoctial with the solstice cross lines, referred to from Darı-Scorpio, on the celestial circle. But Dan-Scorpio borders on Libra, the scales, whose sign is v (which sign is that of the ancient pilloz, on which the back of the head to the cars rested, the pillow of Jacob), and is represented for one symbol as
 as has been shown. But also the badge of Dan-Scorpio is death-life, in the symbol as cross-bones and sluull, or back of the head, or lifc-death; and this was the monogram of Chréstos, and the Labarum, or standard of Constantine, the Roman emperor. Abel has been shown to be Jesus, and Cain-Vulcain, or Mars, pierced him. Constantine was the Roman emperor, whose warlike god was Mars, and a Roman soldier pierced Jesus on the cross; so that the three unite under this characteristic. But the piercing of Abel was the consummation of his marriage with Cain, and this was proper under the form of Mars-Generator; hence the double glyph, one of Mars-Generator and MarsDestroyer in one; significant, again, of the primal idea of the living cosmos, or of birth and death, as necessary to the continuation of the stream of life. Now, the cross is the emblem of the origin of measures, in the fehovah form of a straight-line ONE of a denomination of 20612, the perfect circumference; hence Cain was this as Jehovah, for the text says that he was Jehovah. But the attachment of a man to this cross was that of $113: 355$ to $6561: 5153$ $X_{4}=206 \mathrm{I} 2$, as shown. Now, over the head of Jesus crucified was placed the inscription, of which the initial letters of the words have always been retained as symbolic, and handed down and used as a monogram of Jesus Chréstos-
viz., INRI, or $\mathfrak{F e s t i s}$ Nazarenus Rcx $\mathfrak{F}$ facorum; but they are located on the cross or the cubed form of the circular origin of measures, which measure the substance of Earth, Air, Fire, and Water, or $\operatorname{INRI}=115^{2}$, as shown. Here is the man on the cross, or II3 : 355 combined with 6561 : $5153 \times 4=20612$. These are the pyramid-base numbers, as coming from II3: 355 as the Hebrew source; whence the Adam square, which is the pyramid base, and the center one to the larger square of the encampment. Bend INRI into a circle, and we have $115^{2}$, or the circumference of the latter. But Jesus dying (or Abel married) made use of the very words needed to set forth all. He says Eli Eli Lamah Sabachth-ani

## אלי אלי למה שישבחתני :

For, read them by their power values, in circular form, as produced from the Adam form, as shown, and we have = $=113$, Moses in the Cain-Adam pyramid circle: : $=7$ Io, equals Dove, or Jonah, and 7 10 $\div 2=355$, or $355-553$; and finally, as determinative of all, $\mathfrak{l}^{\prime}$, or $n i$, where $\mathcal{d}=$ Nun, fish $=565$, and $'=1$ or 10 ; together $565^{1}=$ 'הוה', or the Christ value.

And thus closes the relation between the Parker and Metius forms of numbers in construction of the great pyramid, with their Biblical use; and it is seen that the pyramid stone book is the equivalent of the Old and New Testaments.

Attention is called to part of the 46 th verse of the 27 th chapter of Matthew, as follows: " Eli, Eli, Lama Sabachthani? -that is to say, My God, my God, why hast thou forsaken me?" Of course, our versions are taken from the original Greck manuscripts (the reason why we have no original Hebrew manuscripts concerning these occurrences being because the enigmas in Hebrew would betray themselves on comparison with the sources of their derivation, the Old Testament). The Greek manuscripts, without exception, give these words as-


They are Ilcbrew words, rendered into the Greek, and in Hebrew are as follows:

## אלי אלי למה שבחת-ני:

The Scripture of these words says, "that is to say, My God, my God, why hast thou forsaken me?" as their proper translation. Here then are the words, beyond all dispute; and beyond all question, such is the interpretation given of them by Scripture. Now the words will not bear this interpretation, and it is a false rendering. The true meaning is just the opposite of the one given, and isMy God, my God, how thou dost glorify me!
But even more, for while lama is why, or how, as a verbal it connects the idea of to dazzle, or adverbially, it could run "hoze dazzlingly," and so on. To the unwary reader this interpretation is enforced and made to answer, as it were, to the fulfillment of a prophetic utterance, by a marginal reference to the first verse of the twenty-second Psalm, which reads :
" My God, my God, why hast thou forsaken me?" The Hebrew of this verse for these words is-
as to which the reference is correct, and the interpretation sound and good, but with an utterly different word. The words are-

> Eli, Eli, lamah azabvtha-ni?

No wit of man, however scholarly, can save this passage from falseness of rendering on its face; and as so, it becomes a most terrible blow upon the proper first-face sacredness of the recital. There is but one, and there is one escape, and that is by having resort to the mystical intent. The Hebrew phrase was purposed as it reads, and its antagonistic and false rendering was purposed as it reads. It was on the same principle already mentioned, of the crossed bones and skull, as an emblem of death, being placed over the door of life and signifying birth, or of the intercontainment of two opposite principles in one, just as, mystically, the Savior was held to be man-woman. This zuas the idea intended, and interpreted thus, the passage
suffers no violence of distortion. Above, the numerical values of the words have been given, as connecting themselves with the INRI, or $288 \times 4=1152$, of the inner square and outer square of the encampment, which at the same time is the base of the pyramid, by equivalence. But by these numbers, Eli is II3 (by placing the word in a circle) ; Lamah being 345, is by change of letters to suit the same values עמשׁה (in a circle), or Moses, while Sabachth is John, or the dove, or Holy Spirit, because (in a circle) it is 710 (or $355 \times 2$ ). The termination $n i$, as nuni, or $565^{1}$, becomes Jehovah. Connecting this phrase with INRI, and it throws light upon the transfiguration scene on the mount. There were present there Peter and James and John with Jesus: or D', Iami, James, watcr ; 'בּ', Peter, earth; רוח, John, spirit, air, and נור, Jesus, fire, life-together INRI. But behold Eli and Moses met them there, or 'למיה Mond or Eli and lamah, or II3 and 345 . And this shows that the scene of transfiguration was connected with the one above set forth.

As closing these appendices, it is thought appropriate and instructive to insert some comments upon the "Study of the Bible," made by a clergyman of New York city, and published in the Tribune. The difficulties surrounding the text of the Bible, as received and interpreted, for a satisfactory comprehension of the contents of The Book, are ably and clearly set forth. Their setting forth seems to point to the existence of a kcy of interprctation not as yet known or made use of. That part of these comments which is thought pertinent to the present inquiry, is as follows:
"The Church is to conserve the Scriptures, because they conserve the Church. The Jewish Church made the mistake of conserving the mere letter, and hence became corrupt. The Scriptures are not the letter, but the spirit beneath the letter, reached by the letter. The Church, then, rightly conserves the Scriptures when, by diligent investigation through and beneath the letter, it binds the varied truth of God fast to its life by a thousand cords of knowledge and affection. With this view, then, of the study
of the letter of Scripture as the necessary avenue to reach its divine truths, and as thus following the injunction of the Savior in the text, we may notice threc classes of difficulties which invite this study, and to the solution of which the careful and concentrated search is essential.
"The first difficulty is the apparent want of harmony in the different portions of the sacred volume. This has been the favorite battle-ground of infidelity. Here it uses with effect its argumentum ad specicm, and makes its crafty conquests. The Elohistic and Jehovistic chapters of Genesis are irreconcilable; the Pentateuch bears marks of a post-Mosaic origin in its allusions to the character and the death of the lawgiver; the chronology of the historical books is hopelessly confused and false; the two genealogies of Jesus are in direct conflict; all the accounts of the inscription on the cross are discrepant; indeed, the four Gospels present a hundred points of difference and antagonism. James and Paul teach, as respects one another, contradictory doctrines, and the New Testament presents a system of salvation and eternal life wholly inconsistent with that of the Old Testament. These are the chief charges that are made where prima facic evidence is on the enemy's side, and, as with the majority of our race, prima facie evidence is all that men care to have against anything they wish to avoid, these charges gain a common currency, and repeat themselves in every age. To meet these charges and their pernicious effects, a knowledge of the media through which the Divine Spirit communicated the truth is necessary. The mind must take a range through 1,500 years, from Moses to John, and examine the variations of language and customs, the history and national economy of the Jewish people, as well as those of the great kingdoms of the Nile, the Tigris, and the Euphrates. We must recognize the full idiosyncrasy of each sacred writer under the divine afflatus. It must explore the analogies in experience, where different standpoints reveal apparent discrepancies. It must learn to weigh words as they are given us in the Semitic and Hellenic tongues, and detach them from the prejudice of a translation. It must find the special object that was before a writer's mind, and these special circumstances in which his utterances first took place. It must review the laws of authorship and editorship, and determine their influence upon the sacred books. It must become familiar with the great landmarks of chronology, and be able to establish the synchronisms of the

Scripture narrative. Only in this way can scoffing infidelity be answered, and the pious mind be edified by a discovery of the perfect harmonies of the Divine Word.
"A second difficulty is akin to the first, and can be easily compared with it. It is the obscurity of the text. It does not appear to contradict itself, but its very meaning is a puzzle. The ordinary reader sees only a chaos, and either looks over the passage till he finds some plain words to satisfy him, or he performs the dangerous task of guessing where he has no data, and so makes the Scripture to speak falsely. To overcome this difficulty we need all the appliances which are requisite in reading the alleged discrepancies of the Word, and these are to be used in an intenser degree. History and geography must be ransacked and arranged in the mind; the oriental habits and styles of thought must be familiarized; bigotry and narrowness must be abandoned for a broad view of the race and a generous sympathy for human development everywhere. Especially are the two languages of Scripture to be carefully studied-the sterility of Hebrew, whose obscurity lies in its poverty, and the flexible and beautiful Greek, whose obscurity lies in its richness. The English translation is one of the best ever made, perhaps the very best after the Hollandish, and this English translation is so endeared to us by tenderest associations that it would not be wise to set it aside for another. If any change be made, our old version must remain the basis, and only such alterations effected as truth and righteousness demand. Our holy religion does not require us to be blind moles, but to use our eyesight and discriminate everywhere between the true and the false. The religion of Jesus courts the fullness of light, and loathes the conservatism of conventionality, prejudice, and ignorance. With all the excellence of our English version, it bears marks of the human imperfection of the translators, as where they hide away the word ' bishops,' in Paul's address to the elders of Miletus, and call it 'overseers,' and where they call the Passover the heathenish name of 'Easter.' Besides such willful errors, they erred often through ignorance of the language they translated. The Hebrew and the Greek are far better understood to-day than in 16ri.
"But I turn from the obscurity of the text to a third difficulty which demands search, to wit, the apparent collisions between Scripture and science. The God of the Scriptures is the God of nature, and the explanation of nature will only magnify the Scriptures. We know that, but we must show it to the world.

The scientific investigations of this age are manifold and energetic, and it is for the Christian to rejoice in all the discoveries which throw light on God's wonderful works in the material universe. It is for him to follow the physical philosopher, and to weigh his stated conclusions, to judge whether they are warranted by his premises (and this does not require a scientific knowledge, common sense will do it), and then bring the truth from God's Word, that these truths from the natural world may help explain the sacred texts, just as our historical or linguistic facts hatye been used before. In this way the supposed antagonism between geology and Genesis in the questions of cosmogony, the origin of the race, and the deluge, will be dissipated, and the light of the Word shine the more brightly. The lowest doubts of thoughtful men will be respected and overcome, and the cause of truth promoted. It will not do to ignore these questions. If they attack God's Word, we must use them as means of searching God's Word. To yield to the bold assertions of science versus Scripture is weakness; while to shut them out from examination and dogmatically denounce them, is not only weakness but meanness. The only honest and manly way is to put science and Scripture together, and look at them as you do through telescopic glasses, till the two views blend in a harmonious unity, and proclaim their common authorship.
"'Scarch the Scriptures' is the lav of His Church and the talisman of His bounty. Let us, then, no longer please the devil and cramp our piety by neglecting the Bible. Let us bring the strength of our being to the careful and prayerful exploration of the fertility of revelation, where grow the flowers and the fruits of Paradise. Let us be zealous in the study of the letter, that we may reach the mind of the Spirit. Let us use the Inspired Word as the medial glass through which we may the more clearly see and know our Lord Jesus Christ."

## CONCLUSION TO APPENDICES.

## Authorities for an Esoteric Reading of the Bible.

§ 97. As is seen, the great display of the creative laze of measure among the Egyptians was in that "wonder of the world," the great pyramid. Among the Hebrews it was in (I.) the Garden of Eden ; (2.) the Ark of Noah: (3.) the Tabernacle; and (4.) the Temple of Solomon. Around these actual displays, description was conveyed by the hieroglyphic reading of the narratives of the Holy Writ. "Wo be to the man who says that the Doctrine delivers common stories and daily words! For if this were so, then we also in our time could compose a doctrine in daily words which would deserve far more praise. If it delivered usual words, then we should only have to follow the lawgivers of the earth, among whom we find far loftier words to compose a doctrine. Therefore, we must believe that every word of the Doctrine contains in it a loftier sense and a higher meaning. The narratives of the Doctrine are its cloak. The simple look only at the garment-that is, upon the narrative of the Doctrine; more they know not. The instructed, however, see not merely the cloak, but what the cloak covers." (The Sohar, III, I52 ; Franck, IIg.) So the Church: "If we hold to the letters, and must understand what stands written in the law after the manner of the Jews and common people, then I should blush to confess aloud that it is God who has given these laws: then the laws of men appear more excellent and reasonable." (Origin, Homil. 7, in Levit.) "What man of sense will agree with the statement that the first, second, and third days in which the cevening is named, and the morning, were without sun, moon, and stars, and the first day without a heaven? What man is found such an idiot as to suppose that God planted trees in Paradise, in Eden,
like a husbandman, etc.? I believe that every man must hold these things for images under which a hidden sense lies concealed." (Origin; Huet. Originiana, 167 ; Franck, 121, quoted from Sod. "Genesis," p. 175.) "The mysteries of the faith not to be divulged to all. But since this tradition is not published alone for him who perceives the magnificence of the word, it is requisite, therefore, to hide in a mystery the wisdom spoken, which the Son of God taught." (Clemens Alexandrinus, Strom. 12.) "For we shall find that very many of the dogmas that are held by such sects (of barbarian and Hellenic philosophy) as have not become utterly senseless, and are not cut out from the order of nature," are held in common with us, the token of recognition being "by cutting off Christ." (Same, Strom. 13.) The following reflections and notes seem appropriate as pointing an application of these statements in various phases of a same system; it being premised that the germ or key of all these hidden meanings lay in the possession of the method of measure, and in the measure which the Lord God used in the construction of the universe.

## The Esotcric Tcaching Confined to the Fczu.

§ 98. The author believes that no man can study the Bible a great while, carefully and dispassionately noting its place in the world, its surroundings, its handings down, its prophetical bearings, not considered in detail, but in their large and comprehensive scope, without coming to the conviction that a Divine power and providence doth in some way or sort hedge it about, and without coming to the conviction that this Divine Power is a conscious entity, just as we are; that He is, by His superiority, wisdom, and power, continually and everywhere, intelligently present as the immodiatc cause of each sequence in all the universe, however minute. (Not working by positive fixed laws of construction, which, once enacted, the work can forever go on, without any immediate supervision of the Master, a postulate so commonly assumed; for it is observ-
able, where investigation can reach, that while every type of work seems to be under a general type lazu, yet every individual production under a type is clearly enough seen to be a variation upon every other individual, thereby necessitating the actual intervention of creative power for every individual created under such a law.) He who considers that man alone is the only phenomenon in all the wide universe of a conscious intelligence, as concreted from an infinite number of blind happenings or accidents, arrogates very much to the superiority of his accidental position, especially when he takes into view his own acknowledged littleness and inferiority; for he that can make nothing is yet superior to the blind working of the elements to which he is indebted for himself, which elements come under the general term of God or Nature. What a picture of self-sufficiency! The conscious entity, man, simply proves series after series of just such a class of entities, graded upward, past man's power of recognition. Man's cgo, as connected, even, say, inseparably with his body, is just that phenomenon of nature that implies an ego function of nature herself, as inseparably connected with grosser material than that function. The only question is as to whether, in man, or otherwise, this function can shed its covering for another; or whether, in fact, he may have two kinds of material borly, one of which may continue, the other perishing.

But apart from this, and as to the Bible this being said. there are, nevertheless, some strange features connected with its promulgation and condition. Those who compiled this Book were men as we are. They knew, saw, handled, and realized, through the key measure, the law of the living, ever-active God. They needed no faith that He was, that He worked, planned, and accomplished, as a mighty mechanic and architect. What was it, then, that reserved to them alone this knowledge, while, first, as men of God, and second, as apostles of Jesus the Christ, they doled out a blinding ritual service, and an empty teaching of faith, and no substance as proof, properly coming through the
exercise of just those senses which the Deity has given all men as the essential means of obtaining any right understanding? Mystcry, and parable, and dark saying, and cloaking of the true meanings are the burdens of the Testaments, Old and New. Take it that the narratives of the Bible were purposed inventions to deceive the ignorant masses, even while enforcing a most perfect code of moral obligations: How is it possible to justify so great frauds, as part of a Divine economy, when to that economy the attribute of simple and perfect truthfulucss must, in the nature of things, be ascribed? What has, or what by possibility ought mystery to have, with the promulgation of the truths of God?

## Arc the Kicys of this Esotcrism Lost?

§ 99. Men like ourselves, who were capable of teaching the multitudes, held this knowledge, both in the times of the Old and of the New Testament. If at all, when was this knowledge lost? There is witness, by the emblems remaining in use, that two modern bodies have at one time been in possession of the keys-viz., (I) that order called the Roman Catholic Church, which is catholic to the extent of possession of the emblems of the universal knowledge, which was confounded by the confusion of lip, and which possession has been dropped by all sects, creeds, etc., which have dropped the consideration of the basic knowledge or dabrar; and (2) that body of men called Free Masons. It is probable that the Greek Church, and the Brahmin system also, come under this category. The elimination of the vestiges of the workings by the key system can even be seen in the English Church; for one of the great functions of the church was to regulate the order and times of its holidays. This was done agreeably to the passage of the sun in his circuits through the signs; but in the preparation of the order of service, as it is to be seen on the original rolls (see fac-simile of the Black Letter Prayer-Book, made in 1663 , as taken from the original rolls or scrolls in the British archives), it was deemed, for
some reason, best to wipe out those calendars teaching the progress of the sun through his signs. (There is but little doubt that the rules for the calculation of tables of time, to mark the proper observance of religious festivals, which tables are prefixed to the Book of Common Prayer, are precisely the same to be found in the first chapters of Genesis, relating to the founding the year values on lunar tables. Christianity is almost undoubtedly indebted to the ancient Jewish and Egyptian calendar rules, on which she built up the special exceptional details of her own forms.)

## Resolutions of the Acadcmy of Scienccs and of the Royal Socicty.

(I.) One of the most remarkable proofs of the existence of this knowledge (of the foundation of these mysteries on the Parker and Metius relations of circumference to diameter of a circle), down to a very late day, lays, as it would seem, in the resolutions passed by those two learned bodies of men, the Academy of Sciences at Paris and the Royal Society of London. (See Parker's Quadrature.) It was in the period of the revival of knowledge, when the world, possessed of extraordinary intellects and wholly athirst for learning, was investigating every cranny and department of nature. All recognized the fact that in nature one of the most interesting relations was that of circular to plane shape, and the flux of one into the other. Ordinarily, in matters of research, promising great rewards, none so persistently encouraging of interminable effort in the pursuit of the obscurer realms of science as these bodies. What was the reason, then, that on the production by Legendre of his acknowledgedly approximate value of $\pi$, the Academy of Sciences passed that famous resolution that it would never entertain any thesis on the subject of the quadrature of the circle? What was the reason that, in a few years afterward, upon Playfair's following in the footsteps of Legendre, the Royal Society of London passed, perhaps, a copy of the same resolutions? Since that time, every man daring to venture into that forbidden field of research
has been, by a mysterious common consent, hooted down, laughed at, and derided, by the manifestations of a mocking false pity; and just in the measure that his works have proved valuable, just in that measure has the effort been strong to remove them from the study of the people. Now, it is barely possible that the keys of these old mysteries are still known and held by very few; that these few are recognized by the very highest of the order, so that an order to that effect of procurement of just such a piece of chicanery as that practiced by these societies, once promulgated, would be obeyed and carried into effect willingly, and even zealously, by multitudes of those who might remain in perfect ignorance as to the source of the order or as to its real object.

There are, moreover, two cvidences of the modern existence of this knowledge in symbolism.
(2.) In "The Gnostics," Plate VI., I , is to be found a Templar or Rosicrucian emblem. It is of that "Idol," or "old man," a worship of which was charged against the Templars. It is of an old man, with his arms crossed in front. At his feet, on one side, is a celestial globe, with its subdivisions, and on the other side the pentapla, or fivepointed star, or scal of Solomon. Here are displayed the man, II3, or diameter value to a circumference of 355 , or the Hebrew man, the celestial circle, and the pyramid. The pentapla, as it is drawn, is but the lined display of a pyramid. It is a pentagon, as well as a rayed star. Retain the rays, and then join the corners by lines, and the objeci

of setting forth a pyramid is at once apparent. The pyramid involves all the measures, with the purposes thereof enumerated in the text; so the whole of this picture symbol, though modern in its use, really disylaps the possession of
the keys of the ancient knowledge in a most masterly manner.
(3.) In "Land-Marks of Free Masonry," by Oliver, is to be found a frontispiece, which, for magnificence of conception and for comprehensiveness of grasp, is most remarkable. It is said to contain the symbolization of the genius of free masonry, and is said to have been designed by Br. Com. J. Harris, P. M. and P. Z. The author ventures to state positively that if this was really designed by this gentleman-that is, if he did not compile it from simply traditionary sources-then, indeed, he must have becn acquainted with the elements of the quadrature as John A. Parker has, since that time, set them forth, their astronomical application in architecture, and their Biblical containment, in a fashion of such wisdom that if the author had possessed it in its details, his efforts in this work could have been relieved of suggestion. The reading of this frontispiece by its symbols, even with the imperfect ability of the author, is always a source of exquisite delight and unalloyed amazement. The representation is in a rectangular oblong of tz\% squares. At the center of the top line there is located the triple circle, or three circles, one within the other, with an inclosed triangle. In the triangle is written the Great Name הוהי. Reference to this symbol, § S2, will show that it exhibits the origin of measures, in the form of the straight line one, of a denomination of 20612, the only numerical value of the perfect circle, the straight line being male and the circle female, as the ${ }^{\prime}$ is male and the הוה is female; which 20612 is the Logos, or Dabuar, or Word. The triangle and circles indicate the pyramid containing the use of the measures, with the three sets of circular elements necessary to the display of its various problems. This emblem is in an effulgence of light, above the brightness of the sun, and the One of the word is the holy 10 , and circumference to 318 , the Gnostic value of Christ, whence this spiritual effulgence. From this upper essence of effulgence, a strong bar of light descends obliquely to the foot of the oblong. On the one side of
this all is darkness, and chaos, and confusion, containing darkness, and dragons, and all deeps. It is the fomale or $\sin$ side. At the foot of the oblong is a pavement of squared blocks, in cubes, alternating in black and white chequers, indicating the female and male elements of construction; and on the dark side, this pavement is not made, but is in confusion. At the foot, on the dark side, stands a little cherub, striving to work out one of these pavement cubes from a rough block or ashler, but without success. He stands holding his chisel and hammer in a helpless sort of way, as if having a dim idea of what is wanted, but as lacking in the requisite knowledge for elaboration. The other side of the bar of light is bathed in the essence of wisdom and peace. On this side the foot has a completed pavement of the black and white chequers, of a general oval, indicating the measure of the surface of the earth. Just opposite the discontented cherub is seated another, but on the light side. He is looking with a pleased expression at his brother in the obscurity. His right arm is raised, and he is pointing with his forefinger, the rest of his hand being closed, aloft up the bar of light to its source. This forefinger thus pointing is the symbol of the Hebrew jod, ', or Jehoval, or the number 10, whose origin is in the malefemale word $\boldsymbol{T}$ 'יוֹ, significant of the same number as entanating from the deity name in the triangle above. His left arm is thrown over as embracing two parallel upright bars, inclosing a circle, denoting the circle in the square, the measures of which have been revealed to man from above. The parallel bars are supported on a cube, which is one of the cubes of the pavement raised out of its place to the level of the floor, and the upright bars are but the extension of the sides of the cube. This is the cubical stone, and the square of the bars is 656 r , and the value of the circle is 5 153. The reading is instruction on the part of the enlightened cherub to his brother, telling him that from the geometrical elements, with the least one of a denomination of 20612, located aloft, as the laze of the Dcity, the measures of work have been revealed to man, and are
under his control, as exhibited in the circle, the square, and the cube; that with these measures the cubical blocks measuring the earth are to be formed. In this is the lesson. The oblong then contains the sun and the moon and the stars, as further being measurable by man through this knowledge. In the center of the piece there flies, or hovers, a female, as the genius of the whole. Her badge is on her forehead, and it is the pentapla, or five rayed star, denoting, as shown above, the pyramid as the containment of all measures. The moon, with the seven planets, represent the Garden of Eden woman, while the sun denotes the issuance of lunar measures in terms of solar.

All this condition of things goes to show that the mystery held, as not to be thrown open to the people, but to be retained as the property of a class, and a caste, in the more ancient days, may never have passed away; but, to the contrary, may exist even to-day, dominating the souls of men, women, and children, by keeping them in perpetual ignorance, and in religions feeding them on the worn-out husks of faith, without any relief, by way of setting forth actual connections between man and the Deity.

## The Province of Ritualism.

§ Ioo. How plainly can now be seen the origin or source and reason of ritualism. Ritualism was not an empty thing. The adoration of the Deity was simply a constant reminder of man's dependence upon, connection with, and knowledge of Hin. The worship, then, was the expression under this or that form, by gesture, action, signs, voice, dress, accompanied by visible symbols of some one or more of the exact mathematical formulations, or geometrical formulations, or numerical combinations, pertaining to the known method of measuring the works of the Deity. A conclusion of Sir William Drummond in CEdipus Judaicus indirectly favors this view : "The priests of Egypt and of Chaldea," he says, "had made a progress in the science of astronomy, which will be found more astonishing
the more it is examined. Their cycles were calculated with extraordinary precision, and their knowledge of the mosi important parts of astronomy must appear evident to all who candidly consider the question. But the people appear to have been purposely left in gross ignorance on this subject. Their vague and their rural years were neither of them correct. The festivals were fixed according to calendars made for the people, and the religious institutions were only calculated to confirm the errors of the ignorant, The truths of science were the arcana of the pricsts" because they were the sources of religious cultus.

Thus ritualism was an intelligible rite, one to be understood in all its parts and ramifications; one in which there was no possible deception as to the use of a symbol, to those who could read the symbol. No danger then, or at that time, of paying a worship to the thing. A carpenter might as easily be taught to fall down before his drawknife or plane as a rcligious before the instruments by which he copied the sums of his Father in heaven. Intrinsically, one would be as silly and fruitless of good results as the other. It has been the gradual and finally almost perfect extinguishment of the knowledge of the origin of ritualism on the part of the priests themselves that has entailed a superstitious use on the part of the laity.

## Ritualistic Symbols.

(a.) One of the most prized retentions among the Jews of religious symbols are the T'phillin. They stood in place of the cross and rosary of the Christians. They are, in fact, but the means of exhibition of geometrical and numerical qualities for setting forth the substance of Elohim, Shaddai, or Jehovah, ir His laze of working. One of them consists of a flat square to be placed on the forehead ; on this is a cube, lined or divided off into four divisions. It is the Adam or Garden of Eden square, as shown. On one side of this cube is the letter $\ddot{\bullet}$, with three prongs; on the other, the same letter, with four prongs, the 3 and 4 of the golden candlestick, of the cross, and of the Parker
problem; which, as $4^{2}=16 \div 3^{2}=9=1777 \cdot 77+=$ the pyramid base, as to its circumference, in cubits. This square is fastened upon the head by a band permanently tied behind by a square knot, presenting on its face a square face of a cube divided into four parts, as noting the 8 small cubes, necessarily going to make up a next larger one. This band around the head is the circle pertaining to the square and cube, with the quality of man contained as $I I^{3}$, the circle being the counterpart 3 II. The other is a similar square, with a simple cube, without letters. This is to be fastened on the left and bared arm, the cube being adjusted over the heart ; then the band fastening it is wound 7 times around the lower or forc-arm, to the hand, where it is so interlaced in the fingers of the hand as to form the letter $\mathscr{U}$, or Shaddai.

As simple as this contrivance is, it contains the elements of a pure geometrical and numerical system, with its application as a.system of measures to cosmical or God uses. The fore-arm was esteemed to be the cubit value, or Ammauthat is, " mother of measures;" and, as shown, the cubit indicates the Parker value 20612, source of the Dābvar or Word. The wrapping 7 times around the left arm was most likely the serpent of the Garden, which, as the letter 0 (the snake), was numerically the number 9, the intertwined numbers of the tree of the Garden as $9 \Sigma y$, or 7 and 9 (for character values). The noose around the arm, or the upper part of the fore-arm, represented the mouth of the serpent, or door of Indranee, or the womb of time. The word Shaddai is, numerically, either by adding the letter values, simply 3 I4, or a circumference to a diameter of one, or else by adding the letters (the $d$, because of dagesh, being doubled) 318 , or a diameter to a circumference of one; or, by giving the character values as the letters run, 38 r , or the half base side of the pyramid (the $d$ doubled by dagcsh). The numbers 7 and 9 intertwined are 63 , or counterparted $36-63$, which are of Garden of Eden use.
(b.) Again, as to the cross and rosary, at the same time
the plainest, simplest, and most embracing of all symbols. The cross is the symbol of the unfolding of the cube, which represented the perfect circle 206I2 taken off on to its 12 edges, the man on it representing the II3: 355, or Metius form. The rosary is a string of bunches of beads. There are five bunches of $t c n$ beads each, making 50 , which is the letter $\boldsymbol{i}$, or 5 raised to the letter y , mun, or $f i s h$, or הוה, or Eva. Between each bunch there is a larger bead; of these there are 5 , which is the letter $\pi$; or the productive womb-letter of the Hebrews. These 55 beads close the circle as the distinctively feminine part. But the circle is only looped together at this point; for the string of beads is continued, and next comes a bunch of threc beads, as by themselves, then a large bead; and then the string is terminated by the cross with the man on it. The 3, and then 55 , are 355 . Prefix the one bead, or read in their order of bunching together, and we have 1355 . Bend this into the form of a circle, and we have

| 5 | 5 |
| :--- | :--- |
| 3 | 1 |

or 5135, or the woman. Place the Hebrew letters, and add them, and there results 3 II, or counterparted 3 II-II3, the man-woman number. Read the other way, and there results 5153 , or the Parker circle inscribed in the square of 6561 , as to which $5153 \times 4=20612$, is the Dabvar or Word number. In short, the rosary and cross, simply in this form, represents the deepest underlying reading of the Garden of Eden, and thus is the correct representative symbol of the entire Old Testament ritual and knozulcdge. This simply shows that to attack the ritual of the Roman Church to the extent of this possession is simply to attack the Bible itself.

How desperately blinding becomes a superstitious use, through ignorance of such emblems, when they are made to possess the power of bloodshed and torture, through orders of propaganda of any species of religious cultus. When one thinks of the horrors of a Moloch, or Baal, or Dagon worship; of the correlated blood deluges under
the cross baptized in gore by Constantine, as the initiative of the secular church; of Jewish faith and constancy, amidst all suffering, the dearest treasure left by way of symbol being the thillin; -when one thinks of all this, and then that the cause of all has been simply ignorance of the real radical reading of the Moloch, and Baal, and Dagon, and the cross, and the tphillin, all running back to a common origin, and, after all, being nothing more than a display of pure and natural mathematics, although and albeit of a Divine foundation, and of Deity creative use, one is apt to feel like cursing ignorance, and to lose confidence in what are called intuitions of religion : one is apt to wish for a return of the day when all the world was of one lip and of one knozulcdgc.

The exhibition of facts, and the explanation of their correlative uses, in this work, is finished. The author believes it to be shown that the elements of construction of the pyramid, and their use, agreeably to the intention of the architect, have been proved, and that these are shown to be used as the foundation of the Bible structure from the first chapter of Genesis to the closing scenes of the New Testament. But while these elements are rational and scientific, and in the Bible rationally and scientifically used, let no man consider that with this discovery comes a cutting off of the spirituality of the Bible intention, or of man's relation to this spiritual foundation. Does one wish to build a house? No house was ever actually built with tangible material until first the architcctural design of building had bccn accomplishcd, no matter whether the structure was palace or hovel. So with these elements and numbers. They are not of man, nor are they of his invention. They have been revealed to him to the extent of his ability to realize a system, which is the creative system of the eternal God; open at all times to man for his advance into its knowledge, just in the measure of his application and brain ability; free to all as is the water we drink and the air we breathe. But, spiritually, to man the value of this
matter is, that he can actually, in contemplation, bridge over all material construction of the cosmos, and pass into the very thought and mind of God, to the extent of recognizing this system of design for cosmic creation-yea, even before the words went torth, Let there be! It is the realization of the existence and montal workings of the Divine mind, by means of the little primal cube and its circle, which to us are tangible realities, that goes to prove to man that his soul lives, and will continue to live; and thus he may take little heed for his body, which is, however, exquisitely constructed, but a mask, dulling the finer powers of his mental whole. The author has set out to find the truth. To the extent of his ability, let him state his results. The best and most authentic vehicle of communication from God to man, though many exist, is to be found in the Hebrew Bible, the preservation of which, in its exactitudes, can only be ascribed to a spiritual supervision. But the value of this would have been lost had it not been for a like preservation of a real monument of the practical application of the Bible secret. This monument stands to-day on the banks of the Nile. But, by turn, this also would have been useless to man had there not been a prescriation of the actual primal measure, which has been shown to be the British inch. Through the lapse of ages this has been preserved to exactly fit to the solution of the whole. None but a spiritual power could so have preserved all these micans of restoration of the ancient (and eternal) wisdom. The use of the Biblical method of display of the Divine cosmogony is to be found pure and truthful in some of the grandest ritual features of the Roman Catholic Church. There is no gainsaying it, for it is so. That church uses a ritualistic symbolization, in which the idea of life and the progression of life predominates; while, however, it has been, and is, perhaps, in possession of the more radical metlods of display. On the other hand, Free Masonry holds to the elemental working by grometrical display-i. e., by the harder, more exact, and purcr
outlines of the same system of problems. As between the two systems, in their ultimate, there is no difference at all. Lord God of a common humanity! loosen the shackles from the bodies and enlarge the souls of men. Let freedom be the seed, and let wisdom, love, peace-but, above and before all, charity-be the harvest. And so mote it be.

## ADDENDA.

(A.) (I.) There is a value produced so beautifully, and yet so curiously, that it is well worthy of mention. In $\S$ S2, on page ${ }^{155}$, the elements of three circles are given as springing one out of the other. Of these, as to (3.) its height is to its $\frac{1}{2}$ base side (full base side being 486 , the standard height of the pyramid) as $309.3970502+: 243$ feet, and its $\frac{1}{2}$ base diagonal is $343.653895+$ feet, or $4^{123} . S_{4} 6740+$ inches. The mode of procuring this $\frac{1}{2}$ base diagonal is $\frac{1}{2} \sqrt{486^{2}} \overline{\times 2}=343.653$ S95 + , and this multiplied by $12=4123.846740+$ inches. It is seen that these elements are derived from the mass measures of the pyramid, which are derived dircctly from the Parker forms.
The length of the king's chamber is stanciard 4 I 22.4 , and enlarged 4125.29396 tenths of inches. Take these as the extremes to find a mean proportional, and we have $4122.4 \times 4125.29396+$ $=1700611182074+$, and the square root of this quotient is the mean proportional requircd, or 4123.S467+.
So it is seen that the $\frac{1}{2}$ base diagonal of pyramid elements No. 3, derived from the mass of the pyramid, as shown, is the mean proportional between the standard and enlarged lengths of the ling's chamber ; a most magnificent result, as showing the architectural design, one may say, bcyond question. This $\frac{1}{2}$ base diagonal value is exceedingly close on to the radius value of the circle in which these relations are shown, for that radius is the $\frac{1}{2}$ of the sum of the extremes, and the $\frac{1}{2}$ of $4122.4+4125.29396+$ $=4123 . S_{4} 69$ S + .

Take the diagram, page $13 S$, and while it gives the general base of values for the interior works of the pyramid, it is also the form for exhibition of the two lengths of the king's chamber; for

A D becomes $412.529396+$, D B becomes 412.24 , and CD becomes the mean proportional between these extremes of $412.3 \mathrm{~S}_{4} 67$; all to a radius of the circle $412.3 \mathrm{~S}_{4} 69 \mathrm{St}$. The wonderful value of circular elements No. 3, as connecting the mass of the pyramid with the interior construction, is thus clearly unfolded; and it becomes plain why, around these circular elements, in 4 th Genesis, it is found that so many of the prominent Biblical names (for numbers) concentrate.
(2.) Another, but symbolic or sympathetic harmony, can be shown. The nses of the pyramid measures, for one purpose, are evidently astronomical ; and while the symbolization of the origin of measures, as the primal one, or cube, as relates to pyramid construction, is set forth in the triple circle inclosing the pyramid and the great name, this great name for one meaning is also that of the perfect onc, pictured as a circle, with a diamcter drawn through it, as the year circle. But this year circle had three zalues, as $355,360,365$; wherefore this symbol may be taken also as expressive of these three year-circles, containing, as they do, the Word; which Word is expressive of the year circle, and is productive of all things. In these connections, it is well enough to remark that the letter form was held as unpronounceable, because it was in fact no word to pronounce, its meanings being held in symbols.
(B.) It is seen that there is in the Hebrew Bible a combination of the pyramid measiere elements with phallic forms and uses, under the guise of the man-woman. Is not this combination expressed by the Sphinx located at the base of the pyramid? The author has seen it somewhere stated, as a reproach of obscenity against the ancient Egyptians, that the head of the Sphinx is disfigured by its locks of hair being composed of phallic signs. May it not be that the Sphinx was connected with the pyramid as part of its reading? And may it not be barely possible that there is some passage-way connecting the Sphinx with the interior of the pyramid? (Suggested by a friend.)
(C.) The Adam, or 144, relation is the fundamental one, carrying the pyramid relations into the Bible; and it can be used by scale, for different proportions, and is susceptible of any lind of scale divisions or subdivisions; for instance, under the developing form of Arets, Earth, or 12, it is $12^{2}$, or 144, giving an area value, which can be extended by use of the factor 6 to a larger form, while as 144 it may be used as a line on which a square is to be raised, as $144^{2}$. This, as inches, gives a value
of 12 in fcet, whereby the word Arets, carth, or 12, may be taken as the Adam form reduced to fect. But as $144^{2}$, or a square of 144 to the edge as a center square, then this enlarged to four squares of 144 to the edge, each, gives a larger square of $144 \times 2=2 S S$ to the side, or $2 S S \times 4=1152$ (or the letters INRI, as numbers 1521, read in a circle, or where the $144^{2}$ (the interior square) is subdivided into four parts, and these letters are placed, consecutively, i in each small square (materially reading as earth, air, fire, and water, the containment of the unirerse), these can be read as

| I | 5 |
| :--- | :--- |
| I | 2 |

or II5z), the circumference of the larger square. But in inches $2 S 8 \div 12=24$ fect, and this represents the side of base of the pyramid, for its measure is diameter to a circumference of 2400 (or 24) fect. In this connection it is observable that the mancross and triple-circle Fohovah symbols are essentially the same.
(D.) It is altogether probable that the key powe" of heraldric display is but a part of, and a vestige of this ancient system of esoterism.
(E.) The three mountains in one to the top of which Moses was sent up, was in the plains of Moab; and Moab may be taken as a slect or plain of water. The narrative description may be changed to a magnificent picture. The lower mountain of the three was Ibarim, or Hebrews, or heazen dizitlers, or division of the heavens, and can be taken as the subdivided circle of 360 degrees. The equivalent of this circle laying, as the base of Mt. Ibarim, on the face of the waters, or shimmering sea, may be had as a square, or as a floating ark. Over this let the brilliant arch of the sun be bent as a bow, which is Mt. Nebo, as including the wisdom bchind the sun; and let this be drawn as the rainbow, showing the scien primary colors. It was on the summit of this that Moses went up onto the reviewing -point, or onto Mt. Pisgah. He may be taken as Enosh, or 365 - $1=364$, or Son of Man, or, again, as the Moly Spirit of Wisclom under the form of a Doze (used in the flood picture as $355 \div 5=71$ ): This is a second termination of measures, or power of measuring, and is marked by the recurrence of the ark floating upon the waters.
( $F$.) Let no man suffer himself, for a moment even, to think that the correlative likeness of the Son of God, the man-fire, Fes-us, to the sun in the heavens, as embracing it, is in any wise
a disparagement to the Holy Scriptures. A subtle force of life is traceable through grosser material forms, in what we call the phenomenon of motion, whicl becomes manifested in the appearance of firc; and this includes what we call electricity, masnetism, mesmerism, and further back a power of spiritualism. The fire of the sun is a part of the source of spiritual life as well as of the life given to what presents itself to us as material. But it is the antagonism between cold and fire (or darkness and light), through which the phenomena of the moditication of motion, or of life, manifest themselves. Take the earth as situated at a certain fixed mean limit from the sun, where it is balanced between the effects of cold and heat. Circular motion on its axis once imparted to the mass, by reason of the alternating effects of cold and heat on this mass, not only will revolution on its axis continue as a mechanical result, but the pathway of the earth in its orbit around the sun, will also result as a concomitant effect; and this will (between certain extreme limits) be utilized cosmically by more subtle mechanical causes to other cosmical effects. (See Force in Nature, Section IX.)

## SUPPLEMENT

то

## SOURCE OF MEASURES.

## SECTION I.

## MEASURES.

The Egyptians, Hebrews, Romans, and probably the Hindoos, were indebted for their linear measures to one particular measure which, as can be shown, has come down through the ages unimpaired, viz.,

## The British inch.

This measure had its inception in the numerical integral relation of

Diameter to circumference of a circle.
The area of a square of 8 I to the side being 656 r , the area of the circle inscribed in that square is 5153 ; and by a simple geometrical truism the diameter of a circle being taken as 656 I , its circumfercnce will be $5153 \times 4=20612$.

All these measures were derived from this formula 6561: 20612 ; as to which the geometrical relation of diameter to circumfercnce is an obedience.

In practical application of these numbers on a measuring stick or rod, they were attached to that actual measure which to-day is styled the British inch; proved by the standard yard measure
constructed by Captain Kater, in the year 1824 , from the British standard, and presented by the British government to the magistrates of Edinburgh. (Life and Works at the Great Pyramid, by Piazzi Smythe.)

The reason why the value of the British inch is as it is, is because it was just that value which, on application, would make material cosmic magnitudes correlate with the times and distances of the planets of the solar system, under a law of construction which, by the ancients, was esteemed to be, and doubtless was, divine.

The best restorations of the ancient Egyptian cubit value were those made by Sir Isaac Newton, from many measures taken of the works of the great pyramid of Egypt by Professor Greaves, of Oxford, England, and those made by the savans of the French expedition in Egypt, from a great number of measures taken of the rooms and passage-ways, as to their heights, lengths, and widths of the catacombs of Osimandya.

Sir Isaac Newton (Smythe's Life and Works) found this restored value, in terms of the British foot to be

$$
1.717 \text { feet. }
$$

The French found it to be, in terms of the French meter,

$$
.523524 \text { meter. }
$$

The meter being $39.37079+$ British inches, then $.523524 \times 39 .-$ $37079+=20 . \underline{611553+}$ inches, which, divided by 12 , gives its value in British feet, as

$$
\text { 1. } 717629+\text { feet. }
$$

Take the above mentioned circumference value as 20612 inches. Divide it by $\mathbf{2} \mathbf{2 0 0 0}$, and there results, in terms of British feet,

$$
\text { 1. } 717666+\text { feet : }
$$

and this shows the origin of the ancient cubit value as derived (in this form of 20612 ) from British inches.

If, however, we take the form

$$
\left.\begin{array}{r}
20612 \\
656 \mathrm{I}
\end{array}\right\} \times \frac{16}{} \quad \begin{aligned}
& 36643 \cdot 55+ \\
& 9
\end{aligned} \quad \begin{aligned}
& 11664 .
\end{aligned}
$$

and divide this raised diameter value by 1000 , there results:

$$
\text { I } \mathrm{E} .664
$$

By the very best restorations of the Roman foot (see as to the value of the Roman foot, in terms of British measures, "Great Pyramid," page 25 , by Rev. John Taylor) its value proves to be in British inches,

$$
\text { I I. } \frac{664}{} \text { inches; }
$$

showing a common origin.
The British foot of 12 inches was evidently taken as the rectification of a circumference value in terms of the above formula, of 12 to a diameter of $3.819716+$ feet.

We have then-
Diameter 6561; circumference 20612.
$\frac{20612}{1000}$ British inches, or $20 . \frac{612}{-}$ British inches,
$=\mathrm{x}$ cubit.
$\frac{6561 \times 16}{9000}$ inches $=$ г $1 . \frac{664}{}$ inches,
= 1 Roman foot.
12 inches circumference to $3 \cdot \frac{819716+}{}$ inches diameter, $=1$ British foot.

## SECTION II.

ARCHITECTURAL DETAILS OF MEASURES OF THE INTERIOR OF THE GREAT PYRAMID OF EGYPT, IN TERMS OF THE MEASURES ESTABLISHED IN SECTION $I$.

The forms (of circumference to diameter of a circle), viz :

$$
20612: 656 \mathrm{I},
$$

utilized in value as British inches, were the basic measures used to construct this pyramid in all its parts. Take the forms,

$$
20612 \text { is to } 6561
$$

$$
\text { as } 64800 \text { is to } 20626.4700 \mathrm{I}+
$$

as inches. Divide by 1000 , and there results :

$$
\begin{aligned}
& \text { (1.) } 20 . \frac{612}{} \text { is to } 6 . \frac{561}{} \\
& \text { (2.) as } 64 . \frac{800}{} \text { is to } 20 . \frac{62647001+}{}
\end{aligned}
$$

where (1.), 20. $\frac{612}{}$ inches is the cubit value, as a circumference, and in (2.), it is seen that a diameter value of $20.62647+$ inches, approximates very closely to it. Upon these two forms depended the entire construction of the pyramid, in measures of inches, feet, yards, cubits, miles; of days, weeks, months; of periods of the moon and of the earth; of the size of the moon and of the earth, with the distance to the sun, as springing from them.

To more fully appreciate the following details, which are to some extent supplementary (especially as to interpretation of use of lines), reference is made to Source of Measures, by the autthor. This is simply a development from the grounds and measures there laid down.

The height of pyramid to twice its base-side has the proportion of diameter to circumference of a circle. $20626.47001+$
(variation on 20612), as feet divided by $27=763.94333390+$ feet, is the length of side of base. This is the same as $20626 . \underline{47+}$ $\times \xrightarrow{{ }^{16}=36669.28003 \mathrm{I}+}$ inches, equals the entire circumference 9
of the base of the pyramid; or for the base side in feet $763 .-$ $943333980+$ feet. The height, therefore, was $486 . \underline{34 \mathrm{I}+}$ feet. As to the pyramid being truncated, see Appendix.

The interior works were referable to the slope line of the exterior, to the base, and to the vertical axial line, or center line, of the mass; therefore, the diagram, annexed hereto, exhibiting in vertical section the half of the structure, is sufficient for lengths and heights.

The entrance passage as to the center of its floor, longitudinally was set off a distance to the eastward of the center of the base side, $24.42190+$ feet, for reasons given in section 7 , Source of Measures-a token of the geometrical origin of the shape of the entire mass.

The passage-ways, as to their dimensions, are constructed, it would seem, on mean measures, affording a very small, limited variation of values, running to extremes on a mean. This is true also, notably, of the queen's chamber, whose angles at the corners, as shown by Piazzi Smythe, are not right angles. The lengths of the passage-ways afford also a margin (very small indeed) over and above a mean of length. Within the limits of these extremes, by very nice adjustment, a very great number of comparative and correlating measures were obtainable. Example: 206. $\frac{12}{}$ inches equal 10 cubits, whereas $206 . \frac{2647}{}$ inches denote a diameter to a circumference of 648 . This might be in a scale of feet for inches, though as a fact the margin of difference would then be larger than is the fact. The margin in inches may appear in tenths, but in feet it would likely appear in hundredths, or perhaps thousandths. This feature of pyramid
construction is shown by the measures of Piazzi Smythe, which, it may be said, are throughout most remarkable for their exactitude.

## SPECIFICATIONS.

(I.) The pyramid is based on a pavement which is included in the mass of the structure. Its thickness is 20 . $\frac{612}{}$ inches, or one cubit, or $\mathrm{r} .{ }^{7176+}$ feet.

This is a circumference to a diameter of 6.561 inches.
(2.) Line $a a^{1}$ is the one-half base side of pyramid, and equals in length $\frac{20626 . \frac{47001+}{12}}{}$ inches $\times \frac{16}{72}$ equals 38 I .97 I 666990 feet.
or III. IIIIIt cubits, or 4583.660003880 + inches. Actual measure by Howard Vyse, 382. feet ; difference . 02 of a foot.

Note. $38 \mathrm{r} . \frac{97 \mathrm{I}+}{} \times \frac{18}{200}$ equals the length of the king's chamber in feet. Also this distance is diameter to a circumference of 1200 feet, or 14400 inches, or area of one square foot multiplied by 100 ; or, as minutes, it equals 10 days in time measure.
(3.) Line $a^{2} c$ is the vertical height, above the base of the pyramid, of the point of intersection of the floor line of the descending passage-way with slope line of the structure. Its length is 31 cubits, or $20 . \frac{612}{} \times 31=638$. $\frac{972}{}$ inches, equal to $53 .{ }^{2476+}$ feet. The same measure computed by Howard Vyse, 53.1975 feet (Source of Measures, p. IIq). The line $a c$ to the foot of this line is 4 I .82064 IIII + feet, or $501.84769333+$ inches. These lines are in the following proportions to each other: $a^{2} c: a c:$ : 656I : $5^{153}$, or as the area of the square of 81 is to that of its inscribed circle. In the scale of inches for feet, they very nearly represent the relation of vertical height of descending passage-
way to its breadth, so much so as to proportion, that these given, viz., 656I : 5153, may be taken as a guide for the dimensions of that passage.

Note. The height values of the descending passage-way as taken (7.), are height vertical to horizon $52.79_{5} 656+$ inches, and the perpendicular to the incline of the passage $47.25419656+$ inches. By using the proportion given, to find the breadth we have $656 \mathrm{r}: 5^{1} 53: 52.7 \mathrm{~S}_{95}+: 4^{1 .-}$ $460 S_{49}+$ inches for breadth of passage; or, for dimensions of descending passage-way we have-

| Height vertical, | $52.7895656+$ |
| :--- | :--- |
| " | inches. |
| " perpendicular to incline, | $47.254^{1} 9656+$ |
| Breadth, " | $4^{1} .460849+\quad "$ |

The dimensions of this passage-way may show a change of values on these, by the biased construction of its sides, and top and bottom, of:
(a.) For vertical height take $\frac{3 \mathrm{I} 8_{309722}}{6}=53.05^{1620}+$ (where $3^{1.8309722}$ is diameter to a circumference of 100 ): then we will have as a variation-

Height vertical,
" perpendicular to incline.

## Breadth,

(b.) For vertical height take $\frac{3^{14.159426}}{6}=5^{2} .359904+$ (where 314.159426 is circumference to a diameter of 100 ): then we will have as a variation-

| Height vertical, | $52.359904+$ inches. |
| :--- | :---: |
| " perpendicular to incline, | $4^{6.8695} 88_{4}+$ |
| Breadth, | $4^{1,1233939+} "$ |

Suppose the arithmetical mean of (a.) and (b.) is used, as-

| Height vertical, | $52.70576+$ inches. |
| :--- | :--- |
| "" perpendicular to incline, | $47.1799^{1}+" "$ |
| Breadth, | $41.39502+"$ |

now the measures of Piazzi Smythe show a much greater limit of accommodation than here required.

The line $a^{4} a^{5}$ is shown to be (8.), 251.71412+feet; or, numerically, the square root of one mile in inches. $\sqrt{25^{1.71} 7^{12+}}=501.7115953$, and this is a very slight variation on the value $a c$, or $501.8476+$ inches. So, also, the line $t^{\mathrm{I}} d$, see diagram of part of descending passage-way, is $14.8_{422} 33+$ inches; this divided by $12=1.2365_{5}+$ feet; showing a very close agree--ment with the floor line of the ascending passage-way, proportionally. that line being $123.68_{3} 0+$ feet.
(4.) Line $a^{2} a^{3}$ is the floor line of the descending passage-way, and is $20 . \frac{62647001-\frac{f}{f}}{}$ inches $\times 200$, equal to $4125.294003493+$ inches, or $343.774500291+$ feet. Same measure by Howard Vyse " about 4126" inches.

Note. This, as seen, is a diameter line, and gives a circumference of 1080 feet, or 12960 inches, or' 10 times one square yard, or $\frac{\mathrm{I}}{400}$ of one solar day.

The length of this line is 10 times the length of the king's chamber. The line $d b^{1}$ equals 100 feet, or 1200 inches. Compare with (2.) " Note."
(5.) Line $a^{3} c^{3}$ is the distance from the floor line of the descending passage-way to the vertical axial line of the pyramid. Its length is $32.4237769849+$ feet, or $3890.853238 \mathrm{I} 88+$ inches, or r8.87664+ cubits.

Note. Though this distance may be relied on as architecturally correct, no interpretation can be given of the line. As a whole, it is cut by the wall of the subterranean chamber.
(6.) The key to the works above the descending passage-way rests in the value of the line $b d$, or on the perpendicular let fall from the roof line on to the floor of the horizontal passage-way. The line $a^{3} b$ is parallel to the exterior slope line of the structure.

The length of this line $b d$ is $3.16227766+$ feet, or $37.94733192+$ inches.

Note. The interpretation of this line is very remarkable. Form of circumference to diameter is 20612:6561 as said.
Circumference to a diameter of 1 foot, is $3.141594269+$ feet. Diameter to a circumference of 10 feet, is $3.1830972249+$ feet.

The mean proportional between these values is (as stated),

$$
3.16227766+\text { feet. }
$$

Now this last value is the square root of 10 : in inches, as $37.9473319^{2}+$, it is the square root of

1440 inches.

The half base side of the pyramid (2.), is seen to be a diameter to a circumference of

14400 inches.
Thus the relation becomes manifest. But as the half base side equals $\frac{200}{18}$ of the length of the king's chamber, connection with that is shown. And as the length of the descending passage-way is shown (4.) to be io times the length of the king's chamber, connection with that is shown. Therefore all of them are connected with the square of 12 inches, or 144 , both as a linear measure and a measure of time, because 1440 is the minutes in 24 hours. For an immediate check upon this value, the dimensions of the descending passage-way are now given.
(7.) From the data in (6.) the leight of the descending passageway, perpendicular to its incline, will be

$$
47.25419656+\text { inches. }
$$

Piazzi Smythe's measure of the same, as per his tables of actual measure,
47.24 inches.

Difference:

$$
.014 \text { of an inch. }
$$

Its vertical height will be

$$
5^{2.78956568+~ i n c h e s . ~}
$$

Note. At the foot of the descending passage-way in actual construction, as per Howard Vyse, the mason work is set back and down as indicated by the dotted lines (also see Perring's Plates), so that the actual vertical height of the passage to the subterranean chamber is contracted or reduced from the descending passage way, to

$$
3 \text { feet, }
$$

or
which accords again with contents of note to (6.), because 36
inches is 1 yard. Its area is $36^{2}$ or 1296 inches, and $1296 \times 4=$ 5184 , the $\frac{1}{1000}$ of I solar day; thus making the yard numerically a base for the correlation of distance and time measures.
(8.) The line $a^{4} a^{5}$, extending from the intersection of the roof line of the descending, with the floor line of the ascending pas-sage-way to the vertical axial line of the pyramid, is the base line of construction of all the upper works.

Its value is

$$
251.714123560+\text { feet, }
$$

or

$$
3020.5694827+\text { inches. }
$$

Note. The interpretation of this line is, that it is the square root of

$$
63360
$$

which, as inches (by scale), is just the value of one mile in British measure, or

$$
5280 \text { feet. }
$$

So that, all the upper works embraced between the lines $a^{4} a^{5}$ and the vertical axial line of the pyramid, viz., $a^{1} a^{8}$, are included in a square area denoting I mile British. As a check on this line, Howard Vyse gives the line $a^{4} b$ as 247.7 feet. It is 247.75265939 + feet. Difference .05 of a foot. But the accuracy of this line is checked back, again and again, by the coming together of all the lines of the upper works.
(9.) The consideration of the contents of (8.), leads first to the measure of the line $a^{1} a^{8}$. This line is in length

$$
137.5098001164+\text { feet, }
$$

or

$$
1650.11760 \mathrm{r} 3968+\text { inches. }
$$

Note. This line is 4 times the length of the king's chamber. Its main interpretation is, that as inches it is a diameter to a circumference of $5 \mathbf{1 8 4}$ inches, or the number of inches in 4 square yards, or the exact value of the $\frac{1}{1000}$ of one solar day in thirds.

The connection between this line and $a^{4} a^{5}$, noted in (8.), is re-
markable. The extremes of the British long measures are the inch and the mile, or, say, the cubic foot of 12 inches, and the cubic mile. Then $12^{3}$ and $5280^{3}$ represent these extremes. Performing the operation we have

$$
1728 \text { and } 14719795^{2000 .}
$$

Dividing the one by the other, we have a quotient of 85184000.

Dividing by 8000000 , and we have a quotient of 1 , with a remainder over of

$$
5 \mathrm{I} 84000,
$$

which, as thirds, is just one solar day. That this value thus found was used for this showing, to connect the line $a^{4} a^{5}$, with $a^{1} a^{8}$, which last as seen is a diameter to a circumference of 5184 , seems positively to have been the case to the author. It does not seem that by the system of the ancients, our method of multiplication and division was used, but rather addition and subtraction. In this view, having the value $5280^{3} \div \mathrm{I} 2^{3}$ as seen, the use would have been

85184000
less 80000000
Remainder, 5184000
or I solar day value thus arising. Their method of use is yet to be discovered; but an example of a like use to get the value of a line is shown in (io.).

Of this line, for verification, reference is made to Source of Measures, where, not at that time being able to interpret any lines connected with the roof line of the ascending passage-way, but simply working with the forms 20612 and 20626.47 t as nearly in harmony with the found measures as possible, making a positively dependent use of Piazzi Smythe's measures as regards that roof line and the upper works, the author arrived at the determination of this line to within so small an amount, viz., . 0095 of a foot (see page 136), that he at once accepted of this value as without doubt, the true one. No attempt was there made at in-
termediate exactitudes, from inability at that time to interpret any meanings of lines which would serve as a guide to work back and forth, checking results by the harmonies of relations.
(io.) The line $a^{6} d^{1}$, embraced between the north wall of the grand gallery and the north wall of the queen's chamber, comes next in order. Add to itself, as inches, the $1 / 3$ of 206.12 ; or, $206.12+103.06=309.18$. Add to itself, as inches, the $1 / 3$ of $206 . \frac{2647001 \text { t }}{2}$; or, 206. 2647001 士 $+103 . \frac{1323500}{}=309 . \underline{3970501+}$ inches. Subtract one sum for the other, or,

$$
309.3970501+309 . \frac{18}{+}=.2170501 \text { of an inch. }
$$

Raise this by 1000 times, it equals

$$
217.0501 \text { inches. }
$$

Multiply this product by 7 , or,

$$
217.0501 \times 7=1519.3507 \text { inches. }
$$

This is the measure of the line $a^{6} d^{1}$ : and it is very observable as being a difference founded on 10 cubits and its enlargement, or the difference between the width, north and south, of the queen's chamber, to which the line leads, which is ro cubits, and the width, north and south, of the king's chamber, which is the enlargement on Io cubits (206. $\frac{12}{}$ inches), or $206 . \underline{2647001}$ inches.

Piazzi Smythe's measure of this line is 1519.4 inches; difference, .0493 of an inch. As another verification of this use, he found that the line was a multiple of 217 by 7 .
(ir.) The line $d^{1} a^{7}$, or the width of the queen's chamber, north and south, is

$$
\text { 206. } \frac{12}{} \text { inches, }
$$

or, io cubits.
Piazzi Smythe gives for this measure, four measures; two taken on the east side of the room, and two on the west side; taken at two separate times. East side, 204.7, 206.5; west side, 206.3, 205.6. The taken measure, which is typical and in general harmony, will, however, verify itself as correct, But bear in
mind that this chamber affords extremes of measures taken on a mean.
(12.) The line $a^{6} a^{8}$, being the floor line of the grand gallery, intersecting the vertical axial line of the pyramid at $a^{2}$, is
I56.8744966+ feet.

This measure is

$$
9 \mathrm{I} . \underline{33} \text { cubits. }
$$

Piazzi Smythe gives this line as 156.9 feet: difference, .025 of a foot.
(13.) Having this line with $a^{6} d^{1}$ and $d^{1} a^{7}$, as given in (10.) and (ir.), we can determine the line $c^{2} a^{8}$ : and also, which is a matter of the greatest moment, where the vertical axial line of the pyramid cuts the floor length (north and south) of the queen's chamber.
(1.) $c^{2} a^{8}$ is found to be

$$
69.48255243+\text { feet. }
$$

(2.) It is found that the length $c^{2} a^{7}$, of the floor line of the queen's chamber, lays to the south of the vertical axial line of the pyramid, and its value is found to be

$$
3.14^{1} 59426+\text { feet ; }
$$

or, circumferance to a diametcr of 1 foot; or, it is the circumference to a circle, inclosed in the arca of one square foot, or 144 inches, or the $\frac{1}{10}$ part of one solar day in minutes, or the other extreme of the British measures from the line $a^{4} a^{5}$, which, as seen, is the square root of one mile as 63360 inches.
(14.) We can now work back to ascertain the value of the line $a^{4} a^{6}$, which is the length of the floor line of the ascending passage. From the above data, as ascertained, its value proves to be

$$
123.68300698+\text { feet. }
$$

Piazzi Smythe makes it

$$
123.683 \text { feet : }
$$

difference, one may say, nothing. $20.612 \times 6=123.672$, show-
ing, in inches for feet, this value as modified on the typical form. Or, also, $123.68300698+$ feet are $72.00+$ cubits.
(15.) Reverting now to the queen's chamber, $d^{1} a^{7}$ equals 206. $\frac{12}{}$ inches, or $17 .{ }^{1766+}$ feet, or 10 cubits. $c^{2} a^{7}$ equals $3.14159426+$ feet, or $37.69913112+$ inches. Then $d^{1} c^{2}$ must equal

$$
168.42086888+\text { inches. }
$$

or

$$
14.03507240+\text { feet. }
$$

(i.) The part $d^{1} c^{2}$, thus found, governs the height of the walls of the room, as $d^{1} d^{2}$ above (vertically) the point $a^{6}$, or the line $a^{6} a^{7}$; making this height, with the length $d^{1} c^{2}$, a perfect square. This height, therefore, is

$$
168: 42086888+\text { inches. }
$$

$d^{1} o$ to the floor is given by Piazzi Smythe as 14 inches.
Sum,

$$
182.42086888+\text { inches. }
$$

Piazzi Smythe measured this full line as 182.4 inches:
difference, .02 of an inch.
(2.) The value of the solar day, in thirds, is

$$
5184000^{\prime \prime \prime}
$$

The value of one sidereal day is

$$
5169846^{\prime \prime \prime}
$$

Take these values as represented by

$$
\text { 5. } \frac{184}{\text { feet, }}
$$

and
or, in inches,

$$
5 \cdot \frac{169846}{} \text { feet, }
$$

and

$$
62.208 \text { inches, }
$$

an

$$
62.038152 \text { inches. }
$$

The line $m n$, or the height of the gable, is thought to represent either one or both of these values; if the latter, then by a
bias on the roof line of this gable. Piazzi Smythe gives this distance as
62. inches.

But, by correcting his computed measure of the floor line as 205.8 to 206. I2, his value would have been 62.2 inches.

There results therefore, for greatest height, $\mathbf{6 2 . 2 0 8}$ inches.

| 168.420 | " |
| :--- | :--- |
| 14. | " |
| 244.628 | inches. |
| 244.428 | " |
| 244.4 | $"$ |

$$
\text { Difference, } .028 \text { inches. }
$$

Note. (a.) Considering the location of the queen's chamber, in its east and west length, with reference to the vertical axial line of the pyramid. In Source of Measures, page 126, it is stated that the center longitudinal line of the floor of the descending passage-way is set off to the eastward of the vertical axial line of the pyramid

```
or, 293.06280 inches.
```

                                    24.42190 feet,
    Take now the length of the line $a^{4} a^{5}$, or, $251.7141235+$ feet, as inches, $251.7141235+$ inches.
Add a sidereal day as taken, 62.038152 "

Sum, $\quad 313.752275$ inches.
Deduct from above,

Difference, $\quad 20.68_{947}$ inches.
Which gives the $1 / 2$ width of the passage-way to the queen's chamber. Its full width would be
41.37894 inches.

Making use of a solar day, instead of a sidereal day, and
this result would become
41.61864 "

The mean of these values is 41.4987 "
Piazzi Smythe's measure of the width of this particular passage-way, immediately at the door of the queen's chamber, is
$4^{1.46}$ "
Difference,
.04
(b.) Take the values found above of the distances from the center line of the pyramid to the east wall of the queen's chamber, made up (i.) by the mile value in inches with the value of a sidereal day in inches, viz., 313.752275 inches.

Divide by 2 , and we have ${ }^{156.876137}$ "
And this shows that the value of the floor line of the grand gallery, or the line $a^{6} a^{8}$, which has been seen to be ${ }^{1} 56 . S_{7449}$ feet,
has its origin here in this queen's chamber, as worked in a scale of inches for fect. The difference is .oor6 inch.

We must not lose sight of the fact, that all the lines are on a bias, or, give extremes on a mean of measures, to accommodate to a variety of corrclating measures.
(c.) From considerations of widths of passage-ways not shown on this diagram [but sec Source of Measures, page 127 (a.), (i.)], the extreme width of the passage-ways, on the mean, is taken at $\quad 4^{1} .6666+$ inches. The mean, founded on the data given in note (3.), is taken at
$4^{1.460849 "}$
The least extreme then, if used at all, would be
$4^{1.265503}$ "
(Although all these measures are founded on data fully in accord with the spirit of this inquiry, they lack for that kind of support, given in all the other lines; in other words, they lack for interpretation.)

A very striking datum of width of passage-ways, as to what their greatest extreme is, is had in Piazzi Smythe's measure of the width of the granitc portcullis block in the mouth of the ascending passage-way. He gives its measure of breadth at Difference between this and the extreme taken, 41.6 inches. .03
(d.) Now, taking the passage way to the queen's chamber, by means of biased lines, to indicate a permissible limit between $4^{1.6666+}$ and $4^{1.46+}$ inches, as to ontside limits, the following data are derivable as to the east and west lengths of this room, as they have relation to the vertical plane parallel to these walls cutting through the axial line.
(I.) Take the distance of center of passage-way from the center of the pyramid as above,

Add $1 / 2$ width of passage, $\frac{41.66666}{2}=$
Sum,
Deduct 20.612 $\times 2=$
(a.) Difference,
$293.06280+$ inches.

$\qquad$
3 l 3.89613
$\frac{41.224}{272.67213}$
inches,
inches.

Take length of queen's chamber at Deduct $20.612 \times 2=$
(b. ) Difference,

From (a.)
Deduct (b.)
Remainder,
From this deduct

Remainder,
Showing that the distance from the west wall of the queen's chamber to the plane of the vertical axial line is, numerically,

## Plus

226.21001 inches. 41.224 "
184.98601 inches. 272.67213 " 184.95601 "
87.68612 inches. .206r2 " 87.48 inches

20612

Now, as to these, 20612 is our typical source of measures; and $\frac{20612}{4}=$ 5153,
was astronomically uscd as $\frac{1}{1000}$ of one circular day to contrast with $\frac{1}{1000}$ of one solar day, as

$$
{ }_{51} S_{4},
$$

and with $\frac{1}{1000}$ of one sidercal day, as

$$
5^{16} 6.8_{4} 6 .
$$

The difference between one circular day of $5153000^{\prime \prime \prime}$ and one sidereal day of $5^{16} 68_{4} 6^{\prime \prime \prime}$, equals $4^{\prime} 4^{\prime \prime \prime} 4^{6^{\prime \prime \prime}}$.

Our typical form is diameter 6561 , circumference 20612. Take the form:

$$
\left.\begin{array}{c}
6.561 \\
20.612
\end{array}\right\} \times \frac{4}{-}=\begin{aligned}
& 8.74^{8} \\
& 3
\end{aligned}
$$

where 27.4826666 is taken as a time measure of the moon in the measure of circular days. Reduce to solar time, thus:

$$
27.482666+\times \frac{5^{15} 53000}{{ }_{51} S_{1} 000}=27.3{ }_{1} S_{322016}+;
$$

or,
Add,

$$
\text { 27d. } 7 \text { h. } 3^{8^{\prime}} 23^{\prime \prime} 1_{1 / \prime \prime}^{201 / \prime \prime} .
$$

the above-stated difference between a circular and sidereal day, and there results:

$$
27 \text { d. } 7 \text { h. } 43^{\prime} 3^{\prime \prime} 47^{\prime \prime \prime} 20^{\prime \prime \prime \prime} ;
$$

or the exact time of the moon's passage around the earth. (Parker's Quadrature, page If6.)

Now, above, in the value $\$_{7.4} 8$ inches, we find we have, numerically, the exact diameter to the base of this time value, viz., 27.4826+.

It seems, considering the premises, and the exactitude of the results, that there is here an approximation to the design of the architect.
(e.) The length of the queen's chamber taken, is 226.21001 inches.

Piazzi Smythe gives this length measuring the north side of the room, at

$$
226.5 \text { inches. }
$$

But says he judges a rough probable approximation to be 226. inches,
giving a latitude of the difference.
Yf.) Just as we see that the upper lines seem to spring from conditions worked out by, as it were, anticipation from below as one proceeds upward, so there is a most remarkable showing of this kind with relation to this taken value of the queen's chamber length of
226.2100 t inches.

Take the value of the length of the floor line of the ascending passageway, viz.,

$$
\begin{gathered}
123.68_{300698} . \\
1484.1960 S_{37} 6+ \\
72.0064081
\end{gathered}
$$

In inches this is In cubits
${ }_{1} \mathrm{~A}_{4} .19608_{37} 6+$ inches is diameter to a circumference of

$$
4662.7419064 \text { inches; }
$$

or, of, in cubits, $\quad 226.2149+$ cubits;
working out this queen's chamber length, in inches for cubits, to within .005 of an inch.
A leading idea pervades the measures used in this chamber, viz., that they are pure circumference values connected with the typical form 20612. The breadth of the chamber 206.12 inches; its (east and west) length derived from a cubit value; the uses of the sidereal, circular, and solar day; and so on, distinguish it thus. This is in contrast with the measures of the king's chamber, which are as follows:
(16.) The typical form is $20 . \frac{612}{}$ inches from 20612 : the modification is 20. $\frac{62647001+}{}$, a diameter value (an enlargement on I cubit). On this last form all the measures of this chamber are founded.
(a.) Breadth
206. $\frac{2647}{}$ inches;
duameter to circumference of 648 inches.
(b.) Length $=$ breath $\times 2=$
412. $\frac{5294+}{}$ inches; diameter to circumfercnce of 1296 inches, or 1 square yard, or the $1 / 4$ of 5184 , characteristic of the solar day.
(c.) Height $2062 . \frac{647001}{192}=\frac{1820 \text { inches. }}{1728}=\quad$

| Piazzi Smythe's measures of (a.) |  |  | 206. 28 inches. |  |
| :---: | :---: | :---: | :---: | :---: |
| " ، | ، | (b.) | 412. ${ }^{66}$ | " |
| Howard Vyse's | " | (c.) | 229. ${ }^{2}$ | " |

The floor line of the king's chamber, or the line $k a^{9}$ is, vertically, by Piazzi Smythe, 7 inches above the intersection of the floor line of the grand gallery with the vertical axial line of the nıass.
(I 7.) The length of the line $k d^{3}$ is taken at $330 .{ }^{1375^{2}}$ inches, differing as being less than Piazzi Smythe's measure by .i6248 of an inch; but he says $330.3 \pm$ inches.
330.13752 +206.264700 I $\left(=d^{3} a^{9}\right)=536.4019+$ inches : for which see Source of Measures, page 138 .

Closing these specifications, an interesting note may be made of the variety of values to be found within very narrow limits. By this system of measures, taken astronomically,

$$
\sqrt{31415942.69+\times 2=62831885.38} \text { equals } 7926 . \frac{565+}{}
$$

or the miles equatorial diameter of the earth. Now take the line $b^{1} b^{2}$ : it is in length $13.61519648+$ feet; modify this by the addition of .00983206 of a foot, making it 1361519648, numerically.

$$
1361519648 \times \frac{12}{20612}=7926 . \frac{656}{}
$$

or this very equatorial value. Such results, germane to the sub-jects-matter of the general construction, serve to convince one of
the existence of permitted extremes on a mean of measures, confined within very narrow limits.

It is seen that, from first to last, in these works they are founded on the idea of co-ordination of measures of space (in terms of the British measures) with those of time ; justifying all that the author advanced, by anticipation, on this idea, in Source of Measures.

The king's chamber dimensions were made in terms for computing tables of sines, etc., though not immediately apparent. The Hindoos have the same method, in the same terms, coming from their most ancient sources. Thus, in computing the sines, they take the radius at $3437.74+$. (the length of the king's chamber in feet being $34 \cdot 3774+$ ), diameter to a circumference of 10800 , which circumference mnltiplied by 2 equals 21600 minutes; the diameter is therefore 6875.48 ; hence the proportion is-

$$
6875 \cdot 48+: 21600 .
$$

Reduce these numbers to their least terms, by dividing them by 36, and we have-

```
190.985+:600;
```

where, in r90.985, we have ro times the height of the king's chamber in feet. (See Bentley's History of the Hindoo Astronomy.)

## SECTION III.

Use of the form 6561: 20612 to cxhibit values of changes of grometrial shapes in integral numbers; showing numbers to be mental crative conceptions to which shapes are obediences as materializations: also other geometrical and astronomical uses of this form.

## PART I.

## GEOMETRY.

A circle is a perfect curve. It is of such a nature that, protracted either way, it will re-enter upon itself. The length value of this curve being found, the length values of the curve and its diameter can be expressed in the numerical terms of this length.

The measure of circumfercuce of all regular polygons, including the circle, is $1 / 2$ the circumference by the radius of the inscribed circle. (John A. Parker.)

The true ratio of circumference to diameter of all circles is 4 times the area of the circle inscribed in the square for the value of circumference, to the area of the circumscribed square for the value of diameter. (Parker.)

Given diameter $A=8 \mathrm{r}$, area of $B=$ 6561, area of $A=5153$; then, $\frac{\text { div. } A}{4} \times$ cir. of $A=$ area of $A$ or

$$
\frac{8 \mathrm{I}}{4} \times \text { circumference of } A=5153
$$

$$
81 \times \text { cir. of } A=5153 \times 4=20612
$$


circumference of $A=\frac{20612}{81}$

The diameter of $A$ is given, and therefore,

$$
\begin{gathered}
\text { diameter : circumference }:: 8 \mathrm{I}: \frac{206 \mathrm{I} 2}{8 \mathrm{I}} \\
\text { and }
\end{gathered}
$$

diameter: circumference: : 6561:20612
(The formulations are those of Mr. Charles Horne.)
Thus it is shown that the area of the square of 81 to the side, or 656 I , being taken as diameter of a circle, the circumference of that circle will be the numerical value of the area of the inscribed circle multiplied by 4 , or $5153 \times 4=20612$.

The number forms used in the following cases are 6561:5153, and 6561:20612, where the last form is assumed to be the true, and perfect, and only integral relation of diameter to circumference of a circle.

Case 1.-Area Measure.


Side of $B$, or square, equals $8 \mathbf{1}$. Area of $B$ equals 656 r .

Area of circle $A$ equals 5 153. (John A. Parker.)

Case II.-Linear Measure.


Diameter of $A$ equals $8 \mathrm{I}^{2}=656 \mathrm{I}$ : then circumference of $A$ equals (Case I.) 5153 $\times 4=20612$.

But since the above are but measures of length, one would suppose that if the numerical form was contained in nature, as a law, it should exhibit itself as integrally applicable to solids. 'Therefore :

Case 111.—Solid Measure.
$H$ is a cube of $8 \mathbf{I}$ to the edge; $A$ is its inscribed sphere, having a diameter of 8i.


The usual and proper formula for obtaining the solid contents of the sphere is

$$
\frac{1}{6} \pi \text { diameter }^{3} .
$$

We have

$$
6561: 20612:: \text { 1 }: 31415942691+
$$

Then

$$
\begin{aligned}
\frac{20612}{6561 \times 6} \times 81^{3} & =\text { solidity of sphere. } \\
278262 \quad & =\text { same }
\end{aligned}
$$

(This result is the same as $3435_{6}^{2} \times 81$, and $34.35 \frac{2}{6}$ feet are 206. $\frac{12}{}$ inches, or 10 cubits, and are the breadth (north and south) of the queen's chamber.)

$$
278262=20612 \times 13.5
$$

Then we have-
Solidity of cube equals $8 \mathrm{I}^{3}=$
Solidity of contained sphere equals
Case IV.-Surface Measure.

Surface of cube $H$ equals area of one of its faces multiplied by 6 , or $8 \mathbf{I}^{2} \times 6=$ 39366


The geometrical formula for obtaining the surface of the sphere is

Then we have-

$$
\frac{20612}{6561} \times 656 \mathrm{r}=\text { surface of contained sphere. }
$$

So we have-
Surface of cube of 8I to the edge 39366
Surface of contained sphere 20612
Case V.--Convex surface of Cylinder, of height and dianneter of 81, compared with that of its contained Sphere.

They are the same, viz:
Surface of cylinder 20612
Surface of sphere 20612

Case VI.-Solidity of Cone, Sphere and Cylinder.
Where the altitudes of a cylinder and of a cone, and the diameters of their bases, are equal to the diameter of a sphere, the relation of solidity of cone, sphere, and cylinder will stand as a for cone, 2 for sphere, and 3 for cylinder, as was proved by Archimedes.

Therefore, the solidity of the sphere of a diameter of 81 being $20612 \times \mathrm{I}_{3} \cdot \frac{5}{=} \quad 278262$, the relative measures of solidities are as follows:

Cone with altitude and diameter of 8 r
139131
Sphere with diameter of 81 $\quad 278262$
Cylinder with altitude and diameter of 81 417393

Case VII.-Integral Numerical Relations between the Sphere whose diameter (side of Square, and diameter and height of Cylinder) is 81, and the Convex Surface of the Cone, the radius of whose Base is 8 I .

If the height of the cone is 81 , the slant height will involve a decimal (in the diagonal of the square of 81 ). We therefore have
to resort to such numbers as will give an integral value for the slant height. The least integral values applicable to the measure of a right angled triangle are 3 for base, 4 for height, and 5 for hypotheneuse.

As a cone is described by a revolution of the right-angled triangle about its perpendicular, these least integral values apply to the eiements of the cone. $A B$ is $5, A D$ is 4 , $B D$ is 3 , and the base of the cone
 is $2, B D=6$.
(a.) Multiply these last numbers by 27 :

| $A B$ | $\mathbf{1 3 5}$ |
| :--- | ---: |
| $A D$ | 108 |
| $B D$ | $8 \mathbf{I}$ |

(ro8 is circumference to the breadth of the king's chamber in feet.)

Solidity of sphere (Case III.) is

$$
8 \mathrm{I}^{3} \times \frac{1}{6} \pi=20612 \times 13.5
$$

But 20612 is circumference to a diameter of $81^{2}$ : so in the numerical elements of this cone there is a correlation with the solidity of the cube of 81 and its contained sphere, as-

Circumference of the square of the radius of base multiplied by $\frac{1}{10}$ the slant height, equals the solidity of the sphere contained in the cube of 81 to the edge.
(b.) $1 / 2$ circumference of base by slant height equals the convex surface of the cone.

Then the convex surface of this cone is 34353 1/3
(Breadth of queen's chamber equals $\frac{34 \cdot 353^{1 / 3}}{}=17.1766+$ feet.)
(c.) Multipy these values by 8 I , and we have-

| $A B$ | 10935 |
| :--- | ---: |
| $A D$ | 8748 |
| $B D$ | 6561 |

Convex surface is $1 / 2$ circumference $\times 10935=22539220$ : where the radius is 6561, or diameter to circumference of 20612 (or $5153 \times 4$ ), and the height is $6561+\frac{6561}{3}=8748$

Here we have this correlating relation:
Circumference of radius (as a diameter value) $\times \frac{\text { slant height }}{8 \mathrm{I} \times 10}$ $=$ solidity of the sphere contained in the cube whose edge is 8 r . (Case III.)
(d.) Multiply the values in $c$ by $11 / 3$, and we have-

| $A B$ | 14580 |
| :--- | ---: |
| $A D$ | 11664 |
| $B D$ | 8748 |

Here are elements for an astronomical application. (Part II. of this Section, Case III.)

Again, $\frac{874800}{\mathrm{I} 3.5}=64800$ is circumference to diameter of 20626.4700It, a value of seconds used in astronomy to obtain the sun's parallax and distance.

Height ri664 is diameter to standard circumference of great pyramid in inches. This diameter as 11. $\frac{664}{}$ inches was taken by the Roman nation as their foot measure.

These numerical applications teach the meaning of the Egyptian symbol of a man standing before one of their gods, his hand extended supporting on its palm a cone. The forearm was the cubit, and the hand was the palm, or a division of the cubit.

Under the formula for solidity of a cone, viz :

$$
1 / 3 \pi R^{2} \text { altitude }
$$

The solidity of this cone is by equivalence-

$$
\frac{8 I^{2} \times 8 I^{3}}{206}, \text { or } \frac{6561}{20612} \times 8 I^{3}
$$

Note. A numerical source of almost infinite variations of inter-connected proportional parts on these forms can be geometrically shown, as involving at once values peculiarly the property of square, circle, triangle, and cone.

$A F=3, A H=9, A I=27, A K=8 \mathbf{1}$.
$A B=4, B F=5$. Let $A, C=40, C I I=41, A D=364$, $D I=365 . \quad A E=3280, E K=3281$.

Here the squares are multiples of the number 3, as $3,9,27,81$. The triangles are of a nature such that the hypotheneuse always exceeds the height by unity. This form may be varied from infinitely; and as to methods of integral triangulation, see Meyer's Quadrature (Cincinnati.)
'The square of 81, shown herein to be of so much importance, is founded on that of 3 , which is the base of a triangle from whence such curious results have been derived. Take a use of the number values attached to these triangles, premising that the number 9 is also the origin of the sides of the triangles, as $4+5$ $=9,9^{2}=8 \mathrm{I}=40+41,8 \mathrm{I} \times 9=729=365+364$, and $729 \times 9$ $=656 \mathrm{I}=328 \mathrm{I}+3280:$

Add (ı.) $365 \times 2=\quad 730.000000000+$
(2.) 3280
(3.) $\frac{3280}{54}$
$32.800000000+$
$.607407407 f$

Sum,
763.407407407

And, numerically, we have the standard base side of the great pyramid in feet.

But $763.4074074074+\times 54=$
which use, while it affords data the same as in all the cases supra,
also shows that the creative conception of the proportional parts of diameter to circumference of a circle, had its origin in that thought symbolized by the number 9 ; so that diameter is not only determinate with circumference, but they are merely related issuances from the common source of 9 . Another use of this number 9 , producing the same results through the order of the digits, might be given.

Case VIII.-Use of the Diagonal of the Square of 81.
The diagonal of the square of $8 \mathbf{1}$ is a mean proportional between a value of circumference and of diameter of a circle, such that one extreme is diameter to circumference of a circle of 360 ;
which value, 360 , for eircumference, is the numerical origin of what is called-

## The Analytical Unit of Circular Measure;

where the angle measuring the curve of a circle, shows that curve to be equal in length to the radius.
(a.) We have the form-

$$
20612: 6561:: 64800: 20626 \underline{47001+}
$$

where the first term is a circumference value, and the last is a diameter value of the circle. Divide this form by 54 , and we have

$$
381.7037037+: \frac{656 \mathrm{I}}{54}:: 1200: 381.97166+
$$

where the first term is the standard measure, and the last term is the exact measure, of the half base side of the great pyramid. ('The full base side, then, is a circumference to a diameter, as $24: 7 . \underline{6394}$ 士, where 24 can be taken as the 24 hours into which the circle of 360 is divisible by $I_{5}$ parts of 360 to the hour.) Multiply this last form by $\frac{3}{10}$, and we have

$$
114.51111+: \frac{656 \mathrm{I}}{180}:: 360: 114.5914999+
$$

(b.) The diagonal of the sphere of 81 to the side is-

$$
114.55129+
$$

and, as a fact, this is a mean proportional between the extremes in the last form, for:

```
II4.5IIIH: IIM.55I2+: : II4.55I2+: II4.5914+;
```

which shows that the diagonal of this square of 8 I has a proportional connection between values of circumference and diametcr of the circle originating from the number 9 , the base of this square, as has been shown.
(c.) But the extreme $114.591499+$ is diametor to a circumference of 360 , and the radius therefore will be $\frac{114 \cdot 5914}{2}=$ 57.2957499+. Now, where a portion of the arc of this circle, equal in length to the radius, is intercepted between the radii, the
 numerical value of the angle measuring this arc will also be equal to that of the radius, as

$$
\begin{array}{ll}
\text { radius }= & 57.295 \\
\text { intercepted arc }= & \text { same }, \\
\text { contained angle }= & \text { same; }
\end{array}
$$

which holds true of no other values assigned whatever.
The angle $57^{\circ} 295+$ is that one which will always give the intercepted arc as equal to the radius, but any other value given to the radius, or arc, will differ numerically from the value of the angle. Hence this is the normal numerical value giving this geometrical result.

Hence, circumference value 360 of a circle, derived from the form 6561 : 20612, which is taken from the square of 8i to the side, and from the number 9, becomes the normal measuring circle for terrestrial and celestial measures.

## PART II.

## Astronomical use of the form 6561 : 20612 <br> Case 1.

The usual measure of the earth's time about the sun has been taken in the terms of a natural measure of time, viz., the rising and setting of the sun. By long continued observation the numerical notation of this period of time, viz., the solar year, has been found to be, in the terms of this natural measure,

$$
365.256374+\text { days. }
$$

Now suppose that while this is so, some mental creative power had thought of, and willed that the proportional parts of the earth's orbit, as regards all other cosmical measures, should correlate with that number value to which the abstract relation of diameter to circumference of a circle is found to render obedience in shape. This value, as thus found empirically, can be relegated for its origin to circumference values of a circle, taken from the form 6561: 5153, as follows:

| 360000000 |
| ---: |
| 5153000 |
| 103060 |
| 31415 |
| $365.256374+$ |

where 360 is the normal measuring circle derived from the square of 81 and the form 6561 : 5153 (see case VIII., Part I.), 5153 is $\frac{1}{4}$ circumference of 20612, 10306 is $\frac{1}{2}$ circumference of 20612, and 31415 is circumference to a diameter of unity. This value of the year can not be reconstructed, integrally, from a common, or unit, numerical source, or from the numerical value of any shape save as interpreted by the above form of $6561: 5153$ only, and alone.

Case II. - Diameters of the Earth in Miles from the form 6561:20612
(a.) Take circumference derived from this form of 31415942. 6916162: Multiply by 2 , and we have

$$
62831885 \cdot 383324
$$

as a circumference value. Suppose we change the nature of this value to that of the area of the square. Then the side of that square will equal

$$
\sqrt{62831885 \cdot+}, \text { or } 7926.565 \pm
$$

which in miles is the equatorial diameter of the earth.
Here is a change of numerical notation, comporting with a change of geometrical shapes, producing this result. Consider how we have found in the pyramid works linear measures coordinating with time measures. Here we find the same thing with the addition of the bringing in on to the same ground the co-ordination of geometrical shapes.
(b.) Reduce this miles value to feet, or

$$
\begin{array}{cc}
7926.565 \times 5280= & 41852743.680 \\
\text { Deduct } & 144 \mathrm{I} 35
\end{array}
$$

Remainder,
41708608.680
which, brought back to miles, gives

$$
\text { 7899. } \stackrel{357+}{ } \text { miles }
$$

and this is the polar diameter of the earth in miles.
Note. This value 144135 is the reverse reading of the cube of 8 I , where $S_{13}=531441$. It is a biblical use. 144 is Adam, and 135 is A S H, or woman, and it is stated that God brought the woman to the man and joined them, or ${ }^{144135}$, which, reversed, is the cube of 8 I . Why, for instance, the astronomical formula that the squares of the times are as the cubes of the mean distances, is so, is to us a mystery. It simply is so because it is so: it is part of the fiat. So this, to us, so novel use of reverse values, if found to be useful, or used, in cosmical developments, must be accepted as a use in natural building. Here it seems to point to some method of notating elliptical properties.

Case III. - The Moon's Time from Parker's Quadrature.
Mr. Parker takes the following cosmic values:
The solar day of 24 hours has $5184000^{\prime \prime \prime}$
The sidereal day has $5169846^{\prime \prime \prime}$
The circular day has $5153000^{\prime \prime \prime}$
where this, as an abstract measure, is taken as the $1 / 4$ of a circumference of 20612 , or as the area of the circle in the square of 56 I .
Take the form-

$$
\left.\begin{array}{c}
20.612 \\
6.561
\end{array}\right\} \times \frac{4}{3}=\begin{aligned}
& 27.482666+ \\
& 8.748
\end{aligned}
$$

This value of 27.482666 as circular time, reduced to solar time, gives

$$
27.482666+\times \frac{5 \mathrm{I} 53}{5 \mathrm{I} 84}=27.3183220164+
$$

or reduced to time scale, as days, gives

$$
27 \text { d. } 7 \text { h. } 38^{\prime} 23^{\prime \prime} 1^{\prime \prime \prime} 20^{\prime \prime \prime \prime}
$$

To this add the difference between one sidereal and one circular day, or

$$
16846^{\prime \prime \prime}=4^{\prime} 40^{\prime \prime} 46^{\prime \prime \prime}
$$

and there results

$$
27 \text { d. } 7 \text { h. } 433^{\prime \prime} 47^{\prime \prime \prime} 20^{\prime \prime \prime \prime}
$$

which is the exact value of the moon's period.
Note. By Mr. Parker, the time of a sidereal lunation from the best authorities when he wrote was 27 d. $7 \mathrm{~h} .43^{\prime} 4^{\prime \prime}$ against his as above, showing the difference of $\frac{1}{5}$ of a second. The solar lunation was given at $27 \mathrm{~d} .7 \mathrm{~h} .44^{\prime} 3^{\prime \prime}$, against his of $27 \mathrm{~d} .7 \mathrm{~h} .44^{\prime} 2^{\prime \prime} . \underline{84}$

At the present day, this value of the solar lunation is retained as 27 d . $7 \mathrm{~h} .44^{\prime} 2^{\prime \prime}$. 87 , agreeing with Parker to within $\frac{3}{100}$ of a second, while, however, a great difference has been made as to the value of a sidereal lunation, as 27 d . 7 h. $43^{\prime} \mathrm{II}^{\prime \prime} 614$; for this reason, as given by Godfray: "This is the value at present, for
comparison with ancient observations led Halley to the conclusion that the moon's mean velocity is being accelerated, and the period of a revolution shortened." It tells badly for astronomical accuracy to make a change of $9^{\prime \prime}$ in such a period on the strength of ancient records, where great uncertainity exists as to the correct chronological periods of those old observations. (See John Von Gumpach on Mr. Airy, the Astronomer Royal.)

## Case IV.-Mean Solar Year by Mr. Parker

He takes the form

$$
\left.\begin{array}{r}
206.12 \\
65.61
\end{array}\right\} \times \frac{16}{9}={ }_{116.64}^{366.43555+}
$$

where he makes $366.4355+$ the base for the calculation of the mean solar year. By simple and orderly means from use of this form, he gives this value at

$$
365 \text { d. } 5 \text { h. } 48^{\prime} 50^{\prime \prime} 53^{\prime \prime \prime} 6^{\prime \prime \prime \prime}
$$

His steps are :
ist. Circumference value as stated
2d. Reduced to solar time by the factor $\frac{5153}{5184} \times$
3d. He adds one sidereal day.
4 th. He adds $11 / 3$ of the excess over the mean between one circular and one sidereal day, reduced to solar time.

Note. There is a method of use of the form of $113: 355$ for obtaining the year value. To compare and force the form $113: 355$ by that of 6561 : 20612, we have

$$
\begin{gathered}
6561: 20612:: 113: 355.000152415+ \\
\text { Then }
\end{gathered}
$$

20612 : $\frac{20626.47001}{54}:: 355.000152415+: 365.2563 \mathrm{~S}_{9}+$
which is correct as compared with the received value to less than the $\frac{16}{1000000}$ of a day in the year's period.

Case V.-The Angle of Solar Parallax, and the Sun's.mean distance.

The results to be derived from the late transit of Venus are not expected to be ranked as original or basic data, but rather as data to be compared with, and made to conform to, other data derived from independent sources. A very high authority has written to this effect, and gives the independent results as follows :
(r.) By the effect of the sun's attraction on the motion of the moon.

$$
\text { Parallax by this method, } \quad 8 .{ }^{\prime \prime} 83
$$

(2.) By measures of the planet Mars when nearest the earth, under very favorable circumstances.

Parallax by this method, 8." 85
(3.) By measuring the velocity of light.

Parallax by this method, 8." 86
(4.) By an independent method by Leverrier.

Parallax by this method, $8 .{ }^{\prime \prime} 83$
He then says: "From the general accordance of these various results, it would appear that the solar parallax must lie between pretty narrow limits, probably between $8^{\prime \prime} 82$ and $8^{\prime \prime} 86$." Elsewhere, he gives the result as $8^{\prime \prime} 84+$.
(a.) The astronomical formula for obtaining the sun's distance (see Godfray's Astronomy), is

$$
\begin{gathered}
\text { Distance of sun }=\frac{\text { Radius of Earth }}{\text { Sin. Horizon. parallax }} \\
\text { and } \\
\text { Distance }=\frac{\text { Radius of Earth }}{\text { Value of Sin. Horizon. parallax }} \\
206264.7001
\end{gathered}
$$

(Here 206264.700 I is assumed as the correction of $206264.8+$ by Godfray.)
(b.) Now, Mr. Parker has also a form for finding the sun's distance (see his Quadrature), which is

$$
\text { distance of sun }=\text { diameter of earth } \times 11664
$$

where 11664 is derived from his original form as

$$
\left.\begin{array}{c}
20612 \\
6561
\end{array}\right\} \times \frac{16}{9}=\begin{aligned}
& 36643.555 \\
& 11664
\end{aligned}
$$

He takes diameter of earth as mean diameter, for which he gives no sufficient reason. On the contrary, the author takes this as the equatorial diameter of the earth.
(c.) Making the equations in (a.) and (b.) equal, Radius of Earth
Diameter of earth $\times 11664 \frac{\overline{\text { Value Sin. Horiz. parallax }}}{206264.7001+}$
which, reduced, gives,
Value $\sin$. horizontal parallax $=$
8." 84193
or length of arc
8.84193 ;
which agrees as closely as seen with the values as found above, expected to be confirmed by the transit observations. It must be noted, however, that the transit was observed the earth being in perihelion, and therefore this result of $8^{\prime \prime} 84193$ being taken as the mean, the results of the transit should give a large angle, say $8^{\prime \prime} 91$, or thereabouts.
(d.) Taking the earth's equatorial diameter as found, at 7926.656 miles, distance of sun will prove to be

$$
7926.656 \times 11664=92.456515 \text { miles }
$$

(Note here the use of this value 20626.4700 I in this parallax formula and in the pyramid construction.)

## Case VI.-General Laze of Interplanetary Distances.

here is but one further case to be noticed in this astronomical connection, which is the general law of Kepler. It is that The squares of the times are as the cubes of the mean distances.

This terminology fits exactly as part and parcel of, and as a sequence to, the method herein stated.

So we have in these sections :
(I.) A Source of Measures; Egyptian, Roman, British, and, without doubt, Hebrew.
(2.) The great pyramid constructed from this source; essentially justifying the use in the perfect closing of the lines by means of its rigid application.
(3.) The most important features in geometry exhibiting themselves as obediences to this source, as to a creative mandate.
(4.) And, finally, the governing features of astronomy, as to measures of space and time relegating themselves to this same source, as to a creative origin.

Evidently we have been dealing with a natural, or better a Divine system; albeit in the mist, for lack of a right method of using the model form.

## SECTION IV.

A CRITICISM ON THE, SO-CALLED, LEGENDRE AND PLAYFAIR METHOD OF RECTIFICATION OF THE CURVE OF THE CIRCLE, BY MEANS OF INSCRIBED AND CIRCUMSCRIBED POLYGONS, SHOWING ERROR IN THE MEANS EMPLOYED.
§ r. Where an erroneous deduction has for long been postulated and accepted as a truism, the error of such a deduction must be shown as a first step toward the ascertainment of what the specific truth really is.

There are very many men so made up by nature, that where by long habitude, they have unconsciously entertained and cherished a postulate which perchance is radically wrong, they prefer to adhere, as by custom, to the error, and resolutely close their eyes to the truth; even though it be presented to them. It is for this reason, chiefly that radical reforms, no matter in what department of culture, are so obnoxious to a conservatism which, to a great degree, is perhaps as necessary to the well-being of culture as truth itself.

But sometimes where mighty consequences toward the betterment of humanity offer themselves as the reward of the establishment of a primal truth, in the face even of the profoundest convictions, entertained and cherished for never so long, supported even by the highest authorities and the most illustrious names, the hand should not be stayed by any considerations of conservatism, from pointing out radical error.

The author is well aware of the obloquy attaching to any criticism of the kind he is now entering upon; and he believes he understands, too, that really this kind of obloquy is shot out from a very base interest at bottom, which desires that the error may prevail rather than that the truth may be ascertained. He ap-
peals, therefore, to the fair-minded, to give this criticism a careful reading; he being perfectly willing, if in the wrong, to bear the jeers usually attendant upon any effort of this kind.
§2. Before proceeding to the demonstration of error in the Legendre or Playfair method of rectification of the curve, he will give two instances of erroneous deductions connected with the subject-matter of approximate values.
(a.) Sir Isaac Newton, in laying the foundations of his Principia, in " Lemma I.," postulates:
"Quantities and the ratio of quantities which, in any finite time, converge continually to equality, and, before that time, approach nearer, the one to the other, than by any given difference, ultimately become equal."

This postulate is manifestly untrue, for: let $A B C$ be any triangle, and with the length $A B$ as a radius, let the $\operatorname{arc} B D$ be drawn to intercept the line $A C$. Sup-
 pose this figure, both for triangle and segment of circle, be continually and proportionately reduced, as $A B^{\prime} C^{\prime}$, $A B^{\prime} D^{\prime}$; the ratative differences will never be changed, however far the reduction be made, and consequently the ratio of difference will always remain the same. The proposition is axiomatic, and does not require demonstration.

But take the triangle $A B C$ with the circular area $A B D$, as decreasing toward $A B$, by different and successive steps, one of which is, say, $A B E$, with the circular area $A B F$. By this method, no geometrical ratio can be preserved. The ratio of diminution has to be calculated by numerical computations. But there being a ratio of diminution, in which the difference between the straight line and the curve, is, say, a decreasing one, it is nevertheless, plainly to be seen that the only equality of the curved line $B D$ with the straight line $B C$, in
any possible diminution, will be when the line $A C$ shall so close upon $A B$ as to wholly coincide with it (as to the value of their lengths now or at last becoming alike), and become, with $A B$, one and the same line, at which stage, or condition, there can be neither curved line nor straight line left for comparison; therefore, so long as these lines-i. e., $C B$ straight, and $B D$ curveexist at all, either in whole or in part, there can, by possibility, be no equality between them.

Hence, the "Lemma" is false in its terminology; nor is it even right in a showing of a growing or proximate equality of likeness as regards the ultimate structure of these different kinds of lines, as will be now shown.
(b.) This method of Legendre and Playfair was criticised by Torelli, as thus stated by Playfair in the appendix to his Euclid:
"It is impossible, from the relation which the rectilineal figures inscribed in, and circumscribed about, a given curve have to one another, to conclude anything concerning the properties of the curvilineal space itself, except in certain circumstances which he has not mentioned."

As regards this statement, Playfair assumed the affirmative as against Torelli ; and yet, as to the structural conditions, or properties of the lines, Torelli's statement can be demonstrated, Playfair to the contrary notwithstanding. This is to be seen from the following :

The burden of the effort of Legendre and Playfair is to show that, by the growing diminution and equality between the circumscribed $C^{\prime} B^{\prime}$ and the inscribed $C B$, the curved line penned up between them becomes measurable; which curved line, at any stage of bisection, being an even and known part of the curve of the entire circle, from it the length of the entire circumference, and conse-

quently the area of the curved space, is to be had. The measure of this growing equality is always to be tested by the difference, at any stage of bisection, between $C B$ and $C^{\prime} B^{\prime}$. In the diagram, which may stand for any stage of bisection, $C B^{\prime}$ is the chord of half the arc, and therefore $E E^{\prime}$ is $B B^{\prime}$ for every succeeding bisection. Now, from $B^{\prime}$ as a center, with $C B^{\prime}$ as a radius, describe the arc $C D$. Then $C^{\prime} D$ will be the quantity which vanishing by diminution, the triangle $C B^{\prime} C^{\prime}$ will eventuaily, by the Lemma of Sir Isaac Newton, become $C B^{\prime} D$, and isosceles; when the curve lying between $C B^{\prime}$ and $D B^{\prime}$ must, by hypothesis, become equal to $C B^{\prime}$, or to $D B^{\prime}$, as a straight line. Such being the conditions, it might be looked for as a certainty that with the diminution of $C^{\prime} D$, an accompanying diminution would take place in $E E^{\prime}$, as by a direct ratio, so as to exhibit the fact of growing coalescence of the curved with the straight line. But to the contrary of this, as a fact, taking the value $C^{\prime} D$ (the difference between $C B$ and $C^{\prime} B^{\prime}$ ) and $E E^{\prime}$ for a number of bisections, and it will show that, with relation to the diminution of $C^{\prime} D, E E^{\prime}$ is incrasing. It becomes a question, on the showing, whether the arc is not, relatively, separating from, instead of approaching the chord. If so, the question is: What is the effect of this? What does it mean? And this question is left to the reader for answer.

Practically, a calculation of the value of $\pi$ to 6144 sides of the polygons, taken from the base that the perimeter of the polygon of six sides is one with 25 cyphers, making the radius one with 6 repeated 24 times, yields the following data as to the relation, or ratio, between $C^{\prime} D$ and $E E^{\prime}$, as they respectfully diminish with continuing bisections of the arc:


which shows a rapid ratio of diminution of $C^{\prime} D$ with relation to that of $E E^{\prime}$; and the practical diminution of $C^{\prime} D$ may be judged of from a statement of its value at 6 sides and 6144 sides, as follows:
6 sides, $C^{\prime} B^{\prime}=$
962250448649
6 sides, $C B^{\prime}=$
862730150341
$C^{\prime} D$, or difference, 99520298308
6i44 sides, $C^{\prime} B^{\prime} \quad 000852211623$
6144 sides, $C B^{\prime} \quad 0008522$ II 539
$C^{\prime} D$, or difference, 84
which simply shows that the triangle $C B^{\prime} C^{\prime}$ is approaching to being isosceles unattended by a relatively rapid approximation, in structure, of the chord $C B^{\prime}$ to the curve $C B^{\prime}$. But the relation of this approximation can be had by a statement of the continuing ratios between $B B^{\prime}$ and $E E^{\prime}$, and these are as follows:

which simply shows that while the ratio of $E E^{\prime}$ to $B B^{\prime}$ can never become I : 4, the ratio of $C^{\prime} D$ to $E E^{\prime}$ can become I : $\infty$ large; or, that the triangle $C B^{\prime} C^{\prime}$ may become isosceles, while yet, absurdly enough, the chord and arc have not as yet assimilated; not only so, but have separated by a relatively infinite quantity.

These instances serve to qualify the estimation now had of the exactitude of the foundation conditions in this speciality, lying, as they do, at the base of the higher regions of mathematical science as at present accepted; a science so much vaunted as being accurate and beyond error. They serve as an introduction to the following :
§3. The Legendre or Playfair method of obtaining the value of $\pi$, or rectification of the curve of the circle, is geometrically defective; and is insufficient to obtain as claimed the exact numerical value of the curve to within less than any assignable quantity.

## (a.) The Essential Element of the Playfair Method.



Let $C D B$ be the $\frac{1}{4}$ of the curve of a circle, embraced in the square polygon, of which $C^{\prime} B^{\prime}$ is the side, and itself embracing the square polygon of which $C B$ is the side: the sides of these polygons being parallel to each other and embraced, respectively, between the radii $A C$ and $A B$, and the same radii extended to $A C^{\prime}$ and $A B^{\prime}$ : the termini of the side $C B$ of the inscribed square being the termini $C$ and $B$ of the embraced curved $C D B$, or the $1 / 4$ part of the circumference of the circle, and also the termini $C$ and $B$ of the radii $A C$ and $A B$. The side $C^{\prime} B^{\prime}$ of the circumscribed square touches and terminates the radius $A D$ and the middle of the curve $C D B$, in the point $D$. The reductions of the sides of the polygons take place by drawing the chord $C D$ of the curve, or arc, $C D$; a perpendicular is let fall from' $A$, the center of the circle, on $C D$, and continued till it touches the curve, necessarily bisecting the curve $C D$, which is the $1 / 8$ part of the entire circumference. $C D$, straight line, is the side of the second inscribed polygon. The radii $A C$
and $A D$ are extended to terminate a tangent line to the curve $C D$, drawn parallel to $C D$, and this tangent line becomes the side of the second circumscribed polygon.

This process is continued an indefinite number of times agreeably to the attainment of the desired exactitude of the value of the curve. The value of the curve, as regards the entire circumference, is always known, for it runs down with succeeding bisections from $\frac{1}{4}$ to $\frac{1}{8}$, then $\frac{1}{16}$, then $\frac{1}{3} \frac{1}{2}$, and so on.

Now this very fact (as claimed), viz., that even and known portions, as $\frac{1}{4}, \frac{1}{8}, \frac{1}{16}, 3 \frac{1}{2}$, and so on, of the curve of the entire circumference, are respectively limited, zelholly limited, and not less than limited, between the sides of the polygons, as bisections take place, is that on which the method of Playfair and Legendre is founded. Thus, it is absolutely necessary that the termini $C$ and $B$ of the chord $C B$ shall wholly limit, no more than limit, and exactly terminate, the length of the curve $C D B$, as (in this case) $\frac{1}{4}$ part of the circumference of the circle. The same nay be said of the termini $C$ and $D$ of the chord $C D$, of half the arc $C D B$, terminating the curve $C D$, as (in this case) $\frac{1}{8}$ of the circumference of the circle; and so on for every succeeding step of bisection. And this fact is an essential element in this method.

It is seen that the geometrical function or use of the sides of the polygons in this problem, is in the mere mechanical fact of exactly limiting the termini of the curve and nothing more, nothing less. Apart from this there is no structural relation whatever between the right lines and the curved line.

It so happens that the value of $A C$ and $C E$ being known, we have $\sqrt{A C^{2}-C E^{2}}=A E$; and $A D$ being known, $A D$ $-A E=D E$; thus we have the value of the sides $D E$ and $C E$ of the new triangle $C D E$, of which the side $C D$ is the chord of half the $\operatorname{arc} C D B$; and so on. Reduction being thus made in the sides of the polygons, which, as claimed, always embrace a knowen portion of the curve of the entire circle, when,
at some remote reduction, the sides of the polygons have become exceedingly small in value, it is assumed that the curved line, penned up between them (a known portion of the curve of the entire circle), is of the same value with that of the reduced sides of the polygons, and on this assumption, which is, as said, dependent on the fact of the exact limitation of the termini of the curve by the termini of the sides of the polygons, the value of the circumference of the circle is claimed to be obtainable to within less than any assignable limit; because any limit being assigned, the bisections can be continued until the exactitude of relation shall extend to and beyond the assigned limit.

## (b.) The Definition of a Line.

Modern geometry has to do, and only to do, with shapes or magnitudes, the analysis of shapes, and the relations of shapes, similar or dissimılar to each other, in its speciality. If number equivalents are used in modern geometrical analysis, they are simply expressions of, and translations of, geometrical conditions into another and an equivalent form of expression. The definition, arising in modern geometry, of a line, that it has length without breadth or thickness (as numerically a 1 , or one, of length alone), could only have been adopted for the translation of geometrical conditions into other forms of expression, as being in the first place permitted by geometrical relations. It was found that admitting breadth of a line, as say 1 , or one, in all geometrical calculations involving the use of right lines, the value of breadth might be reduced indefinitely, and finally eliminated, because the geometrical discussions of plane figures admitted of this. It was assumption to unqualifiedly make use of the same definition as regards the discussion of the relation between right and curved lines, in culculations of the sides of the polygons, as by Legendre and Playfair, without first showing that the geometrical conditions of the method, as it progressed in the bisections of the chords of the arcs by means of the calculations of the
sides of the polygons, permitted the use of this definition as applying to the measure of the curved line considered to be penned up, or limited between the sides of the inscribed and circumscribed polygons, as continued and successive bisections took place. The proper and very first step in the problem, as it is one peculiar to itself, and occupying a place sui gencris, should have been, if possible, the establishment of this fact. As a fact, it seems that this step is impossible.
(c.) Proof of the correctness of the definition of $a$ line, that it may have length without breadth or thickness, when applied to the admeasurement of plane shapes, or magnitudes.

The propriety of, or the properness of, the definition of a right line that it has no breadth, or thickness, limiting the definition to the discussion of plane shapes, can be exhibited and proved geometrically; which is the only proper mode of its establishment.

Empirical assumption of such a definition would be but geometrical quackery.

In the right-angled triangle $A B C$, the two right lines $B C D D$ and $E E^{\prime} F F^{\prime}$ are to be made use of as half sides of polygons attempted to be embraced between, and to be used to measure the space or magnitude between the bounds $A C, A B$, and $C B$, and $E E^{\prime}$, by, if possible, a reduction of the lines in width, they
 being of equal breadth, that is, $B D=$ $E F$. These lines being of the same breadth, i. $c$., $B D=$ $E F$, we have the proportion

$$
A E: E E^{\prime} \times E F:: A B: B C \times B D^{\prime} ;
$$

where $E E^{\prime} \times E F$ and $B C \times B D^{\prime}$ equal, respectively, the $f$ quadrangles, or lines, $E E^{\prime} F F^{\prime}$, and $B C D D^{\prime}$. But since
$E F=B D$, dividing the second and fourth terms of this proportion of $E F(=B D)$, we have

$$
A E: E E^{\prime}:: A B: B C
$$

where $E E^{\prime}$ and $B C$ are the extreme edges of these lines, exhibiting length without any other quality.
(d.) But this definition is not good, and will not hold good, when attempted to be applied in the Playfair method (a special one, and sui generis), to the admeasurement of the curved line of the circle.

If this definition is to be applied to right lines as measuring the values of a curved line, in the particular problem of the rectification of the curve by calculations of the sides of the inscribed and circumscribed polygons, as by Playfair and Legendre, then the propriety, or properness, of this definition, as thus applied, should be susceptible of being shown also.

Referring now to the fact shown in (a.) that the essential feature of the Playfair problem, or method, is that the extremities, or termini, of the curved line claimed to be penned up between the sides of the polygons, are wholly defined, wholly limited, exactly terminated, no more, no less, by the ends or termini of the sides of the polygons, let us attempt to establish Playfair's and Legendre's definition of a line, that it has length without breadth, as it has application, and as they do apply it, to the admeasurement of the curved line of the circle, embraced between the sides of the polygons.


Testing this matter and leaving out of view that right line. having breadth must be rightangled parallelograms, as $A B$ $B^{\prime} A^{\prime}$, and $C D D^{\prime} C^{\prime}$, and dropping consideration of the surpluses of these lines, viz., $E B B^{\prime}$, and $F D D^{\prime}$, laying outside of the area $O B^{\prime} A^{\prime}$ : Let the sides of the inscribed and circum-
scribed polygons be $C F D^{\prime} C^{\prime}$ and $A E B^{\prime} A^{\prime}$, limiting between them and the radius $O A^{\prime}$, and the radius $O D^{\prime}$ extended to $B^{\prime}$, the curved line $A A^{\prime} D^{\prime} H$, which has the same breadth $A A^{\prime}$ (measured on the radius cutting this line, viz., $O A^{\prime}$ ) with the right lines; that is, $C C^{\prime}=A A^{\prime}=A A^{\prime}$, for the breadth of the lones straight and curved.

It is seen that the right line $C F D^{\prime} C^{\prime}$ more than limits the terminus, or end, of the curved line $D^{\prime} H$, by the excess of the value of the area $C F H H^{\prime}$, and of its width $C H^{\prime}$. Therefore, as the gist of the problem by Playfair is the exactly defining, the wholly limiting, the exactly terminating, no more, no less, of the ends of the curved line, by the ends of the right lines in position (without which that problem is a geometrical failure for exactitude), deduct this surplus area $C F H H^{\prime}$ (a part of the right line $C F D^{\prime} C^{\prime}$ ) from the right line $C F D^{\prime} C^{\prime}$, so as to leave the geometrical condition of the problem as exhibiting that which Legendre and Playfair postulate as a fact, viz., that the right lines always (in connection with the radius $O A^{\prime}$ and the radius $O D^{\prime}$ extended to $O B^{\prime}$ ) wholly define, wholly limit, exactly terminate, no more, no less, the termini of the curved line.

This being done; which is an essential necessity to be in accord with Legendre and Playfair, the right lines $A E B^{\prime} A^{\prime}$ and $C^{\prime} D^{\prime} H H^{\prime}$ remnant of $C F D^{\prime} C^{\prime}$ are no longer in a condition, geometrically, such as will admit, in pari passu, of their reductions in breadth to the value of zero.

In (c.) we had

$$
A E: E E^{\prime} \times E F:: A B: B C \times B D
$$

and $E F$ being equal to $B D$, dividing by $E F$, we have

$$
A E: E E^{\prime}:: A B: B C
$$

establishing the Playfair definition as applicable to the admeasurement of plane areas.

But here $O C^{\prime}: C^{\prime} D^{\prime} \times H^{\prime} C^{\prime}$ is not as $O A^{\prime}: A^{\prime} B^{\prime} \times A A^{\prime}$. But let this proportion stand as true, viz.,

$$
O C^{\prime}: C^{\prime} D^{\prime} \times C^{\prime} H^{\prime}:: O A^{\prime}: A^{\prime} B^{\prime} \times A A^{\prime}
$$

or rather as taken to be true by Playfair and Legendre, for they
have assumed it as true, though $A A^{\prime}$ is greater than $C^{\prime} H^{\prime}$ by the value $C H^{\prime}$. Divide this proportion by the value $A A^{\prime}$ to obtain the value $A^{\prime} B^{\prime}$ as a line without any other quality than breadth. Diminishing the values thus, as Playfair does, the width $C^{\prime} H^{\prime}$ becomes negative as to value, necessarily, or less than zero in its effect. That is, the lines being taken at zero, as to breadth, and taken in their calculations of the sides of the polygons, as applying to the measure of the curved line $A A^{\prime} D^{\prime} H$ (reduced in its breadth $A A^{\prime}$, in pari passu), must, necessarily, as a practical fact, detract from the value of the curve.

Such being the inevitable fact, resulting from assuming the definition of a line, to be equally applicable in this particular and especial case, with its use as applied in the admeasurement of plane areas, or magnitudes, Playfair's method is defective in the geometrical means employed: therefore his method is but proximately right, and his claim, that, by his method, he can ascertain the exact value of the curve to within less than any assignable quantity, is false.

As a resulting truism, the value of the curve of the circle, as worked out by the method of Playfair, is less than it should be.
Q. E. D.

Exeter, December, 1875.

## NOTE TO PART II.

TESTS FOR CORRECTION OF THE RESULT BY THE PLAYFAIR METHOD.
(a.) By a peculiar method of test, John A. Parker shows in his Quadrature, Proposition III, Appendix, that error occurs in the sixth decimal place of the Playfair result.
(b.) Another test is as follows, presuming that though there is inevitable error in the Playfair method, that error is so small that it is to be found in a far off decimal: Take a disc assumed to be
perfectly circular, the greatest distance across it in a right line must be integral with relation to its bound of circumference, because the lines are closed with relation to each other. Since this is so, there is, and must be, in nature an integral number form which will exhibit or notate this perfect, and determined, and integral relation. Assuming that that form which will most nearly restore the Playfair result is one that will correct it, then the form

$$
113: 355
$$

is that one which, divided by its least member, gives

$$
1: 3.1415929+\text {; }
$$

differing from the Playfair result in the seventh decimal place. That this result was anciently taken as corrective of this same approximate value, its presence in the Bible (as the first face one, underneath which the Parker form of

$$
6561: 20612
$$

lies as the perfect one), sufficiently shows.
Besides the efforts of all the years of ancient research, modern efforts have failed for any other form which will give so close an approximate to the Playfair result as this of 113 : 355. The efforts and experience of ages, therefore, as to trial for this, empirical though they be, should be of value in this investigation, and weight of authority should be given to this form.

But John A. Parker rediscovered the form

$$
6561: 5 \mathrm{r} 53 \times 4=20612
$$

of which 113: 355 is but a modification, or, from which it is but a derivation : because

$$
\begin{aligned}
& 6561: 20612:: 113 \cdot 355 \frac{20611}{20612} \\
& 20612: 6561:: 355: 113 \frac{1}{6561},
\end{aligned}
$$

while testing 6561: 20612 by $113: 355$, integral results of this peculiar harmony will not appear in both proportions.

On the ground that shapes are obediences to number forms, as
mental creative conceptions, we have a perfect test as to which of these forms is the governing one in the proposition that the true relation of circimference to diameter is 4 times the area of the circle inscribed in the square for the value of circumference to the area of the containing square for the value of diameter, as has been shown. The form 656i for area of square to 5I53 for area of inscribed circle, gives under this rule integration of diameter to circumference as 6561 : 5153 $\times 4=20612$, while no such result attends a like attempted use of 113 : 355. (Parker's criticism.)

These considerations (with the marvelous results as to the use of the form 6561:20612 as determining geometrical shapes and astronomical data of space and time as shown), seem to have great weight in determining what may be the true value of $\pi$, and what may be correction of the manifest error in the Playfair method. Attention is now especially directed to the Quadrature of the Circle by John A. Parker (John Wiley \& Son, New York), for further light on this subject.

The following formulations are given, as arising from use of the number $3^{2}=9$, and as by their use exhibiting these three noted values of $\pi$.

$$
\frac{20612}{54}=\text { standard } 1 / 2 \text { base side of great pyramid }=
$$

$3^{81.7037037037037}$
(г.) $\frac{38 \mathrm{I} .7037037037037}{121.5}=\quad 3141594269166+$ the Parker value of $\pi$.
(2.) From
$3^{81.7037037037037}$

$$
\text { deduct } \frac{8!\times 30}{8 \mathrm{I}^{2} \times \mathrm{II} 3}=
$$

1638806948

Remainder,
$3^{81.7035398230088}$

$$
\begin{aligned}
\frac{381.7035398+}{\mathrm{d} 2 \mathrm{I} \cdot 5}= & \frac{355}{\mathrm{I} 33}= \\
& \text { or, the Metius value of } \pi .
\end{aligned} \quad 3.1415929+
$$

(3.) From
381.7037037037
deduct, 2000000
Remainder, .381 .7035037037
Add 37074
Sum,
381.7035074III

$$
\frac{3^{8 \mathrm{I} .7035074 \mathrm{III}}}{\mathrm{I} 2 \mathrm{I} .5}=3.14 \times 5926535^{8} 97
$$

or the accepted value of $\pi$ to the thirteenth decimal place.

## APPENDIX.

An illustration may be seen of a method of initial steps toward the results involved in the foregoing treatise. For terminology, let the cosmos be considered as divided into the technical terms heuven and earth. Let earth be 12 , and heaven be 12 , together $12+12=24$, and let this 24 be divided into 360 parts of ${ }_{15}$ parts each. Thus we have the terrestrial and celestial circle of 360 , or 24 hours, compassing the heavens and the earth.

First Genesis says: In the beginning Elohim* (God) made heazen ( $s m i m=12$ ), and earth (a.r tz = 12 ).

Then the text says: And the earth (aretz) was T H V-V' B H V ; which words, because they have no contextual meaning, Aben Ezra says they must simply be translated idem sonans, as T H V-V' B H V, implying an occultism; (but Dr. Wordsworth has not added to the sublimity of the Scriptures, by translating these words as higgledy pigsledy').

The value of T II V is $4,5,6$, and gives the cone from the triangle 3,4 , 5 , to the side (page 27), from whence all the pyramid valuẹ have been seen to spring, while V'B II V is $6,2,5,6$, or $6 \times 2 \times 5 \times 6=360$, which with the use of the triangle gives, as has been seen, among other things, the value of the exact solar day. Now preparing for a day God divided the light part from the dark part, or 24 hours or parts, into specific portions of 12 and 12 , the natural division; then He divided, so the text, between the light and betzeen the dark, or a cross division apparently arbitrary, but perfecting the typical square of 4 in one, and dividing the 24 into 4 equal parts of 6 each. Darkness was taken as an idea implying female, and light as an idea implying male. So the day was divided primarily into a male portion of 12 and a female portion of $i 2$. . Six (6) days finish the

[^0]cosmos: each day designated as an evening (woman), and a morning (man), together equaling one day. So there are in the 6 days a total of 72 hours male and 72 hours female, in all 144 . Thus the number 144 is born by use of 12 and 12 , or 24 ; and, indeed, $12 \times 12=144$.

It is said that God as thas finishing the 6 days of the cosmos, made A D M (the word used, to which the generic term man is here wrongly given by translation, nor should the word man be used in translatio:n, until the close of the garden scene, where it first occurs); but this word is $\mathrm{A}=1, \mathrm{D}=4, \mathrm{M}=4$, or $\mathrm{I}_{4}$, or the very number completing the 6 day's of the cosmos; for the 6 days, as seen, have toyether made 144, or A D M. He now commands them, that is, the male and female parts (so, in the text), into which A D M is divided, to multiply, and as correlatively, or cognately, the 144 has been divided into 72 and 72 , then $72 \times 72=5184$, which equals the characteristic of the solar day value in thirds, just where it co-ordinates with linear measure, for $\frac{5184}{4}=1296$, or I square $y$ ard: so that thence, as a common source (or the name Jared, or Y R D, or English yard), there may be a weaving together of time and distance measures as inter-connecting, and inter-interpreting.

Passing over the 7 th day (as empty, or nothing, or Hebel [A bel], or a circle, which has no evening nor morning, showing a unit idea), the foregoing leads up to the construction of the garden; for it says: And God planted a garden in Eden, out of the East. Where East? East from where? It is not a geographical term, because it referred to no place of departure. The word is M' K D M, and is $4-144$ (where K D M is the equivalent of A D M or 144). So God planted a garden in Eden composed of 4 squares of 144 each. Now since the words gn-odn , or gardenEden equal for one value 24 (or $g=3+n=5+o=7+d=4+n=5$ $=$ a total of 24 ), and since A D M is a square area of 144 , or a square of 12 for length of side, then 12 such lengths in a higher denomination as of feet for inches, will be the side of a square whose area is 144 square feet (in place of the A D M square of an area of I44 square inches), and 4 such squares of an area, each, of 144 square feet, put together will form a square of $2_{4}$ feet to the side. Then these squares will show, first an area of 144 square feet, and 4 of them complete the garden, truly M' K D M. or $4^{-1} 44$ : and each of these squares, while of 12 feet to the side, are also ${ }^{1} 44$ inches in linear measure, for $12 \times 12=144$. Thus changing the $A D$ M value from area ( 144 square inches) to linear measure ( 144 inches in length), we have an interior square (central) of 144 inches to the side, the nucleus of 4 others of the same dimensions, making an exterior square of 288 inches to the side (or 24 feet), or a total circumference of $288 \times 4=$
${ }^{11} 5^{2}$, or I I N R (or place these letters one.to each corner of a square and they can be read as I N R I). So, since this garden is seen to have its origin from $\mathrm{I}_{4}$, or K D M (or A D"M, for this last is 144 also, and as a fact, the two words A D M and K D M give us the name Adam Kadmon, whence emanated the ten Sephiroth in Hebrew, Kabbalism), when it is said that God placed the A D M, or 144, whom he had made in this garden, we can refer this placing to a central square of 1 foot to the side, or of an area of 144 square inches. Now construct a pyramid of 24 feet to the side, and whose summit shall be a square platform of 1 foot (or 144 inches area) to the side: multiply these values by 100, and the sides, of the base and summit, will be, respectively, 2400 and 100 feet. 2400 feet is circumference to a diameter of $763.9433+$ feet, the actual measure of the base side of the great pyramid, and 100 feet will be a circumference to a diameter of $3^{1 .} S_{309}+$ feet; which last, allowing for the finish, or pavement on the summit of the great pyramid, now removed, may be assumed as the actual measure of the side of the summit platform of the great pyramid (see Smythe's measures of same; roughly made about 400 inches or $33 \cdot 1 / 3$ feet). This would tend to show that the pyramid itself was in its finished state truncatcd instead of being carried up to a point. And this agrees architecturally with Christian kabbalism, or gnosticism, for Jesus,* or I H S, or $\iota \eta \mathrm{s}$, was esteemed the corner stone finishing a structure or dispensation, and the gnostic value of His name was, for one value, taken as $3^{18}$, or the numerical value of diameter to a circumference of unity [3.18+ is diameter to a circumference of io, and Abel (Hebrew II B L = $5+2+3=10$ ), who is (as Adam also) a prototype of Jesus, is in value ro, so that the I H S value, 318 , notes a diameter to a circumference value of Abel or 10]; in other words, He was with the Gnostics the cap-stone of this very pyramid of the garden, and of Egypt, as finishing it with a cap, or corner stone, the base of which, as seen, is 3I.S feet, or diameter to a circumference of 100. Both the garden and gnostic use, and their essential inter-connection, are to be clearly denoted by symbols, which once understood can never be dismissed from the mind as part and parcel of the Biblical scheme. The garden as a square of $12+12$, or 24 feet to the side, or 288 inches. gives a circumference of the square of $288 \times 4=1152$, as designated by the letters $\mathrm{I}=1, \mathrm{I}=1, \mathrm{~N}=5$, and $\mathrm{R}=2$; which letters,

[^1]placed one at each corner of the square, read I N R I (and $1152 \div 8=$ A D M or ${ }_{144}$, while ${ }^{1215} \div 5=243$ or Abram). Make a cube of this garden of 24 to the side, and we have a cube of $S$ cubes of 12 feet to the side each. But A D M, or Adam, is the center square or cube of 12 inches, or if foot, to the side, and therefore he is concealed in the very heart of the cube, thus:


This is the first Adam; as placed in the garden. To display him, or take him from his concealment, unfold this cube of the garder, which, by so doing, becomes, in display, a cross with the man Adam exhibited as a square (or cube) of 144 , as seen.


The letters I I N R. denoting the edge measure of the garden multiplied by 4 , to give circumference of the larger square, or 24 feet $=288$ inches $\times 4={ }_{4} 5^{2}$, are found located one at each corner of the square of 24 .

The Gnostics denoted this the second Adam; but the scheme is a perfect answer to the Hebrew scheme of the first Adam in the garden.

Now since the ideas as to the cosmos were the same with the Hebrews as with the Egyptians, and since their sacred measures were the same (as is provable from the details of description of the Temple on comparison
with the pyramid measures), and included the inch, foot, yard, and mile; and since all the structures of the Bibte, as the Ark, the Tabernacle, the Encampment, and the 'Temple, are but orderly developments from a $B^{\prime} r a$ shith or Beginuing (the real term for the book of Genesis), we can certainly look upon this use of $12^{2}=144$ inches, scaled to 144 square feet, as the simple beginning of an entire system, more and more completely developed as progress is made in the books of the Law; and then made use of in Temple construction, and for reference to, by Ezekiel.

The similitude between the Garden of Eden and the pyramid is unmistakable in these initial steps; which once taken, a great variety of further steps of development are made use of, all pointing to the primary use of the forms $113: 355$ and 6561: 20612. For instance: A D M, as seen, is taken as the square area of 12 to the side. After the woman has been created in this prepared garden, Adam says of her: She shall be called woman because she was taken out of man. Here the word for man is not A D M, but A I S, a word designative of something from whence the woman could be produced. This new word reads $\mathrm{A}=\mathrm{I}, \mathrm{I}=\mathrm{I}, \mathrm{S}=3$, or ${ }^{11} 3$, or diameter to 355 as a circnmference." Use 113 as a square area as we did A D M, then the side of its square will be $\sqrt{113}$, or a square of $10630+$ to the side, or this is the side of this square man. The woman was taken from his middle, or side, or loin, and $\frac{10630}{2}$ gives his half, or middle, and we have, by the division, $53^{15}$, which, in Hebrew, reads H' A S H, or the zoman. These values are for various uses in determining combinations: among them place these figures, one to each corner of a square, or

$$
15
$$

35
and we can read 5153 , which is the area of the circle inscribed in the square area 6,61 . So, also, the full values of the letters of the words garden Eden or $g n$-od $n$, are $g=3+n=50+0=70+d=4+n=50=$ a total of 177 . Now the cubic value is 5.153 feet divided by $3=1.71766+$ feet, 10 cubits are $17.1766+$ feet. The surface area of a cube of 10 cubits to the edge is $1770+f$ feet; so that the garden is also significant of a reduced value of the holy of holies, which was a cube of io cubits to the edge: as, also, the width north and south of the queen's chamber in the pyramid.

[^2]Again, the number 9 is prominently suggested.
While A D M is 144 , we can take this value as $1+4+4=9$. The word A S H, woman, or 135 , can similarly be taken as $1+3+5=9$. The serpent is the letter teth, or a serpent coiled with its tail (spike or phallus) touching the opening of the mouth (yoni) and the letter teth stands for the number 9. So Adam, and the woman, and the serpent, are one in the center of this garden, as the number 9. Sharpe says the hieroglyph of the letter gimel was a serpent erecting its head through its coils, a copulative symbol; gimel stands for the number 3 , which, multiplied by itself, the copulation, will produce 9 , which, in turn, is the square root of SI. The tree was 0 -tz, or 7 and 9 , as to which 7 is a female number, and 9 a male number; and $7 \times 9=63$, or reversed, $36 . \quad 36^{2}=1296$, and $1296 \times 4=$ 5184. And so on.

The orderly arrangement from B'rashith, or Beginning, seems a description, then a diagram, as of the garden; then an explanation and preparation for a succeeding diagram in the ark of Noah, where, just preceding the diagram, the full and even detailed measures of the Egyptian pyramid are given. (See "Note" at close of Appendix.) Then follows a preparation for a further development under Abram, and Lot, and Sarah, and Isaac, and so on, closing with Jacob and his sons in Egypt. Then a further step explained in diagram by the Tabernacte and the Encampment; and so on.

Instance: Abram is 243 , the $1 / 2$ standard height of the pyramid, taken at 243 , because this is diameter to $763.4074074+$, which in feet is the standard length of the base side of the pyramid. Make 4 squares of 243 to the side each, with 4 inscribed circles of a circumference of $763 .+$ each: put these 4 squares together, and we have a large square of 486 to the side, the standard height of the pyramid; while the circumference of the 4 inscribed circles give the total length (standard) of the circumference of base of the pyramid. (The name Abralham gives further detailed measures, as of the king's chamber.) To get the exact value of the measures of the pyramid we had the change from $20612: 6561$ to $6_{4} 800: 20626.47001+$. Now the name Abram giving the ground, or standard form, the name Lot gives us the correlative exact form, for Abram being 243 , the $1 / 2$ of 486 , Lot is L V T or $36 \times 9=324$, and 324 is the $1 / 2$ of 648 , the source of the exact measures of the pyramid as to its outside, and elsewhere, in contrast with the other form under Abram. (Both values are brought together, when Moses says: Because the people come unto me to inquire of Elohim; where the word is $\mathrm{L}^{\prime} \mathrm{D} \mathrm{R} \mathrm{S}$, or $3-\mathbf{4}^{2-3}$, showing either 342 or 324 .) And so on.

The IIcbrew word $I, u z$, the foundation of so much kabbalistic comment,
means to pervert, to say, or to designate one thing an mean another, to invert or turn end for end. Its value is $3,6,7$, and inverted it is 763 , showing the index of standard, and exact, value of base side of the pyramid. And this 763 is itself a perversion for 2400 , because it implies a diameter to a circumference of 2400 . The word is taken in connection with a bone said to be in the body of man (113), or Adam (144), which is indestructible, whence new life must always spring. Bone is a form of the word for tree in the garden, for one is otz, and the other otzm. o-tz is $7 \times$ $9=\sigma_{3}$, or inverted, or perverted, 36 ; and $\sigma_{33} 6$ is the mile value in inches; while otz-m may be taken as $3^{6^{2}}$ or 1296 , one square $y$ ard, and the $1 / 4$ of 1 solar day in thirds, or as $3^{6} \times 4=144$ or Adam. In short, the use of these catchwords refers to the everlasting duration of the system to which they are may to refer.

L V Z or $I, u z$ is $3,6,7$ : Add $3+6=9$, then from LV Z we have 7,9 , $=o t z$ or tree in the garden; append final mem, or square $m$, and we have otz-m, or bone; showing that the word bone is thus a growth from $L u z$, involving the values of the word tree in the garden.

In this connection, I H V H is the tetragrammaton; its value reads from right to left $5^{6} 501$. This is a form of ${ }_{113}$ diameter to 355 , for ${ }_{113} \times 5=$ $5^{6} 5$, and this can be placed in another form of $56.5 \times 10$, meaning this word. But to show another use take the same form as being multiplied from the other end, or $1^{0} 6_{5} \times 5=52$ So or the number of feet in a mile.

The containment by the Bible of this systern is in no manner a disparagement to it in any possible point of view: to the contrary, if this system of exact science (call it so) is natural and divine, then indeed the Bible at last can be found to contain those exactitudes of Divine workmanship which can not be interpreted but in a common way: therefore a great light and no confusion of interpretation.
A language thus displayed as containing a number system, and its orderly development through to the completion of a most perfect unfolding of the cosmos as an obedience to, or materialization of, Divine thought, brings up the question was it (or is it) possible for men to so construct a language, that it should answer all the ordinary purposes of a language, and all its extraordinary uses, as in couching the most wonderful poetry of the world's duration, while it could, in harmonic unison with historical use, narrative use, familiar social use, and poetic use, blend in a fully developed, numerical, mathematical, geometrical, astronomical, and cosmical system of exact enunciation? Truly it bewilders one.

> יהוה ידאה

## NOTE TO APPENDIX.

The Adamic chronology ends with Lamech and Noah, then the text proceeds to the preparation of the ark. The last two verses (Gien. v. 3r, 32) seem to determine the measures of the pyramid in another but an equivalent set of measures than those used in the garden. The Hebrew reads very perculiarly (besides from right to left), in such form that a different value will be read from left to right. It says: And all the days of Lamech were (sic from right to left)
(years) hundred one seven and (years) seventy and seven.
$\begin{array}{llll}1 & 7 & 07 & 7\end{array}$
Read from left to right, the cipher becomes meaningless, and the values read.
(土.) 1777.
It then says: And Noah was Ben Chomesh, or
son of 5;
that is, his letters are $N-c h$, or $5-8$, which is $S$ cubes of 5 to the side, equals a cube of io to the edge; the object being to show that he is a unit of measure, founded on the number 5 . But as son of 5 he is 5 , which value we can use for his name, as we can the number 3 in place of the names of his sons. It reads: "Noah was son of 5 , one hundred (years), and Noah (5), begat eth Shem, eth Cham, and eth Japhet;" that is, he begat 3 , that is, Shem, Ham, and Japhet. So reading the sentence from right to left, for the characteristic numbers denoted, and we have

| 3 | 5 | I |
| :--- | :--- | :--- | :--- |

which arrangement discovers
(2.)
$5^{153}$

But take the three sons as mentioned, and we have (from right to left)

| Shem, | M | S |
| :--- | :--- | :--- |
| Ham, | M | Ch |
|  |  | I |

and Japhet, $\quad$ T $P$
Substitute the values of the letters, in the same order, and we have

(3.) | 4 | 3 |
| :--- | :--- |
| 4 | 8 |
|  | 1 |

$4 \quad 8 \quad 6$

Again: Noah was 600 years old. He was the son of Lamech; and the years of the world to the begetting of Noah, were ${ }_{1056}$ Then adding the 600 of Noah, 600
Sum, $\quad \overline{1656}$
where we have, by reverse reading,
(4.) 6561

Again: 1056 is the $\frac{1}{5}$ of one mile, for

$$
1056 \times 5=5280
$$

which shadows out the value

$$
10565
$$

I H V H
or the $\mathcal{F e h o v a h}$ value as a measure.
In (2.) and (4.) we have 6561 : $5^{1} 53$ the source of the pyramid.
In (3.) we have $444,3^{81}$, and 486 , and in (1.) we have ${ }^{1} 777$.
Now the pyramid in circumference of base is 1777 cubits; in length of side of base it is 444 cubits; and, also, in length of side of base it is 38 I feet multiplied by 2 ; and its height is 486 feet.

Thus, in development, we see a passage from the use of the number 12 used in the garden, to feet and cubits, with the source of $65^{61}: 5^{1} 53$; besides, also, the other form of $113: 355$, which is contained also in these verses, but more obscurely.

It was presented to the inner vision of Emanuel Swerenborg, as regards correspondences, that in the unseen, as here, the Hebrew holds the same rank as a language; it being there especially the vehicle of Divine teaching. It was shown him as to its uses, that it is understood, or read, agreeably to the rank of the heaven. In the lowest heaven it is received and appreciated in its simple narrative form, or aspect; while he says, as something strange to his understanding, in the innermost heaven it is read as consisting of numbers which, in infinite but harmonic arrangement, teach the Divine constructive process of the entire universe. He furthermore says, that it is there the love and delight of the angelic hosts to acquire from the contents of the Divine Book (in Hebrew), as numbers, the mental constructive designs of the Creator. This communication, strange to his apprehension, not familiar to his culture, abruptly injected, as it werc, into his thought, he simply enunciates as a memorable and strange teaching. The instance stands out, as far as the author can gather, as phenomenal in all Swedenborg's writings, as a matter utterly de hors his
natural cognitions, or possible conceptions. Such, being the case, we, to a certain extent, find that however he came by the enunciation, he was speaking of just that property of the language, which can be asserted as, not a possibility, but its discoverea real characteristic in the Hebrew Bible, in the uses of its terms, at the same time linguistic and numerical. To the author's comprehension, coupling the present discovery of Biblical use, with Swedenborg's assertion made over one hundred years ago, there arises a most remarkable test of the spiritual illumination of Swedenborg necessarily. The matter grows stranger when, in these present discoveries, very learned Jews recognize the long lost keys to their ancient Kabbala.


[^0]:    * Elohim is for one value $3^{1} 4^{15}$, or a circumference value, designating the origin or ground method of circular construction: it can also be made to signify in a correlative or cognate connection $4^{101} \times 3^{6}=1443^{6}$, and ${ }_{4}{ }_{44} \times 3^{6}=5_{1} 8_{4}$, a characteristic of an origin form common for measures of time and space, for $5_{1} 8_{4}$ is at the same time the characteristic of a solar day in thirds and of the square yard in inches multiplied by 4 .

[^1]:    * It is passing strange, but while Jesus was the son of Joseph the carpenter. He was also the son of David: now D V D (Hebrew for David) means a joiner, thus carpenter and joiner, for architectural purposes, showing a building system in the very construction of the language, independentiy of its historical, or narrative, use.

[^2]:    * In modern times the discoverer of this quadrature value $113: 355$, is said to have been Peter Metins; but this seems to have been a nom'de guerre, because the words signify the measuring stone.

