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795TH ORDINARY GENERAL MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 3RD, 1936,
AT 4.30 P.M.

THE REV. CHARLES W. COOPER, F.G.S., IN THE CHAIR.

Before proceeding with the ordinary business of the Meeting, the
CHAIRMAN referred to the great sorrow felt by all Members and Associates
of the Victoria Institute in the loss sustained by the death of our beloved
Sovereign, H.M. KING GEORGE V, the audience standing in token of their
deep sympathy with H.M. KING EDWARD VIII, QUEEN MARY, and the
ROYAL FAMILY.

The Minutes of the Meeting of January 20th were read, confirmed and
signed, and the HON. SECRETARY announced the following elections :—
Member : Dr. J. Barcroft Anderson ; Associate : Rev. A. B. Miller,
M.A., Ph.D.

The CHAIRMAN then called on Lieut.-Col. Arthur Kenney-Herbert to
read his paper, entitled " The Problem of the Great Pyramid."

THE PROBLEM OF THE GREAT PYRAMID.

By LIEUT.-COLONEL ARTHUR KENNEY-HERBERT.

PART I.

THE FACTORS OF THE PROBLEM.

Divine or Pagan.

1. EGYPT is a land of pyramids. Some are large, some
small, some are built of brick, some of masonry. One or two
have outstanding features, otherwise only the expert could
distinguish between them. They all serve the double purpose
of tomb and monument. They all have a central subterranean
chamber where the body might rest in peace awaiting reincarna-
tion. The only approach to this chamber was by a narrow,
descending passage. The superstructure was solid, designed
with a given rise on a given base. The gradient varied from 14
over 9 to 14 over 15.

2. The Great Pyramid was different to all the others. It is an open question whether it could ever have been intended to be a tomb, for the subterranean chamber was never prepared to receive a sarcophagus, and the upper chambers were closed during construction.

In at least two important features the Great Pyramid is unique.

If the other pyramids had any story to tell, that story merely stressed the certainty of man's final destination—the realm of death. No ascending passages implied an upward road to God's favour restored.

No other pyramid had been designed at that particular slope which involved so many geometrical relationships interesting to the mathematician. Relationships which convey a spiritual meaning; for it has been recognised that the circle symbolises the infinite of heavenly things, and the square the finality of earthly things. To square the circle is to restore the relationship between the spiritual and the material, to define the infinite in the terms of the finite.

Isaiah xix, 19, 20.

3. It has been suggested that the monument referred to in Isaiah xix, 19, 20, is none other than the Great Pyramid itself. This text says : " In that day shall there be an altar to the Lord in the midst of the land of Egypt, and a pillar at the border thereof. And it shall be for a sign and a witness unto the Lord of Hosts in the land of Egypt."

The situation described is so peculiar that I doubt whether such a site could be found in any other land—both " in the midst of the land " and also " at the border thereof." Nor would this be possible in Egypt if we understand the name to include all the land lying within the recognised political frontier of the country.

The Geographical Position.

4. We must first determine the true application of the word Mizraim (which has become in Arabic Misr), here translated Egypt. Strictly speaking the ancient name for Egypt means the black land—the rich soil annually deposited by the Nile in flood—the cultivated land. (See Enc. Brit., Eleventh Edition—Egypt.)

This cultivated land, on the map, resembles a fan with a long handle. The Delta or Lower Egypt is the fan ; the Nile, with its fringe of cultivation, the handle. " A line corresponding with 30° N. latitude, drawn just south of Cairo, divides the country into Lower and Upper Egypt." (*Enc. Brit.*, Eleventh Edition.)

The Great Pyramid is five miles from Cairo and about one mile south of latitude 30° N., so it stands at the political centre of Egypt to-day. It is also central in longitude. If Port Said marks the east and Alexandria the west of the Delta, the central longitude would pass about two miles west of the Great Pyramid.

If Mizraim signifies the cultivated land, then its borders are the two great deserts lying east and west of the Nile. To satisfy the text, we must search the desert for a site as close to latitude 30° N. as may be. Incidentally, a rock foundation is essential, for drift sand could not support any monument. As the eastern desert is too far east of the central longitude, we must confine our search to the western border of cultivation. There is only one such site. It was selected more than 4,000 years ago for the construction of the Great Pyramid.

The Text Analysed.

5. The fact that the Great Pyramid occupies so unique a position, exactly defined in Isaiah xix, 19, constitutes a prima facie case for identifying it with the monument mentioned in the passage. If so, Isaiah xix, 20, will tell us why this monument was built, and will therefore furnish us with the terms of reference delimiting the scope of our inquiry.

The passage contains four clauses. In Hebrew usage, these clauses present two thoughts connected and contrasted. Here 1 and 4 may be read together and contrasted with 2 and 3. Read thus, the text describes a building which will fulfil a double function : (1) an altar of witness and (2) a monument of sign or wonder. The word translated pillar or monument is *Matstsebar*. The Arab has a similar word Mastaba, but the t and s sounds have been transposed. Mastaba means a pyramid with steep sides.

The Altar of Witness.

6. As a witness to Jehovah of Hosts, how can the Great Pyramid give its evidence ?

In the first place, the Great Pyramid is essentially a geometric design indicating the mathematical relationships of squares, triangles and circles, having equal areas and equal circumferences. The ancient philosophies recognised a spiritual symbology in geometric shapes.

In the second place, a right vertical section, drawn in the axis of the entrance passage, shows a design of passages and chambers presenting an obvious allegory; but the obvious is often misleading. Therefore, in the third place the interpretation of this allegory is not a matter of spiritual imagination but is defined by the numbers which measure the bases and perpendiculars of the various passages and chambers, if these numbers are given the significance which they apparently carry in the biblical usage of numerics.

Lastly, the design can be used as a chart or graph on which chronologic lines may be drawn.

This witness, therefore, can give its evidence in four ways : (1) in the symbology of geometry, (2) in the allegory of the graph, (3) in the language of numbers, and (4) in the chronology embodied in the design.

As the Pyramid dates from the dawn of history, such a chronology must be an anticipation of the future possible only to Him Who has said : " I am God and there is none like Me, declaring the end from the beginning, and from ancient times the things that are not yet done, saying, My counsel shall stand and I will do all My pleasure." It is the test which God Himself directed us to apply. In point of fact, the hierarchies of ancient paganism adopted the other three methods of expressing the secrets of their doctrines in order that the deeper teaching might be hidden from the general mass of the people while easily understood by the initiated. *See* " The Computation of 666."

The conclusion is that the true interpretation of the allegory lies in the right use of the language of number, and the proof of the inspiration lies in the prophetic chronology delimited by the graph.

A General Description.

7. Our available space forbids any attempt at a general description. The exterior is well known to us all. The interior is shown in the sketch diagram.

Perhaps a brief note on the accuracy of the workmanship, especially of the lower courses, is advisable. Flinders Petrie

says that stones, with a side area of over 35 feet, were trimmed to within one-hundredth of an inch of true surface. These stones, some weighing 16 tons, were placed in perfect contact, making a joint of about one-fiftieth of an inch. More wonderful still, cement was run into the joint.

PART II.

THE PYRAMID THAT IS.

The Survey.
(*See* Diagram, p. 79.)

8. Before we can examine these different ways in which the pyramid can tell its story, we must be certain that we are dealing with a pyramid which really exists, not with a theoretical ideal of what the pyramid ought to be. Most of the books and pamphlets connected with pyramid literature give their own measurements of those features of the building, which substantiate the theories advanced. These measurements, however, must be received with caution ; for the theories were adopted before the measurements were accurately known. Strangely enough, there are many who prefer the old theories, although the measurements on which they depended have been very generally disproved. What was really needed was a genuine survey, carried out with scientific accuracy, by an experienced surveyor accustomed to archæological research.

Sir William Flinders Petrie undertook this survey, and published the results of his labour in 1883 (*The Pyramids and Temples of Ghizeh*). The Royal Society, recognising its scientific value, made him a special grant in aid of publication.*

The survey gives all necessary data, so that the reader may verify every calculation if he should want to do so. It is evident that the interior has suffered from subsidence and earthquake. Has this materially affected the original intention of the design ? Are we justified in altering the given measurements on this

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* Additional data may be found in *Life and Work at the Great Pyramid,* published in 1867 by Professor Piazzi Smyth, late Astronomer Royal, Scotland. *The Pyramids of Ghizeh,* published in 1840 by Colonel Howard Vyse, has also been regarded as a standard work.

account ? Personally, I believe not ; for the evidences of sinkage have been noted and due allowance made.

Again, it is impossible that any survey can be absolutely accurate. There must always be a margin of uncertainty which must increase as the work proceeds. This uncertainty is stated as a plus or minus quantity, sometimes called the margin of error. Actually, any measurement with its stated plus or minus quantity means that it is an even probability that the true measurement lies within the extreme limits indicated.

Luckily, it is evident that the design has been controlled by four principles which have governed the construction. These principles can be used for the reconstruction of any doubtful measurements, and, in conjunction with the original unit of measure employed in whole numbers, such a reconstruction should eliminate even the margins of error of the survey.

The Original Unit.

9. To apply the language of numerics to the dimensions of the Great Pyramid, we must know the numbers which these dimen- sions suggested in the mind of the architect or designer of the plan ; for it is his numbers which must be interpreted. To be able to see the quantities as he saw them, we must know the exact length of the unit in which he designed his plan. Whether these numbers were intended to convey any particular meaning is another question, to which there can be no answer so long as we think in terms of the wrong unit.

It is impossible to argue the point in the space at our disposal. Piazzi Smyth devised a Pyramid inch which he said was one five-hundred millionth of the earth's Polar axis. Davidson showed that, as such, the equation should be 1 Pyramid inch (P.I.) $= 1 \cdot 0011$ British inches (B.I.). Whether this claim be justified or not, I have found that this unit gives excellent results.

Where the Egyptian cubit is used, the equation becomes 10 Egyptian cubits $= 206$ P.I. $= 206 \cdot 23$ B.I.

The Four Principles Governing the Design.

10. If the pyramid has a message, it is reasonable to suppose that this message was intended to be read sooner or later, and therefore that any principles governing the design should become evident once an accurate survey was undertaken.

Three such principles have been recognised and generally accepted : The principle of whole numbers ; useful in correcting long lengths. The principle of the π ratio ; useful in determining proportions. The principle of equal areas ; useful in fixing important levels.

To these I would add a fourth : the vertical angle indicated by "the plug." This angle defines the limits of the ascending passages and chambers.

Whole Numbers.

11. In his *Inductive Metrology,* Sir William Flinders Petrie concludes that the longer measurements of monuments and buildings were designed in integral or whole numbers of the unit. Given a sufficient number of measurements, the length of the original unit can be determined with close approximation to exactitude. This aspect of the problem no longer concerns us ; we have adopted a unit which gives practical results. But we may use this principle of whole numbers to eliminate the margins of error.

There is only one way to survey steep, narrow passages. Beginning at a fixed point of the survey (in this case a triangulation station at the entrance), the surveyor observes the horizontal and vertical angles of the passage and measures the length with a chain or tape. Obviously, it is impossible to measure the perpendicular and the base which in reality determine the passage angle, for they are buried in the mass of masonry, and these are the measurements which should be whole numbers. But if we know the vertical angle and the length of the passage within the limits of a small margin of error, we can calculate what the base and perpendicular should be, also within the limits of proportional margins of error.

If the principle is correct, it should be found that the calculated bases and perpendiculars of the pyramid passages, converted from British to Pyramid inches, are so close to whole numbers that the adjustment required to make up the difference is well within the margin of error of the original survey.

Using these adjusted bases and perpendiculars, it is easy to calculate what the angles of slope and the lengths of the passages were intended to be. If each stage of the work be so adjusted

to accuracy, any uncertainty due to the margins of error is eliminated.

Readjusting Flinders Petrie's bases in this way, the final result is striking :—

> From the north face to the north wall of the King's Chamber horizontally, by the survey   4,865   ± 0·9 B.I.
>
> This converted to Pyramid inches is..   4,859·74 ± 0·9 P.I.
>
> Sum of corrected bases   ..   ..   4,860 P.I.

Total difference is 0·27, or one-third of the admitted margin of error of 0·9 of an inch.

The π Ratio.

(*See* Diagram.)

12. Summarising possible theories, Sir Flinders Petrie says : " For the whole form the π ratio (height is the radius of a circle equal to the circumference of pyramid) has generally been accepted of late years, and is a relation strongly confirmed by the presence of the numbers 7 and 22 in the number of cubits in height and base respectively, 7 to 22 being one of the best-known approximations to π . . .   The profile used for the work being thus 14 rise on 11 base."

He traces the π proportion in the exterior form of the pyramid, in the dimensions of the passage section, in the King's Chamber, and in the Coffer.

If a pyramid be designed with a rise of 14 on a base of 11, many mathematical equations result.

(1) Using the pyramid height as a radius, the circle described with this radius would have as many inches in its circumference as there are inches in the four sides of the base added together.

(2) The quadrant of such a circle would have the same area as the pyramid section.

(3) If we reduce this area to a square, then the side of this square can be used as the radius of another circle, and this circle will have the same area as the base.

In two different ways the design of this pyramid solves the problem of " squaring the circle."

The Principle of Equal Areas.

13. The application of this principle determines the level of the floor of the King's Chamber and also of the passage leading to the Queen's Chamber. It is applied as follows :

There are two theoretical heights of the pyramid design (*see* Diagram). The first and apparent height is the level of the apex above the pavement. The second height is the level of the apex above the Pit Passage level.

If the areas of these two sections are bisected, then the King's Chamber floor is placed at the level of the upper bisection (first half area level) and the Queen's Passage floor at the level of the lower bisection (second half area level).

The Plug Angle.

(*See* 3 on Diagram.)

14. At the entrance to the Ascending Passage, there is a strange feature which demands attention. During construction, probably just before the roof of the Grand Gallery was closed over, three large granite blocks, which had been prepared for this purpose, were allowed to slide down the Ascending Passage to its entrance, thus effectually closing direct access to the passages and chambers beyond. These three blocks are called the Plug.

Evidently the Passage had been designed to stand the strain caused by the accumulating force of these huge blocks, weighing many tons, sliding down into position. For it was built of girdle blocks—that is, huge blocks through which the Passage itself was cut. There were, therefore, no side walls to be displaced, nor could the original section of the Passage be altered by the process of blocking.

Once these blocks were released, they came to rest at the exact point designed and prepared to receive them, wedged at the *predetermined angle,* and rigidly held there by the vertical and horizontal pressure of many thousands of tons of solid masonry.

So there these blocks remain to this day, and the angle at which they have come to rest is probably the most certain of all the measurements we have to deal with.

If this plug angle be carried upwards, it will intersect the corner where the roof and south wall of the King's Chamber meet.

It thus defines the extreme limits of the system of ascending passages and upper chambers.

Ancient Mathematics.

15. It must not be forgotten that the ancients used letters and not figures in their calculations.   There was no letter to represent zero.   Decimals and logarithms were not possible under these circumstances.   They probably carried out their angular calculations by a system of whole number gradients, with an arrangement of allowances or corrections if the accruing error became too large.

Under these conditions, ancient mathematics conveniently suited the requirements of the language of numerics, for a long string of decimals would not lend themselves to systematic and consistent interpretation.

PART III.

THE INTERPRETATION.

When I undertook to write a paper on the Problem of the Pyramid, my trouble was to deal with so large a subject within the narrow limits of four or five thousand words.

My first thought has been to help the prospective student by stating the main features of the problem.   These features took me some time to find out, for they are not to be found in the general mass of pyramid literature which treats the subject in a traditional manner.   These traditions originated in the writings of Mr. John Taylor (1858–63), one of the pioneers of the British Israel theory.

Unfortunately, I have already exhausted about three-quarters of my space.

The Principles of Interpretation.

I believe that the true key which unlocks the symbology of the Pyramid is the language of number, and I do not know any other writer who has employed this key.

We may summarise the principles which have governed this symbology as follows :

Every sloping passage is, mathematically speaking, a right-angled triangle, consisting of the slope, the horizontal base, and the perpendicular.

The dimensions of all horizontal measurements (including the bases of the passage slopes) define the characteristics of the period or dispensation concerned, from man's point of view.

The dimensions of all vertical measurements (including the passage perpendiculars) define the spiritual consequences of God's action and man's reaction during the period indicated. This is God's point of view.

The slopes of the ascending passages determine the lengths of time, allotted in God's plan, for the development of each of the two stages or dispensations included in the Allegory of the Ascent.

In addition to these, there are certain lines which may be drawn on the graph joining structured points of different levels. These also measure God's purposes chronologically.

Time is recorded in the Great Pyramid at the rate of 1 P.I. equals 1 mean solar tropical year.

There must be some point where God's revealed prophetic time ceases. For there is a date which, like the tree in the middle of the garden, represents to us forbidden knowledge. Obviously the pyramid, if it really is God's witness, cannot supply material which would help us to calculate this forbidden date.

I think that I can show that this point is defined by the south end of the Grand Gallery (marked 6 on Diagram).

The Language of Number.

16. At this stage of his inquiry, the student will have to suspend his pyramid study until he has acquired some knowledge of the language of number. I had to do this myself. I found Bullinger's *Number in Scripture* a great help

The Chronology of the Bible.

17. The true chronology of the Bible is the next difficulty to be overcome. Remember, we are not concerned with ordinary secular chronology. There are so many different Bible chronologies to be had for a few pence that there is only one thing for the

consistent student to do. That is to construct one for himself. I began with Anstey's *Romance of Bible Chronology* and tested every step. On the whole, it has been an excellent guide, which in my opinion embodies a great deal of fact and very few important errors of judgment.

But I want to state one thing in this connection most emphatically. The chronology which I did adopt was published in 1927 and was in no way influenced by what I already knew of the pyramid; when I put this chronology and the pyramid measurements side by side, they corresponded as closely as seven-figure logarithms could work out the sum. That is to say, that periods requiring 6 or 7 figures to measure in days were within a day exact.

Results.

I will conclude with the interpretation of a few leading features.

The core masonry base, defined by the planes of core masonry, expresses the first thought in the Bible—" In origin God." This was hidden when the casing was completed.

The circuit of the socket corners is a multiple of the gematria, or figure value of the Hebrew letters, of the first verse of Genesis : " In the beginning God made the heavens and the earth." The vertical height is equal to the Greek for " good news " multiplied by 10. The fullness of the Gospel. Various useful astronomical measurements are defined by the exterior dimensions.

The entrance symbolises the story of Genesis iii ; the total fall to the pit level is a principal factor of the Hebrew of Genesis iii, 1–7. The base of this descending passage (between 1 and 2 on Diagram) is 3,700, the gematria of the Christ our Passover, here ignored.

This 3,700 is the vertical height of the perpendicular at the south end of the Ascending Passage (marked 4 on Diagram). As such it closes the period of the Law and opens up the period of the Light. I call it the Christ perpendicular.

The base of the Ascending Passage (from 3 to 4 on Diagram) is the gematria of the Law of Works. Its perpendicular is 7×97, and 97 is the principal factor in the " revelation of Jesus Christ " and also in Son of God.

The slope measures the period from the covenant of Sinai to the day when the Daily Offering was sacrificed for the last time. This period is exact.

The base of the Grand Gallery is 813×2.   813 is the gematria of " And God said let there be light, and there was light," and also of " And God divided the light from the darkness." The perpendicular to the foot of the step (marked 6 on Diagram) is 803 or 73×11.   The thought suggested by 73 is connected with the work of the Lord.   The full slope carried to the south wall of the Grand Gallery defines the day when Great Britain declared war with Turkey, a date which led to the termination of the treading down of Jerusalem.

In addition to the measured slopes of the Ascending Passage and of the Grand Gallery, other structural lines can be drawn on the chart :—

(1) Defining the date of the Fall and the date of the Resurrection.

(2) Defining the date of the Promise of Genesis xiii, the date of the passage of the Red Sea, and the date of the Day of Pentecost.

(3) Defining the date of the Covenant with Abraham (Genesis xv), the date of the Day of Pentecost, and the date when the German armies crossed the frontiers of Luxembourg in 1914.

My time is exhausted.   Space forbids that I should complete the list of the things which I have discovered, and there is more to be worked out.

Space also forbids that I should attempt to prove the facts I have brought to your notice.   If you are interested in the question, I might mention that I have just published a little book on this *Problem of the Pyramid.**   My book ends thus : " I have tried to present the evidence which has convinced me as simply and impartially as I can.   But this evidence rests on three foundations : the survey, the language of number as used in the Bible, and the chronology of the Bible.   All these foundations, in the present state of our knowledge, are open to question.
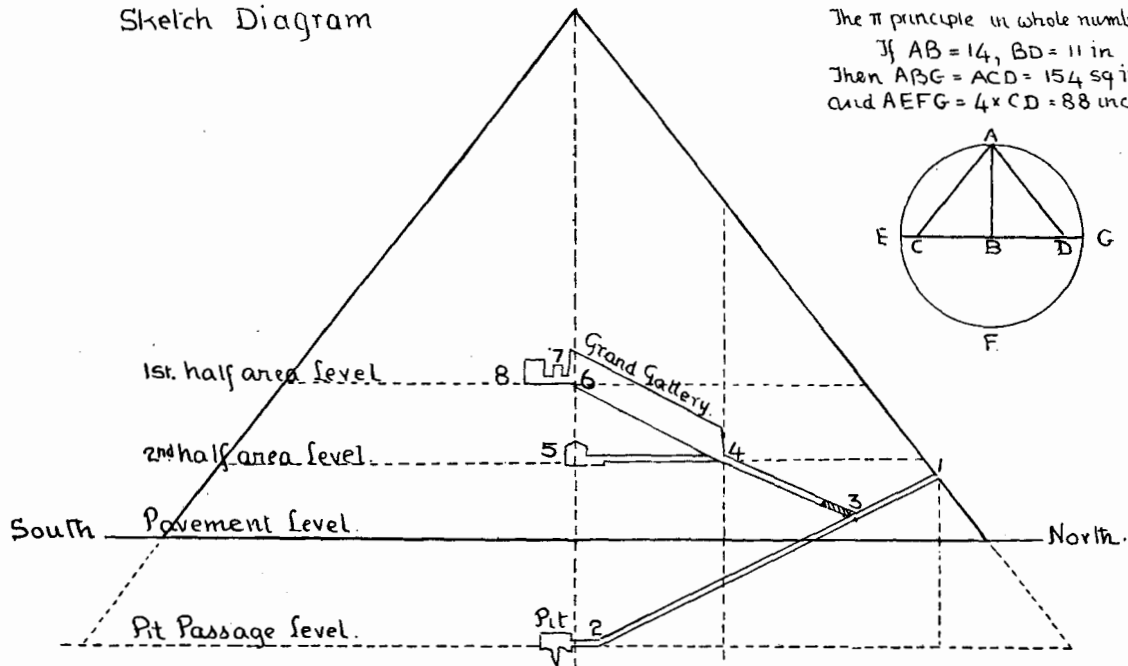
The accuracy of the survey is limited by its admitted margins of error.   Its absolute accuracy as evidence depends on the value of the four principles of construction.

The language of number was certainly an ancient method of expressing thought.   The revival of this method is still in the pioneer stage.

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*Published by Marshall Press, Ltd., Milford Lane, Strand, W.C.2.   Price 6/-.

Sketch Diagram

The π principle in whole numbers
If AB = 14, BD = 11 in
Then ABG = ACD = 154 sq in
and AEFG = 4 × CD = 88 inches

1st. half area Level

2nd half area Level

South — Pavement Level — North.

Grand Gallery

Pit Passage Level.

Pit

1. The entrance.
2. The S End Descending Passage.
3. The intersection Point & Plug.
4. The S End Ascending Passage.
5. The Queen's Chamber.
6. The Step.
7. The Antechamber.
8. The King's Chamber

The chronology of the Bible is a matter of the right interpreta
tion of a few passages which are capable of more than one mean-
ing.   No one can at present establish beyond question that his
own interpretation is consistently correct throughout.

Can evidence built on such foundations be convincing ?
Naturally not ; for " God does not coerce faith—the evidence
for the supernatural is just short of the coercive."   God's order
is faith, then knowledge ; as Peter said : " We have believed,
now we know "—not now we know, therefore we believe.

DISCUSSION.

The Chairman, Rev. CHARLES W. COOPER, drew attention to the
question which had been raised in the paper as to whether the
symbolism of the Great Pyramid was of Divine or pagan origin.
The essence of the latter theory, as he understood it, is that the
Pyramid is a pagan tomb.   Strangely enough, that is the view set
forth in the British Museum Guide Book (1930), page 291.   To his
mind all available evidence goes to prove conclusively that it was
neither built nor ever used as a tomb.

The entrance to the first ascending passage was entirely closed
by the granite plug, built into the structure during construction,
proving that the upper chambers were never intended to receive the
dead.   Again, the nature and state of the lower empty chamber,
with its topsy-turvy form, consisting of a ceiling built in orderly
fashion and a floor of chaotic formation, prove at once that the
tomb theory is untenable.   If any additional proof were needed, it
could be found in the fact that this Pyramid has a perfect system of
ventilation which is contrary to all laws and practices for preserving
the bodies of the dead.   The only rational view is that so marvellous
a structure, built over 4,000 years ago, embracing so many
astronomical, geometrical, and other facts, in complete accordance
with modern scientific knowledge, can be nothing less than a building
with a symbolism, the origin and significance of which is Divine.

The Chairman further pointed out that it was of special interest
to listen to the findings of a scholar, whose conclusions, that this
Pyramid had a Divine significance, had been reached through a
channel of knowledge such as is possessed by very few, viz., the

significance of numbers.   The paper may therefore be regarded as of special value, as being an additional evidence that this Pyramid has a Divine message for this generation.

In the course of the discussion which followed, Mr. Cooper remarked that it was very striking that Lieut.-Col. Kenney-Herbert had, by the study of numerics, come to the same conclusion as Mr. David Davidson with regard to the dates of the Great War (1914–18).   He also inquired as to the reason why the writer of the paper assumed that later dates, based on the same evidence, should be regarded as forbidden speculation.

Mr. Cooper also referred to the use of the British inch as equivalent to the unit of measurement used in the actual construction of this marvellous monument of antiquity.   He drew the inference that the message of the Pyramid was intended for the nation possessing the same unit of measurement.

Mr. H. W. BRYNING said :   From my knowledge of Piazzi Smyth's work on the Great Pyramid, I cannot but feel that he was Divinely guided to adopt an earth commensurable unit to interpret the true mathematical ratios that were enshrined in its structure ; so that the wise should understand it to be a witness to the Lord of Hosts in these days, when the truth of the Bible has been challenged by modern criticism.

Without this unit, which he saw would have been the original Sacred Cubit, the measurements that he took such pains to secure at the site would have been of no value.   But when he saw that a cubit measuring 25·025 inches was the ten-millionth part of the earth's semi-axis of rotation, and found that the conversion of British inches into " pyramid inches," at the ratio of 1·001 British inch to one Pyramid inch, rendered the solution of the problem possible, he obtained most of the knowledge that is now available for interpreting the Divine Message to man in a language that can be understood by the people of any nation.

However, he encountered much opposition, and some of his critics could not accept his value for the Sacred Cubit, alleging that the unit of length, or " Scale " upon which the dimensions were worked to, should be found in the structure to support the assumption of

a Pyramid inch. It was then that the most remarkable discovery was made by one of the readers of his book. For he mentions in his Third Edition, that Capt. A. U. Tracey, R.A., suggested that the " boss " on the granite leaf in the ante-chamber supplied the evidence of such a scale in a Pyramind manner, for it is five inches broad and projects just one inch from the surface.

Further investigation showed that the centre of the boss is eccentric in its position, being just one inch from the centre of the ante-chamber, and 25 inches from the groove in the east wall of the chamber in which it is fixed.

Further evidence of the Builder's Scale, or 25-inch Cubit, was found in the Queen's chamber through the eccentricity of the only feature in that room. I refer to the " niche " with a gable top in imitation of the slopes of the ceiling of the chamber, where the perpendicular distance between them is just $25 \cdot 025$ inches.

Now it should be evident that such confirmation which was attested by Dr. J. A. S. Grant, of Cairo, and Mr. Waynman Dixon in 1874 and 1875, before the Third Edition went to the press in 1877, cannot be called in question. So that Colonel Kenney-Herbert is justified in accepting the Pyramid inch as being equal to $1 \cdot 001$ British inches.

Before concluding my remarks, I should like to say a few words upon the philosophical revelation on the Pyramid chambers. The Queen's Chamber appears to point to a people who ceased to ascend, spiritually, after the Crucifixion of the Lord Jesus Christ ; because the level path to the chamber takes off the place where the Diagram indicates the date of the Nativity.

The King's Chamber suggests to me the protection that is offered to God's people in the " Last Days," and, therefore, supplies the last prophetic date in world history. *See* Isaiah xxvi, 20, where it is written,

> " Come, my people, enter thou into thy chambers and shut thy doors about thee : hide thyself as it were for a little moment, until the indignation be over past.
>
> " For the Lord cometh out of his place to punish the inhabitants of the earth for their iniquity : the earth also shall disclose her blood, and shall no more cover her slain."

Lieut.-Col. A. G. SHORTT said : I would like to make a few remarks on this paper.

It is doubtful if the builders had any knowledge of longitude. Every Egyptian pyramid was placed at the edge of the cultivated arc as far to the west as possible in accordance with the universal cult of " the West."

I cannot agree that the π ratio in the Pyramid was, as Petrie thinks, 22 to 7. It can be definitely said that they made it 3·14159 or 3·1416.

The lecturer says that the ancients had no system of numbers. The Egyptian hieroglyphics had a complete system on a decimal basis—*see* Guide to British Museum Egyptian Collection, pp. 266–7. He underrates also their accuracy, although he pays tribute to it at the end of Part I. They were so accurate that it is difficult to see how it can be maintained that they dealt in whole numbers. In angular measurement also it is the same. The angles of the base are correct to within 15 seconds of arc.

The connection of the Pyramid with numerics, therefore, appears unjustified, and, in any case, a few selected measures unconnected with each other applied to the numbers of Biblical texts are not convincing.

Frankly, I was disappointed in the paper. A distinction is drawn between the two kinds of cubit, and no attempt to get down to the core of the subject. The question of who Khufu was, and how and why he built this particular Pyramid is not touched on. Yet there is more evidence about the builder and his religion than is generally recognised.

Lieut.-Col. MOLONY said : Our lecturer says on page 3, " The proof of the inspiration lies in the prophetic chronology delimited by the graph."

I take this to mean that he does not claim that the mathematical truths embodied in the Pyramid are any evidence of Divine inspiration. In this I agree, for those truths, though difficult to arrive at by pure mathematics, are easy to get by practical methods.

As regards the prophetic chronology on page 6, he gives five cases of its agreeing with pyramid measurements, but he only defines

the first two.   The other three are presumably given in full in his book to be published very shortly—but we now have to criticise the paper, not the book.

He says at the foot of page 8, " The evidence rests on three foundations," but that all " in the present state of our knowledge are open to question."

On page 8, with pyramid measurements which he claims were inspired, he mixes up seven measurements which correspond to the gematria of Hebrew and Greek texts.   Now the Great Pyramid existed in Moses' day.   Are we asked to believe that Almighty God dictated those texts so that their gematria might agree with the existing pyramid measurements ?   One cannot help suspecting that, if one made a list of pyramid measurements, and set it alongside another of text gematria, a number of coincidences might be claimed.

My difficulty lies in believing that God inspired anything in this heathen pyramid.   If He *did*, the usefulness of such inspiration cannot be compared with the usefulness of predicting the 70 years' captivity in Babylon, still less with the messianic predictions ; and with this the lecturer will doubtless agree.

Mr. G. BREWER said : The subject brought before us this afternoon by Col. Kenney-Herbert in his excellent paper is full of scientific truth and symbolic teaching.   He has shown that the design, shape, and construction of the Great Pyramid, both external and internal, present such remarkable coincidences that any unbiassed mind must be convinced that they are the result of far-reaching and settled purpose.

It is said to be the oldest, largest and most substantial stone monument ever erected by man, and of the seven wonders of the world known to the ancient Greeks, is the only one still standing above ground.   That such an erection, computed to contain 5 million tons of huge square stones, should have stood for about 4,000 years, revealing geometrical perfection and symbolising in its external and internal measurements truths connected with this earth and its relation to the sun and other heavenly bodies ; the chronology of human history, and an outline of God's purpose as revealed in Holy Scripture, is indeed wonderful.

The question naturally arises, who built this wonderful structure ? That it was planned and erected under Divine guidance, as the opener has affirmed, would appear to be self-evident.

Among the companies scattered from the plain of Shinar after the confusion of tongues, were the descendants of Mizraim, one of the sons of Ham, who appear to have settled in Egypt, soon forgot God, and fell into the bestial worship of which all their monuments and records testify. For nearly 400 years there is little reliable information as to their history, until the Fourth Memphite Dynasty, when the first monarch of this line was Senefru or Soris, and it was in the reign of his successor Khufu or Cheops, that, according to Herodotus, the Great Pyramid was built.

He procured his information from an Egyptian priest, and, according to him, Cheops closed the temples and forbade the Egyptians to offer sacrifices to their gods, compelling them instead to labour in his service in building the Pyramid. He stated that, during the reign of Cheops and that of his successor, who built the second pyramid—a period of about 100 years—the temples remained closed, and that the Egyptians so detested the memory of these kings that their names are not even mentioned. They commonly call these two pyramids after Philitis, one of the Hyksos, or Shepherd kings, who from Arabia or Palestine made a peaceful invasion into Egypt, and it was under the influence of Philitis that Cheops was constrained to build it. Thus the name of shepherd became an abomination to the Egyptians.

According to Herodotus, 100,000 men are said to have been employed for 30 years, and at the end of this time, Philitis and his people to the number of 240,000 left Egypt and went to Judea, where, Manetho says, they built a city and called it Jerusalem.

If Philitis built Jerusalem after the Great Pyramid, he must have been contemporary with, though much older than, Abraham, whose birth is supposed to have been about the time the Pyramid was commenced ; and about 50 years after its completion, we find the King of Salem, as Melchisedec priest of the Most High God, blessing Abram after his victory over Chedorlaomer. Some think that Philitis and Melchisedec were the same person, and that as head of the tribe or family and father of the race of which Abram was born, he would be priest of the family and dispenser of justice

among his descendants, in all probability the patriarch Shem, who was living at the time.

Shem, having no doubt been his father's chief assistant in the building of the Ark, would be well fitted to superintend the great work of building the Pyramid, the scientific structure of both having much in common.

The identification of the patriarch Shem, who had emerged in resurrection from the judgment of the flood, with Melchisedec is supported by the fact that no mention is made of any sacrifice being offered at his meeting Abram, a fitting type of Him, who is the Resurrection and the Life, and Who, having offered one sacrifice for sins for ever, became God's High Priest for ever after the order of Melchisedec.

The characteristics and position of the Great Pyramid would certainly seem to fulfil the prophecy of Isaiah xix, 19–20, that in the coming day, there shall be an altar to Jehovah in the midst of the land of Egypt, and a standing monument near the border thereof to Jehovah. The absence of the top stone would also seem to point to that stone which the builders rejected, one day to be manifested as the Head of the Corner.

Rev. ARTHUR W. PAYNE read the full passage dealing with the subject, Isaiah xix, 19–22, and then remarked that both an Altar and a Pillar were mentioned and seemed to be definitely distinct, neither of them being a Pyramid. Forty-three years ago he was both in and on the top of the Great Pyramid. During that visit to Egypt he met Sir Flinders Petrie. With regard to the *Pillar*, some had thought a reference was made to the Pompey's Pillar which is indeed at the border of Egypt.

The doubt as to whether the Pyramid was a Tomb or not seemed to be answered by its position among the other similar structures. The speaker then read Job iii, 13, 14 R.V. in that connection (" For now should I have lain down and been quiet ; I should have slept ; then had I been at rest; with Kings and Counsellors of the earth which built up waste places for themselves ' margin ' built solitary piles.").

He had seen much literature dealing with the question of the cubit and its link with the British inch ; but always there was some

slight fractional discrepancy ; and that discredited a Divine plan in
the Pyramid for God's mathematics are always absolutely accurate.
The finding of the record of Creation, the Fall, the Death and
Resurrection of the Lord Jesus, as well as the date of the end of
the Great War seemed fantastic.   He remembered reading Captain
Crossley's *Wonderful Numberer* on which he found the date of
the Battle of Waterloo and his own name in cryptic form on this
very Pyramid.   It seemed to the speaker better to study carefully
the prophecy of Isaiah and other Scriptures in the original than to
have the sad epitaph of Thomas Chatterton, who wasted his life
and energy " in the fabrication of a lie."

Mr. PERCY O. RUOFF said : There is sufficient material within the
scope of the lecture to refute its main contentions.   So far from the
position of the Great Pyramid constituting a *primâ facie* case for
identifying it with Isaiah xix, 19, this very passage makes such
identification quite impossible, for the Pyramid is not and never
was, either " an altar to the Lord " (which necessarily involves
sacrifices), or " a pillar."   Moreover, such a suppositional witness
is quite foreign to the methods of God's revelations given in the
Bible.

The lecturer speaks of the evidence of the Pyramid being given
in four ways (1) symbology of geometry, (2) the allegory of the
graph, (3) the language of numbers, (4) the chronology in design.
There can be little doubt that many structures other than the
Pyramid would give similar so-called evidence.   With a selected
basic measurement the Crystal Palace would doubtless give some
astonishing results along these lines.   Some years ago, when it was
claimed that from the Pyramid could be shown dates of important
historical events, a priest wrote to a daily paper demonstrating that
similar results could be shown taking as a basis certain measurements
in Westminster Roman Catholic Cathedral.

The most unsatisfactory part of the paper appears at the end
under the heading " Results."   It might be asked, why should it
be necessary to resort to " a multiple of the gematria."   It appears
to be a juggling with figures.   If a multiple is introduced to produce
certain results it looks as if the bare basic measurements are not
sufficient to provide evidence.   Indeed, it is recognized by the

lecturer himself that " all these foundations, in the present state of our knowledge, are open to question." Before venturing interpretations of the measurements, will it not be safer and more convincing to produce a scheme which has some semblance of reasonableness.

Dr. H. C. MORTON said : Perhaps the lecturer will be so good as to answer a question :—viz., How is it that the Pyramid unit is the British Inch, and that the coffer in the King's Chamber is a multiple of the British Wheat Quarter Measure ?   I remember also that it was put on record during Lord Wolseley's campaign in Egypt that, when the Egyptians heard our soldiers singing " For he's a jolly good fellow," they said that that was the Egyptian national anthem, or words to that effect.

About six years ago I spent some hours in the passages of the Great Pyramid, specially for the purpose of making some slight test of the proposition that the pyramid inch, up to the Great Step, represented for each inch one solar year.   One impression was made very strongly upon my mind, viz., that the workmanship was too rough for such small and exact measurements as an inch to a mile to have been intended.   So much of the passage ways appeared to have been hacked with a mighty mallet and chisel, and left rough. It seems so much more likely that any building intended for such exact measurements would be finished with carefulness and left smooth.

WRITTEN COMMUNICATIONS.

Mr. W. E. LESLIE wrote : The Pyramids are legitimate objects of archæological interest to a philosophical society such as the Victoria Institute.   Unfortunately, one of them is also the object of a cult. It is not for the Institute to follow the vagaries of that cult unless it be to point out the dangers of placing a pyramid, or the Egyptian Book of the Dead, in any way on a level with Scripture as a special Revelation from God.

The author believes that the Great Pyramid contains an allegory. He does so apparently on the strength of Isaiah xix, 19.   But this scripture speaks of a " pillar " and an " altar."   A pyramid is neither.   The only altar of witness mentioned in Scripture is that

which caused the trouble recorded in Josh. xxii. Had it been in the form of a pyramid it would not have been necessary to point out that it was not intended to offer sacrifices upon it !

In attempting to explain this alleged allegory, the author says, " it has been recognized that the circle symbolises the infinity of heavenly things, and the square the finality of earthly things. To square the circle is to restore the relationship between the spiritual and the material . . ." Recognised by whom, and, much more important, upon what evidence ? Again we read " The ancient philosophies recognised a spiritual symbology in geometric shapes." But how do the superstitions of the dark ages help us ?

It is true that certain numbers are used symbolically in Scripture, but attempts to establish a spiritual arithmetic appear to rest on a slender inductive basis. The same may be said of gematria.

The Victoria Institute has an Apologetic outlook. If any of the Pyramids can afford evidence of the truth of Christianity, by all means let it be produced. But it will require an objective treatment, and a strictness of argument which are unfortunately absent from the present paper.

Col. ARTHUR VAN STRAUBENZEE wrote : I have come to the following conclusions :—

(1) Isaiah xix, 19, given many centuries after the work was in existence, refers to a fulfilment recorded by Josephus, when Omar, the High Priest, asked permission from Ptolemy and Cleopatra to build a temple in Egypt like that at Jerusalem and to appoint Priests and Levites of his own nation (Jews). Thus we see how, at the time of the Nativity, the Israelites in Egypt had the light of truth, whilst the rest of the people suffered from spiritual darkness.

(2) God has seen fit to give us three ancient monuments of His existence and power.

A. The Sphinx.—It consists of the junction of a woman's head with a lion's body. This structure speaks of the Father. It instructs us how to read the heavens beginning with the Babe in the Virgin's lap, and finishing with the Lion of the Tribe of Judah,

B. The Great Pyramid.—Its message centres in God the Son. Shem, who was a believer, constructed it after the Flood. It

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symbolises the great fundamental " Rock of Ages," on which man must trust, or it will grind him to powder.   The exterior speaks of the Creator, while the interior witnesses to the Redeemer, the seed of the woman (sealed until these last days).

C. The Scriptures of Truth.—These testify of God as Spirit. They were given to Moses about six hundred years after the building of the Pyramid.   Was the latter God's principal witness in these six hundred years ?

(3) The late Colonel Garnier published a book on the Pyramid prior to 1900, in which he draws attention to 1906, 1913, and 1917, as being important dates.   Against the upward end of the Queen's Chamber he prints in his diagram the year 1959.   In the text he is silent as to what this might indicate.   May not some light be thrown upon the significance of this date by the fact that $1917+42=$ 1959 ?   42 is a number connected with Antichrist, the end of whose career is 42 months (6×7).   Six is the number which indicates opposition to the Divine Will, whose symbol is seven.   Forty-two young men mocked Elisha at the beginning of his prophetic ministry, an interesting sidelight on the spiritual significance of that number. It should also be noted that 1260 can be resolved into 30×42.

AUTHOR'S REPLY.

The discussion has raised a point : What is the exact force of the conjunctive vav in Isaiah xix, 19 ?   The dictionary gives a possible range of eight shades of meaning depending on the context.   These are :—and, but, because, that, to the end that, though, then, even. Which of these gives the true thought of the context ?   Is there to be " an altar *and* a monument, or an altar *even* a monument ? As the next verse, continuing the thought, begins " And *it* shall be " and not " And *they* shall be," it seems to me that the interpretation of the passage, adopted in the paper, is within the exact meaning of the wording of the original.

The next point is the true meaning of Matsebar.   Our A.V. translates it pillar.   The French Bible renders it monument.   The noun is derived from a verbal root meaning to set up or erect. Nouns derived from this root have a wide range of meaning, such as :—a handle, firmness, strength, a statue, a pillar, a monument,

an officer, a military post, a garrison. In Matsebar, therefore, we get the thought of a monument which is strong, solid, and able to resist. I am no Hebrew scholar, but I have not met any other word more suited to convey the idea of a pyramid than Matsebar.

I am inclined to agree with the Rev. A. W. Payne. I do not think that the witness of the Pyramid was designed for those who possess the Bible, though if we understand its meaning we shall profit thereby. The passage implies that Egypt in her distress will be encouraged by this monument to appeal to Jehovah.

Col. Molony accuses me of not proving my assertions. How could I compress an argument involving some 80,000 words into the 4,000 or 5,000 words allowed to each paper ?

Those who are interested in geometric symbology will find that " The Computation of 666 " throws considerable light on the subject.

In conclusion, I ought to add that I have never regarded the Pyramid as the peculiar possession of any particular cult. I have come to the conclusion that it does contain a Divine Message which Jehovah Sabaoth intends shall be read and understood in the latter days. Personally, I believe that the only way to solve the problem of the Pyramid is by using the Biblical significance of number to translate its dimensions into modern language.