The Great Pyramid

OF JIZEH

THE PLAN AND OBJECT

Of its Construction

By

[illegible]

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John Fiske Esq
Cambridge Mass

Dear Sir: Your favor of 26th inst. being addressed to the firm, went into the order department & did not find me till to day.

I send you by this mail two of Mr Skinner's pamphlets. The Great Pyramid 1871 & Ancient of Days 1873.

There is another, his first, which you do not seem to have entitled "Force in Nature" 1869 — Mr S. is now averse to giving out any of these pamphlets, as they contain his first ideas, finally developed & published in the book "The Source of Measures" — At the time they were printed he gave me some for distribution & I have a few of some of them left. In such a Library as yours, they ought to be preserved, so I send them without his knowledge. There is also a supplement to the book entitled "Crown Jewels" Did he not send you a copy of that?

Yours truly
Robt Clarke

PAMPHLETS.

The Great Pyramid

and

Scales & Measurements

Two Tracts

The Great Pyramid of Jizeh.

THE PLAN AND OBJECT OF ITS CONSTRUCTION.

ANY assertion as to a discovered solution of the plan and object of this huge mass, so venerable, so covered with the mists of primeval time, must be made with very much of reserve. If it has, in its stony strength, been through the long centuries replete with instruction, easily to be read and understood by one understanding the significancy of its symbolization, he who at last solves the riddle of its language must, in self-defense, attribute the cause of solution to anything but himself, or any faculty which he may possess. It is, perhaps, the better part to consider the ability as a temporaty gift for a special purpose. The doing so has at least a merit in the possession of one well-recognized truth, viz., That many more important discoveries are made by persons of very little pretension to learning.

All that the author has in the way of information about this pyramid is contained (1) in an article in the *American Quarterly Church Review* for April, 1869, and (2) in the work of Professor C. Piazzi Smyth, called *Our Inheritance in the Great Pyramid of Jizeh.*

It seems it has been thought, by many, that the pyramid was built to perpetuate a standard of measure, or, rather, standards of measure. The thought was suggested by M. Jomard, of the French expedition; afterward by the Rev. Mr. Taylor, of England, and later by Professor Smyth.

What the full extent of Mr. Taylor's researches led him to conclude in all, is not known; one fact stated by him, however, fastened itself upon the attention, viz., That the hight was to the side of base multiplied by two, as 1 : 3.144, or rudely, as an approximation of the diameter to the circumference of a circle. The work of Professor Smyth is full of the most valuable information as to *accurate* admeasurements of different portions of the pyramid, without and within; as to linear measures, and those of angles. That in his work, which again riveted the attention, was that, upon the ascertainment of the best possible admeasurements, Hight : Side of base × 2 :: 1 : 3.14159+; the accordance of ratio to that of diameter to circumference being exact to the fifth decimal place, but failing beyond that.

Considerable thought led to some conclusions which were taken as guides in investigation. Professor Smyth was convinced that the mass held treasures of knowledge —not of a lost civilization, but laid up under the dictation of a divine power. For, if such treasures did exist (such seems the running of his thought), it was less marvelous to judge that they were thus given, than that they belonged to that of which every possible vestige but this one had vanished off the face of the earth.

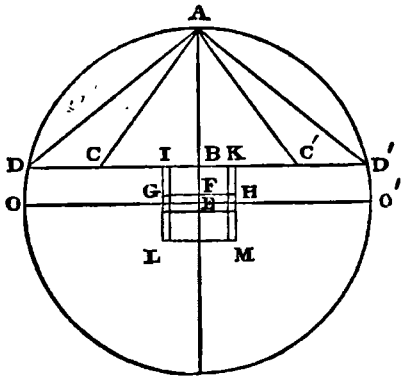
Taking it that it was a work divinely inspired, it seemed (1) that its construction would be characterized by the greatest simplicity, for God's work is very simple; (2) that God would never perpetuate a standard of measure in *numbers* arbitrarily chosen, because by detriment to the pyramid the numbers might be impaired, and the correctness of the standard lost. Therefore, in simplicity, the value of the work should lay in the very elemental princi-

ples of its construction, so that if one could but find the key of its construction, any unit of measure taken in numbers would bring out the proper results.

First, therefore, as to simplicity. If the pyramid was intended to represent earth admeasurements, there would be that about its shape suggestive, in a simple way, of the object of its design. That which would seem to be the most suggestive would be a pyramid, the square of whose base would represent the inscribed upon the great equatorial circle, and whose hight would indicate the pole (one-half the polar diameter). Since it is not so, and is irregular in this connection, it departs from simplicity of design. Still, this should be for as simple an object. What was the object? It was noticed that Professor Smyth makes the Hight : Side of base $\times$ 2 :: 1 : 3.14159+, by the best of the actual measures, agreeing with the relation of diameter to circumference to the fifth decimal place, and there departing. This, he says, is a very close approximation. Here, it seemed, was the first step to the key. The reason of the departure from a simple design of the earth's shape was because the pyramid was, first, a *standard* of measure of the relation of diameter to circumference, in terms of right lines and shapes. If this were so, and the work divine, God never had to approximate to anything, nor did He ever labor under the necessity of raising a system of approximates upon the falsehood of the *equality of ultimate ratios* as given in the Principia. He has, and would give, the exactitude. So let it be taken that the pyramid's first construction was the relation of diameter to circumference. But where the numbers to apply? Mr. John A. Parker gives them in his neglected work upon the quadrature, viz., 6561 : 20612 in integrals, *proved by the severest*

tests. This step gained, does the pyramid apply to earth admeasurements?

ACC′ represents the *meridianal* section.



CC′ length of one side of base.

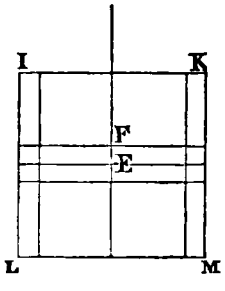
ADD′ represents the *transverse* section.

DD′ being diagonal of base.

Hight AB = 6561.

One-half side of base CB = 5153.

$\sqrt{BC^2 \times 2} = BD = 7287.442486+.$



By thus placing the elements of construction in vertical section, we have combined in one showing all the elements of measure of the pyramid.

Now, it seemed, perhaps, that using the pyramidal relation of diameter to circumference, it might in some way be made in nature to apply to the earth; and there was one way to try it, viz., to put it in the earth or in the top of a great circle, and see how it fitted *in its relations.* If

the earth were a great circle, by putting ADD′ in a circle, so that the circumference would cut in A and D and D′, the application of measurement might be made. It is tried in the diagram. The interior lines at E and F are, as well as all the others, out of drawing, because, if correct, they could not show to the eye the difference which comes out. DB exceeds AB. Therefore to construct a circle cutting both points, prolong AB till AB+BF=DB. Now if DB, in position, were at F, or dropped down that low, one could use AF as a radius, which would cut D. But because it is as it is, a radius AF from F as a center can not cut D. Therefore a further addition is necessary, and you extend the line AF until AE is just the length required for a radius, which, with E as a center, will cut in D and D′. This radius is easily obtained, because DB is a mean proportional between AB and some length x, which gives $\frac{AB+x}{2}$ = radius required. The new radius =

AE=7327.658816+
AB=6561.
DB=7287.442486+

First difference, DB—AB=726.44248

Second difference, AE—DB or AF=40.216330

(Mark, that if the decimal 21.6330 were taken and pointed as done, it would agree in miles with the difference between equatorial and polar diameter, thus: 21.6330

21.6318

00.0012

or within five feet. This is noteworthy because the pyramid seems to run on *differences* in measures applied.)

Now we have to make comparisons with earth admeas-

urements, bearing in mind always that we have been using a perfectly circular standard of measure, not an elliptical one.

A little digression is here necessary, because of an accidentally discovered relation which may be of value. The measure of the earth's diameters was wanted as a standard of reference, and having no first authority on the subject directly at hand, reference was made to a book on earth relations which had been presented by one young friend to another as a Christmas gift, *Figuier's Earth and Sea*. In looking it over, that which was desired was given in *feet*, viz:

Equatorial diameter,	41852865.
Polar diameter,	41738710.
Difference,	114154.

It occurred that if this difference was divided into the longer, the result would be a number of parts for equatorial diameter, of which polar diameter would necessarily contain *one* less. The division was made:

$$41852865 \div 114154 = 366.54750.$$

It was remembered that Mr. John A. Parker, in obtaining, in an elemental way, the exact measure of planetary time, found, as his standard by which to obtain others, the time measure of the earth about the sun to be 366.43555+. The wonderful approximation of the chosen earth period above to this standard seemed to prove a necessary rhythmical relationship. To test it, divide 41852865 by 366.43555+, and the result will be equal to 114216.16

From this take above difference,	114154.
And the result is,	62.16

That is, that, by the permitted use of but 62.16-100 feet in 42.000.000, we have, in earth equatorial extension, an exact counterpart or multiple of its time extension. In other words, earth shape runs in rhythm with time extension, or, the spheroid of the earth's shape has a harmonic relation to the ellipse of the earth's orbit.

Time of Earth,	366.43555
Exact multiple of Earth's diameter	366.43555
41852865 : 366.43555 : : 41738648.84 :	365.43555

Relation of equatorial diameter	366.43555
to polar diameter	365.43555
Difference,	1.
In miles,	21.6318

Now, on the pyramid, the first difference was 726.44248. Divide by 2=363.22124, which, taken as *one* part for time as above, we have taken the difference *twice:* whereas above, with the earth, it was taken but *once.*

Again, ½ of base diagonal, or DB=7287.442486÷2
=3643.721243÷10
=364.3721243

Again, new dia. AE=7327.658816÷2
=3663.829416÷10
=366.3829416

Compare this	366.3829416
With earth and time standard above,	366.43555
Difference,	.05261

in diminution, or minus about 1000 feet in the earth, or 1 hour's time in the year.

The divisions by 2 and by 10 are characteristic of the pyramid. It is seen how the pyramid, by a strictly circular measure, brings out the elements of time and earth measure, without any effort or forced construction, but by the simple application of an original standard of circular measure. Our difference of earth diameters was *one*. Our pyramid measure of difference was taken *twice*. Apply it as we have the earth's

AE=	366.3829416
DB=	364.3721243
Difference,	2.0108173

The harmony is something to admire and wonder at.

Again, difference between AE and DB=40.216330. The shorter diameter 7287.442486 : 40.216330 :: 7905.047128 miles, the shorter diameter of the earth : 43.693. As this is taken twice,

	43.693÷2=21.846
Earth difference,	21.631
Difference,	.215

Larger diameter 7327.658816 : 40.216330 :: 7926.67897 : 43.503.

Divide 43.503 by 2=	21.751
Earth difference,	21.631
Difference,	.120

or within 500 feet or 1000 feet of the exact difference of earth diameters; or, as a standard of time, difference from standard .052, or 1 hour in 1 year.

A very minute difference is observable, requiring an intercalation or change, of some kind, to bring the measures up to an exactness of conformity with earth measures. The use has been made of a pure circular measure, and the resultant differences, as shown, have brought out the elliptical property of the earth, requiring a very slight correction to bring out the exactitude. If an ellipse is required to be drawn cutting in A and D and D′, it can not be done by any foci located in the horizontal diameter O O′. The foci will have to be taken on a line parallel to D D′, and a little nearer to the line D D′ than is O O′. It is thought that the change of relations by this would perhaps bring out the exact correction required. It may be by some use between the whole number 40. and the 40.216330, which would equal

21.6330

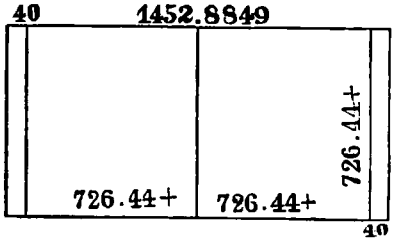
Compare with difference of earth diameters, viz: 21.6318

Difference, .0012

or about 5 feet. One thing, however, seems certain, the *exact* measure of the ellipse of the earth was known, not by experiment, but by the known rhythm that time extension and earth shape were convertible terms.

As to further construction. By completing the circle, a pyramid laid off on the opposite side would give the cube I K L M in the center; the term cube is used because it would be such a solid in a globe. But only one-half of this belongs to our pyramid. A moment's thought will show that this cube would make a chamber one-half as wide as long, and one-half as high as long. Therefore, as our *earth* and *time* measures come in the differences taken

up in this cubic chamber, we would naturally desire to preserve this as an epitome of the earth's *shape* and its *time*. But a perfect cube is expressive of a circle alone, and we want to place our second difference so as to designate an ellipse. Let us, therefore, to bring out this excess as an ellipse, add our second difference *twice*, once on the *I G* side and once on the *K H* side; because we have, in the squares *I* and *K*, taken our first difference *twice*. We have then our cubic chamber, and 40.+ added to each end, which 40. is the difference which will exhibit the elliptical character of the earth's shape and its time.



Reduce the above elements as follows:

Length,	1452.8849	145.28		36.32
Width,	726.44	÷ by 10 = 72.64	÷4=	18.16
Difference,*	80.00	8.00		2.00

And the dimensions of the chamber will be:

Length, 36.3
Width, 18.1
Hight, 20.1

Difference between width and hight, 2.

If we compare these measures with the exactest measures of the king's chamber, as given by Piazzi Smyth, we find those dimensions to be:

*To be added to width for hight.

Length, 34 feet 3 inches.*
Width, 17 feet 1 inch.
Hight, 19 feet 1 inch.

Difference between width and hight, 2.

Showing an exact similarity of method in arriving at the results.

Now, this reduction can be used either as an earth or time measure, and is appropriate as the King's chamber. The coffer, an *epitome* of the chamber itself, in its reduced form would become convenient as a standard of capacity and linear measure, etc. The symmetry is this: that the center of the coffer or of the chamber is the cosmic point of rest about which terrestrial and celestial shapes take form and movement in rhythm. As extremes meet, one may go from shape to shape, and from movement to movement, always in harmonic rhythm, to arrive at last at the seat of that wonderful intelligence that causes all, little and great, the material seen and the material unseen, to work in musical accord and in mathematical fitness.

It is to be noted that the admeasurements of the *coffer* seem to be out of rhythm with those of the chamber; but it will be seen, also, on examination, that, with relation to the *measure* of the *room in which it is located*, it, itself, is irregularly placed. This *irregularity* of position with respect to the chamber, is the *peculiarity*, which will lead to the discovery of the *reasons* for the coffer dimensions.

But we have, perhaps, only stepped upon the threshold of the unfolding wisdoms within. Parallels of latitude become significant and full of meaning. Solar and lunar

*Our decimals reduced to twelfths would be 4, 2, 2.

divisions of time are pronounced from the speaking stone in pure, truthful, mathematical lines. Perhaps the royal red of the King's chamber is significant in *color* of the sun, and the white marble of the Queen's chamber of the cold rays of the moon.

A few suggestions may not be inappropriate. If a square be placed upon the meridianal section protracted to a lozenge shape, the side of that square will = 5814.536352. This would seem to designate a horizontal section through the pyramid, the summit of a cubic chamber, with the exactitude of circular measure to compare by. This section would be at a distance from the apex of the pyramid of 3653.731824, thus bringing out for use another number significant of time. Take this distance :

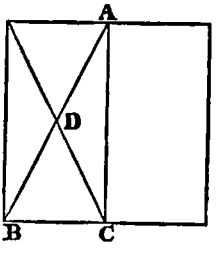
	3653.731824
$\frac{1}{8}$ of $\frac{1}{2}$ below is bottom of K.'s Ch., about	969.089392
	4622.821216
$\frac{1}{8}$ of $\frac{1}{2}$ below is bottom of Q.'s Ch., about	969.089392
	5591.910608
$\frac{1}{8}$ of $\frac{1}{2}$ below is bottom of Pyramid,	969.089392
	6561.000000
$\frac{1}{2}$ of $\frac{1}{2}$ below is bottom of Subterranean,	1453.634088

If we take side of square 5814.536352 and divide it by 8, we have each eighth equal to - 726.817044
Our first difference was - - - 726.442486

Difference, - - - - .374558

Again the wonderful reproduction of numbers is observable, with the addition of the minute differences. It should be stated that the square 5814.536352 is equal to the area of half the lozenge, within another difference exceedingly small. The rectification of all these differences is no doubt to be found in the pyramid, because its construction is elemental and purely geometric. It is probably because the strictly true interpretation of its wonderful speech has not even yet been arrived at. This division of 8 is probably that of which the peculiar divisions of the King's chamber is significant. "Eight floors it, eight roofs it, eight flags the ends, and sixteen" (taken double because the cubic difference is taken twice) "the sides."

The diagram being a representation of the square last spoken of, the angle BAC= 26° 28′, nearly. The use of the lines in the square bringing out this angle of 26° 28′, seems to determine both the location of the King's chamber, and also the passage-ways in the mass. As soon as the location of the chamber and the passage-ways is determined, the structure of the grand gallery and the space between it and the King's chamber will be easily reproduced. It seems probable, by looking at the peculiar shapes of the ends of the grand gallery extensions, that they come from the intersection of parallel lines with another order of lines crossing at peculiar angles in the square for special reasons. It may be that it is caused by the divisions of an equilateral triangle placed in the square.



If an equilateral triangle whose side = the side of the square be placed in the square, its vertex toward A, then if the triangle be divided as to its sides into eight equal parts, and the points of division be joined and protracted to sides of square, it will be found that the vertical angles will equal 60°, while some *on the sides* will equal 120°. In the pyramid the King's chamber proper is capped by several other chambers, all terminating in a roof, the *angle* of which is judged to be 120°. It is noticeable that the excess for ellipticity appears in hight. This excess, however, is originally taken in horizontal extension along the equatorial diameter. Its position is, therefore, at right angles to that one in which the excess originates. It may be that the peculiar *angle of the roof* serves to indicate whence the hight was taken, and may serve, possibly, to explain the meaning of the other chambers, or the hight taken between the top of the King's chamber and the roof.

These, however, are mere suggestions of thought not yet tested. But, truly and verily, the *Ancient of days* puts the achievements of modern science to the blush. The days of *truth revived* seem to be coming upon the inhabitants of the earth—happier and better days. Perhaps it may not be long before the light of new and exact knowledge will be shed abroad in the place of approximations, both in science and theology.

There is, about the revelations made by the great pyramids that which is almost startling in its effect upon the imagination. When one considers that buried in the pyramid is the *sacred cubit* of the Hebrews; that *four* times the *English quarter* is the capacity of the coffer; that the *English inch* and *English foot* measure runs in such ad-

mirable rhythm with *time* and pyramid measures, it is not by any means extravagant to judge that a link of connection is found between the Anglo-Saxon and the Hebrew race. The thought once entertained finds no obstacle of an insuperable kind in the way of its acceptation. The captivity of the ten tribes was located almost in the direct pathway of the emigration from the East into Europe and the north of Europe. It was placed in the tide ever impelling on to the *north*. Strong and particular emphasis is laid upon the *north quarter* as that from whence the *lost* shall be gathered to their brethren.

"Go out and proclaim these words toward the north, and say, Return, thou back-sliding Israel."

"In those days the house of Judah shall walk with the house of Israel, and they shall come together out of the land of the north to the land that I have given for an inheritance unto your fathers."

"Behold I will bring them from the north country."

"Which led the seed of the house of Israel out of the north country."

"I will bring the blind by a way that they know not; I will lead them in paths that they have not known."

"Ho, ho, come forth, and flee from the land of the north."

"Israel and Judah shall be brought together and made one nation."

Were the blind eyes opened, it is quite possible that here in this *New World* of ours, one would suddenly come to the realization that he was dwelling in the midst of the teeming multitudes *of Israel*; terminating their emigration in a land long promised, long reserved; under government of a commonwealth restored; free from every taint of *caste* condition, or of kingly rule.

יהוה יראה

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Appendix.

1. In construction (page 7) it would be proper, if the number 40 was needed, to make three differences; of which 2d might be 40 and the 3d .216330.
2. The exact side of square (page 14) is thought to be 5772.3806. This—5814.536352=40. which may be of value in construction.
3. If circumference (page 6) was that of an ellipse, a perpendicular dropped from 45° might touch C; if so, the relation would be of importance. If as it is it lacks 40. it may be that this want or difference is expressed in construction.
4. If base of pyramid was made to rest upon the parallel of 45°, the hight thrown inward in the circle, it might show the reason of the elevation in the pyramid of the King's chamber.
5. If *one* side of the square (page 15) was diminished by 40 or BC by 20, then, the hight AC remaining the same, the angles made by the transverse lines would be very slightly lessened.

An apology is due the publishers for handing them a manuscript containing errors, which escaped correction. 366.54750, page 8, should read 366.6351. On page 10 43.693 should read 43.624, giving a difference of .181, instead of .215. In relation to the King's chamber, too, the cube I K L M should not only be divided by 2, but this again by 2, or, the original should suffer a division by 4 to make the chamber. The original cube would contain 8 cubes, each equal to that of the 1st difference: the King's chamber contains 2. The addition of the 80 must be made on the width or hight instead of on the length.

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ANCIENT OF DAYS

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ANCIENT OF DAYS

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THE MEASURE OF THE HEAVENS AND THE EARTH BY MEANS OF

THE ONLY UNIT OF MEASURE

THE BRITISH INCH

by

James Smith Shipman.

נתן לפתאים חכמה

CINCINNATI
ROBERT CLARKE & CO
1873

1879. Jan. 4.

Robert Clarke,

Cincinnati.

THE ANCIENT OF DAYS.

I.

When one passes from darkness into a brilliant light, the effect, at first, is to confuse and bewilder. Objects perceived are at first isolated from others; gradually they—large and small—begin to be grouped together, and their relations, as to form, distance, and correlation, affect the mind.

It has been so in the study of the Quadrature of the Circle, by John A. Parker; of the great pyramid of Jizeh; of the cosmic relations which the elements of the quadrature unfold. The great salient truths, isolated, became first dimly, then more plainly perceived, and realized, as such; then the connecting relations began to enforce attention.

The quadrature of the circle may be, and is, misunderstood on its first face. It is supposed that claim to the exact measure of a circle, by means of use of a straight line, is made. This is not so, because such a thing is not possible. It would be just as absurd to raise such a claim, as it was *really and truly to make the same claim* for a foundation for the Principia of Sir Isaac Newton, when that foundation was made to consist in *the equality of ultimate ratios.* Any one, by drawing the geometrical figure ex-

hibiting that pretended equality, *can not help* but see that such equality could not, and can not exist, whether for that distinguished man, or any other, or at all.* The quadrature is effected by comparison of the abstract values of the elements of shape in area, without reference to lines at all. Dismiss the idea of boundaries arbitrarily assumed to assist the eye to distinguish; take the reality of the existence of the elements of circular and plane areas: on this the quadrature is founded, and by John A. Parker made good.

The elements of it are, that the area of a circle inscribed in a square is to the area of the square inclosing it, in the ratio of

$$5153 : 6561.$$

And, geometrically, it is proven that, changing the relations from area to linear lengths, diameter of a circle is to its circumference as

$$6561 : 5153 \times 4 = 20612.$$

Having arrived at some fundamental, abstract relations of numbers, as truths of co-ordinate relation in nature, it becomes a matter of great value to make use of them to found upon them *standard units of measure* for different purposes, so made that, having one for one purpose, its special relation may always be comparable, if possible, with every other for every other purpose: that is, for instance, having raised a standard for *linear measure*, it may always be comparable with others used for measures of *circular lengths* of arcs, for *plane* measures, for *solid* measures, and for *time* measures.

* See Appendix, 1.

Is such a desirable use possible with the elements of the quadrature? It is.

Mr. Parker follows the establishment of the quadrature by that of the solving of the problem of *three revolving bodies*, again from natural elements; and, on application of his results, he ascertains that, in nature, the rolling of the heavenly bodies is based on this very natural relation of area of circle to that of square, and of diameter to circumference; so that, if the expression of circumference be used and enlarged thus—

$$20612. \times 1\tfrac{1}{8} = 27482.666+ \times 1\tfrac{1}{8} = 36643.55+,$$

it is found that the second term of the expression, if divided by 1,000, is equal to the primary *circular* value of one lunation of the moon, *as a fact in nature*, in terms of *natural* divisions of time—viz., *days*.

Divide the whole expression to co-ordinate with this discovered natural fact—

$$20.612 \times 1\tfrac{1}{8} = 27.482666+ \times 1\tfrac{1}{8} = 36.64355+.$$

It is desirable to raise standards of measure from these elements, and here we have, in the very terms of these elements, the involving of measures of time in natural periods of days.

Suppose it is attempted to raise a standard for *linear*, *plane*, and *solid* measure, in the terms of these elements. How to do it? Very simply. The natural unit for linear measure is anything which will serve as unity; that for plane and solid measure should correlate the one with the other. Take the geometrical figure of the *cube*, and the three are combined. The natural unit for

plane measure is in this figure the same with that for solid measure, and both are measurable in terms of the length of *one of the edges of the cube.* Of these edges there are 12; therefore divide the above expression by 12, and there results:

$$1.71766+ \times 1\tfrac{1}{8} = \frac{27.4826+}{12} \times 1\tfrac{1}{8} = \frac{36.64355+}{12},$$

in which the second term is the period of one lunation of the moon, in days, divided by 12; and if to the first term could be assigned a *practicable value for use*, there would result for this first term the *quality* of being a standard unit of measure for *circular*, *linear*, *plane*, *solid*, and *time* quantities.

But, providentially, this first term already *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. It was shown, however, in "A Value of Symbolism," but first in the "Israelite" of Cincinnati, whence the abstract origin of this measure. In "Value of Symbolism" it is stated:

"The value of the ancient cubit has been long sought, with results as follows:

Cubit of Elephantine,	20.625	inches, or	1.7187 feet.
" Memphis,	20.47291	" or	1.70607+ "
" Turin,	20.57869	" or	1.71489+ "
Another,	20.61806	" or	1.71817+ "
"	20.65843	" or	1.72153+ "
" (Karnak),	20.650	" or	1.7208+ "
" (Sir Isaac Newton),	20.604	" or	1.717+ "
The most important (Seyffarth),	20.61113988	" or	1.71759+ "

"These results have been probably taken correctly from different authors. The accuracy, however, 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."

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 and continue the labors of Spohn in the effort to solve the question of translation of the Egyptian hieroglyphs. At Turin, in the museum, he found a papyrus scroll, containing the ground plans and dimensions of the chambers, passage ways, etc., of the catacombs of Osimandya, in Egypt, as to the lengths, breadths, and hights 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 meter. One meter = 39.37 inches English; and the reduction gives 20.61113988 British inches as the resultant value. The importance is that this is derived from a *great number* of comparative measures, just as Sir Isaac Newton's was taken from the comparative measures of Professor Greaves from the Great Pyramid.

As to this, Seyffarth himself says: "There are, at present, several Egyptian cubit measures in 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. Lipsiæ, 1840, p. 140. This work forms the sixth part of my 'Beitrage zur Kentniss,' 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 0.523524 meters—*i. e.*, nearly 21 inches English."

Take the expression given above:

$$1.71766+ \times 1\tfrac{1}{8} = \frac{27.4826}{12} \times 1\tfrac{1}{8}\,\frac{36.64355}{12},$$

and here in the *first term the ancient cubic value is to be found, with the very natural reasons of its derivation.*

Compare—

Sir Isaac Newton, - - - 1.717
Seyffarth, - - - - - - 1.71759+.

Obviously, then, we have as a practical fact that the first term of this expression is the very value of the ancient 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 20612 ÷ 12. *The reduction by* 1,000 *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 elements, and they turn out to be *standard units of measure* for *circular, linear, plane, solid, and time values.*

But take the same expression:

$$1.71766+ \times 1\tfrac{1}{8} = \frac{27.4826+}{12} \times 1\tfrac{1}{8} = \frac{36.64355}{12}.$$

Multiply this expression by 10, and there results:

$$17.1766+ \text{ feet} \times 1\tfrac{1}{8} = \frac{274.826+}{12} \times 1\tfrac{1}{8} = \frac{366.4355}{12},$$

in which the last term of the expression is the value of one year in natural periods of days, divided by 12; or, one solar month in circular value.

Hence, also, one can see that the original division of the Zodiac into 12 parts was not empirical, but following a natural division.

To show some application of this last expression. The Holy of Holies in the Temple was a cube of 20 cubits to the side, divided by the hight of the cherubs into two halves for hight, of 10 cubits each. But the first term of the last expression was equal to 10 cubits—that is, $1.71766+ \times 10$; therefore, the hights of the cherubs divided the room into the indices of two solar months high, and, if the division was made for each face of the cube, there being 6 faces, it would divide the cube so as to represent 12 months; or, if it meant a horizontal division, it would represent the upper or summer, and lower or winter part of the year. The porch was 120 cubits high, = 10 by 12, or it was built so as to represent 12 months high.

As striking a fact is to be found in the construction of the Ark of the Covenant. It was $2\frac{1}{2}$ cubits long:

$1.7176+$, or 1 cubit = 20.612 inches; and
20.612 inches $\times 2\frac{1}{2} = 51.53$ inches.

$$\left.\begin{array}{l}\text{It was } 1\tfrac{1}{2} \text{ cubits high} \\ \text{“ } 1\tfrac{1}{2} \text{ “ broad}\end{array}\right\} = 3 \text{ cubits.}$$

$$20.612 \times 3 = 61.836 \text{ inches} \div 12 = 5.153 \text{ feet.}$$

showing that it was so contrived, as to be reducible back to the elements whence its measures were derived; and this could not be done, by possibility, except by the intervention of *two grades* of measure, and those grades were respectively the *British inch and foot.*

The key of construction of the great pyramid of *JES* lies also in these very elements, to set forth *these very standards of measure with their application.*

II.

The foregoing statements have been made to prepare the way for another of (if possible) a more sublime character.

It is one thing to have the terms from whence a standard of measure may be taken; it is entirely another thing to practically adopt a working measure to build by, etc.,out of these elements. What shall we adopt, would seem naturally to have been the expression. Something small and convenient for use, doubtless. But anything further?

We can hardly imagine that there could be any further than an arbitrary assumption of some length, and that the importance would be the *calling it a unit* of, or from, the elements as set forth.

There is as great a wonder in the actual length adopted, as in the elements themselves.

In the pamphlet “Plan and Object of Construction of the Great Pyramid of Jizeh,” page 8, a marvelous fact as to the earth's diameters was noticed. At the time, one

could but wonder at the fact as it appeared; but because of ignorance, at the time, of solution, through want of knowledge of what has hereinbefore been stated, nothing beyond the beauty of statement was derivable.

On the Christmas of 1870–71, one young friend, F. O. S., presented to another, S. W. S., "Earth and Sea, from the French of Louis Figuier, translated, edited, and enlarged by W. H. Davenport Adams." In trying to discover some relation of the elements of structure of the pyramid to the actual dimensions of the earth, the author picked up this book, and made use of the data therein mentioned. In the preface of the work, the editor says: "The portions for which the editor is more immediately responsible are inclosed in brackets;" and the data made use of were inclosed in brackets.

These data consisted of a statement of the results of labors as to the ascertainment of the measures of the earth. In giving them, he states: "The following table shows the differences of length of the arcs of a degree, measured in the northern hemisphere of the earth, at increasing latitudes—that is to say, at gradually increasing distances northward from the equator." Then follows the are measures, which, by the way, it is exceedingly interesting to compare, as to their grouping, with that of a series set forth and tabulated by Herschel, in "Outlines of Astronomy."

The resultant measures of earth diameters were given in *British feet* as:

Equatorial diameter, - -	41.852.864 feet.
Polar " - -	41.738.710 "

It is desirable to be particular in statement as to these

data. After the pamphlet was published, these data were pronounced incorrect by some gentlemen of high standing, and by them supposed to be typographical inaccuracies. They were also, from abroad, criticised unfavorably by a gentleman of very high attainments, who seemed unfamiliar with them. The question arose: Have you been dealing in patchwork guess-statements? The character of the work, of its editor, and of its publishers, would hardly admit of such a doubt; but when so unfavorable a notice came from abroad, it was thought to be time to ascertain something as to these data from the responsible parties, and a note was addressed to Mr. Adams, who answered it as to these data as follows:

"With respect to the figures you quote, I have to assure you that they are perfectly *correct*, and you will find them given by Mr. Lockyer in his English version of Guillemin's 'The Heavens.' They depend upon the new value of the sun's parallax, which has been ascertained to be 91,675,000, instead of the old value, 95,278,000 miles."

These statements are given, not because they are necessary in fact, but for the general reader, and for those gentlemen who, perhaps, having received and accepted old data, leave the matter at rest, and are unconscious that the world is moving in the way of advanced corrections.

In the formula:

$$17.1766+ \text{ feet} \times 1\tfrac{1}{3} = \frac{274.826+}{12} \times 1\tfrac{1}{3} = \frac{366.435+}{12},$$

we have an expression proved to be in *British feet from inches*, in which the third term is the circular time, in natural periods of days, of the *earth's passage* around the sun.

Now we have the estimated value of the diameters of the earth in *British feet.* They are:

Equatorial diameter, - - - -	41852864
Polar " - - - -	41738710
Difference, - -	114154

Change these figures to the extent of 62.16 feet off the smaller diameter, the difference will be 114216.16:

41852864.00
41738647.84
114216.16

If the larger diameter be divided by this difference, the quotient will be 366.43555+; and since the polar diameter 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+. Then we shall have:

$$\left.\begin{matrix}366.4355+\\365.4355+\end{matrix}\right\} \times 114216.16 = \left\{\begin{matrix}41852864.00\\41738647.84\end{matrix}\right.$$

and this exhibits the law of this relation.

How does it happen that this law, in its working out, shows that the natural year-period in days, multiplied by the difference of the diameters, equals the equatorial diameter? And that the corresponding value of the polar diameter is *one day* less? Why, it *appears as a fact in nature;* and, since it appears in the English foot measure, or the

multiple thereof, *co-ordinates* with the elemental law as to the values of the elements,—

6561 : 5153

for area :—

6561 : 5153 × 4 = 20612

for diameter to circumference :—

and

20612 × 1⅛ = 27482.66 × 1⅛ = 36643.55

whence comes the lunar and solar periods: —

primarily appearing in the *British inch :*

And it necessarily follows that the establishment of a practical value for the British inch and foot for working purposes from these elements, could no more have been arbitrarily assumed, than could the resulting functional organisms first shown have sprung from elements arbitrarily selected.

Suppose, to illustrate, that it was determined to make the practical application of unit of measure for measuring purposes through the to be ascertained relation of earth diameters, and this was to be deduced from the exact measure of an hour's distance on the equator. Suppose this done; if the relation of the diameters was any other than it is, even if the English inch had been empirically hit upon, the difference between the larger and smaller, divided into the larger, must have given an entirely different result.

Therefore, somehow, and for some cause, the choice for application of elements for practical use was that very one in which obediences, correlating with the very elements given, were made by the earth as to its diameters; affecting them so as to show that its shape adapted itself, in

numerical measure of distance *in feet*, to the time which it performed *in days* about the sun. Therefore, how otherwise than by primary revelation could such application be made? The wit of man can not devise any other method.

It is not by the above meant to be affirmed of these measures of the earth from "Earth and Sea," that they are absolutely the correct measures; they may be a trifle—in miles, or feet, or inches—greater or smaller; but it is affirmed, that in *their relation to each other*, they disclose a natural law, by the ratio unfolded, and by the fact of *diameter becoming measurable in quantities involving circumference values* (366.4355, natural circumference value of earth time about the sun), which law will hold good whatever the ultimate correction may be. Again, it is not claimed that this ratio will be found to be exactly the one in fact, viz: that giving the 366.4355 as a quotient. It must be borne in mind that the astronomical formulæ given are circular and normal, and that the true orbits of the planets and sun are elliptical; but the cause of ellipticity arises from unequal, instead of equal bodies (*see* Parker's quadrature problem of three revolving bodies), impelling each other in orbits, and the ellipticity arises from their mutual and respective obediences to each other; hence, as they arise from a normal *law which we have*, all irregularities are functional obediences to this law, and are explainable by it: therefore, the normal expressions are *the basic* ones after all, and therefore controlling. Mr. Parker shows the law of conversion from circular to elliptical orbits, and the harmonic corrections of time. These should also govern shape to correspond, since the law of shape is disclosed as correlating with the law of measure of time.

Again, working backward, the law being found, and a

measure of the earth (taken without any view to obedience to such a law) being found to render obedience to just this law, *proves conclusively that this measure is correct as a primary governing one;* in other words, that the figures set forth by Mr. Adams are the very fit and proper ones, against which none others can compete as to ratio, because they are the very ones which exhibit the functional obediences of the earth to a cosmic law of numbers, in proper co-ordination with its movement through space to the performance of its revolutions around its axis and the sun.

It is very curious. The difference between polar and equatorial diameters is *one* of 366.4355 parts, and *one* of the days of 366.4355 is made up of that *one revolution of the earth, which is performed about its own axis in a year's time.*

The author has arrived at the framework and the general law of construction of the Great Pyramid. It is entirely constructed from the elements given, containing in its unfoldings the size of the earth and its shape, with probably that of the moon and sun, with their relative distances.

(With Parker's quadrature, if the elements of the earth's size be given, the relative sizes of the moon and sun, with their distances, follow necessarily.)

There is no doubt in the author's mind that the peculiarity of the accordance in the numerical values of the earth's diameters with the 366 real, but 365 apparent days of the year, is a special property of the pyramid.

III.

It is proposed to take some from valuable data obtained, to bring out a relation having a bearing upon what has preceded in section 2.

1. The first step adopted in "Plan and Object" was, that the pyramid in itself stood as a standard of constructive measure of the relation of diameter to circumference of a circle—viz., hight : base side × 2.

2. After that, it appeared that the visible structure of the pyramid (called pyramid No. 2) was the result of a constructive springing from another (called No. 1), the elements of which were the use of the original elements themselves; then, that there resulted, or was placed upon this—either as growing out of it, or to be compared with it, or to be comparatively used upon it—this pyramid No. 2; then, connected with, and governing the interior work, the elements of a third pyramid, called No. 3, derived from the elements of No. 2, were used.

It appeared that pyramid No. 1, at least, was placed in a sphere—that is, a sphere whose surface would touch its vertex and corner points, the radius of which sphere was to be taken along the axial line of the pyramid produced. The recital of construction and comparison is too long, and is not necessary for the present objects; but it is well to give the elements of these three pyramids.

Recur to the expression :

$$20612 \times 1\tfrac{1}{2} = 27482.66 \times 1\tfrac{1}{2} = 36643.55.$$

The diameters to correspond are:

$$6561 \times 1\tfrac{1}{3} = 8748 \times 1\tfrac{1}{3} = 11664.$$

These values were taken as British inches. The elements in feet were:

Of No. 1:

Hight, - - - - - -	546.75
½ Base side, - - -	429.41+
½ " diagonal, -	607.28+
Radius, - - - - -	610.638+

Of No. 2:

Hight, - - - - - - -	486
½ Base side, - - - -	381.703+
½ " diagonal, - -	539.810+
Radius, - - - - - -	542.789+

As to the elements of this pyramid, the third terms of the above expression are the circumference and diameter of the sun's time, viz:

$$366{,}43.55 : 11664.$$

Reduced to feet:

$$3053.62+ : 972.$$

Let the elements of the pyramid be:

Base side = ¼ this circumference = 763.40+

Hight = ½ the diameter, 972 = 486.

Of No. 3:

Hight, - - - - - - -	309.397+
½ Base side, - - - -	243.
½ " diagonal,- - -	343.65+
Radius, - - - - - -	345.55+

The elements of No. 3 are taken from those of No. 2 in this way:

Base side No. 2 = 763.407 : hight 486.

Reduce this proportion so that the hight (486) may be taken as the base of another pyramid, that is:

763.407+ : 486 :: 486 : 309.397+

That is:

Base side : hight :: base side : hight.

But while this is so, the curious change is made that whereas 763. being base side, is in terms of the original elements for circumference, and 486 being hight, is in terms of the original elements of diameter, the new value *of base of No.* 3 being 486, *is such in terms of the original elements of diameter*, and the new value *of hight of No.* 3 being 309, *is such in terms of the original elements of circumference.*

Just as in section II, it was found that the actual earth diameter *involved the original elements of circumference.*

It is true, also, that the elements of this third pyramid are to be found as proportional parts of the elements of No. 1; so that the elements of all three co-ordinate the one with the other.

It was not until a year after the use of the elements of these three pyramids, that it was discovered that the elements of Parker's quadrature were in fact and in truth developed in terms of the British inch, and that they had been utilized thus in the very construction of the Great Pyramid.

It was taken as a governing principle that the axial line

from vertex to center of base of the structure, was of the greatest consequence.

It was a favorite idea that this line, with the works about it for at least one phase, involved a *co-ordination of lunar with solar time* by a reduction from the entire pyramid structure, involving all the three pyramid elements given.

It was seen that, by actual measures, the hight of roof of Campbell's chamber above the base of pyramid No. 2 was closely in the neighborhood of 206 feet, and that the subterranean works were closely related to 103 feet below the base of the same. Now the very original elemental starting-point was 20612 inches, and there seemed a connection.

Take the reduction from Parker's astronomical expression, as given in section I, where a standard unit of measure was sought:

$$17.1766+ \times 1\tfrac{1}{8} = \frac{274.826+}{12} \times 1\tfrac{1}{8} = \frac{366.4355+}{12}$$

The first term is in British feet; the second is the circumference equaling one lunation multiplied by 10, divided by 12, or $\frac{10}{12}$ of one lunation of the moon; the third is the circumference equaling one year in circular time, divided by 12, or one circular month.

Clear this equation of fractions, and you have

$$206.12 \times 1\tfrac{1}{8} = 274.826 \times \tfrac{1}{8} = 366.4355,$$

in which the first term has become the original numerical elemental value, changed to feet and a fraction of feet; the second has become 10 lunations of the circular time of the moon; and the third has become the circular time

value of one year: all expressed in British measure in feet.

From this, this favorite idea found a justification in fact, for here was this very number 206 taking its rank in British feet as the very one whence a solar period of *one complete circular year* should take its rise, through the intervention of the lunar value.

Therefore there was a justification in taking it as a quantity to compare by; and it was determined to use it to its full value of 206.12 feet, measured up the axial line of pyramid No. 2, from its base, and at half its value of 103.06 feet, measured down on the axial line of same produced below the base.

The second term of the expression was 274.826+, as 10 lunations; this was to be used along this line. It was determined to measure it upward from the lowest point taken, viz., 103.06 below base of No. 2. Then:

309.18
274.826

34.353

it was found thus measured to extend to within 34.353 feet of the top of 206.12, above the base of No. 2.

(On comparison, this 34.353 was found to be connected with ½ base diagonal of elements of No. 3.)

By Professor Smythe's measures, the length of the King's chamber in the pyramid was 34.38 feet, giving a difference of .027 of a foot; and as it seemed, from a careful study of his measures by comparison, that additions and subtractions from standard measures appeared to be worked out generally, as if to work out a problem, it

seemed that there was a legitimate relation here shown, rather than that there was error either of the above or of his measure. (It must be borne in mind that this work is the attempt to work from laws of construction, and in so doing, to make comparisons with actual measures taken. The laws of construction, as taken, can not be changed—the arrangement of comparison may be; and there is no right to arbitrarily deal with measures taken as erroneous, unless reasons can be assigned.)

Here, then, the comparative use of these measures terminated in the neighborhood of the King's chambers, with the very measures thereof as to length.

It was thus far a legitimate comparison, on legitimate grounds of construction. Now a liberty was taken. It was seen that

$$206.12 \div 6 = 34.353+$$

and that

$$274.826 \div 8 = 34.353+$$

That is, that the one divided by 6, and the other by 8, gave a quotient of this very distance: hence these measures seemed capable of being used in these comparative parts.

Take one of these parts off the hight of 274.826+, or

$$274.826 - 34.353 = 240.473+$$

This would give a hight for the floor of the king's chamber of 240.473 from 103.06 below the base of No. 2, with an additional hight of

$$34.353 \times 2 = 68.706$$

for the space intervening between the floor of the King's

chamber and the roof of Campbell's chamber, and a distance between the floor of the King's chamber and the base of the pyramid of

$$240.473 - 103.06 = 137.413 \text{ feet};$$

and it was at once seen that, under this very beautiful use, the very detailed measures of these various parts were being developed.

A very remarkable contrast is now afforded:

206.12 feet = 120 cubits.

274.826
103.06

171.766 " = 100 "

120 — 100 cubits = 20 cubits.

Now, the porch of the Temple *was* 120 *cubits high*, and the Holy of Holies *was* 20 *cubits to the side.* 20 more cubits were taken from the 100 to give distance above base of pyramid for floor of King's chamber, and this = 80 cubits. So from Campbell's chamber to base of pyramid is three distances of 40 + 40 + 40 = 120 cubits *as a standard of measure.* These divisions remind one strongly of the three eras in the life of Moses—40 + 40 + 40 = 120 years, more especially as the number 345, a governing one in pyramid structure, is the value of his name, just as one-half the hight of pyramid No. 2 is the value of the name of Abram.*

*See Appendix, II.

So, also, in this connection, a remarkable phenomenon of *double cubing* is afforded.

The *width* of the king's chamber is the half of 34.353, or 17.1766+ *as a standard.*

17.1766 × 2 = 34.353 = length of King's chamber:
This × 2 = 68.706+ = the space between floor of King's chamber and the roof of Campbell's chamber:
This × 2 = 137.412+ = distance from floor of King's chamber to base of pyramid:
This × 2 = 274.826+, or ten (10) lunations of the moon in circular time.

Having thus made comparison and use of comparison of lunar time with the standard from whence it sprung, it remains to co-ordinate with these some related property of solar time. The limit of standard for comparison seems to be fixed to about that taken, and within that limit, or within any comparable measure thereof, the third term of time expression of values of 366. : 486 is too large.

The reduction made as the elements of pyramid No. 3 (page 20 supra), gives a *proportional* reduction, and one susceptible of close comparison. The hight corresponding with 486 is—

309.397+.

The standard of comparison taken was

309.18.

The reduced proportion appears as the very one nature intended for proximate comparison. Let it be made then in this reduction, which is proportionate, legitimate, and comparable.

Measured as 274.826+ was, *by the standard*, it exceeds the latter thus:

309.397
309.18

.217 of a foot;

or, 34.353 + .217 becomes 34.570.

Take this 34.353 (being the half of the 68.706 above floor of king's chamber) *as a radius*, and as such compare its diameter with that made by 34.570 taken as a radius. The latter becomes 34.570 × 2 = 69.140 feet.

Howard Vyse gives this measure as

69.25 feet
69.14 "

.11 of foot difference.

And of this the same remark made before as to Professor Smythe's measures may be made.

Here, then, is a comparative contrast of solar and lunar time *with a standard* made legitimately; and it brings out the actually measured developments so strongly, as to convict the mind more and more that the use, and interpretation of the use, of these original elements has been rightly made; the more especially since it is the development of a law of elementary values, applied under a further development of *measure*, to bring out *by comparison* developments in architecture. He will be both a very bold and a very captious man that, up to this point, can find a fault either with the process, the legitimacy of the object, or the admirable adjustment to actual measures.

The reason of going into and giving these details of comparison and location, is to bring out a new feature seemingly appropriate and connected with the others shown. It can not be developed as the others have been: it is a glimpse of further light breaking in, showing a glittering point of something, but as yet leaving its bearings and relations in the shadow. The feature is, that these uses of lunar and solar measures seem to be thus made *that a result of earth measures may follow;* thus making this wonder line of comparisons an additional one for bringing out the *earth elements as to size*, to co-ordinate with the elements of time.

Take the dimensions of the earth as given in section II:

Equatorial diameter, - - - -	41852864	feet.
" circumference, - -	131484702.448	"
In miles, - - - - - - - - -	24902.40507	
Value in miles to a degree will be	69.17334	

That is,—to tabulate a range of values in degrees;

$\frac{1}{2}^\circ = 34.58667$
$1^\circ = 69.17334$
$3^\circ = 207.52002$
$5^\circ = 345.866$
} all in miles.

Compare from above:

69.173	with	68.706 / 69.14
34.586	"	34.353 / 34.57
207.520	"	206.12 / 207.42
345.866	"	345.55 / 345.72

Who, having gone over the foregoing, developing a system from elements—letting the results take care of themselves,—to find so perfect an answer to actual measures, and then, out of this development, sees another system spring co-ordinating, as does the one with the other last sprung;—who can see this and not be impressed with a conviction from the very strength of his mind, that this is *the very elementary system*, and *the very use thereof* in the pyramid of JES?

It must be borne in mind that this pyramid structure has especial relation to 30° of latitude. No effort is made at comparison with the above data; nor should there be, until it be discovered to what portion of the earth especial measures are meant to apply and be adjusted. It is almost assuredly the case, that the measures of the equatorial and polar diameters are given, and then those of 30°. But which springs from the others? There is room for the idea that, at 30°, there may be a standard taken to measure the swelling of the equator to correlate with the polar flattening.

But the *law of these phenomena*, and all others as to the shape of the earth, lies in this pyramid. The standard of comparative measure seems to be the cubit = 1.71766+ feet. Twice that is 3.43533, and the variations are raised on this.

(It seems quite evident that another method of division was anciently used from that now practiced, affecting the decimal expression. A very partial illustration can be given.

Professor Smythe gives one line on the coffer of the King's chamber at

90.175 inches.

The cubit is 1.71766 in numerical value, whether it be taken in feet, inches, or smaller scale.

Take it in inches:

$$17.1766+ \times 5 = 85.8833$$
$$17.1766+ \times .25 = 4.2941$$

90.1774 inches.

The system of use was as admirable as the system itself. A number of other coffer lines, involving elements of diameter, could be given.)

We see that in the comparative measures in the King's chamber region, 34.353 becomes 34.57. The same feature of use and change is just as important and accurate in the small as in the large way. There is one small measure given with persistency as at one value, and one that seems to hold throughout the works, viz., that of the width of the descending passage-way. It is given at

41.5 inches.*

Reduce this to feet:

3.458333+
Compare this with 3.458667+

.000334 of a foot.

It will be seen that if this last measure had been intended, it would have been impossible *mechanically* to express it in inches nearer than in the expression 41.5.

But take this to express

3.458667 feet.

* See Appendix, III.

Raise this expression to compare with those tabulated before:

$\frac{1}{2}° =$ 34.58667 feet.
$1° =$ 69.17334 "
$3° =$ 207.52002 "
$5° =$ 345.86670 "

Here another tabulation for comparison arises from another part of this wonderful structure, and from a datum holding a persistent value in the passage-ways.

Try it:

$1° =$ 69.17334
$12° =$ 830.08008
$120° =$ 8300.8008
$360° =$ 24902.4024

Now compare this with the value of the equatorial circumference, in miles, taken as stated from "Earth and Sea," page 28 supra.

Take this 24902.402 at whatever scale it may have been produced in. (It originated from 41.5 inches $\div$ 12 = 3.45+ feet $\times$ 10 = 34.5+ feet $\times$ 2 = 69.1+ feet = numerical value of an equatorial degree in miles.)

24902.402 $\div$ 10
2490.2402 $\div$ 12
207.520 feet.

Our measures from base of pyramid No. 2 to top of Campbell's chamber were

206.12 feet.
207.42 "

Here we see the use of a like value, which is a multiple

of an enlargement of the standard 206.12, but so ordered, as to be comparable; and if we possessed the geometrical media, we should see how one was raised on the other. It is thought that these natural measures somehow adjusted themselves to the parallel of 30° on the earth's surface, because the pyramid is placed on that latitude, and thence the derivation of the equatorial value.

But, be this as it may, it is seen that in the actual earth material extension, the charmed numbers exhibit themselves as inches and feet, and miles being a multiple thereof.

Thus it is shown that the practical adoption of a working measure from the original numerical elements was made by Him who made the earth, the moon, and the sun; and He so adjusted them as to size, that the British inch and foot measure was the one which would co-ordinate practical measures to those very elements. Hence that measure is not arbitrary, of man's choosing; but natural, by God's choice. It regulates the drop of water, the root, the branch, and the leaf;—yea, the lightning flashes by it, the thunder rolls by it, and the seas obey it.

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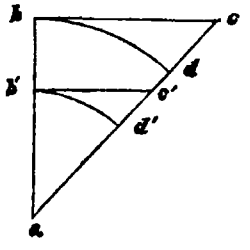
Wednesday, *Nov.* 6, 1872.

APPENDIX.

I.

THE very inception of Newton's Principia is founded upon a geometrically false statement. His "Lemma 1" states: "*Quantities, and the ratios 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, become ultimately equal.*"



Let *a b c* be any triangle, and with the length *a b* as radius, let the arc *b d* be drawn to intercept the line *a c*. Suppose this figure, both for triangle and segment of circle, be continually and proportionately reduced, as *a b' c'*, *a b' d'*; the relative differences of the ratios will never be changed, and, consequently, those ratios can never become equal: the proposition is axiomatic, and does not require demonstration. If a vanishing for one or the other be

sought, and were possible, the segment would vanish before the triangle.

Again, suppose *a b c* be a section of a straight line, and *a b d* the section of a curved line, having the common point *a*, and the common side *a b*; the one can not be any more geometrically comparable with the other by reduction, than as they stand; for the *relative differences* are the same. Therefore these two classes of lines are not comparable for measurement, and a circle is not, and can not be, measurable by right lines.

These qualities presented have forced the necessity of considering a line as zero as to breadth and thickness, while it is something as to length—an impossible consideration. Hence, in considering the elements of area of square, or circle, or other geometrical figure, it must be borne in mind that it is the *element of extension* of these areas alone that must occupy the mind, any boundary, as a line, being but a device to assist the eye to distinguish the properties of shapes. Therefore, if the line *is nothing*, it can represent *no part* of the area intended to be represented; if *it be something*, then it must of necessity be considered as wholly without the area intended to be represented to the mind.

But take the hypothesis that a line as to everything but length is zero, and the Lemma of Newton must necessarily fall. It is by virtue of the conception of a zero-point alone that equality of the triangle and arc-segment is conceivable. But here the other horn of the dilemma presents itself: if the two can not vanish, or arrive at a vanishing-point, then their normal difference, *as ratio of difference*, holds good; if the two can vanish, the comparatively smaller *must* vanish first.

Men have hooted at the idea of squaring the circle be-

cause of the impossibility of comparison of a curved with a straight line essentially,—and rightly: but here we see that they have not hesitated to accept at once of assertion of the essentially-to-be-arrived-at equality of a straight and curved line, when the dictation came from the recognized head of a school.

Try to be fair.

II.

It is very singular as to the Biblical numbers about the pyramid.

318 appears in *cubits* as the hight of Pyramid No. 1; so, also, the $\frac{1}{8}$ base side of No. 2, being 381.7037 *feet*, the $\frac{10}{12}$ of this = 318.+. It must be borne in mind that in the Hebrew language the whole numbers are used to convey the idea, the fractions are rarely expressed. The Gnostic value of Christ is also connected. This value was 608, as was also the YHS of Bacchus. St. Paul likens Christ to Melchizedek, who was without beginning or ending of days. The relation has been one on which much fruitless inquiry has been based. But in its value in numbers, the relations are quite simply recognizable. The word Melchizedek is composed of *Melchi*, "my king," and Zedek in the construct, meaning the quality of *exact probity*, *righteousness*, or its equivalent *exactitude*, *rightness:* it comes from a verbal, and has another co-ordinate derivative—Zadik, having the precise same signification, with one remarkable difference noted as "*spec. misericors*" in the dictionary—that is, the speciality

of *mercy* or *pity*. Christ was especially represented as having all the attributes of an *exacting God* under the law (so Paul), softened by these very qualities of *mercy* and *pity*.

Now, the word Melchizadik has the numerical value 304, one-half of 608, as Abram is one-half of 486. This personage comes up in that peculiar chapter of Genesis concerning the troubles of Abram about Sodom and Lot, in which, with his 318 *instructed* Abram pursues to Dan.

Now the value of the name of Abram = 243.

When an *h* was added to his name, the value became changed to - - - 248.

Test these numbers with 608:

608
243
365 = the days of the year.

608
248
360 = degrees of the celestial circle.

Cassini, in the last century (according to Godfrey Higgins), discovered the great cycle of 600 years as belonging to the Hebrews as well as Hindoos and Siamese, and shows that Eusebius' chronology agrees with its use. This 600-year period seems to be peculiar as synchronizing lunar and solar time. (*See* Higgins' quotation from Cassini, and also as to effect of intercalation of 1.+ day in 600 years.) Now Higgins finds 608 also a cycle index, connected under the same system with that of the 600; but attributes the difference to difference of value of precession of the equi-

noxes 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.

Now, if you wish to measure solar time as of days in the year for 600 years, on the great circle of 360°, the formula will run

$$365\tfrac{1}{4} \times 600 = 360 \times 608.+,$$

whereby the 608 becomes *a measure* of transfer, or *of equivalence of solar time into the terms of division of the zodiac into degrees.*

Hence Christ as 608, was a measure of transfer of solar time in days into degrees of the time circle.

Were the year times and the year circle things of approximate values, rudely known, such uses would simply have been unworthy of such connections; but when founded on a knowledge of the divine laws, by which the Creator Himself wrought, it raises their uses for religious purposes into a position for the highest estimation.

The above are given only as curious solutions crudely given; but behind this crude use there was an exactitude which the Bible sets forth in the proper keys and in the proper system, could it be discovered.

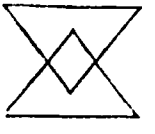
As to Bible study: The underlying values are of far greater interest than the superficial readings; and they are given to harmonize with nature, or what we call science. Natural truths must co-ordinate and harmonize with religious ones, and the reverse. Science and religion *must* agree; the proposition is axiomatic. The from time to

time accepted interpretations of Holy Writ are forced little by little toward scientific recognitions as they are fairly arrived at.

To show how differently a same reading may convey thought:

The first sentence of the Bible is, "B'rashith bara Elohim eth hashshamayim," et seq., commonly read, "In the beginning God made," "At first God made," etc.

B is a prepositional prefix signifying in the largest sense *in*, and, with material, carrying the idea of *in*, or *out of*, or *from* as a material; *rosh* = *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 material, or essential;*" *Elohim* is a compound made up of *El*, a masculine singular, meaning *God*; °*h* = *vh*, is a compound of two characteristics involving the use of two opposites, from whence to mold, as *in sexes* the duality—as man and woman; as *in forces*, the duality as centripetal and centrifugal—for example, electricity combining two opposites under the manifestation of modification of one initial force. (°*h* or *vh* symbolized is



as will at once be recognized by many.) It is this *vh*, combining these two, to which a plural termination is given, as of 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 heaven;" for in Hebrew, from the force of a foundation of double construction, the term is dual, not singular.

So the sentence reads properly, "In (or out of) His own essence as a womb, God, in the manifestation of two opposites in force, created the two heavens," *i. e.*, the *upper* or *light*, and the *lower* or *dark;* signifying the equivalents of *heat* and *cold*, *day* and *night*, *expansion* and *contraction*, *summer* and *winter;* in short, the all embracing cosmic relations.

For one thing, this at once disarms the criticism as to *Elohim*, of recognition of more gods than one.

As to the Parker elements having been the very ones used by the ancients for the very highest religious purposes, attention has been called to the dimensions of the Temple, the Holy of Holies, and the Ark of the Tabernacle. But they seem, also, to have been used as underlying the Bible in its great fabrication. The late Rev. Dr. Mahan, in his effort to find a law for the scheme of the arrangement of Scripture numerals, found, in his analysis, that from the Creation to the end of the Flood embraced an alleged period of 1656 years; and from the beginning of the Levitical dispensation to the time of the destruction of Jerusalem was a further and like period of 1656 years. It is a cabalistic rule, that to obtain the exacter meaning or use of numbers, where used for a more remote meaning, they must, or may, be reversed in their reading. So 1656 becomes 6561, or the Parker element of the elemental numerical value of square: and thus is exhibited the

design of cornering out the base of the Old Testament, by certain limitations of Divine numbers.

So, also, as the great Maimonides hinted (Translation and Criticism by Rev. Dr. Isaac M. Wise, in "Israelite," of Cincinnati), prophecy may have resulted from use of data known or acquired.

There are evidences that the Book of Daniel is cabalistic, and that in part, at least, the prophetic utterances (true prophecy, too, as says Graetz) were made upon mathematically known geometric quantities, correlating with astronomical values.

Take, for instance, the famous 70 weeks; they were divided, for prophetic purposes, into:

(1) Three score and nine weeks, or - 69 weeks.
(2) And in the *midst* or *middle* of the following week the Messias was to be cut off, or - - - - - - ½ week.

69 weeks = 483. days.
½ week = 3. "

486. "

Equals the hight of the great astronomical measure. But one key of the value of use of that measure, as one passed into the King's chamber, rested on the elliptical stone, designating the proportion of

5 : 7,

with a thickness for the stone of

A value of great consequence in internal structure was

$$345. \text{ and}$$
$$5 : 7 :: 345 : 483 \text{ and}$$
$$\frac{345}{5} \text{ or } \frac{483}{7} = 69. \text{ for the 1.}$$

There is a very beautiful hieroglyphic in the tableau of Abram seated in his tent-door, at *midday* (sun directly overhead), in the plains of Mamre. The value of his name was 243, or the half of 486, a sun measure, and the hight of the Great Pyramid.

(One-half 486, as a radius, equals the sine of 30°, and the pyramid is built on the parallel of 30°.)

An open tent-door is a triangular representation of a section of a pyramid, and seated in it was the man whose number was the half-radius of the sun measure.

So, also, Lot, by contrast, *at evening* is found seated in *the gates* of Sodom. He was *the vail*, and, according to Nork, was lord of the nocturnal sun, as was Abram of the diurnal sun. So he sat in the gates at evening.

Theology seems ignorant of the fact that there are other and truer characteristics of the terms both of the Messias and of the Christ than those commonly used. While the ordinary meanings are proper in one aspect, yet the wonderful meanings bringing out the ineffable characteristics of God in a manner sublime, almost beyond conception,

seem to be unknown and little dreamed of. Were they known, as they ought to be, the values of the Holy and Divine numbers would throw in a flood of light, and give to the Scripture readings a power and strength that would astonish as well as teach.

In connection with the relation of time measures, attention is directed to the interesting connection between *Kodesh* and *Khodesh*, as coming *from the same organic root* (Fuerst). Root meaning, *new*, *to be pure*, *shining*; hence, from purity *holiness*; hence, from shining the *lunar circle*. Hence *Kodesh K'dashim*, Holy of Holies; *Khodesh Kh'dashim*, Month of Months.

III.

Colonel Howard Vyse's measure is given at 41.5 inches. Professor Smythe gives a series from whence to take a mean value. His series ranges from 41.41 to 41.63.

In touching on this descending passage-way, it may be well to state that its floor-line *produced to strike the axial line of the structure*, *which is a governing reference-line*, is 381.+ feet. The decimal is *probably* .7037+; but it is a question whether it may not be .971, involving a difference of .368+ of a foot, or 4.3+ inches: nor can this question be determined until the law of its location be found.

CONCLUSION.

In dealing with elemental values for restoration of the pyramid, inadvertently the actual measured values and estimates of dimensions have been neglected. The elemental values have been taken at hight: base side as 486 feet to 763.4074. From the broken condition of the outer casing of the structure, and from the rubbish-heaps at its base, the measures have been approximate estimates. The most careful measurer as to exterior combined with interior, has been Col. Howard Vyse. He made the base side approximately at 764 feet, and his approximate was partly by computation: the difference is .5+ of a foot. Prof. Smythe, more by a matured consideration of the measures of others than his own as to outside, arrives at the conclusion that the hight was 486 feet 3 inches: the difference is .25 of a foot. So, where a sound reason is given for taking 486 : 763.4074 for outside (the law of construction making the inside works to harmonize with the outside), the weight of conviction is that these approximates tend naturally toward this very formula of construction.

It must be stated that the author has found a point in common between the measures of Prof. Smythe and Col. Vyse; and thence, running their measures comparatively to the extent that they were made, the accordance is remarkable—the aggregates correcting the differences in detail. It should also be stated that, on careful comparisons of the best measures, about the finer parts of the interior, where extra pains have evidently been taken

by various other parties, with those mentioned, the fact becomes apparent, that the differences in lengths of 30 or more feet to extent of tenths of inches, and even more, evidently arise from *differences in the measures* used: showing that though the greatest care was taken as to measures, *a minute difference was unavoidable*, and would become manifest, in lengths of 30 or more feet, in tenths of inches, more or less. Which of all these accomplished men, therefore, had the correct standard? Who shall decide? And by what means? It is certain, in no other way than a discovery of the source whence the measure, if there was a source other than an arbitrary establishment of the measure. Now if, as is almost certainly the case, the established measure was as natural as the abstract numerical elements with which it so strangely co-ordinates—in other words, if man received this measure out of God's workshop, as the very one used to measure the extension of the earth and other orbs, then the fact of exhibition of harmony between actual measures and time elements, as regards the earth, etc., and their times,—and that these were architecturally set forth and made to correlate in this pyramid, will eventuate in finding a harmony corrective of these minute differences in the at present used actual measures. The mind can perceive a result attainable, and yet find it very difficult to clearly express its perception in words.

The play of numbers, and the sudden transitions from one to another adjustment, in and about the proportional parts of the pyramid—the infinite power of change, yet the harmony throughout all change, resulting from use of the Parker elements—is a source of delight and of amazement. A comparison may help to explain the idea. A few

bits of glass in a kaleidescope, by slight changes of position, springs upon the eye an almost lightning-like transition from one to another shape, containing, from the one just vanished, an entire change of complicated interior detailed structure. The judgment *feels* the fact that the whole, and parts of each successive one, however different in new arrangement, is a harmonic springing from the last preceding; but though the effect on the eye carries a feeling of delight in the exhibition of metamorphose, it worries because the steps of transition have been so lightning-like, that the perfected form flashes upon one, eluding the strongest effort to catch the intermediate links. In use of the Parker elements about the construction of the pyramid, a feeling akin to the hope of catching the building process of a change in the kaleidescope is the predominant one.

However, certain steps of great value to science have fairly been made.

(1) The Parker elements of quadrature *are established:* so, also, his problem of three revolving bodies. It must be remembered, a mathematical truth may be as firmly established as the everlasting hills, and yet lack recognition.

(2) The natural *cubiting* of circular value, thus raising a numerical standard unit, to co-ordinate the measures, of *circular*, *linear*, *plane*, *solid*, and *time* extension, is shown to be possible, simple, and natural.

(3) Not only so: it is shown that this numerical unit standard actually takes life, as it were, in *a measure already in use*, viz., the British inch, the standard arising by *cubiting* at the same time giving the measure of conversion of the British inch into the British foot; and in doing so from the elements, by a process which makes the standard unit

a co-ordinating measure of time also, *produces the veritable cubit value of the ancients.*

Think for one moment of the value of these establishments. It is greater than the marvel of their existence.

But suppose, and this step will be made, the further study of these elements shall show that the Parker elements and the British inch are not simply phenomenal things, but are the very laws by which it has pleased the Creator himself to work. Then, if they can be discovered to be framed into Bible building, indeed, *cabalism*, so much disparaged, will prove to be the closest communion which man here, in his power of perception, is capable of holding with God.

The way is open—the greatest difficulties have been removed—the chief principles have been established—the actual measure is in use.

Now, should a promise of the kind exhibited be suffered to be neglected?