THE

INTERNATIONAL

STANDARD

A MAGAZINE

DEVOTED TO THE DISCUSSION AND DISSEMINATION OF THE WISDOM CONTAINED
IN THE

GREAT PYRAMID OF JEEZEH IN EGYPT

SEPTEMBER, 1884

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INTERNATIONAL INSTITUTE FOR PRESERVING AND PERFECTING WEIGHTS AND MEASURES.

FOUNDED NOVEMBER 8, 1879.

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THE
INTERNATIONAL STANDARD

THE GREAT PYRAMID AN EMBLEM OF THE UNIVERSE.

Editor of THE INTERNATIONAL STANDARD—*Dear Sir:* When you mathematicians and physicists have reached the end of your tether you will find yourselves all securely moored alongside of the good ship that bears our apostles and prophets. There are more allusions to the Pyramid in the Scriptures than have been heretofore conceived. Whether the followers of Enoch reared it, either in anticipation of the period when the Pleiades should culminate at the same time that Alpha Draconis looked directly down the descending way, or in commemoration of a period much earlier, when the crossed urn of Aquarius Aristæs was on the meridian; or whether it was built under the direction of Joseph when he was Zaphnath-paaneah in Egypt, and in commemoration of the Pleiadic-Draconian period; one thing at least is clear. It was designed to be a figure of the universe; and as this could be completed only when God should become fully manifested in the incarnation of the supreme Son and his triumph over the rebellion of angels and men that sinned in paradise, so the pyramid would remain

unfinished for ages, a true frustum, though lacking little of its proper heighth. It is to be noticed that while an opinion prevailed that the pyramids were found displeasing to God, yet in Egypt tombs were frustra of pyramids; in India the temples take qualified pyramid forms; and even in distant Astec land they were frustra of pyramids, like the Egyptian tombs—all evidently showing that the universe was not yet perfected in the appearance and works of the incarnate God. Hence both temples and tombs and perhaps altars were anciently left slightly truncated until the epiphany of the Mediator should be realized in the open and severe defeat of the enemies of God and man.

The pyramid form to temples and shrines was probably chosen as an emblem of the divine stability, and of these one of the most perfect seems to have been that by the Euphrates that lightnings melted to glassiness and earthquakes shattered to the foundation near the coming on of the deluge that the Greeks of Hellas have named from Ogyges or Deucalion, from Helios or Perseus or Herakles, and the Alexandrians from Dardanus; others from Chronos, or Neptune, or Oannes, a corruption of the Hebrew Noah; the Sisuthrus, or Saturnus of the Assyrians as it comes to us in the Greek romances. Similar to this Bab-El, that Moses writes Babel, the Synchysis, or Confusion of the Septuaginta, because not divinely authorized, and therefore iniquitous, or a transgression, (Isa xxiv, 20), we find another, ascended by steps, at Cholula, in Astec land, and it is affirmed that others exist in the southwest of our American continent. The natives found here by the first Europeans affirmed that *their* ancestors had never used this for the purposes of divine worship, because pyramids had been found displeasing to the gods; a fact probably inferred from the divine visitation of the pyramid by the Euphrates, that was also heretical because reared of brick (Isa lxiv, 3), and not of more enduring stone. Many of our churches have pyramids upon their summits, and indeed our steeples are pyramids; and these are sometimes adorned with flames, probably to denote the presence in the sanctuary beneath of the pentecostal Spirit to sanctify and to save. In India for an emblem of the divine

stability they cut temples (sometimes whole groups of them) out of solid rock in a mountain side, and in that of Elephanta, near Bombay, there is, mounted upon pillars and the backs of elephants, at the entrance, a well-cut pyramid of granite 90 feet in perpendicular height.

As a pyramidal sanctuary is necessarily truncated for a place of sacrifice upon an altar, and perhaps of sacellae, or most holy places near it, so our Great Pyramid is found not yet pointed, but level at top, constituting it a true altar, without another or others with their sacellae, imposed still above; though this was rendered inaccessible from below by a smooth casing all the way down to the base, for the priest and the offering must descend upon this altar from heaven. Melchize-dek rules in that Jerusalem which is from above, (Jerushalem shel me alat Kimchi) and comes down upon the mount of his glory to make an eternal expiation for them that are sanctified. Hence in Isaiah (xix, 19), we have a memorial pile (matsebah) that is also an altar (misbech) within the land, (bethok erets) and may signify, and commonly does mean, what is within a certain area and near its border; (aset gebulah) the very position of the Great Pyramid itself, that is within the land of Egypt and near its western verge, as well as not far from its northern extremity by the mouths of the Nile.

But as the Great Pyramid is an altar nothing can be more appropriate than that there should be within its sides below indications that the true basis of the altar itself is in eternal and unbending rectitude, while the ways that creatures will take may also be described by appropriate signs. Hence in its structure are indicated the measures of the solar system, for even Proctor will own that he has found in it the years of the equinoxial precession, though he is not willing to allow that it is indicated by the diagonals of the base.

As to the interior, so far as known, no one at all acquainted with symbology will doubt that we have both the downward tendencies of created things to their own impulses, and the upward tendencies of minds divinely touched; whereto corres-pond the material vehicles whereby minds make known their presence; for as the diamond is pure carbon so the spiritual body

of Jesus is pure humanity cleared of its dregs and viler impulses, and as his has become, after passing through death, so shall be the bodies of his saints in the resurrection world. In Menu it is well said, "This terrible world is ever sinking down into ruin;" and the worshipers of Krishna Jaganath say that he burned off both hands in lifting up the earth when it was sinking down into hell, and so his misshapen idol of mystic emblems in Orissa has no hands. The downward way in the Pyramid, commencing at a certain elevation in the side toward the north, well represents the downward course of created things and of men, whether in masses or separate; for the course of the individual forms that of the crowd acting together in mass. Man's first condition is one of elevation; he is not a semi-brute just created upright in shape or developed from apes, though we will not dispute Darwin or any of his disciples who affirm that *they* are so developed, for it is not in nature impossible, though in times known to Natural History, every seed possesses its own body and hybrids never propagate. There is in Chaldee tradition the period of omroka, (markich) the expanse, the primitive chaos, when all kinds of strange forms were mixed to form men and other animals, and these brutigenae may have then had an ancestry quite as bruitish and as monstrous as they can desire. But the man that named animals on earth and the stars in heaven belongs to the historical race, and is our ancestor that received commission to treat apes and gorillas as his subjects and inferiors, and his natural elevation is well denoted by the elevation of the Pyramid entrance. But all history shows that man's course is downward, unless interrupted by divine influence; and so the first way in the pyramid leads downward to an unfinished chamber, with a possibility of continuing onward, none may say how far in utter darkness and in low places where there is no ascent.

But at a certain point another way springs upward, at first narrow; for the way of transgressors is not alone hard, though that of the just is hard only at the beginning, and it grows easier after we have proceeded a little way. This upward way leads toward an elevated place, where, upon the fiftieth course of masonry, opens the king's chamber, with its coffer, both

modules of just measures and weights. Here then is the object of the just man's way upon earth; he aspires to perfect justice and truth, and through some tribulation he shall enter the chamber of righteousness where he shall see the King in the beauty of holiness and be defiled no more with the influences of sin. At the entrance of the expanded way—the grand gallery—upon the 25th course, a level way leads to what is called the queen's chamber This seems properly to relate to that class whose life is partly spent in non-progression, after they have begun to ascend toward the region of perfect rectitude. This class is unfortunately large in every age. They do not turn *back*, but *aside*, which for the time is little better; but they may at any moment return and ascend the upward way, though to their cost and delay and the loss of that crown of glory which the persevering and the diligent acquire. Immersed in the cares of business or study they neglect the uninterrupted pursuit after excellence which characterizes the truly wise who will attain to perfect sanctity and the true knowledge of what is supremely excellent of the Deity himself as revealed in his word and providence on earth.

Were there space it might be well to note how numbers are used in the inner ways and chambers of the Pyramid; as these, used artificially by the ancients, conveyed moral ideas and constituted a kind of stenography at once convenient and intelligible. In the queen's chamber 5 prevails; and it stands upon the 25th course of masonry: 25 being an intense form of law,— (52); they who choose that false rest, and care less to ascend with the progressive toward the heavenly and divine, being under fear of the law while they delay to ascend toward the just, the pure, the unearthly. In the ascending way and the king's chamber we find 7 (4+3) the Deity, a Trinal Unity, perfected by the incarnation for purposes of manifesting himself to the senses no less than the reason of the intelligent creation. Then there is 8, the sign of a renewed life, the resurrection, etc, with other numbers not necessary here to enumerate. To such as lack familiarity with numbers we commend the Palmoni and Mystic Numbers of Rev. Dr. Mahan, after Brown's Ordo Saeclorum; and after these the sections on

Numbers in The Tripod, as published in the 'Heir of the World' for 1882–3.

They who neglect taking the upward way toward the king's chamber, and proceed far down the easier, but still confined, downward course, till they reach the verge of the chamber of sorrow—the unfinished opening below—find no way to return, because of the steepness, the closeness, and the crowd coming down ; but to these another way opens backward, somewhat steeper than that by which they ascended, and with extreme hardship they may reach the chamber of penitence, where they are confronted with an almost perpendicular ascent, that none can hope to overcome without help from above ; and at the summit of this passage there is the appearance of a rock covering recently torn away, leaving behind a simple fragment cemented into the mouth of the well-like opening ; and here they that are lifted out will find themselves at the foot of the grand gallery in the upward course toward truth and right, and happy are they if they be not seduced by love of ease to turn aside toward the queen's chamber of unrest.

Such, in brief, to one familiar with ancient symbols, are the interior ways and chambers of this amazing structure. But what correspondences are in it to Messiah and the Incarnation as revealed in the Divine Word ? This has been in part answered already when we have spoken of it as an altar upon which he—the true Phœnix—descends for the immolation of himself that the world below may be expiated and delivered from everlasting fear.* The completion of the Pyramid then would signify the triumphant close of the mediatorial enterprise on earth ; and this is the view customarily taken of it in the Scriptures at large. To this the author of the 118th Psalm looks forward when he says, " The stone that the builders rejected is become the supreme pinnacle." (rosh pinnah.) The builders set it at naught, not because they did not know its intention, but because they did neither wish that it should nor believe that it could be laid ; the hells had no faith in the doctrine of an incarnate God as Lord of the world ; but he becomes so at the end, when they have done what

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* Irrita perpetuâ solvent formidine terras. Virg. Eclogue iv, 14.

they could to shew it impossible: it is a divine work, and a marvel to creatures. In that most mystic vaticination of Zechariah (iv, 7), where he is contrasting divine with human plans—true with false measures—it is said, "What art thou O, great mountain? Plane art thou to Zerubbabel; but he shall set up the supreme stone thereof with shoutings of Grace! Grace! before it." The pile is level at top, but Zerubbabel—he that brings order out of confusion (babel)—is to finish it, as he has built it from the foundation (v, 9), and then shall they know that he is sent of God for his work—"it is the Lord's doing, and it is marvellous in our eyes." Some of the less informed have seen in "the stone that the builders rejected" the stone of Bethel, that the Jews named the foundation pillar of the temple, although it was used in the holy place as a stand for the censer when not in use; but its name indicates the possession of it to be essential to the existence of a legitimate temple or sacred enclosure, as it had been an heirloom in possession of some leading family of Jacob's descendants, from his time to the reign of Solomon. That stone was one of the six things that were wanting in the second temple, and it has been ever maintained in the west that Jeremiah brought it, with other sacred things, to Ireland, in the time of Eochaid at that period Herimon or Head King of that island, who married Tamar, a daughter of Zedekiah that came in the train of the prophet from the east, and was crowned above that stone in Tara, to the disparagement of another stone formerly used as a part of the coronation seat. That stone of Tara was long after removed to Scotland, and then, centuries later, to England, where it can now be seen below the seat of the coronation chair in Westminster Abbey. It has the appearance of a stone partly fitted for building purposes, but left unfinished, and is now very much dilapidated and nearly broken in half.* From its being thus left unfinished and apparently thrown aside as unnecessary in the building of a wall, some have conceived the notion that this is the stone the Psalmist had in view; but this is shewn to

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* Certain persons have said lately that this coronation stone is a piece of Scotch sandstone, and not like any stone known in Palestine. A skilful geologist, employed by Dean Stanley a few years since, could not determine to what class of stone it belongs; it is very old and dilapidated, badly fractured, with iron rings for handling.

be most unlikely, for the stone of Jacob was named a foundation pillar, while that in Ps. cxviii. is the supreme corner, the summit of a pyramid, and a pyramid in itself as to shape.   In Isaiah (xxviii, 16) it is said, "One shall lay in Sion a stone, a stone well proved, a precious corner stone, a founding securely established."   This stone is a pinnacle (pinnah) or summit; and St. Peter's paraphase (I., ii, 6) is clearer still if possible, while he condenses and shortens the text, "Behold I lay in Sion a supreme corner stone (lithon akrogonaion)   *   *   * he that believeth in him shall not be confounded."   This is the pinnacle of a prophecy in Zechariah (x : 4), and St. Paul refers to the same when he says, "We are built upon the founding of the apostles and prophets, Jesus Christ himself being the supreme corner, whereby the whole building fitly compacted together is become a holy temple for the Lord."   So again in St. Peter (I., ii, 7) : "The stone that the builders disallowed, the same is made the head of the corner"—*i. c.*, the supreme summit, as "the forest of his Carmel" for Carmel the fruitful, abounding with trees; "the body of this death" for this dead body.

There are other references to the same idea we have found in Ps. cxviii.   But by putting our conception of a corner stone as one in the foundation of a building for this constant summit stone of Hebrew usage, we have lost sight of the true sense of our apostles and prophets who had ever in view the completion of a pyramidal temple that cannot be ascended from below ; and when, by one offering, are perfected all that be sanctified it shall be used no more for offerings, but it shall be built up into a corner so sharp that no bird can rest upon it forever.

There are other but less distinct references to this pile in our Scriptures.   As among the Greeks a temple or place of oracles was at times a petra or stone,* so, in Hebrew, counsel (as strength and might, Prov. xl, 14: xxiv, 6) is a stone for duration and power of resistance.   Messiah is "the stone—the Great Counsellor—of Israel"; (Gen. xlix, 24) ; and "the princes of Judah" among the apostles (Ps. lxviii, 27 : 28) are "their stone" or counsel, and this, for an emblem of strength, must have been

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* Bryant I, p. 283.

pyramidal in form: a pyramid, in each case, is in the author's mind.

Thus the idea that the Great Pyramid is a figure of the universe to be completed in the advent and works of the divine incarnation is fully sustained, and is the only idea of it possible to an adept in oriental studies. Well has it been classed among the seven wonders, and its proposed completion is rightly named a marvel and wonder, the great wonder of time, divine, and not a human work. Hence, in Zechariah (iii, 8), Zerubbabel and his mates are "men wondered at"; they personate Him, and their work is his, whose name is "Wonderful, Counsellor, the Mighty God, the Everlasting Father, the Prince of peace."

To preserve this immense pile for use in these last days of severe trial to faith, and to secure its contents from the violence of 4,000 years of war that were to come upon the earth, the entrance to our pyramid was concealed and its upward way blocked with loose-lying rocks. These were removed, after forcing a way below, by the Saracens, and the way to the king's chamber laid open for future explorers; and now it stands revealed as a central depository of correct measures to an age that can use them and needs them, and a people that can protect them from the ravage of future Vandals. Hebrew England now holds and must continue to hold Egypt for purposes more divine than human; let England guard this relic of far off ages when "science" was real as one of her choicest spoils won in her progress to an empire as extensive as the globe itself; and this shall be her glory and her joy

ASAHEL ABBOTT.

THE ALTAR AND PILLAR TO JEHOVAH.

VI.

For the sake of preserving a clear and comprehensive view of our subject in its general proportions, let me here remind my readers of the five parts into which it is naturally divided—1st, The Altar to Jehovah; 2nd, The Midst of the Land of Egypt; 3rd, The Pillar at the Border Thereof; 4th, The Purpose and Significance; 5th, The Being to Whom Dedicated. These parts being mutually dependent upon each other, so that neither one can be treated particularly without general allusions to the others, I ought to have stated at the outset (and perhaps would have done so but for fear of shocking seemingly established prejudices beyond endurance) what I thought might be given me to show under each division, namely: under the first, that the Great Pyramid is like what the altars to Jehovah were in the land of Canaan; under the second, that "the midst of the land of Egypt" is identical in place with what was once "the midst of the garden" of Eden; under the third, that the Hebrew word translated "a pillar" ought to be translated "an image," as it is in several other passages, and here means the Great Sphinx; under the fourth, that the relation of the Great Pyramid to the Great Sphinx represents that of the earth to Leo, Virgo and Libra, and to the other signs of the Zodiac, as to a dial of the sacred chronology of the precessional cycle, in which it may be shown chronologically, as well as circumstantially, that the author of these two cotemporary monuments was Joseph, who substituted them for the tree of life and the tree of the knowledge of good and evil, to commemorate the brief sojourn of the church and the kingdom of the heavens in the Paradise on earth, and to prophesy their return to abide forever. Finally, I should have said that, under the fifth division of our subject, it might be given me to show that "Jehovah of Hosts," to whom the Altar and Pillar are "for a sign and for a witness in the land of Egypt," is THE SELF-EXISTENT

BEING; *essentially* the Divine Love and Wisdom; and *efficiently*, as the means to the end of their self-existence, the Universe of created existences, microcosmically represented in their one only perfect image and likeness, "their well-beloved and only-begotten Son," who, as the one only possible incarnation of "the fullness of the Godhead," constitutes the one only comprehensible Divine Trinity of the Father, Son and Holy Spirit, "from whom, through whom, and to whom are all things."

Of most of these propositions, if not of all, I may say to the majority of the readers of the INTERNATIONAL STANDARD, "Ye cannot bear them now;" but I trust you will bear with my endeavor to reduce them to the promised demonstration, until, in one or other of the two possible ways, "forbearance ceases to be a virtue."

I have still a good deal to say under the first division of my suject—the Altar to Jehovah. As a more scientific expression of the means by which the Great Altar of Sacrifice was converted into the Great Altar of Witness, I may say that the Great Pyramid was originally a treasury-stronghold, or mastaba, of the ordinary mastaba-angle of about 76°, and was converted into a monumental tomb, or pyramid proper, of the ordinary pyramid-angle of about 52° (or, more definitely, of its own exact π proportion, in which the angle is said to be 51°, 51′, 14,″) by such a superposition of masonry as was necessary to that purpose. If this statement be true, it is susceptible of demonstration. The supposition that a mastaba, in distinction from a pyramid, was a treasury-stronghold, in distinction from a monumental tomb, is supported by the following from 'Our Inheritance in the Great Pyramid:' "Besides the many early local traditions—which can hardly but have *some* foundation—of treasure having been deposited in the Egyptian Pyramids by kings who lived close after the flood, Colonel Howard Vyse and Mr. Perring (on pp. 45, 46, of the former's 3d vol. of 'Pyramids in Gizeh'), gave an account of a chamber in the great, terraced, and rather oblong Pyramid of Saccara, closed in the ceiling by a granite stopper, of the shape of what is employed in a 'stoppered' glass bottle of the present day, but of four tons' weight; and that peculiar chamber was confidently de-

clared by those authors to have been 'a treasury,' 'a secure
and secret treasury,' and one that had certainly 'never been put
to tombic use."—(Chap. xviii, p. 409).   This is a fair introduc-
tion to my idea that the Great Pyramid includes a great mas-
taba.   If this supposition be correct, it constitutes a legitimate
ground for inquiring whether it be not the true explanation of
the dual description—"an altar to Jehovah in the midst of the
land of Egypt, and a pillar at the border thereof to Jehovah,
for a sign and for a witness to Jehovah of hosts in the land of
Egypt."   Not "a pillar," but "an image," (the true transla-
tion) may refer to "the Ancient of Days," which Mr. J. Ral-
ston Skinner says means the Great Pyramid (see STANDARD,
vol. ii, p. 188) ; or it may refer to the "one like unto the
Son of Man," the description of which, in the Revelation, is
very like that of the Ancient of Days in Daniel.   But the ques-
tion of this application of our text cannot be answered in the
affirmative until the supposed duality of the Great Pyramid is
proved a reality beyond the shadow of a doubt, and in this
series cannot be properly discussed till we come to the 3rd
division of our subject, *The Pillar at the Border Thereof.*
Whether the Great Pyramid be dual or not, I am thoroughly
satisfied that the "altar" and the "pillar" are not one and the
same, but are one and inseparable, either by combination or by
harmonic relation to each other, the one "for a sign," and the
other "for a witness," memorial or monument to Jehovah,
through all generations.

Now, if the Great Pyramid be of the two-fold character which
I have ascribed to it, the fact must be discoverable in the struc-
ture itself.   The gables of the king's and queen's chambers
appear to be of the mastaba-angle, showing that these chambers
belonged originally to a great mastaba.   Moreover, the arch-
mason did not cover up his great mastaba with his more dis-
tinctive pyramid-masonry without indicating the latter in dis-
tinction from the former by the pyramid-angle of the anticlinal
stones over the doorway of the Great Pyramid, presenting the
grandest gable of all, to be revealed at the right time by that
necessary, though criminal desecration, the removal of the
beautiful casing-stones.   Still another indication of the concealed

mastaba, and this a direct one, may possibly be found in the entrance passage, not far from the imposing entrance. The mastaba-angle, theoretically traced from the northern base line of the Pyramid, may be found to cross the descending passage at the junction of the great notched wall-stone with the double course of wall-stones, on a line parallel with the sloping roofs of the chambers on their north side, and not extravagantly far from parallel with the line of the ascending passage and grand gallery. Should it be found to do so, it may be worth while to remove the outer stones of the Pyramid to the depth indicated, to discover evidences of the mastaba-surface, carefully marking the stones in their removal, and as carefully replacing them, with a view to restoring the venerable pile, in the good time coming, to its pristine beauty and perfection.

When the great mastaba shall have been thus discovered, confirming what I have said of the traditional recognition of the Great Pyramid under the name of the Great Tower, it may be thought worth while to remove the stones of the Pyramid, within a circumscribed area, down to the terminus of the northern and lower of the two air-channels of the queen's chamber, for the purpose of confirming the common-sense idea that these channels were for ventilation, to make the chamber inhabitable by the "queen," or by whoever else may have had occasion to take refuge therein in the straitness of a siege. We may then conclude also that the air-channels of the king's chamber originally terminated at the mastaba-surface, but that when the mortal remains of the man whom the king made treasurer and ruler over all the land of Egypt were laid in the granite sarcophagus in the king's chamber, the air-channels of this chamber were extended with the superimposed masonry to the surface of the finished Pyramid to allow an escape of the mephitic gasses engendered by the decomposition. Believing that the air-channels of the queen's chamber were for ventilation, so long as this chamber was serviceable as a place of refuge, I must believe also that the comparatively thin wall-stones of this chamber, by which the inward extremities of the channels were closed for the chamber's exclusive devotion to treasures sacred to the immortal dead, and by which they con-

tinued closed until their discovery by Mr. Waynman Dixon in 1872, were introduced simultaneously with the superposition of the masonry by which the outward extremities of the air-channels were closed.   By the internal and external stoppage of its air-channels, the queen's chamber was converted into a symbolic representation of "the house of Judah," the goats of the flock of the Good Shepherd, who has said of them that they "closed their ears, that they might not hear"; and by the extension of its air-channels to the outer surface of the Great Tomb, the king's chamber was converted into a symbolic representation of "the house of Israel," sometimes called "the house of Joseph," the people of whom the Good Shepherd has said, "My sheep hear my voice," and to whom He has so often addressed the distinguishing words, "He that hath ears to hear, let him hear."   The fact of the dead body in the granite sarcophagus will appear no objection to this significance of the king's chamber, when we remember the words of our Lord, "The hour cometh, and now is, when the dead shall hear the voice of the Son of God, and they that hear shall live."   The relation of this to the revival of "the dry bones of the house of Israel," before spoken of in connection with the transfer of the bones of Joseph from the "coffin in Egypt" to his "parcel of ground" in the midst of the dry bones of the slain in the valley of Shechem, is too obvious to need explanation.

According to the above speculations on the duality of the Great Pyramid, which I hope may be confirmed by the observations I have suggested, the builder of the Great Treasury-Stronghold was not the builder of the whole of the Great Pyramid, but must have left the design of the monumental part to be executed by Cephren, who survived him about 50 years.   It is possible, indeed, that on the death of Cheops the prime minister of Cheops and Cephren executed his monumental design in honor of the royal dead, but in view of the evidence that Cheops was interred elsewhere, it is not probable that he did so.   Of the actual fact of such a superimposed structure, and of a different hand in the execution of its design, there appears some evidence even in its orientation as compared with that of the ucture so imposed upon.   After showing that the primary

orientation was effected by means of the north star and the descending passage, Petrie says : "Considering, then, that the Great Pyramid core agrees with the passages far closer than does the casing, the inference seems to be that the casing was fixed by a re-determination of N. by the men who finished the building. These men had not the facilities of the earlier workers, and are shown by the inferiority of the later work in the Great Pyramid, to have been far less careful." ('Pyramids and Temples of Gizeh,' p. 126). If by "the Great Pyramid core" were here meant the part of the masonry extending outward from the "passages" to the mastaba-surface, and if by "the casing" were meant the part of the masonry extending inward from the Pyramid-surface to the mastaba, I could understand such a considerable difference between the orientation of the one and that of the other, the substantial core and the imposing shell having been constructed about 80 years apart, the one under the superintendence of the architect, the other only under the direction of his architectural design. To speak plainly, I think Jacob foresaw the great symbol of the Mediator between God and man only as Joseph was destined to leave it, a Step-Pyramid, with "the angels of God ascending and descending" its battlemented sides, representing the inductive and deductive movements of the Divine Love and Wisdom in the development and evolution of all things to and from the great First and Final Cause.

In a preceding article (No. IV) I accounted for the exceeding multiplication of pyramids· in Egypt on the principle that the conversion of a Pharaoh's treasury-stronghold into his monumental tomb, on the occasion of his death, necessitated the building of another for the treasury and defensive purposes of his successor. In this I think I was right, but slightly mistaken in saying that "in this way the multiplication of pyramids only ceased with the complete subjection of Egypt to her foreign invaders." There was this other limit to the possibility of additional pyramids—namely, the limited area of Egypt's dominion on the west bank of the Nile, as well as on the east. Near approach to the southernmost boundary of western Egypt, irrespective of the alternating Memphian and Theban dynasties,

compelled the reconversion of monumental tombs into treasury-strongholds, and the reconversion of these into those, by the alternate imposition of the one form of structure upon the other, causing successive enlargements with the alternating proportions of the pyramid proper and those of the mastaba. Evidences of this dernier resort of military necessity are seen in "the sixth dynasty pyramids of Sakkara," which Petrie says are of a much lower grade of ascent than the fourth dynasty pyramids of Gizeh, those being mastabas, and these pyramids proper. Of the so-called pyramids of Sakkara and Medum he says: "Both these mastaba-pyramids are also peculiar in having been repeatedly enlarged. In no case have successive enlargements been found in a true pyramid; but both these structures have been several times finished, each time with a close-jointed, polished casing of the finest white limestone; and then, after each completion, it has been again enlarged by another coat of rough masonry, and another fine casing outside of the former casing. This explains how readily the Medum pyramid was stripped into a towering form; there were the older finished casings inside it; as soon as the later coats were stripped off, the older surface was revealed again." ('Pyramids and Temples of Gizeh,' p. 148).

Now, in my estimation, this remarkable fact of the successive covering of a mastaba by a pyramid, and of a pyramid by a mastaba, in the case of the so-called step-pyramids of Sakkara and Medum, adds not a little to the reasonableness of believing that each of the three Great Pyramids of Gizeh includes a mastaba, the altar stairs of whose four sides were once builded upon in a manner suited to a military defence of the treasures within. On this theory, the vast height between the king's chamber and the apex of the Great Pyramid *par distinction* is easily understood without the necessity of supposing an undiscovered chamber in the midst. It is to be looked upon as purely monumental, and to this end microcosmic and macrocosmic in the highest possible degree in its grand superposition of masonry, Heaven's most significant means of converting the Great Tower into the Great Tomb, or the Great Altar of Sacrifice into the Great Altar of Witness, a memorial forever of the

life-long self-sacrifice, by which the architect became the most
perfect type of the incarnate Jehovah and Saviour of mankind that
the world has ever known.　And supposing the architect to
have inscribed this Great Memorial Altar with the name of the
Being to whom he consecrated it, we see the best of reasons
for this name having been revealed to Moses in the remarkable
language in the third chapter of Exodus : " And God said unto
Moses, I AM THAT I AM; and he said, thus shalt thou say unto
the children of Israel, I AM hath sent me unto you.　And God
said, moreover, unto Moses, Thus shalt thou say unto the chil-
dren of Israel, THE JEHOVAH ELOHIM of your fathers, the God of
Abraham, the God of Isaac, and the God of Jacob, hath sent
me unto you ; this is my name forever, and this is my memor-
ial unto all generations."　These words were addressed to
Moses " out of the midst of the burning bush," at "the moun-
tain of God " called " Horeb," in which was the cave where
Jehovah afterwards manifested himself to Elijah " in the still,
small voice."　I imagine Moses looking, with entranced vision,
from the burning bush and pyramidal mountain at the inscrip-
tion on the glowing face of the Great Pyramid, and hearing
Jehovah say of it, "This is my name forever," and of the
Great Pyramid, "This is my memorial unto all generations."
Moses was familiar with the inscription, but till then had been
ignorant of the meaning of it, as the Egyptian priests contin-
ued to be ; and he was not afterwards allowed to reveal more in
regard to it, and in regard to the altar on which it was inscribed,
than is recorded in the text, for the simple reason that the full
import of his message to the children of Israel was reserved for
the fullness of times.

From the midst of the burning bush the unconsumable Jeho-
vah said to Moses, "Certainly I will be with you ; and this
shall be a token unto thee, that I have sent thee ; when thou
hast brought forth the people out of Egypt, ye shall serve God
upon this mountain."　In fulfilment of this prediction, God
brought Moses from the Great Pyramid, which Mr. Skinner ex-
plains to be the " *Rock at, or out of Water,*" or the " *Water
out of the Rock,*" or what is meant by the word *Egypt*, back to
the Sinaitic Peninsula, or land of Midian, and stood "upon the

rock in Horeb," while from the cleft in its smitten side flowed the water of life for the thirsty people, of whom and of the rock Paul says, "They drank of that spiritual rock that followed them, and that Rock was Christ."—(1 Cor. x., 4.) "They were all baptized into Moses in the cloud and in the sea," because Jehovah, in a pillar of cloud by day and of fire by night, leading them from "the Rock out of the Water" to "the Water out of the Rock," led them due east, on the thirtieth parallel, through the baptismal font, to symbolize "the straight and narrow way that leadeth unto life," in contradistinction from the way by which their fathers went down into Egypt, symbolizing "the broad road that leadeth to destruction," from which the multitudes of mankind are to be saved through the instrumentality of "the chosen seed."

To return to the message of Jehovah to the children of Israel by the hand of Moses. It is easy to see that the phrase "I AM THAT I AM," or simply "I AM," is equivalent to *self-existence,* or *absolute being,* and that this is what is meant by the name "Jehovah," or, according to the Samaritans, "Jahvah," the most probable derivation of which is said to be "from JAH, the *Essence,* and HAVAH, *Existing.*" Whether this be the correct derivation or not, the name is that by which the children of Israel were thenceforth to recognize "the God of Abraham, the God of Isaac, and the God of Jacob," as the divine trinity which they were required to worship and serve, in distinction from that of the Egyptians, the worship and service of which they were required to abandon. By "the Jehovah Elohim of your fathers" is meant, according to literal translation, neither more nor less than *the Self-Existent Gods of your fathers;* and this implies the circle of Self-Existence handed down to us through the old philosophers, *i. c.,* "Cause, Means, and End," in the divine trinity of "Father, Son, and Holy Spirit," of which the Father is "the God of Abraham," the Son "the God of Isaac," and the Holy Spirit "the God of Jacob." In agreement with the first named relationship is the pre-eminently fatherly character of Abraham, as well as the meaning of his name, Abram, *High Father,* and Abraham, *Father of a Multitude;* in agreement with the second is not only the meaning of the name

Isaac, *i. c., Joy* ("for joy that a man-child is born into the world"), but also the singular fact of Abraham's sacrifice of his only begotten son and heir, under the symbol of a lamb, upon the altar on Mount Moriah ; and in agreement with the third relationship is not only the meaning of the name ¦Jacob, *i. e., Supplanter,* signifying the comparitively feminine character of this patriarch, in respect to his methods of successful competition with the predominantly masculine character represented by Esau, but also his exceeding spirituality, and his entranced and ecstatic conditions, in which "the Mighty God of Jocob" appeared to him in the form¦and character of "an Angel," reminding us of the omnipotence of the gentle and regenerating influences of the Holy Spirit, and of all those maternal and heavenly attributes which are so fitly symbolized by the dove. The Divine Son was, is, and ever will be the divine paternal means to the divine maternity, and is included in his beginning and end, none the less for being their most perfect embodiment, for the simple reason that the means is eternally and of necessity included in the First and Final Cause. Thus "the Gods" of Abraham, of Isaac, and of Jacob, are seen to constitute the Self-Existent Being, the triune Jehovah ; and seeing that this name was revealed to Moses, by a clear explanation of it, in order that "the Gods of Israel" might be "forever" distinguished from all "other Gods," how can it be otherwise than wrong to translate "Jehovah Elohim" by the words "LORD God," and to substitute "Lord GOD" for "Lord Jehovah," merely hinting at the true translations by underscoring "LORD" in the one case, and "GOD" in the other? To me, this persistent determination to suppress and circumvent a great and obvious truth, and that truth the most vital and salvatory truth of the Bible, is something astonishing.

But what about Jehovah's " memorial to all generations? " Is it his name, which he so impressively announced to the children of Israel? or is it his Great Memorial Altar, on which his name might have been inscribed? I take it to be the latter, because several memorial altars, besides this greatest of them, are spoken of in the Bible, while it is only the commentators who speak of a "memorial name." They say that the question,

"What is his name?" refers to his name alone, and that, therefore, his answer to it can refer to nothing else. But suppose the name to have been inscribed upon the Great Memorial, and that thereby Moses and the children of Israel were familiar with it without knowing its meaning : in this case, the "name" and the "memorial" were not one and the same, but one and inseparable, so that mention of either, to be in the highest degree intelligible, necessited mention of the other. By analogy with the altar named "El-Beth-el," with the one named "El-Elohe-Israel," and with the one named "Jehovah-Nissi," I now think that the inscription on the "Altar to Jehovah in the midst of the land of Egypt" was "JEHOVAH ELOHIM," rather than "SACRED TO JEHOVAH." And let me ask those who look upon the Great Pyramid as the Great Memorial Altar, "for a witness to Jehovah of hosts in the land of Egypt," how they can so regard it without believing, or at least admitting the rationality of the belief, that the inscription upon its pure white surface was the name of the Being to whom it was dedicated, and to whose attribute of self-existence, as symbolized in "the tree of life in the midst of the garden," it was "a witness," a "memorial to all generations?" Is not this vastly more consistent with their belief in the divine origin of the Great Pyramid than the notion that the inscription upon it was the modern "hieroglyph of *degrees, minutes, and seconds,*" recording some one or more of those mathematical and astronomical relationships which the architect had already recorded in the parts and proportions of the structure, external and internal, to be unfolded to their interior perception through the enlightening influences of the Spirit of Truth? The geometrical character of the Great Pyramid was sufficiently obvious to need no written indorsement; but in the physical sciences, even in the sublimest of them, men do but grovel, unless elevated by a high religious sentiment; and hence the appropriateness of the inscription, JAHVAH ELOHIM, or JEHOVAH ELOHIM—a name in which are just as many letters as in the motto, "ANNUIT CŒPTIS,"and as many as there are "signs of the times" in that circuit of the heavens which is alluded to in the mandate,

" Extol him that rideth upon the heavens by his name JAH, and rejoice before him."—(Ps. lxviii,, 4.)

Jehovah's message to the children of Israel through Moses, calling them from idolatry to the worship of himself, was re-echoed in the far off ages by David, in the words, " Thy name, O Jehovah, endureth forever; and thy memorial, O Jehovah, throughout all generations."—(Ps. cxxxv., 13.)   Here the "name" and the " memorial " are still more evidently distinct and yet most intimately related.   That the message was pro-phetic, as well as historic, we see in its allusions to the future, as well as the past.   It was as true of David's time as of that of Moses, and it is as true of our time as it was of David's. That it was a call from slavish idolatry, and that it was the very beginning of Israel's knowledge of Jehovah, is evident from this in Ezekiel: "Thus saith the Lord Jehovah :   In the day when I chose Israel, and lifted up mine hand unto the seed of the house of Jacob, and made myself known unto them in the land of Egypt; when I lifted up mine hand unto them, saying, I am your Jehovah Elohim ; in the day that I lifted up mine hand unto them, to bring them forth of the land of Egypt into a land that I had espied for them, flowing with milk and honey, which is the glory of all lands; then said I unto them, cast ye away every man the abominations of his eyes, and defile not your-selves with the idols of Egypt: I am your Jehovah Elohim." (xx, 5-7.)   It is remarkable in this passage that the lifting up of the hand, which is "a witness" or "memorial to all generations" of the faithfulness of the Almighty to his promises, is mentioned, in a painstaking way, just as many times as there are persons in the Divine Trinity, "the God of Abraham, the God of Isaac, and the God of Jacob;" and it makes me think that, in addition to the symbolization of. the Divine Trinity in the Great Pyramid, there may also be an allusion in it to the three "high places," *Aramæus, Ammosis, and Inaron,* the first built by Joseph, the second by Moses, and the third by Aaron, (See STANDARD, vol. ii, pp. 26, 27) ; for Joseph said to his brethren, "God hath made me a father unto Pharaoh;" Moses referred to himself as a type of the Son of God in the words, "Jehovah thy God will raise up unto thee a Prophet from the midst of thee,

of thy brethren, like unto me;" and Aaron was "the mouth," the voice, the breath of Moses, reminding us of the words of our Lord, "When the Spirit of Truth is come, he shall guide you into all truth ; for he shall not speak from himself, but what things soever he shall hear shall he speak ; and he shall declare unto you the things that are to come. He shall glorify me ; for he shall take of mine, and shall declare it unto you."

In Daniel vii., 18, the words translated "the Most High" in the text, are in the margin translated, "*high ones, i. e., things, or places.*" They refer to the Divine Trinity, under the symbol of the three Great Pyramids of Gizeh, do they not? The *Most* High, who is also called "the Highest," is JAH, the essential divine, *i. e.,* the Divine Father, and certainly appears to be sometimes spoken of under the symbol of the highest of the three great Pyramids ; as we see in the words, "He that dwelleth in the secret place of the Most High, shall abide under the shadow of the Almighty. I will say of Jehovah, He is my refuge, and my fortress: my God ; in him will I trust."—(Ps. xci., 1, 2.) In the 9th verse of the same psalm, David says, "Because thou hast made Jehovah, which is my refuge, even the Most High, thy habitation, there shall no evil befall thee, neither shall any plague come nigh thy dwelling." Of the same import is the first verse of the Psalm entitled, "A prayer of Moses, the man of God," which says, "Jehovah, thou hast been our dwelling place in all generations."—(Ps. xc.) It apparently refers to the one great "Memorial unto all generations," as that on which was the name pointed out and explained by Moses to the children of Israel in Egypt. Indeed, in this very inscription, "Jehovah Elohim," the Egyptian priests, by a perversion not altogether strange, may have read their own Hermetic trinity of "End, Cause, and Effect," under the names of Isis, Osiris, and Horns, when they said to Herodotus that it signified "the number of radishes, onions, and garlicks eaten by the workmen ;" for these plants had a sacred significance in the eyes of the Egyptians, by virtue of which the eaters of them symbolically appropriated the divine attributes ; somewhat as in the unfermented bread and wine of the passover Christians

symbolically appropriate the body and blood of the Lamb of
God, the divine wisdom and love of their risen Lord.

The Great Memorial is also called after the name inscribed upon
it, *i. e.*, "Jehovah," by the prophet Hosea, where he says of Jacob,
"Yea, he had power over the angel, and prevailed; he wept,
and made supplication unto him: he found him in Bethel; and
there he spake with us, even the Jehovah Elohim of hosts;
Jehovah is his memorial."—(xii., 4, 5.)   The memorial here
mentioned can hardly be mistaken for its name, and can, there-
fore, hardly be mistaken for the name of the Being memorized
by it.   Remembering that Jacob wrestled with the angel in vain
for his name, though successfully for his blessing, and that
Bethel was the place of Jacob's prophetic vision of the great
stairway from earth to heaven, with the Jehovah Gods of Abra-
ham, of Isaac, and of Jacob speaking to him from the top of it,
the statement of Hosea that "there he, even the Jehovah Elo-
him of hosts, spake *with us*," and that "Jehovah is his memor-
ial," becomes very significant.   It suggests "our inheritance
in the Great Pyramid."   The plain inference is, that the name
for which Jacob prayed in vain was revealed to the builder of the
Great Step-Pyramid of Gizeh, to be inscribed by his direction
on the finished pyramid, the Great Memorial Altar, and that
the builder was Jacob's heir to the vision, with all the divinity
and universality involved in the elaboration and embodiment of
it.   If it be said that the Almighty announced himself to Jacob
as "Jehovah, the God of Abraham thy father, and the God of
Isaac," and that Jacob is reported as saying, "Surely Jehovah
is in this place and I knew it not," I reply that we are to under-
stand such statements of Moses (if they are his) in a manner
consistent with his report of this express declaration of Jehovah
to himself, "I appeared unto Abraham, unto Isaac, and unto
Jacob, by the name of God Almighty; but by my name Jeho-
vah was I not known to them."—(Ex. vi, 3.)   It is commonly
thought that the place where Abraham sacrificed the ram in-
stead of his son he called "Jehovah-jireh," to comemorate the
fulfillment of his answer, "My son, God will provide himself
a lamb for a burnt offering:" but the Hebrew of "God will
provide" is "Elohe-jireh," not "Jehovah-jireh;" and this leads

me to suspect that the name Jehovah, wherever it occurs previous to Ex. iii., 15, was surreptitiously introduced by some over-zealous transcriber of the time of Ezra, in the supposed interest of monotheism. The name is absent from all the poetically inspired utterances of the book of Genesis, because with these the transcriber did not dare to interfere. In Jacob's death-bed inspiration, following his invitation, ''Gather yourselves together, ye sons of Jacob, that I may tell you what shall befall you in the last days,'' he makes mention of '' the mighty God of Jacob,'' of '' the God of thy father,'' and· of ''the Almighty,'' all in the blessing pronounced upon Joseph : but not once in the entire prophecy does he name the name of Jehovah ; and why not except that it had not been revealed to him ? The inference is, that if it was revealed to aybody before Moses, it was revealed to Zaphnath-paaneah, ''which in Coptic signifies *a revealer of secrets, or, the man to whom secrets are revealed.''* ''The good will of him who dwelt in the bush '' was shown to Moses in ¸the revelation of his everlasting name in connection with his ''memorial unto all generations ; '' and· for this good will Moses blessed Joseph, showing, I think, that we may bless him for '' our inheritance in the Great Pyramid.''

<div align="right">J. W. REDFIELD.</div>

OUR NATIONAL MOTTO—''*E PLURIBUS UNUM.''*

To those who have a mind to observe the distinctive characteristics of our Nation which mark the difference between it and the other nations of the earth, and who can discern something of the deep significance of the symbols adopted at its beginning to set forth its high purpose and mission, there comes a growing conviction that more than human wisdom directed that little company of men in the choice of emblems that should fitly represent this Nation among the nations of the earth.

In the Bible are these words written by the prophet Amos (Amos iii : 7) : '' Surely the Lord GOD will do nothing but he revealeth his secret unto his servants the prophets.''

Therefore, with confidence, we may look into his word to find from whence came this people, and what he has said concerning them.

Let us take our national motto, " *E pluribus unum,*" whose meaning is, of many, one : because, this people is *one* GREAT NATION, composed of MANY INDEPENDENT NATIONS or States, confederate.

Let us compare this with what God said to Abram, and see if it may not be that the United States is the nation and many nations promised to him ; and, if so,. then God's people Israel, and heirs to the inheritance promised to him and to his seed.

There are many writers, to-day, in our own country and abroad, who are asserting that England is Israel, the "great nation and company of nations"; but, knowing we came of the same people, and are a great nation, they seem to be of necessity compelled to allow us some place, and by tracing the birthright promise down to Joseph's two sons, they find Ephraim to be the greater, and Manasseh the smaller, and have assumed England to be Ephraim and the United States to be Manasseh, claiming the greatness of the blessing given to Abraham as England's alone.

Let us begin with Gen. xii, and examine carefully, and see what God says: "Now, the LORD had said unto Abram, Get thee out of thy country, and from thy kindred, and from thy father's house, unto a land that I will shew thee, and I will make of thee a great nation, and I will bless thee, and make thy name great ; and thou shalt be a blessing, and I will bless them that bless thee, and curse him that curseth thee ; and in thee shall all families of the earth be blessed."

Again (Gen. xvii), "When Abram was ninety years old and nine, the LORD appeared unto Abram, and said unto him, I am the Almighty God : walk before me and be thou perfect, and I will make my covenant between me and thee ; and will multiply thee exceedingly. And Abram fell on his face : and God talked with him ; saying, as for me, behold, MY COVENANT is with THEE, and thou shalt be a father of many nations, neither shall thy name any more be called Abram (High Father), but thy name shall be called Abraham (Father of a multitude), for

a father of MANY NATIONS have I made thee, and I will make thee exceeding fruitful, and I will make nations of thee; and kings shall come out of thee, and I will establish my covenant between me and thee, and thy seed after thee, in their generations (their literal seed) for an EVERLASTING COVENANT, to be a God unto thee, and to thy seed after the and I will give unto thee, and to thy seed after thee, the land wherein thou art a stranger, all the land of Canaan, for an everlasting possession; and I will be their God."

It is afterward affirmed to Isaac, in these words, (Gen. xxvi :3) : "Sojourn in this land and I will be with thee, and will bless thee ; for unto thee, and unto thy seed, I will give all these countries ; and I will perform the oath which I swear unto Abraham thy father, and I will make thy seed to multiply as the stars of heaven, and will give unto thy seed all these countries, and in thy seed shall all the nations of. the earth be blessed."

Afterward it is reaffirmed to Jacob, in these words (Genesis xxviii), "I am the LORD, God of Abraham thy father, and the God of Isaac: the land whereon thou liest, to thee will I give it, and to thy seed: and thy seed shall be as the dust of the earth; and thou shalt spread abroad to the west, and to the east, and to the north, and to the south " (this spreading abroad was not accomplished at the time the twelve tribes dwelt in Canaan). " And in thee and in thy seed shall all the families of the earth be blessed, and behold, I am with thee, and will keep thee in all places whither thou goest, and will bring thee again into this land : for I will not leave thee until I have done that which I have spoken to thee of."

(Gen. xxxv, 9–12), "And God appeared unto Jacob again, when he came out of Pana-aram, and blessed him; and God said unto him, Thy name is Jacob; thy name shall not be called any more Jacob, but Israel shall be thy name ; and he called his name Israel (*i. e.*, Prince or God). And God said unto him, I am God, Almighty ; be fruitful and multiply : *a* NATION and a COMPANY OF NATIONS shall be of thee, and kings shall come out of thy loins ; and the land which I gave Abra-

ham and Isaac, to thee will I give it, and to thy seed after thee will I give the land."

In after years when the time drew nigh that Israel must die (Gen. xlviii), "Jacob said unto Joseph, Now thy two sons Ephraim and Manasseh, which were born unto thee in the land of Égypt, are mine." And Israel stretched out his right hand and laid it upon Ephraim's head who was the younger, and his left hand upon Manasseh's head, guiding his hands wittingly: for Manasseh was the firstborn, and he blessed JOSEPH, and said, God, before whom my fathers Abraham and Isaac did walk, the God which fed me all my life long unto this day, the angel which redeemed me from all evil, bless the lads and let thy name (Israel) be named on THEM, and the name of my fathers Abraham and Isaac; and let them like fish grow into a multitude in the midst of the earth, and when Joseph saw that his father laid his right hand on the head of Ephraim, it displeased him; and he held up his father's hand to remove it from Ephraim's head unto Manasseh's head, and Joseph said unto his father, Not so, my father; for this is the firstborn; put thy right hand upon his head, and his father refused and said, I know it, my son, I know it: he also shall be great: but truly his younger brother shall be greater than he, and his seed shall become a MULTITUDE OF NATIONS."

Before the children of Israel went out of Egypt, God said to Moses (Ex. iv: 22), "Thou shalt say unto Pharaoh, "Thus saith the LORD, Israel is my Son, even my firstborn."

After they were delivered from Pharaoh and led through the wilderness into the land of Canaan, and had become a kingdom in that land, in about 975 B. C., they·were divided and became two kingdoms—the kingdom of Israel and the kingdom of Judah. While in this condition, in about 740 B. C. came Tiglathpileser and took Naphtali, Reuben, Gad and half tribe of Manasseh and carried them away into Assyria. In about 719 B. C. the King of Assyria beseiged Samaria, and carried Israel away into Assyria. "So all the house of Israel were carried away into Assyria," from thence they were to be scattered and spread abroad.

As they are not remaining in that land, the next thing is to

find whither they are gone. God had said by the Song of Moses (Deut. xxxii: 26), "I will scatter them into corners, I will cause the remembrance of them to cease from among men,"— and by the prophet Amos he said (Amos ix: 9), "I will sift· the house of Israel among all the nations, like as corn is sifted in a sieve yet shall not the least grain fall upon the earth." Here is a declaration that though their nationality should become lost to the world and to themselves, yet God would know every one of them ; and we find he had appointed a place where they should be found.

By Jeremiah he says, (Jer. iii : 10-12.)" Go, proclaim these words toward the north, and say, return thou back-sliding Israel, saith the LORD ; and I will not cause mine anger to fall upon you, for I am merciful saith the LORD, and I will not keep anger forever : only acknowledge thine iniquity, that thou hast transgressed against the LORD, thy *God*, and hast scattered thy ways to strangers under every green tree, and ye have not obeyed my voice, saith the LORD." His word by Isaiah concerning their return gives another point of location : (Isa. xlix)—" Behold these shall come from far, and lo, these from the north and from the west" and again by Jeremiah: "Behold, I will bring them from the north country, and gather them from the coasts of the earth." Hear the word of the LORD, O ye nations, and declare it in the Isles afar off, and say, He that scattered Israel, will gather him, and keep him as a shepherd doth his flock."

Follow these directions from Jerusalem, where the prophets stood, and it brings you to the northwest coasts of Europe and the British Isles.   ·

In the blessing pronounced by Moses upon JOSEPH, he said: (Deut. xxxiii : 17.)—" His glory is like the firstling of his bullock, and HIS HORNS are like the horns of the unicorn, (or as Smith's dictionary gives it—the wild ox or buffalo ; and refers to the two tribes which sprang from one—*i. e.*, Joseph ; as two horns from one head) with them (the horns) he shall push the people (banished Israel) together (not apart) to the ends of the earth, and they (the horns) are the ten-thousands of Ephraim, and they are the thousands of Manasseh."

Those writers who have claimed that England is Ephraim, and United States, Manasseh, have separated the people belonging to the two sons of Joseph:—1st, by a great ocean; 2nd, by a different form of government; 3d, they have not observed the blessing of Jacob, as given in Gen. xlviii: 16, when he said, "Let my name (Israel) be named on them, and let THEM grow— as fishes do increase—into a multitude in the midst of the earth."

In the words of an American statesman, this nation is "a clasp between Europe and Asia" (Charles Sumner, Aug. 1, 1853). In the language of an American historian, it is "a Colossus that will grasp Europe in one hand and Asia in the other."—(Draper's "Civil War in America," vol. 1, page 183.)

The same writers, to show that Ephraim and Manasseh are to be separated, say that England (as Israel) was to lose United States (as Manasseh), and quote Isa. xlix: 20, "The children which thou shalt have after thou hast lost the other, shall say again in thine ears, 'The place is too straight for me: give place to me that I may dwell;'" thus appropriating to England the comforting words spoken by the LORD to Zion.

This xlixth chapter so full of love and tenderness to the lost people of Israel, does not forget Zion—their ancient land—their desolate heritage, and addressing her, under the figure of a woman mourning for her children that are lost, who in her grief has said, "The LORD has forsaken me, and my Lord has forsaken me," reminds her that, strong as is her love and compassion for her children, there might be a possibility of a mother forgetting even her own son; then in these very touching words the LORD says to her, "Yet will I not forget thee: Behold, I have graven thee upon the palms of my hands: thy walls are continually before me, thy children shall make haste, thy destroyers and they that made thee waste shall go forth of thee, the children which thou shalt have after thou hast lost the other, shall say again in thine ears, 'The place is too strait for me, give place to me that I may dwell.'"

We have heard the word of the LORD saying, "He that scattered Israel will gather him;" but has he told us how, or by whom? Yes! To Israel, who have been "pushed together

to the ends of the earth," who are lost and know not they are Israel, are addressed these very impressive words, "Listen, O Isles, unto me, and hearken ye people from far: the LORD hath called me (meaning Jesus) to bring Jacob again to him."

And when Jesus appeared on the earth we hear the response from his lips (Matt. xv: 24), "I am not sent but to the lost sheep of the house of Israel." (John x.)—"I am the good shepherd: the good shepherd giveth his life for the sheep. My sheep hear my voice, and I know them, and they will follow me.

And for this purpose the gospel of Jesus Christ was preached by Paul to the Gentiles, that the "glad tidings" might reach Israel. He says (Rom. xi.), "For I speak to you Gentiles, inasmuch as I am the apostle to the Gentiles; I magnify my office—if by any means I may provoke to emulation my flesh and might save some of them; for I would not, brethren, that ye should be ignorant of this mystery, lest ye should be wise in your own conceits, that blindness in part is happened to Israel (the Jews) until the fulness of the nations be come in, and so all Israel shall be saved: as it is written, 'There shall come out of Sion the Deliverer, and shall turn away ungodliness from Jacob."

The gospel can be traced in its course to where God located Israel—in the isles and coasts of the earth; whence arose great persecutions on account of the opposing elements in the nations with whom Israel was mixed.

In the process of time came the fulfillment of this message to Israel by Jeremiah (Jer. l.): "Remove out of the midst of Babylon, and go forth out of the land of the Chaldeans, and be as the he goats before the flocks." (I read in a paper not long ago, "Farmers use goats to protect their sheep from dogs; two goats can drive away a dozen dogs, and two are about all a farmer puts in with his sheep; as soon as a dog enters the field at night, the goats attack him, and their butting propensities are too much for the dog, who soon finds himself rolling over and over: a few repetitions drives the dog from the field.")

Our Pilgrim Fathers are well identified by this peculiar ex- pression of he goats, for they prepared the way before the flocks that have ever since been coming.

Now, let us turn to Daniel and see what God has made known to him about his chosen people. We find (Dan. ii), "In the days of those kings" (represented by Nebuchadnezzar's image) "shall the God of heaven set up a kingdom, which shall never be destroyed." Is there such a kingdom which has for its government the principles of God's law?

We see the great nation composed of the many nations; and we are sure God brought this people here. We have seen those men assembled in Independence Hall, Philadelphia, signing their names to the Declaration of Independence, appealing to the Supreme Judge of the world for the rectitude of their intentions, and for the support of this declaration, with a firm reliance on the protection of Divine Providence, mutually pledging to each other their lives, their fortunes and their sacred honor," owning no king but Jesus Christ, who said, "All ye are brethren."

We find still further that Daniel was told, "Many shall be purified, made white, and tried." Now, if this Nation comprises the "many," were not our father's purified? Were they not even called Puritans? Did they not come here that they might have liberty to worship God? Is not this pure? And were they not made white in the framing of the Declaration of Independence, when they say, "We hold these truths to be self-evident, that all men are created equal; that they are endowed by their Creator with certain inalienable rights; that among these are, life, liberty and the pursuit of happiness."

Jesus said, "One is your Master, even Christ, and all ye are brethren." Is not this principle white? and was not our nation tried on this very principle in the late civil war? Verily we are the "many," and we are the one great nation—the kingdom set up by the God of heaven: not that we are ALREADY perfect.

Jesus said (Matt. xiii), "In the time of the harvest the Son of Man shall send forth his angels, and they shall gather out of His kingdom all things that offend and them which do iniquity; then shall the righteous shine forth as the sun in the kingdom of their Father."

And as we are the many nations in one, we must be the ten thousands of Ephraim and the thousands of Manasseh—the house of Joseph.

Jacob in blessing Joseph said: "From thence is the shepherd, the stone of Israel."

And the LORD says by Isaiah, "Cyrus is my shepherd" (Isa. xlv). "I will loose the loins of kings to open before him the two leaved gates, and the gates shall not be shut." (May not this refer to the two granite leaves in the Great Pyramid?) "And I will give thee (Israel) the treasures of darkness, and hidden riches of secret places, that thou mayest know that I, the LORD, am the God of Israel."

<div align="right">EMILY DAMON.</div>

METROLOGISTS OF THE INSTITUTE.

Four years and a half ago, to-wit., the 17th December, 1879, this Society took the first step toward "Perfecting our Weights and Measures." At that time a paper was presented by Mr. George C. Davies, under that title, in which a review of our tables of weights and measures was given, and an attempt made to bring order out of chaos by striking out all the superfluous terms, that like barnacles had been engrafted on the system by the countless ages and peoples making use of the inch as its unit of measure. Not only were these superfluous terms to be stricken off, but it was recommended to drop entirely all measures of capacity, and sell all commodities by the pound of 7,000 grains. It was also recommended that Troy and Apothecary weights be dispensed with, and the grain made the unit of weight, and the inch the unit of measure. Should these suggestions be carried out we should have one set of measures—namely, the inch, foot, yard and mile—for all dimensions, whether linear, superficial or solid; one set of weights, namely, the grain, pound, kentle of 100 ℔s., and ton of 2,000 ℔s. for all commodities, whether solid, fluid or dry; one set of measures for land, based on the unit above given —being the same as now used, as all such measures have since the beginning been subjects of record, and cannot be disturbed.

The different multiples and subdivisions of the terms given above may be made either by eighths, quarters and halves as now, or decimally, as may be preferred—though it was recommended that the pound should be divided into 10 parts instead of 16 for the convenience of accountants, as well as ordinary traders.

Carrying out a system based on these suggestions the student would have only the following terms to charge his memory with, namely:

For extension—inch, foot, yard, mile, - - 4
" weight and capacity—grain, pound, kentle, ton, 4

In all, - - - - - 8

The multiples and subdivisions being always given in simple arithmetical terms known to every school boy or girl in the land. This would seem to be about as simple a system as could well be devised, and with the advantage of being based on our well known system. It has not, however, met with favor from the metrologists of this Society, or of the International Institute —most of whom seem to think that an ideal system must be evolved from the old, forgetting apparently that the mission of the Society is to "preserve and perfect the weights and measures in use." They seem also to forget the measures of the Pyramid were limited to two—the inch and the cubit—though authorities differ very greatly as to the length of the cubit. As it was probably a multiple of the inch, it would be well for improvers to limit themselves to the original unit.

There seems also to be a strong conviction in the language of the Chairman of the Society's Committee on Weights and Measures that *"We must have a decimal system"*—"or be compelled to adopt the metric system." Now it will be unnecessary to discuss this question, for it seems perfectly clear that no power on earth will compel the Anglo-Saxon race to discontinue the use of the inch, foot, yard, mile, or the grain, pound and ton—none of which are decimal to the others. It may consent, and has practically so consented for many years to divide these quantities decimally. If this be true, and I think the experience of ages will bear out the assertion, what is the

use of bothering our brains about a decimal system, based on our old units, or any other?

Again, the metrologists of the Society seem to think that a separate name must be had for each separate multiple or sub-division of the unit, hence we have an array of new terms such as podes, decapodes hectopodes, kilopodes and other "heathen Greek" terms requiring a special effort of the memory to re-call. These special terms are the *bête noir* of our present system and are answerable for the confusion now existing. Besides, what is the use of these special terms, anyway? With the eight terms given above, namely, inch, foot, yard, mile—grain, pound, kentle—which may be dispensed with—and the ton, the dimensions, weight or capacity of any physical substance or extent can be easily or accurately determined to the minutest fraction, and in language taught daily in every school-room in the land. If gentlemen wish to try their hands in devising a system of weights and measures, let them start out with a new unit and build up a new system upon that. They will be much more likely to achieve success in that direction than in attempt-ing to decimalize the old, and, too, with the almost certain result that their fine drawn theories will be entirely ignored by the people.

Could the Society realize the fact that the easiest and shortest way to dispose of the French metric system will be to me-morialize Congress to make the Anglo-Saxon weights and measures above named the legal and only standards of the country in the way proposed in a paper read before the Society in 1882, and published in the second volume of the Society's Proceedings, and enforce their memorial with all the social in-fluences of the Society, I think we should cease to hear of the French metric and its zealous advocates, for we have the people with us.

GEO. C. DAVIES.

PYRAMID STUDIES.

Mr. Flinders Petrie persists in maintaining that the base side (9068.8″±.65) at the *pavement* level is the only real one intended to be monumentalized by the architect. He ignores the four horizontal and larger squares below it, severally indicated most plainly by the four socket levels, so carefully placed at different depths upon the fundamental diagonals. Now, of course, with all other true Pyramid-students, I believe that the sides of the four squares indicated by the sockets are of immense importance, and am disposed to believe that in the several articles published in the last numbers of the STANDARD we are placed upon the right track for their due interpretation. Nevertheless this *pavement* base length must not be overlooked. It was, as a line, perhaps the most notably defined base of the whole monument. Can it be $\frac{28500}{\pi} = 10000 \times \frac{1}{2}(5.7) \div \pi$? Is it 100 times the coffer's length? or whence was it derived? It certainly must have a simple π relation.

Be this, however, as it may, I am pretty well convinced that the *displacement* of the entrance axis east of the central vertical plane of the Pyramid is a direct π function of this pavement base line. This displacement is given by Petrie as 287.0 ± .8 E (page 55). Again, on page 65, where he locates the axis of the south end of the ascending gallery, in the same plane, he gives it as 187. ± 1.5 E. Divide now 9068.8 ±.65 by 10 π and you have 288.66 +, a quantity close enough to indicate that the *theoretical* displacement is $\frac{1}{10}$ the pavement base $\div \pi$.

Again, Petrie gives the displacement of the end of the descending gallery south of the pavement base as 2907.3 ± .6, a quantity which looks like 9131.05 $\div \pi$.

The main point in all of these displacements is to get the true, theoretical function for the pavement base. The value in British inches is undoubtedly around about 9068. $\mp x$, and the main question, therefore, is, what the absolute form of the function is?

There is one other question about which I want to say a word. It is upon the little note published in the last STANDARD, over Mr. Dow's name, entitled, "Prove all Things."

Now, while Mr. Dow is manifestly correct in his conclusion that, so long as the Pyramid is what may be termed a π-pyramid, "the so-called 10 to 9 slope of the corners of the Pyramid is a falsity," it by no means follows that whatever the actual π slope may be, *it* is not an intended indication of the sun-distance. The nine on ten $(\frac{9}{10})$ slope is the closest possible approximation to the actual one which may be written in the fundamental numerals, and yields an astonishingly accurate (91,836,011. miles) value for the mean solar radius. The several arguments in favor of the height of the Pyramid being intended as a factor of the mathematical function of this solar radius remain in force whether the true slope be $\frac{9}{10}$ or something else.

Now, if the monument be actually built, as it undoubtedly is, in π proportions—*i. e.*, if it be so to speak, a π-*Ra-metron*—then the absolute slope along the arris lines is $\dfrac{4}{\pi\sqrt{2}}$. It is a noticeable fact that "Ahmes in his mathematical papyrus defines pyramids by their sloping height up the arris edge, and their diagonal of the base beneath that line." And this ancient and well informed authority lends credence to the form of function adopted by the elder Petrie in his pyramidal expression H. (10)[9] for this required distance.

Let us examine this matter a little closer, and, to do so, designate the height by H, the base by B and the diagonal by D, a π-pyramid now being under consideration. Taking now the usual British inch formulas we have

$$B = \frac{180^2}{2\sqrt{\pi}} = \frac{16200}{\sqrt{\pi}}$$

$$H = \frac{180\,A}{\sqrt{\pi}} = \frac{32400}{\pi\sqrt{\pi}}$$

$$D = B\sqrt{2} = \frac{16200\sqrt{2}}{\sqrt{\pi}}$$

$$\tfrac{1}{2}\,D = \frac{8100\sqrt{2}}{\sqrt{\pi}}$$

Hence the ratio of H to ½ D, or the slope up the arris line, is therefore accurately

$$\frac{H}{\frac{1}{2} D} = \frac{\dfrac{32400}{\pi \sqrt{\pi}}}{\dfrac{8100 \sqrt{2}}{\sqrt{\pi}}} = \frac{4}{\pi \sqrt{2}} = \frac{2 \sqrt{2}}{\pi} = .900316315 + \text{ on } 1$$

$$\text{or} = 9.00316315 \dotplus \text{ on } 10$$

Hence Mr. Petrie's formula for the sun-distance becomes

$$S = \frac{32400}{\pi \sqrt{\pi}} (10)^{9.00316315 +}$$

$$= (5818.622870 +) (10)^{9.00316315 +}$$

But from the principle of logarithmic powers and roots the

$$\text{Log. of } (10)^{9.00316315 +} = \text{logarithm of } 10 \times 9\,00316315 +$$
$$= 1. \times 9.00316315 +$$
$$= 9.00316315 +$$

and therefore the number corresponding to the logarithm 9.00316315 + is the factor by which, if we multiply 5818.622870 +, we shall get the Pyramid sun distance!

Now, the foregoing considerations strike me as remarkable in several ways. In the first place we have obtained an absolute form for the Pyramid sun distance, to wit:

$$S = \frac{32400}{\pi \sqrt{\pi}} (10)^{\frac{20 \sqrt{2}}{\pi}}$$

In the second place we find that the only practicable way of solving the equation, or rather of reducing the function is by *logarithms*, and hence are justified in assuming *that the architect also understood their nature thoroughly,* for the very formula we have obtained demands, as its only determinable solution, that 5818.62″, etc., shall be multiplied by the number whose logarithm is 9.90316315 + !

Again, I want to call your attention to the several dimensions indicated upon the eastern base of the Pyramid. The fundamental base line is undoubtedly indicated by the S. E. socket level, and seems unquestionably to be 9139.871254 + $=$ $\dfrac{16200}{\sqrt{\pi}}$ in terms of the British inch, with which unit it may have been foreseen the measurements were eventually to be made. Now Petrie's measured eastern socket line (*i. e.*, from S. E. to

N. E.) seems also to indicate the distance 9131.05 in British inches. The former of these lines is horizontal, as are all the courses of the Pyramid; the latter or socket line is inclined. This latter, therefore, cannot be intended for recording any-thing but a *ratio*. Actually it is the year number (365.242+) multiplied by the cubit number (25.) And hence if we take the horizontal distance 9139.87125 + and divide it by 365.242+ we shall obtain the true earth-commensuric length of cubit in terms of British inches 25.024 + and the ratio of 25:25.024+ calculated out so far as we are *sure* of the year number, or *vice versa*, will give us the true increment to 25 British inches, by means of which we have the "*sacred cubit*" undoubtedly regis-tered in the fundamental horizontal line (distance due north from S. E. socket, to its intersection with the N. E. diagonal at same level).

It is a pointed fact that the E. socket line 9131.05= (365.242+) × (25), no more and no less. It is also pointed that 25. *British* inches is *not* a clean function of the polar axis.

It is, however, equally apparent that $\dfrac{9139.87125+}{365.242+} = 25.0241+$

is a clean value, to wit: 1-10000000 of the polar axis, and as this distance, and not the socket line—which *slopes*—is intended for absolute measure, I cannot but feel that our British measur-ing unit has been only foreseen as a means towards the real end in view. I have seen no argument yet advanced which goes to establish the British inch as commensuric with the *Polar axis* in grand round numbers. Now, it is clearly the *Earth*, and not the Pyramid alone, that we are after, and I must reiterate, what I have often, with Mr. Clark, called attention to before, that the simple determination of a series of formulæ which, depending upon the 360° division of the circle (undoubtedly a *false* and Babylonish method), and coming out in British inches, does not and cannot establish earth-commensurability. If these things are so, and if we obtain a complete set of formulæ, running all through the Pyramid, in terms of the 360° circle and the British inch, then every dimension so resulting must be reduced to the earth-commensuric inch indicated so clearly in the fundamental base, or "*we are left.*" I really think it would

be well to read again the questions I propounded in the letter published July, 1883. Question 7 is the pointed one in this connection. If the answer to it is in favor of the British inch, which yields for the socket line $365.242 \times 25. = 9131.05 +$, then the reply to it is: This inch is not earth-commensuric—its relation to the polar axis is not 1-500,000,000th, but is an irregular number, and the architect failed to grasp the terrestrial dimensions *accurately*.

Now I believe he *did* grasp them accurately; but that he did so in the geometric cubit $25.024 \pm$ British inches. I have not seen a single reply to the objections against the 360° division of the circle. Has the Cleveland branch of the Institute anything to advance in its favor as a *correct* geometrical and numerical subdivision? If so I, for one, would like to hear the arguments.

Briefly, my present position is this: I believe that most all of these beautiful British inch formulæ are correct. But I believe also that each one of them must be reduced by the ratio of the earth-commensuric inch to the British inch, in order to pass to and obtain *Earth* facts. I feel that a part of the wisdom of the architect, or else of the inspiration that guided him, was to arrange this monument so that when the time came for it to *be* measured it should be read *noticeably* in terms of the unit used, but point as noticeably towards the *real one intended*. Now this idea is in keeping with the past history of the monument itself. For I am beginning to believe that when this same mysterious monument was erected by Egyptians under Hyksos direction, its dimensions were laid out in still another measure. I do not believe that it was laid down in either British cubits of $25''$ or sacred cubits of $25.''024 +$ but in $20.''636 +$ cubits of Egyptian daily use. Everything seems to point me to this conclusion, to wit, that it was built in one measure, intended to be measured in another, and at length irresistibly designed to expose the *real truth* is still a third—the earth-commensuric cubit!

Take these ideas for what they are worth. They are founded upon pretty good premises, and truth will at length prevail; and view this matter as we will, we may be certain that who-

ever built the Pyramid has wrought far more wisely than he knew.

Yours, sincerely in the search of truth, and willing to accept it when it is proved, though it overturns all my ideas.

C. A. L. TOTTEN.

THE STRUCTURE OF THE BASE.

As a still further proof that the architect plotted the general plan and structure, and laid it out on the solid rock as a sort of trial plot of the triangulation and work to be done and embodying all the leading features of the future edifice, and as a guide to the builders, we may point to the well-known "trial passages" found on the east side of the Great Pyramid. They form a model of the Pyramid's passages, shortened in length, but of full size in width and height. They are, in fact, exact copies, and are simply "trial passages," to be used by the builders as models of the descending, ascending, and grand gallery passages.

Our object in this article is to supplement what has already been published in our last article to the effect that the general working plan plotted on the spot was a trignometrical arrangement of sines, cosines and tangents, such as is usually found in our common text books on trigonometry in relation to surveying and trial plotting a triangulation. We illustrated our statement with the following diagram:
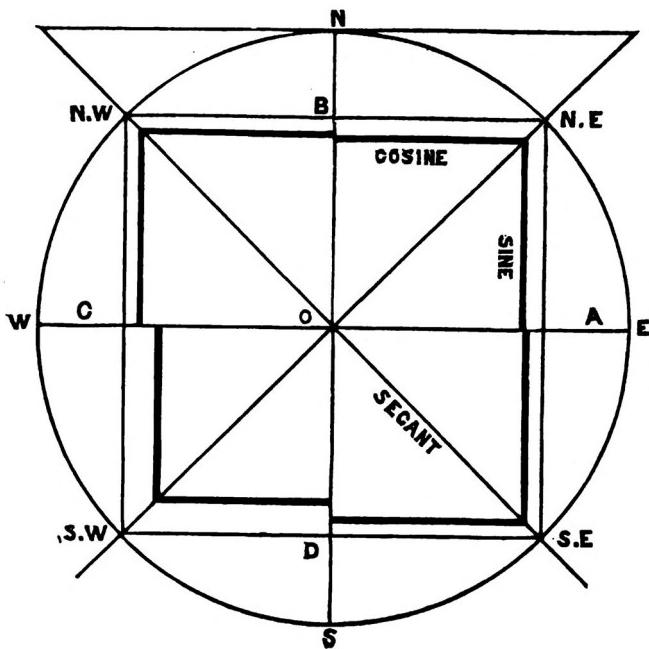
The rock cuttings in front of the Pyramid, on the east side, were in like manner plotted from accurate offsets, as may be seen by reference to Petrie's Plate III. There is good reason for supposing that the east side of the Pyramid was laid out in front of the base. The axis of the north trench is about 1086 inches on the ground from the east base of the Pyramid, and this is about the height of the grand gallery entrance on the sloping face. The axis of the south trench is about 1126 inches from base, and agrees with the height of the queen's horizontal passage. Whilst the outer edge of the great basalt pavement is about 2150 inches from the base, and agrees with the height of the king's room on the sloping face of the Pyramid.

The axis of the north and south trenches may represent a tangent to a circle equal to the core base of the Pyramid, in general terms. But, as we see from the diagram, the core lines are not identical on the east side, nor in the alignment. Therefore, the tangents to the core base cannot be the same. Ac-

cordingly, we find the north and south trenches have not the same axis. The south trench is a tangent to a circle nearer the finished base of the casing = 115 inches from the finished base, whilst the north trench is tangent to a circle more distant from the finished base = 165 inches. The difference in these tangents will be the difference in the thickness of the casing. And this agrees well with the results, as found by actual measurement. The casing averages, according to Petrie (pp. 43, 185), 108 thick at the base and about 33.7 at the corners.

This remarkable fact was noticed by Petrie in his recent work. He says: "The inner ends of the trenches are said to be points lying on the circle equal to the finished base of the Pyramid. The inner end of the north trench is nearest to the circle, being 5,782 from the Pyramid centre; the Pyramid height being 5776±6, or the radius of the base circuit 5,773.4. A line drawn through this point (inner end of N. trench, or N. tangent), to the centre of Pyramid, is at 103° 48′ 27″ to the face of the Pyramid, and is said to be parallel to the axis of the E. N. E. trench, which is at 103° 57′ 34″—a difference equal to 15 inches in the position of the trench end." This angle is complement to the angle of the vertex of the Pyramid, and would seem to stand related to this spot, for the angle of the vertex is 76° 17′ 31.4″, and its complement would be 103° 42′ 28.6″, or 51° 51′ 14.3″ × 2 = 103° 42′ 28.6″.

S. Beswick.

Strathroy, Ontario.

THE MEASURE AND THE POWER.

THE IMPERIAL BRITISH INCH.

The Imperial British inch is the basis of the two-foot rule; together these are popularly known as the inch and the twenty-four inch gauge. This inch is older than all history and all tradition; indeed there is strong evidence that it took its origin when the Great Architect stretched his measuring line upon *the void*. Its function, with that of the denominations raised on it, is to co-ordinate measures of *space* with those of *time*, and in this last it involves the idea of

LIGHT.

In historic time this inch has had the peculiarity of becoming, in continuous sequence, the property or belonging of *the current leading nationality* of the world.

THE EGYPTIAN OR HEBREW CUBITS.

(*a*) Take the π ratio (John A. Parker) of 20612 : 6561.

Taken as inches, then 20612 divided by 1000 gives 20.612 inches, and this was one of *the royal Egyptian cubits*. This cubit value is found in various ways: (1) The French made a great many measures of the rooms, passage ways, etc., of the catacombs of Osymandia. Gustav Seyffarth found a papyrus scroll in which the cubit measures of these rooms were recorded. " By the microscopic tests of Bidone and Plana the Turin cubit (so named because in the Turin Museum), is .523524 of the *metre* " (See Part Seven, p. 151, of Seyffarth's Contributions to the Knowledge of the Literature, Art, Mythology, and History of the Ancient Egyptians). On comparison Prof. Seyffarth found that these French measures answered to the specifications of the scroll in terms of this cubit. (2) The *metre* being 39.37079 B. inches, then this *cubit* was 20.611553 inches long—by trial of Prof. Rogers it is slightly larger, making this cubit some 20.61172 inches long. Thus the restoration of this cubit in British inches, compares with the 20.612 inches of this Parker π ratio, as

20.61172, showing a difference of .00028 of an inch in this length, or of .000013 shortage in the length of the inch. (3) From independent sources Sir Isaac Newton recovered this cubit as 1.7117 B. feet, or 20.604 inches; and it was this recovery which caused such great value to be assigned to the year 1717 of the Christian era in Great Britain.

(*b*) But if we raise a true proportion on this π ratio, as follows: 20612 : 6561 :: 64800 : 20626.4, then dividing this proportion by 1000 we have 20.612 : 6.56 :: 64.8 : 20.6264, where, in the *fourth* term, we find we have recovered another of the *Egyptian royal cubits*, as 20.6264 British inches. The so-called Nilometer cubit was recovered by Mr. Wilkinson as 20.625 British inches.

Thus we have from the peculiar *geometrical* relations of this proportion *a reason for* the origin of these cubits in terms of British inches, clearly showing the correction to be made on the empirical recovery of their lengths. So, also, we have a plain showing as to their relation and interdependence on each other. It will also be observed that the N. cubit, as 206264 *seconds*, is *radius seconds* of the circle of 360 *degrees*.

Upon application of these cubit measures to the various dimensions reported of the rooms, passageways, etc., of the Great Pyramid, especially the N. cubit, it is found that they fit so accurately as to disclose the architectural intention of the designer (See the various articles in this Magazine, by Mr. Charles Latimer and Mr. Dow). So clearly and convincingly is this shown by these gentlemen, that it may be said to be demonstration, and beyond peradventure.

The use of the Turin cubit is especially to be found in the queen's chamber ; that of the Nilometer cubit in the king's chamber. Mr. Flinders Petrie finds both of these cubits so closely, and so pointedly, that one would almost be led to suppose that he was well acquainted with the fact of their discovery, and their application in the Pyramid ; a quite probable suggestion, as this discovery was made prior to 1875, and has been quite widely published and disseminated.

Thus we may affirm that the Imperial British inch belonged to the Ancient Egyptian nation, the leader of the present

world's civilization. But it is found that the Hebrews had these identically same measures, and made use of them as the foundation, or substratum, on which to found that religious structure contained in the Sacred Books. Especially is it to be found in these books that the *laws and ordinances* arose out of constructions in masonry. As to this see Jeremiah xliii., 10, 11 ; xliv., 5 ; xxxiii., 25 ; X., 2, 3; also Revelations xxi., 16. The Hebrew nation has been the banner-carrier in the upward and onward march of humanity. It has had the especial office of preserving *unalterably* the letter of the Word of the Law containing the use of these measures.

THE ROMAN FOOT.

But multiply this ratio of 20612:6561 by $\frac{4}{5}$, and this product again by $\frac{4}{5}$.

The first product, as to 20612, gives a basis for finding the exact period of *a siderial lunation*, or 27 d., 7 h., 43', 3″, 47‴ 20⁗, "the *mean period* which the moon observes through all time."

The second product, as to 20612, gives a basis for finding the exact period of *the mean year*, or 365 d., 5 h., 48', 50″, 53‴, 6⁗. (See Parker's ' Quadrature,' first edition, pages 117 and 120).

The second product, as to 6561, however, is 11664. This, as inches divided by 1000 gives us 11.⁶⁶⁴ inches, and this was the Roman foot.*

Thus in continuous line of sequence we find the Roman nation in possession of this Imperial British inch as lying at the basis of her foot measure ; and, indeed, she was the successor of the dominating power in the world. It is to be observed that the measure of her adoption is derived from the same π ratio with the Egyptians and the Hebrews.

In calling attention to this it is very interesting and instructive to connect this origin with the following ratio of 20612:6561 :: 64800: 20626.⁴⁷ already given. Raise this proportion by multiplying it twice by $\frac{4}{5}$. While all that has been said above will make its appearance we shall have a further extension, in the

* See recovery of this measure as 11.⁸⁶⁴ British inches by Prof. Greaves, as noticed in 'The Great Pyramid' by John Taylor, page 24, *et seq.*

fourth term, of a product of 36669.$^{28008\underline{1}}$+ inches, or 3055.$^{\underline{713}}$ feet. The ¼ of this is 763.$^{\underline{243}}$ feet or 9167.$^{\underline{320}}$ inches, or, as per Howard Vyse, *the base side length*, between sockets of the Great Pyramid.

He gives this measure as 9168 inches. From the half of this base side length *deduct* its one-tenth, and there will remain 4125.$^{\underline{294}}$ inches, or the length of the descending passage way, which Col. Vyse gives as "about 4126 inches."

THE IMPERIAL BRITISH INCH AND THE DENOMINATIONS RAISED ON IT.

Succeeding the *Roman Nation* as the one, and only one, having a predominating power over the world's progress, is the *English speaking race*. And here, as belonging to Great Britain, we find not only this inch as the standard unit, but also a series of denominations of measures, as the *foot*, the *fathom*, the *yard* and the *mile*. Here seems to be the perfection of that system of measures made use of in primeval times to *interpret* the cubit construction of the Great Pyramid. For we find all these measures orderly placed in that work ; and that so as to work out a series of co-ordinating *time measures*.

Whether there is Fate and Destiny, or better, a Divine Providential care in thus connecting this origin and system of measures with the world's successive controlling powers, is a matter open to the speculation of those who may be pleased to go further in the matter than the bare recital of the facts. The latter is the only purpose of this contribution.

<div align="right">J. R. SKINNER.</div>

NOTE.—It may be noticed as to the Hebrews and the Egyptians that they seem to have been from a common Semitic stock Either was in possession of these measures, without priority, both having them from a common race stock or root.

CORRELATION OF ANGLO-SAXON MEASURES.

It has been demonstrated beyond reasonable questioning that Egypt, the most learned, most religious and most ancient seat of civilization, had a metrology founded upon correct knowledge of geometry and astronomy. How that knowledge was obtained we perhaps cannot say. That it belonged to the Great Pyramid builder is most certain. That the metrology there used was substantially what we use to-day may, we think, be proved to a very high degree of probability, if not mathematically and physically demonstrated.

But it more immediately concerns us to know what actual relation our metrology bears to the natural standard of measure? What correlation exists between our system and the nature, form and movement of the earth? So far as Pyramid discoveries go to establish true relationship between nature and Anglo-Saxon metrology, they are of value to our present investigation. To indicate somewhat the scope of our inquiry we begin with the following proposition, using Anglo-Saxon measures throughout.

PROPOSITION I.

If the number of degrees in a circle be divided by the number of hours in a day, and the quotient be multiplied by the number of feet in a mile, the result would be, in miles, ten times the earth's diameter at the Great Pyramid, that is, $\frac{360}{24} \times 5280 = 79200$.

Proof.—The longest equatorial diameter is 41852.864 feet (Clarke) which is in E longitude 14° 23′. In the longitude of Paris, which is not so far east by 12° 3′, the equatorial diameter ls 41852.695 feet. Hence the diameter at the equator decreases 14 feet for 1° of longitude. The Pyramid is nearly 17° from the longitude of the greatest equatorial diameter, therefore, the equatorial diameter at the longitude of the Pyramid is 41852.864—17×14=41852.626. The diameter of the earth at latitude 30° is .99917 of the diameter at the equator on the

same meridian, Hence the earth's diameter at the Pyramid is 418526.626 × .99917=41817.888 feet=7920.04 miles. In this first proposition are correlated by integral numbers, circular measure, time measure, linear measure and the diameter of the earth at the Pyramid.

PROPOSITION II.

The correlation of circular measure, time measure, linear measure and the latitude of the Pyramid is evidenced in the base lines of the Pyramid.

Proof.—One minute (1′) of longitude at the latitude of the Pyramid is 5280 feet.† This gives a parallel of latitude= 114048000 feet. The $\frac{1}{1000}$ part of the diameter of this circle is 36302.604 feet. The one-fourth part of the latter is equal to 9075.651 feet; laid out on the scale of 1 inch to a foot it is 9075.651 inches, that is $\frac{5280 \times 21600}{4 \times \pi \times 1000}$ = base side on pavement=9075.651 inches, or 440 cubits (20.62648). Mr. Petrie's computations from casing stones found on the pavement near the middle of each side, without any allowance for wear or form or finish is 9069.4 and 9069.5 for the N. and S. sides respectively. Forty inches lower than the level of the pavement is the level of the lowest (S. E.) corner socket. The N. E. corner socket is 11.4 higher than the S. E. and 9131 inches distant from it. It is conceded that the sockets are in the slope of the corners. It is also conceded that the angle of slope of the face sides is 51° 51′ 14″ nearly. At this angle of slope the N. face carried down to the level of the S. E. socket will give a *geometric* base side of 9131+8.8+=9139.8+. The difference between this geometric base side and the pavement base side is 9139.8—9075.6=64.2. One-half of this or 32.1 will be the horizontal distance inwardly that the face would extend in rising up from the geometric or S. E. socket level to the pavement base, and 32.1÷.7854 will give the difference between the levels of the two bases. It is 40.8 inches. Mr. Petrie, from actual survey computed the S. E. socket at 40. inches be-

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† Prof. Stockwell computes it at 5277.7. Other computations make it a little more. It is certain that the 1′ mile longitude is within convenient sighting distance of the Pyramid for a survey.

low the pavement. The difference of .8 between his survey and our correlation may arise from a slight change of levels in the past 4000 years. The displacements found in the interior certainly indicate that such a change is not only possible but probable.

The correlation goes beyond this. Heretofore we have demonstrated that the geometrical, not the pavement base side, is one ten-millionth of the best obtained computation of the earth's polar radius, multiplied by the number of days in the tropical year. We now proceed to a minute examination of the orientation of the Pyramid in terms of Anglo-Saxon metrology. It will be observed that by no other system of metrology is such a correlation possible.

Mr. Petrie's agrees with other surveys of the orientation of the Pyramid. It stands about 4′ west of north. The azimuth of the S. E. to N. W. diagonal, computed by Mr. Petrie from the outer corners of the socket, is 45° 4′ 13″±6″. There is no more accurately defined line in the entire structure. A square with this line for its diagonal, would have an azimuth 4′ 13″± 6″ W. of N. What does this azimuth signify, and how was it obtained? In a most valuable memoir on the secular variations of the eight principal planets, prepared by Prof. John N. Stockwell, and issued by the Smithsonian Institute in 1872, a a table of precession of the equinoxes is computed for a period of 16000 years. Forty centuries ago the annual precession was 49.406″. In five years it amounted to 4′ 7″, a very considerable angle and subject to accurate measurement. Neither four nor six year's precession will approximate 4′ 7″. Nor will five years' precession give this azimuth, outside of the 22d century B. C. The inference, therefore, that the azimuth of the N.W.-S.E. diagonal was the result of actual observations for a period of five years, to obtain the precession of the equinoxes, appears to be reasonable. Certainly the azimuth agrees with the astronomical fact, and if it was designed to read the precession, it reads the date of the Pyramid. The annual precession of the equinox 2170 B. C. ×5=azimuth of Pyramid.

Mr. Petrie tells us that there was an uncertainty in his determination of the socket sides averaging .65 inch on each side.

We may fairly infer on account of weather wear or abraisure of the sockets that this possible error of 6″ should be deducted from his measures rather than added to them.   In that case his 4′, 13″, ± 6″ would become 4′, 7″.

This appears to be reasonable evidence that the N. W.-S. E. diagonal, by its azimuth, records the equinoctial precession.   Is the precessional period as computed from the observations of the 22d century B. C., also recorded?   This period Prof. Stockwell computes at an average of 25694.8 years, with a variation less or greater by 2812 years.   Four thousand years ago the tropical year was 248 seconds longer than its mean period—that is, its actual length in the 20th century B. C., in mean solar days, was 365.242549.   One-fourth of 100 such days is 9131.0637.

(3) $\dfrac{\text{The tropical year 2170 B. C.} \times 100}{4}$ = east   socket   base

side (inches).

From Prof. Stockwell's table of the variations in the eccentricity of the earth's orbit we find that the eccentricity 2170 B. C. was .0182274.   Multiply this by $\frac{1}{1000}$ of the earth's polar axis and we have 9122.8 +.

(4) $\dfrac{\text{Eccentricity of earth's orbit 2170 B. C.} \times \text{polar axis}}{1000}$ =

north socket side (inches).   Take now a square having a side = to 9139.8 + inches, and with one corner resting in the S. E. socket let its diagonal pass through the corner of the N. W. socket.   On this diagonal as a base, and with formula (4) for the north side and formula (3) for the east side, construct a triangle with its apex in the N. E.-S. W. diagonal and the N. E. vertex of the triangle will rest on the N. E.-S. W. diagonal. By this construction we can obtain the value of the base of the triangle.   It is 12914.136.   This same line obtained from Mr. Petrie's survey is 12914.292.   The difference between the surveyed line and the line resulting from our correlation is ⅛ of an inch in nearly 13000 inches.   The double of this line is 25828.272, or 134 in excess of Prof. Stockwell's computation for the mean precessional period—that is, it is nearly half way between the mean value of that period and its greater extreme.

We do not doubt that the ancients had some accurate methods

of astronomical observation and computation. And we suggest that the trenches and basalt pavement on the east side of the Pyramid were constructed in order to make such observations from which to build the monument and also to lay it out by their own methods of civil engineering.
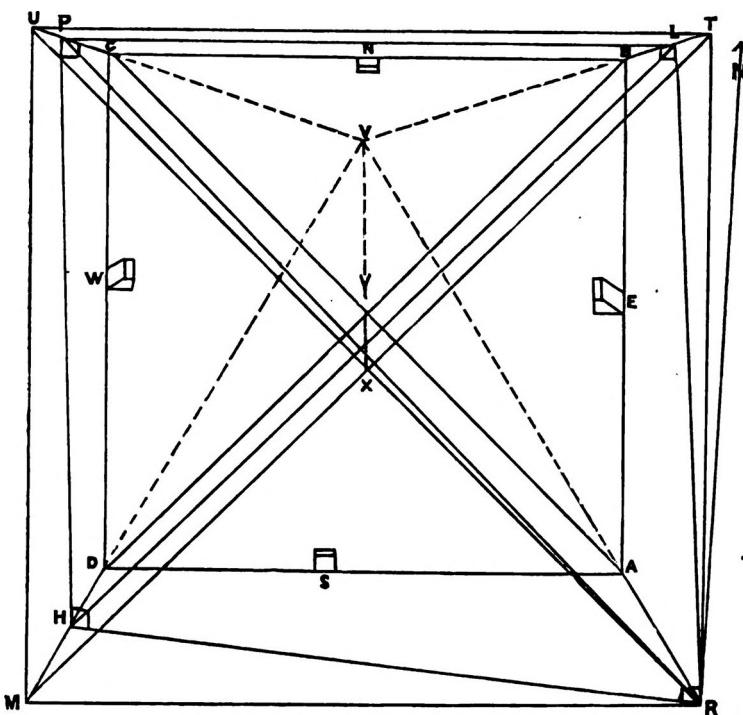
In all this there may have been no need of extraordinary or supernatural revelation. Men could take the measure of the earth and observe the passage of stars then as well as, or, perhaps, better than, now; and if they recorded any astronomical facts or events in the structural form and proportions of the Pyramid they did not accidentally, or for mere building convenience, make the levels of the corners differ from 7 to 17 or 20 inches. We submit that some of the old civilizations may yet prove sound instructors to the new. It is much as Dr. Mait-

land said of the middle ages, we call them the Dark Ages be-
cause we are very much in the dark about them.

In conclusion we wish to note how mathematically beautiful
is the correlation of a portion of Anglo-Saxon metrology.
Take first the length of a pendulum beating seconds at the
Pyramid, it is 39.0625 inches, or $5^8 \div 10000$. Next take 10000
cubits (20.6264), it is the radius of a circle in which $1''$ of arc
equals 1 inch, and 15 inches equal 1 second of time. Once
more take the mile, 5280 feet of linear measure, it is 3072 cubits
(20.625), therefore the radius of a circle having a circumference
equal to 1 mile to $1'$ is 880000 cubits (20.625), and 880 cubits is
the radius of a circle having a circumference of 114048 inches
or 9504 feet. Thus the cubit bears to circular and linear meas-
ure the like relation that the modern π bears, for it is derived
directly from the circle in which $1''$ of arc $= 1$ inch, the circum-
ference being 1296000, $\frac{1}{10000}$ of the radius is 20.626 +. The
small difference of .001 + between the two cubits of 20.6264
and 20.625 being necessary for a convenient and practical cor-
relation of the linear mile with circular and time metrology.

H. G. WOOD.

FLINDERS PETRIE'S WORK AT THE GREAT PYRAMID.

(1) He professes to have obtained the distance between sockets and the base line of the Pyramid proper by triangulation.

From this:

"Therefore, when reducing my observations, after the first winter, I found that the casing on the north side (the only site then known) lay about 30 inches inside the line joining the sockets, I searched again and again for any flaw in the calculation. But there were check measures, beside the regular triangulation, which agreed in the same story; another clue, however, explained it, as we shall see" (p. 37).

This clue professes to be as follows:

"The form of the present rough core masonry of the Pryamid is capable of being very closely estimated. By looking across a face of the Pyramid, either up on edge, across the middle of the face, or even along near the base, the mean optical plane which would touch the most prominent points of all the stones, may be found with an average variation at different times of only 1.0 inch. I therefore carefully fixed, by nine observations at each corner of each face, where the mean plane of each face would fall on the socket floors. On reducing these observations to give the mean form of the core planes at the pavement level, it came out thus:

Case plane sides,	N.	9003.3	inches.
	E.	8999.4	"
	S.	9001.7	"
	W.	9003.5	"
Mean,		9001.5	"
Socket Sides,	N.	9139.8	"
	E.	9130.8	"
	S.	9133.9	"
	W.	9119.3	"
Mean,		9125.9	"

. A section showing this for N. side is here given.
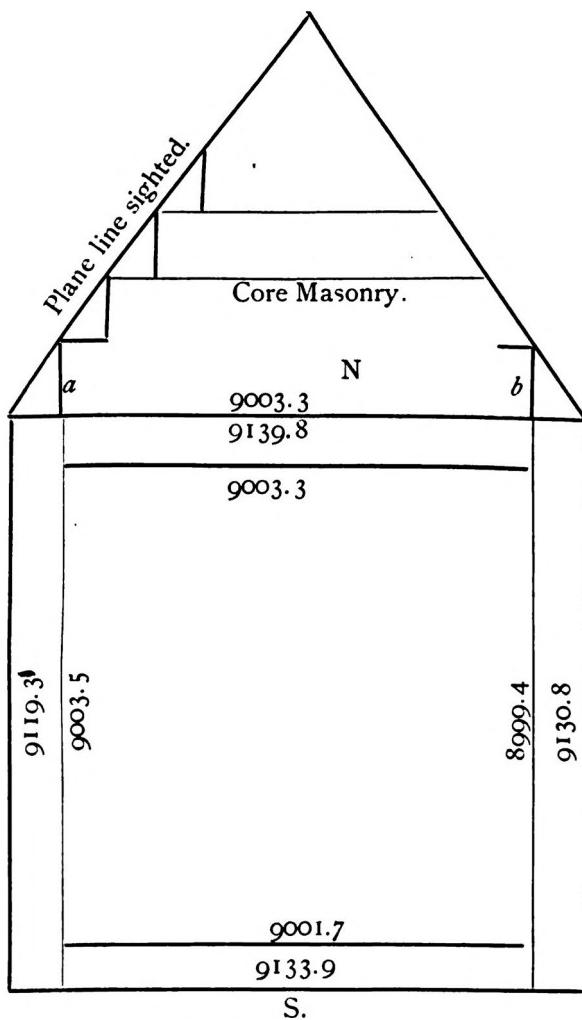
Mr. Petrie plainly says this is the result on the measure of the Core Masonry.

Davidson, the French and Colonel Vyse make the line *a b* to be 746 feet = 8952. inches   As above 9003.3 inches; difference 51.3 inches.

The following shows the relation of the casing stones to the core masonry by Petrie and by Vyse:

Casing Stone.
62±8. 🖘 Petrie   Vyse 🐀 4 ft 3 in.

Core Masonry.
Vyse. .

58.85

895.2 inches.

4 ft. 1 in.

8 ft. 3 in.

108 ± 8   9003.3   Petrie.
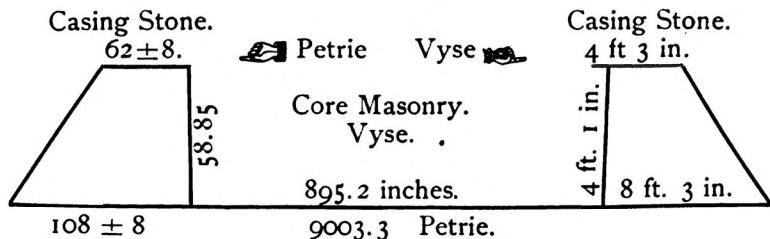
By this the base side by Vyse would be 8952 + 198 = 9150 inches.   By Petrie, 9003.3 + 200 = 9203.3 inches.

But as Petrie makes the entrance length of sides restored by casing stone to be 9139.8, it is evident he has made an error of statement with regard to the core masonry or 9003.3. That is, it cannot be the present core masonry, because he says expressly that the casing stones have a thickness of 108±8, or say 100 inches each, to conform to Vyse.

To show how he made this error:

Present Core:
Vyse 8952
Petrie 9003.

a

e

b

e'

d *d'*
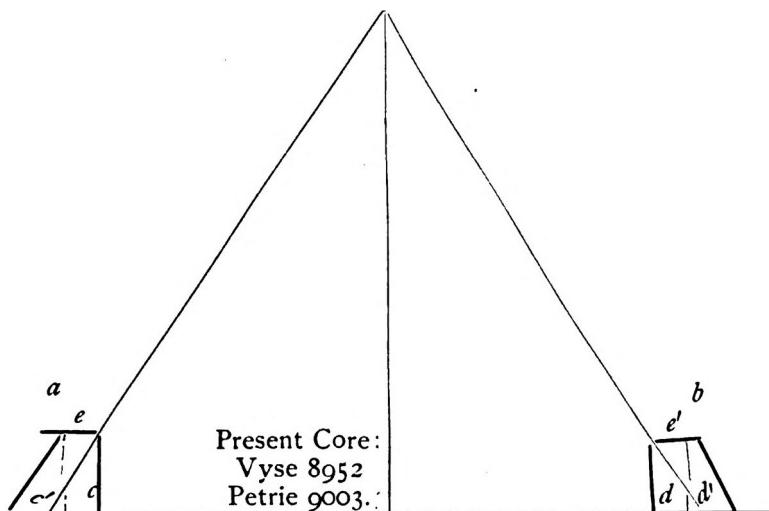
a and *b* are the casing stones to be replaced on the *core masonry* to complete the base side.

Now Petrie by his sight line takes the measure c *only*, whereas the true addition is c or c′ *plus* the thickness of the flat top e or e′, and this is 51 inches by Vyse, and 62 — 8 by Petrie, or say 54 inches.   Petrie was following Vyse, as most of his measures show.

Take Vyse's measure of the present core masonry or 8952 inches.   Add the top thickness of the casing stone or 51 inches to complete the extension of the core masonry, and we have 8952 + 51 = 9003, or Petrie's measure of the core masonry. Petrie undoubtedly took this process, which prepared him for his sight line, to obtain the addition of the extra thickness of the casing stone as c or c′.   But his error was in omitting to add the length of the top thickness of the casing stone *once again*, for the opposite side of the Pyramid.   And this would give for the core *masonry restored*

$$8952 + 51 = 9003.0 + 51 = 9054 \; in.,$$

to which he should then add as resulting from the sight lines, the extra distances c or c′ and d or d′ or together some 49 × 2 = 98 inches, making 9054 × 98 = 9152 *inches*.

It is easy to see how his error took place, but it is almost incredible how he came to make it, for the consequences are disastrous to his ideas as to the descending passage way.

For on the corrected extension the nineteenth course of masonry would be so far extended out horizontally that to have the descending passage way terminate in it at the proper intersection he would not only have to extend its length far beyond a limit of credibility but, moreover, because of his fixing the height of the existing basement sheet at some 611.2 inches above the level of the pavement, the intersection of the descending passage way with masonry course 19 would take place far within the outer surface of the sloping side of the restored Pyramid.

Vyse gives core side as 8952 inches—thickness of casing stone or bottom 99 inches ; but distance measured between sockets on N. base side 764 feet, or 9168 inches, making for the casing thickness 9168 — 8952 = $2\frac{16}{2}$ = 108 *inches each*, in place of 99 as he gives it—and this shows that Petrie was following him as he gives the thickness of the casing stone as 108 inches.

It is possible there was a backing course between the casing stone and the masonry core, of some 9 inches, which would account for this feature.

In some respects Mr. Petrie has done some good work, verifying and comparing the measures of those preceding him.

N. B.—Take it that Mr. Petrie's 9003 was derived from Vyse's 8952, to which the casing stones were to be added by his and Petrie's measures.

8952 + 62 + 62 = 9076 + 46 + 46 = 9168, or just Vyse's measure.

Here again he adopted Vyse's measure of top of casing as 4 feet 3 inches, or 51 inches, which added to 8951 = 9003. whereas he found the casing stone to be on top 62 inches and on bottom to be 108 inches; and with this correction his restored masonry course should have been 8952 + 62 = 9014 (in place of 9003), and 62 to this would make for restored masonry course 9014 + 62 = 9076 inches, and then his sight line plane would give him 46 × 2 = 92 to be added, making 9076 + 92 = 9168 inches.

Now Petrie works out his core masonry again in which he makes that of N. side = 9012 in place of 9003, which shows that he was making this very correction.

But see " Plate X " work for N. side:

Total length of base side,   9129.8
Deduct 22.4 + 25.7 = 48.1,   48.1
                        ————
                        9081.7
Deduct 39.4 + 27.7 = 67.1,   67.1
                        ————

For core masonry ! ! !   9014.6 inches ! ! !

Which proves what is said as to 9014 inches on last page ! ! !

Thus in fact Petrie is confirming the measures of Howard Vyse, viz: 9168 inches.

April 8, 1884.   J. R. SKINNER.

DOW'S NEW FORMULA, (p. 240).

Mr. Dow's new formula for the height of the wall in the king's room is neat and beautiful, and as simple as it is beautiful. But it is not altogether new, for Petrie has referred to it and used the formula itself, and got a very near approximation as the result. Mr. Dow's formula is $648 - \dfrac{1296}{\pi} = 235.470388$.

And the circle has 206.2648 for radius, and $\dfrac{1296}{\pi} = 412.529612$ for diameter. Petrie, referring to the formula for obtaining the height of the king's room, says: "The only other theory of the height of the walls is similar to one of the best theories of the outside of the Pyramid; it asserts that, taking the circuit of the N. or S. wall, that will be equal to the circumference of a circle whose *radius is the breadth of the chamber*, or whose diameter is the length of those walls. Now, by the mean original dimensions of the chamber, the side walls are 412.25 long, and the ends 206.13, exactly half the amount. Taking, then, either of these as the basis of a diameter or *radius of a circle*, the *wall height*, if the sides are the circumference of such circle, will be 235.32 ± .10. This theory leaves nothing to be desired, therefore, on the score of accuracy."

The formula is the same in *principle* as Mr. Dow gives on p. 240, and embodied in the diagram, but the numbers used are slightly different. If Petrie had used Mr. Dow's number—206.2648—instead of 206.13, he would have got out the same height as Mr. Dow—235.470388 instead of 235.32 ± .10. The principle of the formula is really not new, for Petrie speaks of it "as one of the best theories" (p. 190) then known. But Mr. Dow has made it new by bringing it into the group as an outgrowth of the analytical unit, and thereby fixed the true value of the factors used in the calculation.

Perhaps I might suggest an addition to this analytical group, which will bring out the analytical value of the diagonal to the perimeter of the Pyramid's base.

If the solid diagonal of the king's room be $\dfrac{1620}{\pi} = 515.662016$

And the height of Pyramid be $\dfrac{32400}{\pi \sqrt{\pi}} = 5818.622870$

And the side of Base be $\dfrac{16200}{\sqrt{\pi}} = 9139.871258$

Then the following will also be true:

Diagonal of perimeter $\sqrt{\dfrac{16200^2}{\pi}} \times 2 = 12925.7312$

<div align="right">SAMUEL BESWICK.</div>

Strathroy, Ontario, Canada.

PRIME MERIDIAN TIME.

The following simple device is an easy and ready way to adjust hour-meridian or "standard time" to prime-meridian time. No change of the machinery of our time-pieces is required by this method, and no additional hand is necessary. Let the hour numbers 1, 2, 3, &c., to 12 be put on the crystal inside, as shown in the cut.
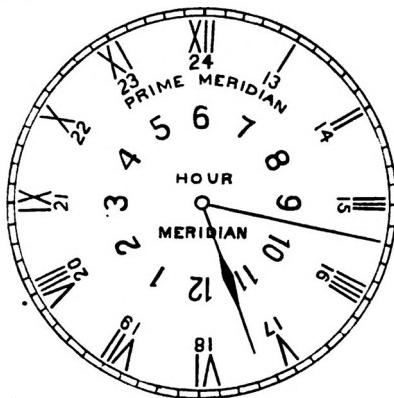
The crystal being moveable, it becomes an adjustable dial which may be set 1, 2, or 3, &c., hours fast or slow of the fixed or common dial. Next let the fixed or common dial be used

for prime-meridian time. Adjust the crystal dial according to the number of hours you are from the prime-meridian, and it will show the local "standard time." Suppose Greenwich time be adopted for prime-meridian. Set the hands to Greenwich time. Now if we are using the 90th meridian, "standard time," it being six hours slow of Greenwich time, set the crystal dial with fig. (12) to correspond with (VI) of the fixed dial. It is so adjusted in the cut, which shows that when it is V o'clock and 17 minutes by Greenwich time it is 11 (eleven) o'clock and 17 minutes by "standard time" at the 90th meridian. A traveler carrying a watch thus provided with the hours marked on the crystal could change from New Orleans the 90th meridian, to Philadelphia, the 75th. meridian, by turning the crystal (12) back from VI to V without disturbing the hands.

By this arrangement all the railroads of the country could run on one standard meridian, and their schedules would agree with the hours marked i, iii, iii, iiii, v, &c., of the fixed dial, while the local time for any hour meridian would agree with the hours marked 1, 2, 3, &c., on the crystal dial. It is desirable that the dial for railroad use be immovable, on account of safety. Therefore the fixed dial is here used for prime-meridian time. Another advantage of this arrangement is that the minutes are read as we commonly read them from XII, the uppermost point of the dial, around to the right. The hours on the fixed dial can be continued, as shown in the cut, to 24 o'clock, while on the crystal dial they are, as now in use, from 1 to 12. Persons using watches thus arranged would, in case of the adoption of one meridian for railroad schedule time, look to the outside hours for railroad time, and to the inside hours for local time.

. H. G. Wood.

PROF. BARNARD'S BOOK.

The object of Prof. Barnard's book is evidently to bring dis-
credit upon the Great Pyramid, and ridicule upon those who,
having some respect for their Bible and the prophecies, believe
that this Pyramid is ''the altar and pillar of witness to the Lord
of Hosts'' referred to by the Prophet Isaiah ; but which he, the
''very reverend President Barnard,'' as you style him, with sub-
lime indifference to the sacred writings and to the feelings of
thousands of earnest, intelligent Christians, designates as a "stu-
pendous monument of folly," a "huge and senseless pile." But
if it is nothing more than this why should a person in his posi-
tion waste his valuable time and talents in writing an elaborate
book about it ? Evidently because he finds that the great bulk of
the Anglo-Saxon races cannot be induced to commit the folly
of giving up their ancient, convenient and useful system of
weights and measures for the cumbrous and pretentious French
metrical system while this ''huge and senseless pile'' stands in
the way. This metrical system may serve the purposes of a
a few scientific men, but it is wholly unsuitable for the general
everyday requirements of the great majority of the people
whose conveniencies ought not to be sacrificed to the fancies of
a few scientific men, however eminent as scientific men they
may be.

Prof. Barnard complains of the action of the opponents of
the metrical system as ''a crusade against the spirit of progress
of the age ;'' but will he venture to deny that the nations which
still use the weights and measures which he condemns have
made far greater progress in religion, politics, commerce, art,
science and wealth, than all the nations which have for so many
years been using the belauded metric system? The violence
of his attack upon the poor Pyramid, and the bitter and con-
temptuous language he uses in speaking of those whose opin-
ions differ from his own, betray a consciousness that the effect
of his great efforts will, after all, only ''about equal that pro-

duced by the honest old lady who attempted to sweep back the rising tide of the Atlantic with a broom."

As the very able paper by the Rev. H. G. Wood, in the January number of the STANDARD, has already taken most of the ground from under the Professor's feet, I will at present only refer to what he has said about the sun's distance. The Pyramid sun distance he describes as "a fact which, to plain human reason and simple common sense, is so grotesquely improbable that its possibility can only be defended by clothing it with the character of miracle;" he then gives the several astronomical determinations which have been arrived at since 1862—thus:

Leverrier	91,357,000	miles.
Chambers	91,465,000	"
Newcomb $\begin{cases} 92,200,000 \text{ to} \\ 92,700,000 \end{cases}$		" "
Young	92,885,000	"
Michelson	92,876,000	"

He then states that "the distance of the sun, as worked out on the Pyramid theory, is 91,837,000 miles," and concludes by remarking that "the Pyramid distance is, therefore, only about a million of miles too short; while probably the uncertainty which still attaches to scientific deductions is not so great as half a million." How he could venture to make such a statement in the face of the figures he quotes I cannot understand, seeing that the extreme astronomical values differ no less than 1,528,000 miles, while the difference between the Pyramid distance and the mean of all the astronomical distances is only 410,000 miles. Surely he must have formed a very low estimate of the intelligence of his readers if he expects that they will be influenced by such reasoning and statements as he has here employed. To show further how little his statements and opinions are to be be relied upon, I may remark that since his book was published the first result of the last transit of Venus has been published by the eminent director of the Brussels Royal Observatory, M. Houzeau, and it gives the sun's distance =91,756,800 miles, or 80,200 miles *less* than the Pyramid distance, which Prof. Barnard says is "only about a million of miles too short!" Pyramidists, therefore, need not feel discouraged

or fear that Prof. Barnard's violent but ill-directed attacks will endanger the Pyramid sun distance, or the British inch, yard, and mile.

May I be allowed to ask Prof. Barnard whether the great conveniences for the everyday business of trade and commerce, of the British system of weights and measures over all other systems in use, may not have had something to do with the making of the Anglo–Saxon races by far the richest in the world, and enabling Great Britain to lend money to many nations, and borrow from none? Certainly it has been no check or hindrance to a progress which is a marvel to the whole world.

With respect to the question of a prime meridian, I shall prefer Greenwich, simply because it is far more generally referred to at the present time than any other, and that the great bulk of the world's traffic is carried on in vessels which use it as their zero of longitude.

<div align="right">Jos. Baxendell.</div>

EXTRACT FROM A PAPER BY JACOB M. CLARK.

READ AT A MEETING OF THE NEW YORK AND NEW JERSEY AUXILIARY SOCIETY, AT COOPER UNION, NEW YORK, WEDNESDAY, JULY 9TH, 1884.

The early germination of geometrical ideas, in the advance of mankind from savagery towards refinement, is well illustrated by the gorgets and other ornamental relics of certain tribes of western Indians, recovered in part from the ancient mounds, and figured in the second Annual of the Bureau of Ethnology, reported by Prof. Powell. They suggest themselves as having formed parts of the regalia of priests or initiated men; and exhibit in various combinations of detail, but with considerable persistence of typical expression, the cross in the circle, the square, the division of the circle by three, six, eight, twelve, etc., combined with signs which suggest circular motion and the flight and division of time. Many of them must be calendars; but, any way, they connect typically with Aztec and Egyptian monuments. If these things do not establish ethno-

logical affinity of these tribes with the Mound Builders, the Toltecs, the Peruvians, or with the pre-historic civilized peoples of the Eastern world, they at least indicate the germ of geometrical and astronomical conceptions, and go a long way towards verifying the doctrine maintained by Alexander Von Humboldt, the *identity of the human mind.*

And it is a most gratifying circumstance that we can now note everywhere a marked and growing tendency among writers on metrics—nowhere more apparent than among the members of our own Society—to insist upon *unity* and *simplicity* of conception throughout. And freely as we may concede that the French system was an outcome of this very tendency, yet it fell far short of the ancient systems, both as to its approach towards perfection in circular division, and in actual convenience. Take for instance the Persian system. The parasang was $\frac{1}{6000}$ part of the terrestrial circumference ; and the $\frac{1}{10000}$ of this, about $26\frac{74}{100}$ inches, is now represented by the pic of the Turkish dependencies, and survives to this day in Persia. Compare this, as to convenience of length, with the French metre. Similar comparisons, with the same effect, might be made as to several other very ancient systems.

Our present nomenclature for the expression of mechanical energy or its effect—by such terms as horse·power, foot-pound, and, in French, kilogramme-metre, etc.—is exceedingly defective, and requires immediate and thorough revision. The terms are not based on a simple and obvious correlation between the units of ordinary measurement·and the modes and conditions under which applied force produces its effects, and therefore of themselves convey no very clear idea to the popular mind. Their application in practice—nay, their intelligent apprehension even—requires previous special study, and, to some extent, the training of an engineer.

And it is passing strange that the agency we call *electricity*, whose recent past development surpasses the wildest dreams, and which promises possibilities for useful effect in the near future of which the most visionary can form but a feeble conception, should have been saddled as to its practical use with a new nomenclature and technology throughout, totally

disconnected from all other systems and from all its obvious correlations, and with purely arbitrary names, to serve as monuments of wind to some distinguished men.   And it seems to us little short of infatuation that the British Association should have adopted such a manner of expression, based on the one hand upon the French system of metrics, and upon the current mode of reckoning time on the other!   To one who has not made the subject a special study, the whole is unintelligible, in fact, "heathen Greek."

DEATH OF THE ABBÉ F. MOIGNO.

It is with extreme regret that we announce in the present number of the magazine the death of our most esteemed and excellent member, the Abbé Moigno, of Paris, France.   We feel the death of this great and good man as a most serious loss to our Society, for he was a champion of the weights and measures of the race, a full believer in the divine inspiration of the Great Pyramid, an earnest student and co-worker with us against the French metre even in his own country and against many of his own people, boldly daring to stand up for the right and denouncing the false measure as a device of the wicked. Nothing shows more fully how the barriers of prejudice are thrown down by our work than the union of this great man with our Society.   Here was a Roman Catholic priest, earnest in his devotion to his church, and yet when he had studied the truths of the Great Pyramid all prejudice touching the question of Protestantism and Roman Catholicism vanished away and he was with us as a brother working in the discussion and dissemination of the truth and wisdom contained in the Pyramid of Jeezeh, as a monument of science and religion upon which all mankind could unite and come together.

He was elected a member of our Society, and upon the announcement of his election accepted it and declared himself to be a co-worker with us publicly, and published it in the *Cosmos Les Mondes*, a noted scientific journal, of which he was the editor

and founder. We were well aware that in taking this step he must suffer persecution ; and how far this went we cannot tell now, but we know that he was ousted from the directorship of the *Cosmos Les Mondes,* his own paper, and was informed that he would be attacked for having taken up the defense of the Anglo-Saxon measures against the French metre. We know from a letter written in his last moments that this was a trouble and grief to him. We feel his loss greatly, but in the dispensations of Providence he may speak louder in his death than in his life. On the 7th day of June, only three days before he died, he penned us a letter in English, written evidently with great difficulty, and said that he was not very well. He spoke of the bringing out of his last great work, the translation of ' Our Inheritance in the Great Pyramid ' ; and nearly his closing lines expressed a hope for the success of the expedition to Egypt, and signed himself, " Your very old, but firm and de-. voted leader, the Abbé Moigno, Canon of St. Denis."

Three days after writing this letter the following appeared about him in a Paris paper :

A truly wise man and a true Christian, the Abbé Francois Moigno, Canon of the Second Order of the Chapter of St. Denis, passed to his rest from his domicile No. 2 Rue Strasburg, at the age of eighty-one.

He was born in 1804 at Guemené (Morbian), son of a gentleman of Brittany, Moigno de Villebeau, who abandoned his title of nobility in the Revolution, having joined the order of Jesuits. He retired from it in 1844 because the publication of his ' Lessons upon Differential and Integral Calculus ' was opposed by the superior of the order of the Jesuits. The Abbé Moigno preferred to go out of the order rather than to renounce his independence in his favorite studies. He was a laborer upon a number of Paris papers, and eventually established a journal, the *Cosmos,* which' he afterwards joined to a paper, *Les Mondes,* under the title of the *Cosmos Les Mondes.* He was a friend of Ampère, Arago, Binet, Beaudant, Thinard, Humboldt and Dumas. He had a prodigious memory, and spoke with fluency twelve languages.

He held many important positions of trust, and in 1873 was named Canon of the Chapter of St. Denis. He was chevalier of the Legion of Honor.

Among his important publications we may cite the treatise on the electric telegraph, a work on modern optics, a course of vulgar science, a work on physics and chemistry, and above all his great work upon the " Splendors of the Faith."

Having traveled over all countries of Europe, he preserved relations with all the wise men of the world.

Like most great men and writers he made no fortune, and his pension joined to his canonical position was his only means of existence.

We mourn his loss.

THE UNVEILING OF ISIS.

In the previous pages upon my subject I have confined my-self to the historical, principally, in order to prepare my readers for the unfolding of the interior meaning.

Let it be borne in mind that the investigation into the subject of metrology is an inquiry into the origin of race and language, science and religion, and hence it has the highest and deepest, the widest and broadest significance of any subject under the sun. And since I must present in this discussion new thoughts and theories which will be considered unorthodox by some, and will be looked upon as the resurrection of so-called superstition by others, I can but repeat the prayer of my heart, uttered and re-uttered, "Oh Lord, if in my ignorance I should teach anything which is contrary to that which is eternal truth, forgive and overrule and bring to naught; but if all, or even any part shall be the truth, then may it sink deep into the hearts of the people." I believe I have the truth; as such I put it forth with confidence as worthy of the investigation of, and reception by, the people. It is only through the plain narrative of my story as it came to me that it will be understood and appreciated by them.

For years the vision of the woman clothed with the sun represented itself to me as a symbol of our banner, and I never could disassociate the three men whom I have characterized as the representatives of three saints or the Magi from the vision: Mr. Baldwin had declared that the crown of twelve stars represented the twelve States of the Union, but how could this be reconciled beyond the mere ideal? The analogy was not sufficiently strong to accept it as truth unless there should come some plain, tangible proof of a different kind. For this I sought earnestly, but the knowledge came only in years of thought as my mind from time to time would revert to the subject.

To fully unfold the steps by which I became acquainted with

and acquired a knowledge of all that I have gleaned since the
presentation of the historical sketch which I have just finished
would take a volume, and it may not be within the province of
this Magazine to extend the explanation of my subject through
so many numbers as it would require. It is only for me now
to narrate as succinctly as possible the circumstances which led
me to present this subject as 'The Unveiling of Isis,' and leave
the details and the explanations and the proofs which are ab-
solutely necessary to convince the general reader of the truth
of what I present to a more extended work hereafter, or sketches
from time to time in the Magazine itself as it may seem best.
As far as the interior meaning of the subject had come to me
in the spring of the year 1875, I had in my mind a vision—the
vision of Saint John, in the first verse of the twelfth chapter of
Revelation—three men standing the representatives of the
grandest epochs of human history. The woman represented
the church, the sun the greater civil power, the moon a civil
power, the stars a civil power. And in seeking for a represent-
ative woman who would most fully fulfil in womanly beauty
and character and position this symbol of the church, an ideal
queen, Isabella of Spain, arose in my mind; and searching his-
tory I found these words by distinguished men : " By Isabella
was accomplished the grand event of European policy, the ex-
pulsion of the Crescent; and through Isabella the most prodig-
ious event of humanity, that which doubled its terrestial domain."
Again, " It seems as if Heaven had raised her up for two pur-
poses—the overthrow of the Crescent and the discovery of the
New World." (Spanish History.) And, again, the words of
Bishop Arevalo, " Without reservation I declare that Nature
has never produced, and that Providence has never crowned
with a diadem, a woman who can compare to Isabella, the
Catholic." And, again, this, " In the worlds of our planetary
system the sun never clothed or illumined her equal." (Cardinal
Ximenes.)

Our greatest commentators have said that when they wanted
to find the fulfilment of a prophecy, they looked around in
contemporaneous history for the words of the great writers,
either in their books or in the newspapers of the day. Here

was the sun symbol presented to our imagination, the woman clothed with the sun, a crown of twelve stars above her head, and the moon under her feet, and without ever having a thought of the words of these men, but selecting that queen, who was, in my opinion, the very ideal of grandeur, to represent a church, I selected Isabella. I had taken the sun as the great civil power of the world, and the Crescent—that is, the Mohammedan power —under the feet of this very woman whose whole soul was animated with a determination to drive out this power from the domains of Spain; in a larger sense she represented Christendom; the Crescent was under the feet of Christendom, and, as a constellation, there arose in the dim future a vision of that government in the New World, the diadem of that woman's sagacity, and piety and self-sacrifice. She built a city in the form of a cross and called it, "The City of the Holy Cross," besieged the city of Grenada, the stronghold of the power of the Crescent, until on January 6th, 1492, on the day of the Epiphany, the feast of the kings of the Magi, she marched in and took possession, and drove out the Moors, occupied the Alhambra and hoisted the Silver Cross of the Crusaders above the Crescent on the top of the tower of Camaris. And thus was fulfilled the symbol of the moon of the Mohammedan power being under the feet of Christendom. She had said that until the great work of the expulsion of the Moors was accomplished she would not commission Columbus to go forth in search of the New World, but when her object was achieved she sought in every direction for means to assist him, and was ready to even pawn the Crown jewels, when a man by the name of Saint Angel came to her and offered her the money.

As I said before I could not disassociate from this symbol the grand figures of Columbus, Luther and Washington, and they always were present to my mind with the symbol of the sun-clothed woman above their heads in the heavens. The symbol in the heavens, therefore, seemed to shadow forth a new heaven and a new earth, and Columbus inspired by a great thought says: "I am the messenger of the new heaven and the new earth mentioned in the Apocalypse of St. John, after

having spoken it by the mouth of Isaiah, and the Lord showed me where to find it." At this time the trumpet of Luther had been heard as if to collect together the elect from the four quarters of the globe, and he said : " I do believe that I am that great trumpet which prefaces and announces the coming of the Lord." And when the new heaven and the new earth were discovered in the midst of the dire persecution that followed, a haven of rest was opened for the people of God ; and there was a Washington raised up who defended the . woman— the church of the wilderness.

While I was studying my subject the different names of those whom I called the " Magi" were analyzed. I found the name of Christopher Columbus fairly interpreted as the " Christbearer dove," and it seems as if the name was perfectly fitted to his mission, and I concluded that his crest ought to be a dove. Not until several years later did I find this to be true, when reading the life of Columbus, by the Count Roselly De Lorgues. I found that this crest was three doves, and that he had also taken the same thought in regard to the character of Christopher Columbus as truly the Christ-bearer dove and a prophetic person. In examining the life of John Huss, I found that he had exclaimed at the stake, " You are about to burn a goose, but in an hunared years you will have a swan you can neither roast nor boil." And a commentator said that he must have meant Luther whose crest was a swan Then I searched and found that Luther was called the Swan of Eisleben. In examining the name Luther I found that it was very much related to the name *eleutehros*, freedom, and I was strengthened in this by one day explaining to General Garfield my thought, when he said to me, " Did you know that Luther was derived from the Greek word *eleutheros ?* " I said that I did. Now, in thinking how this name was given to him I had pictured him as holding a book in his hand in the manner he is represented at Worms, and then this thought came into my mind " *liber*" book, and " *liber*" free, and "*liber*" tree, and from the tree came the book, for indeed from the papyrus tree came the ink, paper and pen. So the thought is extremely proper that the tree should be freedom, and that he should hold a symbol of it in

his hand, and that he should be the first man to translate it into the vernacular and to preach it in his own modern tongue. He said, "The Bible is a great tree, and sometimes I pluck off a few pears or a few apples." May it not be the tree with the twelve manners of fruits.

Then again, why *Martin* Luther? Then I sought and found that Martin was the name of the saint who was the grand symbol of the character of the man, for that saint was distinguished for overthrowing superstitions and paganism and was an extremely kind man to the poor.

In examining into the crest of Washington I found that it was an eagle, and an eagle is cut upon his tomb, and again the colors in his crest are red, white and blue. Then since I figured that the woman in the heavens was clothed with the sun, which must be red and white, and that she had stars, those stars must be in the blue. Then I plainly saw that Washington was the proper one to protect the woman, for his colors show that he was that personage, and all the colors are prophetically fitted to the one who should defend the church. Then I said, surely this is the Michael who was to come, and I began to analyze the word—Like unto God—God-like, and have we not had the term God-like applied to Washington in all languages? Then again, Michael was represented as a young knight overthrowing the dragon. Then I remembered that in the Capitol ground he is represented by a colossal figure as a god; and so also in looking into the dome of the Capitol at Washington he is represented as a god. Thus we have Christopher Columbus, the Christ-bearer dove, and the discoverer of the New World; we have Martin Luther, the prophet of freedom, who announced the coming of the Lord, and who holds in his hand the book of that country which Columbus found, whose symbol of the dove was perfectly adapted to the work he had to perform, inasmuch as he was upon an ark, and out of the ark must come a dove; and inasmuch as Luther was the swan, the trumpet bird, the fisherman-bird, a type of the church, whose duty it was to sound the trumpet and call the people together from the four quarters of the globe in order that they might escape from persecution by

flying to that country prepared by the dove, that the eagle should represent the great leader—the symbol of the warrior who was to defend the woman with his sword and overthrow that power of monarchy which dominated the country. Thus far the whole presented itself to me as a picture, and I desired to have it painted. It was at this time that I came to Cleveland to live, and as I was walking up Superior street my eyes fell upon a magnificent picture in Ryder's window—a picture called "Yankee Doodle"—three musicians, a fifer and two drummers and a standard bearer holding a flag and partly enveloped in smoke, leading a great troop up a hill, and to one side the dying artilleryman who is waving his hand and shouting in his death for victory. The old gray-haired drummer and the earnest fifer with his head bandaged, but still moving onward with determined purpose, and a young scion of the New World looking up with faith and gratitude into the old man's face as they go forward.

As I gazed at this painting I said the painter of *this* picture is the man to paint *my* picture. I sought him and after a long time found him. It was Mr. Willard. I went to him and said that I desired him to paint me a picture. After explaining it to him he said that he would do it. I then determined to try him on the question of finances, and told him he would have to paint it without money. He said that he would do it, as it was a grand thought.

Gazing intently one day at the picture upon which Mr. Willard was painting, a thought came suddenly upon a question partly before considered, and I said: "Mr. Willard, the vision in the heavens certainly typifies a date in history, and I am going out to find it." Poring over old histories and annals that evening at Case Library I came upon the letter of the distinguished divine, Hooker, addressing John Winthrop upon the great work of forming the first confederacy in the New World. He says:

"MUCH HONORED IN OUR BLESSED SAVIOUR: At the return of our magistrates, when I understood the gracious and desired success of their endeavor and by the joint relations of them all, not only your Christian readiness, but enlarged faithfulness in

an especial manner to promote so good a work, my heart would not suffer me, but as unfeignedly to acknowledge the Lord's goodness so affectionately to remember your candid and cordial carriage in a matter of so great consequence, laboring by your special prudence to settle a foundation of safety and prosperity in succeeding ages; a work which will be found, not only for your comfort, but for your crown at the great day of your account. It's the greatest good that can befall a man in this world to be an instrument under God to do a great deal of good. To be a "repairer of the breach" was of old counted a matter of the highest praise and acceptance with God and man; much more to be a means, not only to maintain peace and truth in your days, but to leave both as a legacy to those that come after until the coming of the Son of man in the clouds of heaven."

And then I found that the great act was consummated on September 7th, 1643, and that John Winthrop was the first governor. Turning from history to history I noted the grandeur of this epoch, the closing days of the thirty years' war.

In 1630 sailed the remarkable expedition under John Winthrop, in eleven ships. It is said in the Revelation that the woman fled into the wilderness upon the wings of an eagle. Here these Pilgrims claimed that they were intent upon fleeing to the wilderness to establish a church where they could worship God according to their conscience; and then I found that the name of the flag ship was the great ship Eagle, the name being changed then to Arabella, in honor of a most noble and pious woman who sailed in the great ship Eagle (Bancroft), and in the wilderness the noble leader of the band became the first governor of the new constellation in the west.

1643 was a date of great expectation. The colonists confidently looked for the coming of the Messiah in the clouds of heaven. Vennor was killed in the streets of London at that time, declaring that the fifth kingdom was at hand—the kingdom of Jesus Christ. "In the execution of my western enterprise to India," said Columbus, "human reason, mathematics and charts availed me nothing; the design was simply accomplished as the prophet Isaiah had predicted. Before the end

of the world all the prophecies must be fulfilled, the gospel preached all over the earth, and the holy city restored to the church. The Lord wished to do a miracle by my voyage to India. It was necessary to hasten his purpose, because according to my calculations there only remain one hundred and fifty-five years to the end of the world."—Letter of Columbus to Ferdinand and Isabella (See Humboldt's Examen Critique, Tome, 1615).

It will be noted that the calculation of Columbus would bring the consummation about the time of the rise of the United Colonies of New England. The annals of Scotland and England mention wonderful sights in the heavens, armies marching and counter-marching, also remarkable astronomical phenomena, a great movement in the under spiritual world. At the moment of the rise of the United Colonies of New England a wonderful scene presented itself. A king about to barter away the dearest rights of the people of God in an unholy alliance —an alliance with those who had prepared the armada for England's destruction—a king who had wasted the substance of the people by putting monopoly in the hands of his favorites, who had claimed the right to sacrifice the substance of the people and levy war, and finally to destroy the great King's daughter, the church. Then arose Oliver Cromwell, the St. George of the age, and said, I will protect the great King's daughter.

Then we see a nation's representatives on their knees in St. Margaret's Church, September 25, 1643, lifting up their hands and swearing—what does Carlyle say of it ?

Monday, September 25, 1643. The House of Commons and the Assembly of Divines took the covenant, the old Scotch covenant slightly modified now into a solemn league and covenant, in St. Margaret's Church, Westminster. They lifted up their hands *seriatim*, and then stepped into the chancel to sign a very solemn covenant and bond of all the people. of the awfulness of which we, in these days of regardless talk, cannot form the slightest notion.

Just before the king's head was struck off he took his St. George and handed it to the Bishop and said, " Remember," and his remains went to the Chapel of St. George, and then

St. George's Cross became more famous on sea and land than ever before, so much so that the children of Judah came from the east to see if this might be the promised Messiah, and he *was* the forerunner to the Jew as a good Israelite himself. As wrote New England to Oliver Cromwell: "We believe that you are fighting the battles of the Lord." God bless and keep green the memory of the giant so little understood and give us a heart to rear a monument to him as to our St. Michael.

Deeply impressed with the importance of my research and discovery I returned to Mr. Willard's study the next afternoon late, and standing before the picture when he was at work, I said: "I have found the date which the picture represents, it is the 7th of September, 1643, old style, in the morning."

"How do you make it out?" said he.

"That I cannot now tell, but some day I will know; I know that I have the truth."

The picture as painted seemed as a talisman, and to some the thought will be an absurdity. It would have appeared so to me had I not been startled with other coincidences in this direction. We may be sure that there is more in the painting or engraving of a constellation than appears upon the surface. This mysterious influence which reveals, which attracts and repels, invisible, subtle as the most subtle of all known things, is no more wonderful than the power which enables one to read the elements deep down in our mother earth. It surely is given us to know this beyond all controversy, and this I am well aware by personal experience. Looking intently at the picture that September afternoon as the sun was sinking in the west, and the clouds were tinged with its rosy hues—Mr. Willard was painting upon the constellation or sign in the heavens—suddenly a thought flashed upon me, and I said to him, "You are painting in September, why, the sun clothes the constellation of Virgo in the month of September, formerly it was in August. What would you say if the Crescent moon was at the foot of the constellation of Virgo on the 7th day of September?"

"Well," said he, "I should consider it a remarkable coincidence."

"It is certainly there," I said with emphasis. "It must

have been there at that time, I shall prove it. And now what does the crown signify?"

I went at once into the reference room at the public library and searching astronomy, immediately came upon these words, " The Corona Borealis is Ariadne, or Virgo's crown, because it rises after the constellation of Virgo. I then examined the figure of the heavens to see how the crown was placed, and in the particular planisphere examined, I found twelve stars shown almost in a circle, the principal of which is Alpheca. The constellation, however, has more stars in it. The coincidence was so strong that I felt that I must have the signification ; so I took the planisphere to Mr. Willard, and had him place the stars according to the arrangement then found. And so I fixed upon the canvass the meaning—that is, the date—viz., 1643, 7th September, 9 A. M. I then wrote to Simon Newcomb, astronomer at Washington, and told him what I desired, and his answer was: " I do not believe in the prophecies, but here is your solution." This gave a perfect representation of a woman clothed with the sun, and the moon under her feet, and upon her head a crown of twelve stars. This was extremely gratifying to the feeling in my heart that I was near the truth, yet I raised objections. The prayer was always in my heart, "Lord, reveal the truth to me in this matter." Yet, when so much came, I was like Gideon when he had asked that the Lord would grant him a sign that he was to save Israel, and it had been given him in having the fleece of wool wet with the dew of heaven while the ground about was dry, and he said, " Let me prove I pray thee but this once with the fleece, let it now be dry upon the fleece, and upon all the ground let there be dew." And the Lord gave him the sign as he desired. So I said, " This seems true, I believe it must be so, but where are the United States? How can the constellation of Virgo be clothed with the sun on the 4th of July?"

And how is it that the 19th of May should be celebrated as the rise of the united colonies, of New England, and historians should be at fault. But going carefully over the records I found that surely on the 7th of September must have been placed the last signature of the colonies' and John Winthrop's seal and

sign. This seemed sure; but now came the difficulty, and one year passed away from 1876 to 1877 during which time my railroad duties were absorbing, and I dare not let these be neglected, and although in leisure hours I would seek earnestly for a solution, it was not until the year had rolled around to September again that the thought came, surely I must be wrong in looking for a duplication of the sign in July 1776, for it is impossible. But looking over old papers and records again I came upon the speech of John Quincy Adams. At the second centennial anniversary of the rise of the united colonies of New England, in which he said: "The New England confederation of 1643 was the model and prototype of the North American confederation of 1774." In both cases it was the great law of Nature and of Nature's God to advance the kingdom of our Lord Jesus Christ and to enjoy the liberties of the gospel in purity and peace. An empire already bounded only by the Atlantic and Pacific oceans, and to the eye of prophetic inspiration to be bounded hereafter only by the eternal ice of the northern and southern pole. And then I was suddenly struck with the thought that I had been looking for the wrong date—1776 instead of 1774—and now came the question, when in 1774? and I at once jumped to the conclusion, September 7th. Of course the date of the first prayer in Congress is commemorated in a grand picture, and history says that only one knelt then, and that was George Washington. Surely the 7th of September must be the duplicate date. Now to prove it, why the sun must clothe the constellation of Virgo and the moon must be under her feet. How many chances are there that this would not be, to one that it would? I took my book and calculated the position of the moon. The sun surely was right for the symbol, for it was at the head, and if the moon should be at the foot then the sun would naturally clothe the constellation of Virgo in order to illuminate the crescent moon, but to my great disappointment the position of the moon was in the centre of the constellation of Virgo, and I was cast down, for I said surely that date, the 7th of September, should be duplicated. But I remembered that the first date was old style—7th September—which made it really the seventeenth day of Sep-

tember new style. I thought that in this calculation I might have used wrong elements ; so in going to my office I met Professor Harding, of Brooks' school, and asked him if he knew an astronomer in the city who could calculate the exact position of the sun and moon at a date far back. He said that he did, that Miss Fisher, of the Brooks' school, would make the calculations for me. And that he would get her to do it. The question I asked was this : " At what hour, minute and second in the month of September 1774 was the moon at the foot and the sun clothing the constellation of Virgo ? " In two weeks the answer came : " Moon at foot of Virgo (Phil. mean time) 1774, September 9th, 7 hr., 51 m., 50 sec. 44 long. of sun at same time 167° 33, or several degrees above head of Virgo."

The 9th of September ! What a disappointment ! How could it be ? I had set my heart upon the 7th because it was a duplicate day of the rise of the united colonies of New England, and certainly I never heard of anything important having occurred on the 9th of September, 1774. It was that day of which Samuel Adams wrote to his wife.

Here was a disappointment. I had expected it would be the 7th of September, 1774, for I had made up my mind that it should be the duplicate, the one of the other, but instead of this here was presented the 9th day of September. For a moment I was entirely cast down, but I went on my way to the office, and passing a book store, I went in and took up the history of the United States, by Bancroft, and there, turning to the date, 1774, my eyes fell immediately on these words: "ON THE WISDOM AND ON THE EXERTIONS AND ON THE FORTITUDE OF THIS IMPORTANT DAY IS SUSPENDED THE FATE OF THE NEW WORLD AND UNBORN MILLIONS."—Joseph Warren, in Suffolk County Convention, *9th day of September, 1774.* The conviction came to my mind instantly that this must be the date, and though I had, as I said, fixed upon the 7th day of September, I had found that this would not fit the position of the heavens. I had sought another person's aid in calculating. This calculation gave the 9th of September, and then I found a date with which I was utterly unacquainted, one of the most remarkable of all American history.

Paul Revere was sent post haste to Philadelphia on horse-back with these resolves, and they were presented on the 17th day of September, just eight days after their passage. They were passed again as the first solemn act of the first Congress of the United Colonies of America, and history calls them the first Declaration of Independence. This date had never made any impression on my mind nor had I known of it. Some of the most remarkable dates in history are concealed entirely until the time it is necessary to bring them out. General Gates, when he had news of the promulgation of this act, said that they must have been drunk with new wine. The answer was, "Not so, for it was not yet the third hour of the day." Here would be noted a very curious combination of dates. On the 7th or 17th day of September, 1643, was passed the Scotch Covenant by the House of Parliament. September 17th, 1630, the date of the foundation of Boston. The 7th, 1643, also was the rise of the United Colonies of New England, that is Old Style—New Style, the 17th.

But the initial point we see is the 9th day of September, 1774, when General Warren and his followers, with their lives in their hands, made that wonderful declaration called the Suffolk resolves. I felt that I had the duplicate, and it was brought to my attention only through the position of the heavens and astronomical vision; and yet with these proofs I did not feel so thoroughly convinced but that I would be sometimes shaken with the impossibility of a prophet having given proofs of the rise of our republic by the position of the sun, moon and stars.

During this year (1877) I had the picture drawn by Mr. Willard for the purpose of photographing it, and I gave a short description of it upon a card, determining to send it out among my friends privately, that they might examine and criticise it. When I had a number of these cards printed, photographed and prepared for distribution, then for the first time did I really comprehend the importance of what I was doing, and I said, "Have I the right to publish to the world a new version of that seemingly sealed book, the Apocalypse of Saint John? Have I the right, unworthy as I am, to attempt to unfold these

mysteries? This first verse of the twelfth chapter of Revelation had been called a key of the Apocalypse by many. It was and has been a stumbling block to commentators. Mr. Baldwin had said—and he was the only one—that the twelve stars represented the twelve United States.

Then these words of Luther came distinctly to my mind, "Every man must interpret the Scriptures for himself." And yet with this I said, "I wish that I had convincing proof to my mind that I have a right to promulgate this thought, and that I may have a sign to prove to me that I have it." I retired that night more thoughtful than usual and deeply impressed with the importance of the matter I had in hand, hoping that something would come to convince me of the correctness of my position. Next morning I awoke early with my mind intently fixed upon the same thought, and I said to myself, "How shall I get this sign?" Then came the Scripture to me of the sign of the Prophet Jonah; but in a moment my little girl came rushing into the room and said, "O, papa, look at the American flag in the heavens." I was loth to be disturbed, but got up and went to the window, and there observed a bright picture of the Stars and Stripes in the heavens, calling to my mind,

> " He striped its pure, celestial white
> With streakings of the morning light."

I was in the habit of selecting a verse of Scripture for my children to repeat at the breakfast table, and the thought came that the verse that I should select for that morning might strengthen and guide me. When I opened the Bible, I saw but one verse—the seventh verse of the fiftieth chapter of Isaiah— " *For the Lord God will help me; therefore shall I not be confounded; therefore have I set my face as a flint and I know that I shall not be ashamed.*" This it will be noticed is called " bibliomancy," and there was a time when the Pope's Bull was issued against its practice, but it had been the practice for some time of my own mother, and I could not consider it wrong. I believe that this verse was given me to sustain and strengthen me against the doubts and fears of my own nature and my mistrust, not only of worldly persons, but of ministers in the church ; and so I placed it at the bottom of my picture under

the coat-of-arms of my father and my mother. In this year I determined to have a large picture painted making each one of the figures full size. And I had Mr. Willard study particularly the figures and faces and the characters of Columbus, Luther and Washington. It was my desire to present Columbus in a prayerful attitude, thanking God for the consummation of his hopes and prayers. I desired to have Luther placed in a position as at Worms with an open book in his hand, inasmuch as he was a prophetical character representing the angel of the tenth chapter of Revelation. I had him represented with an aureola over his head and in a prayerful attitude. I desired these figures to be changed in expression to give them an attitude of prayer. To this Mr. Willard demurred, saying that it would be impossible; but when I urged it he attempted it, and was successful in giving the desired expression. In Washington also I wanted the prayerful attitude, representing him at the time of the surrender of Cornwallis at Yorktown, when a nation as well as the army were on their knees. Each of these characters would have the birds which they represented—namely, the dove, the swan and the eagle. Upon examining the books upon the subject I found that it was the custom in ancient times to portray persons who had holy missions with birds' heads, as St. John was painted with an eagle's head, and St. John may be considered the eagle prophet. Columbus was represented with a staff and the banner of his mission, upon which was represented the Saviour upon the Cross, and above Christo Ferens. Columbus always signed his name with the letters

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X P O   F E R E N S

</div>

which was a prayer, and below this,
Servus suplex altissimi Salvatoris—Christus, Maria, Joseph—Christo Ferens.

During the year 1878 I noticed the remarkable earnestness with which the ladies of Boston had taken hold of the preservation of the old South Church. Mr. Willard's painting had been sent there and placed on exhibition, and it struck me that the Suffolk Resolves ought to have been passed there. I determined to investigate the matter.

In June I attended the Convention of the American Society of Civil Engineers in Boston, and I entered the old South Church for the first time on the 20th of June and examined its historical points. I endeavored to examine into the Journal of General Warren, but the representative of the Warren family was not there, and I could not see the book. It occurred to me that some old letters of the Warren family, or some of those who were present at the passage of the Suffolk Resolves would disclose something more important than would be found in history about the remarkable character of the proceedings of that day. So I left the place and went to the State House and there found something that I much desired to see—namely, a statue of General Washington, and a remarkable slab presented by Earl Spencer to Charles Sumner, and by him presented to the Commonwealth of Massachusetts. Here I also saw a photo-lithograph which was presented to me of the inscriptions on these slabs. This was very interesting and showed positively the colors of the red, white and blue and the stars, and convinced me of the correctness of my thought that these were the same as the colors in the vision of the heavens, and that his crest was an eagle. This surely pointed out Washington as the one who should defend the woman or the church, the representative of Michael in the New World. Going from there to the city library I examined all the old documents and records I could find in relation to the Suffolk Resolves, to find the place of their passage, but was disappointed. I sought the life of Paul Revere. I was directed to the Historical Library. Rain began to fall and I was discouraged. It was Saturday, and I concluded that I would have to leave the city without having completed my mission. I went to the hotel, paid my bill and was about to leave, when I met the landlord, Mr. Wollcott, at the door.

He asked me what things of interest I had seen, and I told him that I was about to leave the city discouraged. He asked why, and I said, "I am seeking for a house where the Suffolk Resolves were passed." He said, "I am your man. I can tell you the very house, and there is a marble slab in that house which will give you important information. Mr. Latimer I pass that house every day. and I never pass it without taking off my hat. This reverence is involuntary." I said, "I shall stay to-night and go to that house to-morrow after church." The next day, without my dinner, I made directly for Milton, where he said I would find the house near the Old Colony Depot. It was half past two o'clock on Sunday afternoon, on the 23d of June, when I stood in front of the house, a two-story frame building, well preserved, with a portico in front. It might have been called a handsome house in its day. Before it stand three remarkable elms. I was struck with the size and grandeur of these trees, and I thought of the tree of which Luther spoke. There is something in the elm of more than ordinary significance. On the front of the house there was an inscription, "In this mansion on September 9th, 1774, at a meeting of the delegates of every town and district in Suffolk, the memorable Suffolk Resolves were adopted. They were reported by Major General Warren, who fell in their defense in the battle of Bunker Hill. They were approved by the members of the Continental Congress in Philadelphia, on the 17th of September, 1774. The Resolves to which the immortal patriot first gave utterance, and the deed of that great day upon which he fell, led the way to American independence Posterity will acknowledge the virtue which preserved them free and happy." When I had read these words, I said, "This is the birthplace of American Liberty, and the Lord has shown me where to find it."

I said that the thought came to me that the Suffolk Resolves had been passed in the Old South Church. In this I was disappointed, but upon examination of the history of the Old South Church I found that the very spot upon which it stands was the prophetic spot of the rise of the United Colonies of New England in 1643, when John Winthrop must have signed the articles of confederation. I said once to Mr.

Willard that the flag might be said to have been born in the Old South. And when I got its history, and saw the account of the hoisting of the flag on the Church in 1861, I read the words of the orator, "We welcome thee back to thy natal spot, to the place where thou wert born, flag of the free."

It is a strange coincidence touching this subject of astronomy or astrology, that the position of the heavens at the moment when I stood before the house was the same as on the 9th day of September, at 9 o'clock in the morning, 1774 ; this time that I stood there being between 2 and .3 o'clock in the afternoon of June 23rd.

I endeavored to gain an entrance to the house, but the child who came to the door said I could not go in on Sunday, but I must go to Mr. Safford, the owner. He received me very cordially, and when I explained my mission he gave me all the information in his power.

My first question was : " What time did this meeting take place ? " He said, " Between 9 and 10 o'clock in the morning." I asked him what time they passed the Resolves. He said that as far as Mr. Frothingham, who was examining the subject, had been able to find out that they passed late in the afternoon. I asked him if he had no letters of a private character which would give information about that remarkable day, and he said that Mr. Frothingham had collected many letters on the subject. He then read to me a portion of his address delivered on the centennial of the passage of the Resolves on September 9, 1874, which was about the beginning of the centennial celebrations. He informed me that a part of the resolves would be found in gilt letters on the inside of the house, and said that the fact that our forefathers looked upon this confederation of the colonies as a religious confederation, lent color to my thought.

When reading the editorial remarks upon the address of Mr. Safford, I was struck deeply with these words which confirmed my own utterance : " It seems to be a part of the duty of the good people of Milton to cherish the old house and its inscription, and preserve it intact as the birthplace of American liberty."

I cannot think of the circumstances which surrounded our forefathers at the time of the passage of these resolves without thinking of Bethlehem. These men had desired to meet in the old South Church, but they could not; they were forced outside. Therefore Liberty could not be born in the city because five thousand troops occupied the neck, and they could not enter. Hence their meeting had to be in this old house. Then I thought, here is a duplicate. This, it seems to me, was the birth of Christ's kingdom. Here was a similar situation, and they all had to go outside of the city, and liberty was born there. It is said in the Scriptures that the star stood over the place where the young child was. "Surely," I thought, "this may be the same thing," and I concluded that 4 o'clock was the time of the birth of these Resolves, and that the Corona Borealis marked the passage of the Resolves in the afternoon of the 9th day of September, 1774. Then I recalled the fact that at sea in taking observations as we stood near noon watching the sun rising to its culmination, we would say, "Is the sun on the stand?" Then the thought came, "Is this constellation passing the meridian at the exact moment of the birth of this child" And then I thought, "This Corona Borealis must have been over Jerusalem at the moment of Christ's birth.

I afterwards found from Kepler's works that it was a constellation that marked Christ's birth, and not an ordinary light. This of course is a natural thought. On my return I asked Professor Stockwell, the astronomer, to examine the position of the Corona Borealis in the year One, or the beginning of the Christian era, to see whether it was vertical over Jerusalem at that time, which he did. And it was there, having moved about nine degrees north in 1800 years. I then sent Dr. Seth Pancoast, of Philadelphia, who has given much attention to the study of astrology, a copy of my picture—the Stars and Stripes of the Magi—and asked him if he could give me any assistance. His answer came: "What you are seeking is the UNVEILING OF ISIS, but neither you nor any other man can unravel that mystery, unless you understand the subjective Kabbala. You are beginning at the wrong end; you are beginning with the

objective Kabbala." Up to this time I had not thought of the subject of Isis, nor did I comprehend its meaning.

This brings me to the last phase of my subject, which I propose to present and finish in the next number.

CHARLES LATIMER.

METRIC SYSTEM PROPOSED BY MR. JACOB M. CLARK.

(Arranged from correspondence with the Committee on Standard Time).

Adjustment; increase the English inch, and also the Arabian gauge or guz (= 25 English inches) each by its 1-1000 part.

For the Arts: Inch decimally subdivided.

Denomination.	Metric Feet.	
City, or Builders' chain,	100.	=40 cubits = 5 rods =4 perches. Value, =83.416+English feet.
" reed,	10.	=4 cubits
" foot,	1.	the natural foot.
" inch,	.1	=value, 1.001 English inches.

City lot=30×120 feet=13×48 cubits metric. 10,000 inches metric is the entire boundary of a square acre.

Engineering and Geodesy: Cubit decimally subdivided.

Denomination.	Metric Cubits.	
Earth's semi-axis (polar,)	10,000,000.	Grand Unit for Astronomy and Geodesy,
Acre (side),	100.	Convenient length for steel tape-chain. value=208.5416+Engish feet.
Perch,	10.	Convenient length for base-bar, value = 20.854+English feet.
Cubit,	1.	Unit for engineering, leveling, etc.; value 25.025 English inches.

Solid cubit, the measure of engineering quantities.

Superficial acre of 10,000 square cubits contains 43,489 and 44-100 square English feet and differs from the English acre by 1-6 of 1 per cent.

Adaptations for Rural and Commercial Purposes.

8 cubits=metric rod=200 inches metric, for land, etc.

2 cubits=metric staff=50 metric inches for wood, etc. The metric cord=about 1¼ present cord.

Metric ell=40 metric inches, for cloth, etc.

Circular Measure : Time, arc and angle measure.

Denomination.	Metric Degrees.	
Circle,	240.	The quadrant=60 degrees metric.
Metric hour angle,	10.	The Zodiacal sign=20 " "
" degree,	1.	=1½ degrees, current division.
" minute, or prime,	.1	
" second,	.01	
" third,	.001	

Geographic : Road and sea measure.

Denomination.	Metric Miles.	
Mean great circle,	24,000.	} terrestrial, *upon radius of volume.*
" degree,	100.	
" offing,	10.	
Metric mile,	1.	Value=5472 Eng. ft. = { The True Turkish mile ¼ of ancient parasang .½ sum of Jewish mile and Sabbath day's journey.
Metric stadium,	.1	=Stadium of Posidonias.
" road-chain,	.01	= { Knot-measure, glass 1-100 an hour. Mast-length, the height from which the horizon appears ten miles away.
" fathom,	.001	=3 Jewish civil cubits (Mosaic).
" span,	.0001	=0.2624 cubits=6 and 56-100 ins. metric.

Metric furlong, or cable length=125 fathoms.
(Kilometer of France=6-10 of metric mile, very nearly).

8 furlongs, or	
10 stadia, or	
328 rods.....or } =one mile and {	⅛ mile=41 rods.
2,624 cubits, or	¼ furlong=41 cubits.
6,560 feet metric	1-16 stadium=41 feet metric.

ANALOGUES OF AVOIRDUPOIS POUND.

FROM ALEXANDER'S "WEIGHTS AND MEASURES."

NAME.	LOCALITY.	VALUE, AVOIRDUPOIS POUNDS.
Agito	Pegu	0.848214
Arratel	Portugal	1.011860
Cheki	Bassora	1.028571
Frongeweicht	Augsburg	1.082621
Funt	Cracow	0.894929
Funt—old measure	Poland	0.894929
Funt—since 1819	"	0.894089
Funt	Russia	0.901691
Krinne—small	Graubundten	1.147243
Libbra—peso grosso	Belluno	1.139150
Libbra	Corfu	0.900419
Libbra, of Venice	Ionian Isles	1.051857
"　　new standard	"　　　"	1.
"　　peso grosso	Padua	1.072663
"　　peso grosso	Rovigo	1.052379
"　　peso grosso	Treviso	1.139250
"　　peso grosso	Venice	1.052750
"　　peso grosso	Verona	1.101986
"　　peso grosso	Vicenza	1.072663
Libra	Acapulco	1.014286
"　　for chocolate	Alicant	1.046571
"	Bilbao	1.078800
"	Callo	1.014286
"	Canary Islands	1.014843
"	Caraccas	1.014286
"	Castille	1.016097
"	Catalonia	0.882
"　　sutil	Gallicia	1.016286
"	Gibraltar	1.0175
"　　English	"	1.
"	Guatemala	1.014286
"	Madeira	1.010929
"	Madrid	1.016097
"　　menor	Minorca	0.882
"	Mexico	1.014286
"	Montevideo	1.014286
"	Seville	1.015337
"	Valparaiso	1.014286
"	Vera Cruz	1.015337
Livre—old measure	Amiens	1.017286
"	Antwerp	1.036668
"	Arles	0.862681
"	Avignon	0.901143
"	Besancon	1.064943
"　　old measure	Bordeaux	1.09
"　　new measure	"	1.102369
"	Bourbon Islands	1.079219
"	Bourges	1.032571
"　　commercial	Brussels	1.031143
"　　for gold and silver	"	1.084740
"	Cambrai	1.036286
"	Carpentras	0.881895
"　　metrical	France ; till 1840	1.102369

NAME.		LOCALITY.	VALUE, AVOIRDUPOIS POUNDS.
Livre—poids de marc		France ; before 1800	1.079219
"	for silk	"	1.011768
"	apothecaries', new measure	" since 1837	1.102369
"	current	Geneva	1.101816
"	old measure	Grenoble	0.920186
"		Savoy	1.079219
"		Haiti	1.079219
"		Lausanne	1.102369
"		Liège	1.029879
"	jewellers'	"	1.084913
"	old measure	Limoges	1.062514
"		Louvain	1.034614
"	commercial	Lyons	0.944317
"	for silk	"	1.011768
"	poids de marc	"	1.079219
"	commercial	Marseilles	0.899349
"	commercial	Mons	1.026457
"	jewellers'	"	1.084264
"	old measure	Montpellier	0.887259
"		Namur	1.028729
"	old measure	Nancy	1.004714
"	old measure	Nantes	1.090071
"	commercial	Neufchâtel	1.146710
"	for gold, silver, etc.	"	1.079219
"	wholesale	Rouen	1.122378
"	of Alsace ; old measure	Strasburg	1.037711
"	old measure	Toulouse	8.099430
"	old measure	Tours	1.048857
"	old measure	Troyes	1.146464
Mina		Ancient Attica	0.962582
Nen		An-Nam	0.860950
Pfund		Aarau	1.050747
"		Aix-la-Chapelle	1.029703
"	for spices, etc.	Appenzell	1.025549
"	old measure	Augsburg	1.041943
"	apothecary	Austria, generally	0.926
"		Baden	1.102369
"		Basel	1.079232
"	since 1816	Berlin	1.031180
"	before 1816	"	1.032895
"		Berne	1.146710
"		Bremen	1.099062
"	old measure	Breslau	0.902067
"		Brunswic	1.0306
"		Bohemia	1.134
"		Cologne	1.030611
"		Dresden	1.029265
"		Frankfort	1.114073
"	for gold and silver	"	1.031552
"		Gotha	1.030510
"		Hamburg	1.067886
"		Hanover	1.079444
"	old measure	Heidelberg	1.112382
"		Hesse-Cassel	1.067534
"	for gold and silver	" "	1.031310
"	since 1821	Hesse-Darmstadt	1.102369
"		Holstein	1.067975
"	old measure	Konigsberg	1.032940
"		Leipsic	1.030598
"		Lippe	1.030596
"		Lubec	1.068744
"	old measure	Luneburg	1.073

NAME.	LOCALITY.	VALUE, AVOIRDUPOIS POUNDS.
Pfund	Mecklenburg	1.067154
"	Nurnberg	1.124321
" for gold and silver........	"	1.052
"	Oldenburg	1.059083
" old measure..............	Prague.......................	1.134286
" legal	Prussia......................	1.031180
"	Rostock	1.120452
" for gold and silver........	S. Gall.......................	1.033131
" for gold and silver........	Schaffhausen....................	1.014190
"	Solothurn	1.143110
"	Weimar.......................	1.030598
"	Wurtemburg...................	1.103114
" for gold and silver........	Zurich.......................	1.035682
Pond; of Brabant..........	Amsterdam..........	1.037080
" Troy..................	"	1.084740
" former.................	"	1.087875
Pound ; imperial.................	England, since 1825.............	1.
" Troy...................	Scotland......................	1.088778
" avoirdupois..............	United States..................	1.
"	Denmark......................	1.100885
" for gold and silver..........	"	1.038000
"	Sweden.......................	0.937284
Ratel; mean	Persia	1.025
Rautul.......................	Travancore....................	0.999964
Rotl or Rottôlo ; { feuddi; for gold and silver....	{ Algiers................. .	{ .1.096714
"	Bet-el-faki....................	1.019531
"	Cairo........................	0.950312
"	Guinea.......................	0.953782
"	Tripoli in Africa.	1.112095
"	Tunis........................	1.091547
Rotôlo.......................	Genoa	1.15359
"	Majorca	0.92794
Seer; commercial; mean of 22....	East Indies....................	1.049423

ANALOGUES OF **10** POUND WEIGHT, (STONE.)

NAME.	LOCALITY.	VALUE, AVOIRDUPOIS POUNDS.
Balman..........	Shiraz	10.12687
Dhurra ; mean of 16.............	Hindostan	10.047190
Pussaree	Calcutta	10.266137
Stein ; for wood or feathers.......	Altona......	10.6975
"	Baden	11.023685
"	Solothurn..........	11.4311

ANALOGUES OF **100** POUND WEIGHT (CENTAL).

NAME.	LOCALITY.	VALUE, AVOIRDUPOIS POUNDS.
Caban ; of rice..................	Ternate........................	100.333333
Cantaro ; since 1816.............	Alexandria....	95.56
" for cotton.............	"	95.
"	Balcaric Isles.................	91.73
"	Florence....	112.3
" grosso.................	Genoa..........................	115.31
" sottile.................	"	104.83
"	Leghorn	112.3
" piccole	Naples.........................	106.080
"	Tripoli in Africa...............	111.20954
" barbaresco.............	Minorca........................	88.20
"	Tunis..........................	109.1547
Cariolla ; for salt..............	Santa Maura...................	104.13
Centner ; actual measure........ ..	Breslau........................	113.44
"	Darmstadt	110.23685
"	Copenhagen...	110.11
"	Norway..... :	110.11
"	Nurnberg......................	112.4321
"	Prussia.... ... :	113.44
"	Zoll-Verein....................	110.23685
Centenar.................... ...	Amsterdam	108.94
Hundred-weight ; nett...........	England ; 1300.................	100.
" " for sugar and wax	" "	108.
" " for wool.........	" "	110.
" "	Great Britain..................	112.
" "	Maryland	100.
" " for coal.........	"	112.
" "	United States..................	112.
Lagel ; for steel...............	Prussia........................	103.11550
Last ; commercial...............	Amsterdam.....................	85.245696
" commercial...............	Lubec	96.930940
Kichkar........................	Anc. Hebrews....	96.258287
Maund ; mean of 6..............	Bengal ; prov..................	85.541833
" mean of 2.....	Malda ; prov...................	100.45
" for cotton ; mean of 2....	Malwah........................	86.4746
Moosa.........................	Cyprus.........................	112.
Oder..	Majorca	100.217784
Quintal........................	Aragon	109.738476
"	Bordeaux.......................	110.23685
"	Buenos-Ayres.....	101.4178
"	Canary Islands.................	101.483944
"	Castille and Chili....	101.6097
" old measure............	France ; generally..............	107.9219
" Castillian.............	Gallicia........................	101.6163
"	Majorca	89.95327
" barbaresco	"	92.794247
" old measure............	Marseilles.....................	89.931222
"	Mexico and Peru...............	101.6097
"	Minorca	91.537533
"	Valencia.......................	109.728476
Quintale ; peso grosso; old measure	Venice.........................	105.275
Scroon ; for raisins ; mean.......	Malaga	88.908488
Talanton....	Ancient Babylonians	96.258295
" Æginetic..............	Ancient Greeks.................	96.258295
Talento ; actual measure.........	Ionian Isles....................	100.

The surprising range of the analogues of the avoirdupois pound in the metrics of the world is suggestive of the question whether, after all, the idea of John Quincy Adams, in effect,

that systems or standards of measurements preceded the organization of society, is not a pretty close shot at the truth. It will be understood, in reading the table, that if the linear dimension had become degraded or exaggerated by 5 per cent., the cubic dimension would be affected by a little over fifteen. Accordingly I have taken the limit at 15 per cent. either way. Under a less stringent rule the list would, of course, have been more extensive. The entire conspectus embraces the varieties of the mark, which I conceive to be derived from the Roman *as*, and of the troy and apothecary pounds, representing the Roman *pondus* and *nonnuncium*

In the table of linear and square measure, submitted some time ago, no attempt was made, further than to suggest something that would practically meet the wants of the American people. And the writer had remarked (Trans. Am. Soc. C.E., Dec. 1881) that " the inch being subordinate, it remains a question whether weight and capacity should not be founded on the radial cubit " Further investigation has shown, however, that if we raise the itinerary span, as the writer gave it, to the third power—*i. e.*, $(6\frac{56}{100}$ Pyramid inches$)^3 = 282\frac{3}{10}$ cubic Pyramid inches, we strike the imperial gallon of 10 pints, and in water a weight of 10 avoirdupois pounds, close upon the present scale of usage. It is a question, then, whether the pint and the pound should not be regarded as fundamental units rather than the ounce and the grain. It does not affect the logic of Totten's principle one way or the other, but simply shifts the transition factor in his grander and more comprehensive scheme to another place in the scale. And this accords with Professor Piazzi Smyth's idea of the relation of the pint and the pound to the coffer in the king's chamber.

In the ultimate adjustment and re-arrangement of our methods of expressing the correlation between weight and capacity and the various forms of force or " modes of action," which Colonel Stephen M. Chester insists is both feasible and necessary, it is apparent that the π-relation must come in somewhere. The span is both π-related and earth-commensuric under the most perfect division of the circle. It monuments, at the same time, the fact and amount of the earth's ellipticity. It is a natural

human measure and it is cosmic. These considerations confirm me in the belief that the pint (or the imperial gallon) and the pound will be the units for scientific purposes. But I see no reason why the ounce, $\frac{1}{16}$ of a pound, should not also be a unit for its own appropriate sphere. And, if the habits or convenience of any people create a preference among them for the mark or the troy pound, they could be adjusted respectively at eight and twelve ounces. As there must always be individuals, so there must always be separate nationalities. But the correlations between their methods can and should be expressed by simple factors. Fractional arithmetic, too, is indispensable for the minor affairs of traffic and industry.

JACOB M. CLARK.

NEW YORK, August 8th, 1884.

GLIMPSES OF OUR CELTIC ANCESTORS BY EDWIN WILMSHURST RETFORD, NOTTS, ENGLAND.

PART II.

We left Pudens, the Roman Patrician with his Cymric wife Claudia, on military duty, at Regnum (now Chichester) in Britain about A. D. 60. How and when did the Apostle Paul become acquainted with them? Our Lord instructed his apostles when rejected by the house of Judah, to go to the "lost sheep" of the "house of Israel," and accordingly we find that after the day of Pentecost, the twelve separated, never to be reunited in this world; and instead of preaching to the people most contiguous to the Holy Land, they penetrated into far distant and separated countries—*e. g.*, St. Thomas journeyed to the extreme confines of India, and converted the people still called after him, viz : the "Christians of St. Thomas" on the coast of Malabar. Following up we may reasonably conclude, a remnant of the "escaped" of Israel who had gone east, when the main body went off west, as recorded in II Esdras xiii, 40-46, and I Maccabees xii.

And would the great apostle forget those "lost sheep" in the West, scattered among the nomad tribes of Celtic Gentiles, to whom he was expressly sent? No ; we read that his journeys always tended in a westerly direction, and we have it expressly recorded by Clemens Romanus, his friend and fellow laborer, that he visited not only Gaul and Spain, but the UTTERMOST parts of the west ; for allowing (which no one doubts) that he journeyed to Gaul and Spain, there was a country still further west which, alone, could be the "uttermost ;" and if Great Britain is not expressly mentioned, considering the long previous colonization of Cornwall, Devonshire, and Ireland, by Greek Phœnicians, it would be highly improbable that St. Paul made Spain the end of his travels, even if persistent tradition and isolated remarks in Roman authors did not affirm the contrary.

Eusebius asserts that the apostles "planted Christianity in Britain, and passed the ocean to the British Isles." Baronius, on the authority of an ancient Vatican manuscript, "that the gospel was preached there by Simon Zelotes and Joseph of Arimathea, A. D.

35, and that the latter died there." Callistus makes the same assertion. Dorotheus, Bishop of Tyre, records the landing in Britain of Simon ; that he was slain and buried there, and (note this) that Aristobulus (mentioned in St. Paul's Epistle to Romans) was ordained first bishop at a time when we know from the Welsh ode, translated by Lord Aberdare—

<blockquote>
" His country's stay, the valiant and the sage,
Was Bran-Ap-Llyr, the eagle of his age. "
</blockquote>

And the Welsh triads tell us, moreover, that " Bran, the blessed, first introduced the Christian teachers," and that on his return from Rome—where he was seven years a hostage for his son Caradoc, or Caractacus—" He was accompanied by Arwystlihen (Aristobulus the aged) a man of Italy," whom the Silurian Pedigrees of saints describe as being " the chaplain or confessor of Bran." William of Malmesbury agrees with the Vatican manuscript about Joseph of Arimathea, but gives his arrival as sent by St. Philip A. D. 61.

Lippomanus asserts that St. Peter preached to the Britons, for he carried (says Nicephorus) " the doctrine to the Western ocean and the British Isles."

Irenaeus (2nd century) speaks of Christianity as propagated to the utmost bounds of the earth by the apostles, and specifies churches in Spain and " among the Celtic nations "— *i. e.* Gaul and Britain.

Tertullian (2nd and 3rd centuries) states that Christ reigns over Britain, which the arms of the Romans had not yet subdued. " St. Jerome " (4th century) says St. Paul, " after his imprisonment, having been in Spain, went from ocean to ocean, and preached in the western parts." We know that Bran was sent to Rome as hostage in A. D. 51, remained seven years and was converted there, and released by the imperial edict in A. D. 58, and moreover, that St. Paul was sent to Rome as a prisoner in A. D. 56 ; was on parole " in his own hired house " for two years, and was consequently, by the same edict, released at the same time as Bran, A. D. 58, so that Paul, of Judah, and our Cymric hero Bran, both Christians, were both set free in Rome together, and that Aristobulus, another Italian Christian mentioned by St. Paul in his Epistles, accompanied Bran back to Britain as his chaplain.

Here is a glimpse of the first beginnings of Christianity among our Celtic ancestors, which cannot fail to be interesting to those who can understand that the mission of the apostles to lands as far apart as Malabar in India, and the Celtic colonies in Britain, was not the result of accident or chance, but a part of that great drama which, beginning with the " casting out " of the ten-tribed house from Samaria to Media B. C. 700, will, under the never slumbering eye of the Shepherd of Israel, go yet beyond our own times, until the " house of Judah " shall walk to the " house of Israel," and they shall go together to their own land, never again to be rooted up.

We shall in our next chapter endeavor to prove that Pudens and Claudia, when the term of military service in Britain was completed, resided at Rome, and were the patrons and protectors of both Roman and British Christianity.

It is not improbable that the (still existing) streets of Roman Chicester may have been trod by Aristobulus and St. Paul during the residence of Pudens and Claudia in that city. It is almost *certain* that they were also visited by the future destroyer of Jerusalem, after Aulus Plautius, with his German Auxiliaries and his elephants (the bones of one of which were found near Battle Bridge) had subdued the Regni, he was succeeded by Vespasian, who fought many battles with the natives, took twenty towns and the Isle of Wight. When Vesparsian was once surrounded by the Britains, his son Titus rushed to his rescue and extricated his revered parent, thus training himself in Britain for the awful task he was, as an instrument of Providence, to accomplish in punishing the House of Judah, by subjecting to the Roman arms, for a limited period, the " Lo-Ammi " outcasts of the Khumric or Cymric branch of the " House of Israel."

AN OPEN LETTER TO THE PRESIDENT OF THE UNITED STATES.

At a special meeting of the New York & New Jersey Branch of the International Institute, the following resolutions were unanimously passed, and a Committee appointed which drew up and signed the following open letter :

WHEREAS, The Ohio Branch of the '' International Institute for Preserving and Perfecting the Anglo-Saxon Weights and Measures " is at this moment in special session at Cleveland, Ohio, considering the subject of the Standard Time, and whereas this subject, in October, is to come up, together with other equally important topics, before an International Congress to be convened at Washington,

Resolved, That the New York and New Jersey Branch of this Institute extends its sympathy and interest to the Ohio Branch, and pledges its best efforts to bring the objects of our society into public notice. In furtherance thereof, and in view of many contingencies with which this subject is surrounded,

Resolved, That an open letter be addressed to his Excellency, the President of the United States, asking that the conservative element in favor of retaining and perfecting our national weights and measures, be accorded a due representation in the coming International Congress which is to convene at Washington, D. C., upon October 1st, 1884.

Resolved, That a Committee be appointed by the President with power to act and to draw up such a letter, setting forth the urgency of the occasion, and calling attention to the danger which threatens our institutions.

Resolved, That said Committee sign the document in behalf of the New York and New Jersey Branch of the International Institute, and that it be duly forwarded through the President of the Branch to his Excellency, the President of the United States, and that they furnish copies thereof to the Press, with the request that it be kindly favored with an early publication.

> NEW YORK AND NEW JERSEY BRANCH OF THE INTERNATIONAL
> INSTITUTE FOR PRESERVING AND PERFECTING ANGLO-SAXON
> WEIGHTS AND MEASURES.
> ROOM NO. 24, COOPER UNION,
> NEW YORK CITY, July 30th, 1884.

To THE PRESIDENT OF THE UNITED STATES OF AMERICA, CHESTER A. ARTHUR, EXECUTIVE MANSION, WASHINGTON, D. C. :

Mr. President : In October, 1883, an International Congress was appointed by the several countries represented to decide upon a Standard or Prime Meridian, and met at Rome.

The Anglo-Saxon representation strongly urged the adoption of the long established and universally known English and American lines.

A disposition to accept such lines was manifested by the Latin representation, provided the English and American delegations accepted and endorsed the French Metric. System of Weights and Measures.

This Congress arrived at no definite conclusion, but adjourned to reassemble with somewhat changed personality, perhaps, at Washington in the coming October (1884). Although the American Convention is an entirely original one, convened by yourself, at the suggestion of a Resolution of the United States Congress, it will thus, nevertheless, necessarily have the nature of an adjourned meeting of that held last year.

It is now distinctly and popularly believed that this Congress is not only to arrange for the one or several meridians above alluded to, but under cover of such authority is expected by the Latin nations to commit this nation to the acceptance, or at least the endorsement, of the system of weights and measures by which the English speaking peoples must in future be governed.

This convention will thus, unquestionably, have to consider and pronounce upon subjects of the very greatest importance to the masses, and which were not originally contemplated by Congress as belonging to the report to be made.

We, therefore, representing the large majority who are anxious to preserve and perfect the Anglo-Saxon System of Measurements, and who are convinced that while you have already selected delegates to represent the country in this Convention, on account of their high scientific ability, and as those who would best support our own interests and desires in the mere selection of a Prime Meridian, and yet certain that the Convention will have to consider, report upon, and at least partially commit the nation in other and far more extended directions, do respectfully submit to you the accompanying arguments in favor of the retention, with improvements, of our own ancient and popular system of weights and measures, and as forming part of this communication, request their careful consideration.

We also earnestly request that if any or all of those whom you have chosen to represent the nation in the said Congress are already committed to, or partially favor, the adoption of any foreign system of weights and measures, that at least the very great mass favoring the conservation and perfection of the Anglo-Saxon systems shall be equally represented.   We have the honor to be, sir,

<div style="text-align:center">Your most obedient servants,

STEPHEN M. CHESTER, C.E.
President of the Committee.</div>

<div style="text-align:center">MEMBERS OF THE COMMITTEE.</div>

FRANK H. NORTON,	E. HAZZARD SWINNEY.
B. S. CHURCH, C.E.	JOHN R. MOORE, C.E.
GEO. HENRY FELT, C.E.	ASAHEL ABBOTT.
C. V. SIDELL, C.E.	CHARLES E. MAXWELL.
SAMUEL McELROY, C.E.	CHARLES D. CHAPMAN.
CHAS. K. GRAHAM, C.E.	COOK TALCOTT, C.E.
A. V. BENOIT.	JAMES KITCHEN.
J. H. STILLING.	C. W HAVEMEYER.
CHAS. W. CARPENTER.	GEORGE KELLOGG, C. E.
J. N. WING,	WM. K. McALLISTER.
A. B. PAINE.	E. NEHAB, S. T. D.
FRANK H. FIELD.	P. H. DUDLEY, C.E.

Respectfully forwarded to his Excellency the President of the United States of America. By direction of the Institute.   THOS. F. ROWLAND,

<div style="text-align:right">President N. Y. and N. J. Branch.</div>

<div style="text-align:center">ARGUMENT BY COMMITTEE.

ROOM 24 COOPER UNION,   }
NEW YORK CITY, July 30, 1884.   }</div>

TO THE PRESIDENT OF THE UNITED STATES OF AMERICA, CHESTER A. ARTHUR, EXECUTIVE MANSION, WASHINGTON, D. C. :

Mr. President: We have the honor most respectfully to invite your attention to a matter which we cannot but feel has never been presented to you in the light of its true national importance.

A consideration of what we have to submit is, however, so urgently needed at this juncture, that we trust the employment of a somewhat irregular method of bringing it to your attention will be pardoned.

As the Executive of so great a people, we are convinced that every subject which concerns the permanence of our institutions is sacred to you.

One of them is so seriously threatened at this moment, that we cannot resist the impulse to carry it directly to your consideration.

We refer to a matter which is certain to come up before the International Convention that will convene at Washington, D. C., upon October 1, 1884, and to which you have already appointed three delegates to represent our own country.

The ostensible object of this Congress of Nations is to decide upon a Standard, or Prime Meridian, from which hereafter the world is to estimate Longitude, Time, etc., etc.

Though called by you at the suggestion of a Resolution of Congress, and thus a measure of purely American origin, it will necessarily have the character of an adjourned meeting of the International Geographical Convention which convened last October at Rome.

The latter Convention, after having duly considered the several advantages offered by each of the proposed meridians, recognized the claims of that of Greenwich—an Anglo-Saxon one—and recommended its adoption. It is for the purpose of reconsidering this whole topic, and definitely fixing the selection, that the coming Convention is to meet.

But there was an important resolution passed at this Roman Convention which should not be allowed to escape your notice.

In conceding the location of the Prime Meridian for all time and people at the centre of an Anglo-Saxon civilization, other nations have undoubtedly put their own national prides into the background.

But they have not taken this step unwittingly, nor without a proviso which merits careful attention from the delegation who are to represent American and still more widely Anglo-Saxon institutions.

It is a well-known fact, and a noticeable one, that in every International Convention of the past the representatives of Anglo-Saxon people have always occupied and maintained a conservative position.

" We dwell alone," as it were, upon many international principles which other nations have long since abandoned. It is a race-characteristic of the English people so to do, and it is one, whether to be fostered or not, that should always be allowed a due weight in the representation of this country at International Conventions.

Now it was significantly resolved at this same Roman Convention that, in view of the concession of the Latin nations, above noted, the Anglo-Saxon world, and particularly the United States of America, should recede from their conservative position upon the question of Weights and Measures, and in return adopt the French metre, and come into the International Congress of Metrology.

Twenty of the thirty nations which will probably send delegates to Washington are already metric nations. The Convention will thus be overwhelmingly metric, and will naturally lean toward passing not only similar resolutions, but toward making them perhaps in the form of deliberate provisos.

If we mistake not, our own delegation has pronounced tendencies in the same direction. President F. A. P. Barnard, LL.D., S.T.D.—its chairman—is and has been for years the prime mover in all efforts to force the metric system upon our people.

Hitherto these efforts have failed. They have not been the result of any popular movement of which either the American Metric Bureau or President Barnard have been exponents. They have rather been the effort of a small minority of self-appointed reformers who would begin with an universal iconoclasm of all that is either good or bad in our native metrology.

In appointing additional delegates to this Convention, therefore, may we respectfully

request you to recognize the conservative Anglo-Saxon side of the several subjects involved. We feel that there should be among those who are to represent America in this Convention at least one delegate who is known to be an earnest advocate for the preservation and rectification of Anglo-Saxon Metrology.

No less of a statesman than John Quincy Adams has warned us in sound and ringing words against the metric system.

No less of an astronomer than the Elder Herschel has thrust the sword of Scientific logic through the living principle of the French Metrology.

So practical a manufacturing establishment as that of Coleman Sellers, after twenty years of fair trial, has pronounced this system inconvenient, cumbersome and unreliable, and at great expense has abandoned a costly plant, and returned to one founded upon a standard which may be conveniently subdivided into common fractional parts in terms of unit inches.

An American Society of no less standing than that of the " Mechanical Engineers " has pronounced against this system by a vote so enormous as to almost represent the popular sentiment upon this subject.

In the meantime the people have made no complaints against the ancient weights and measures. They have found them always equal to the demands of what with the spread of Anglo-Saxon civilization over the globe, has actually now become an universal commerce. The commerce of the world, its industry, and its wealth are predominantly Anglo-Saxon, and are transacted in pints and pounds and inches. The entire business of all those nations which are now metric sinks into insignificance when compared with that of the English-speaking peoples taken collectively. Anglo-Saxon Metrology is in fact the *de facto* international or universal system of the world to-day.

There are but a few thousand scientific gentlemen in our country who are upon the metric side of this question. They are mostly men who are not engaged at all in *practical* affairs. Though many of them are leaders in the several professions, they are not men who labor at the bench, the forge, or at the plow.

In no sense of the word do they or can they represent the popular desires upon this subject. That it is a subject in which every individual citizen—man, woman and child—is deeply concerned cannot be doubted.

It took France (the mother of this system, a small part only of which has survived) forty years with compulsion at the helm to ride the sea of confusion which followed its introduction.

The expense which its introduction would entail upon this country is incalculable, the discomfort and inconvenience beyond conception.

It is a foreign system. The *people* have not asked for it. They have given no demonstration which shows they desire so radical a change. There are no advantages to result from this change. There are many disadvantages. It is linked to no traditions of our race. That it is modern is no argument in its favor, unless it is better than what we now use.

But it is not much better. For it originated in the mistaken idea that all meridians of the earth are equal. They are not so. It was miscalculated in length, as well as in manufacture, and therefore cannot be recovered if lost. It is thus as purely *arbitrary* as its advocates would have us believe our own standard to be. It claims to be founded upon cosmic principles, but it is in fact far less earth commensurable than our time-honored English inch. The latter can be recovered with greater accuracy than could the " Standard Metric Bar " now stowed away at Paris.

Metrology is a vast and growing question in political economy. It had far better be allowed to work out its own destiny in the market and the workshop than be allowed to depend for its development upon the mere theories of those *who persistently ignore the very history of the metre in foreign countries.*

The decimal feature of the metric system is not one of universal advantage. This has been often shown, while, if it was, our own system admits of equally convenient decimal manipulation, both upward and downward, from the inch and the ounce, or from the foot and pound as units.

We will not attempt here to go over the arguments for and against the effort *to preserve and perfect our own system*, but take pleasure in submitting them herewith in another form.

We cannot allow a few mistaken, self-appointed, and unpractical men to commit our nation to a step which in our eyes would be like bartering our birthright for a mess of metric pottage, without making an honest effort to point out to what dire results the step will lead.

The publications of the International Institute are already quite voluminous. They consist of papers by many able men, and treat of the origin, the history, the preservation, and the perfection of our own system. Some of them at least are worthy of deep consideration at the bar of the nation's judgment.

They are at present in the form of suggestions even before our own Institute. It is as yet committed to no particular method of rectification, but is earnestly studying all that are submitted to it, and desires all fellow-citizens to examine with equal earnestness so great and serious a question.

This Institute enrolls among its members many earnest and able men, who may perhaps show our people good reasons for still maintaining their conservative position upon this matter.

The lamented President Garfield, your Excellency's predecessor, was its first elected president, and was a man devoted to its aims.

We submit herewith a list of our members, among which you will find the names of many well known to their countrymen, and would say in addition that numberless others are in sympathy with our object, though not yet enrolled in our comparatively young society.   Very respectfully,

For the Committee,

STEPHEN M. CHESTER, C.E.

CONSTANTS.

[TAKEN FROM VEGA'S LOGARITHMIC TABLES.]

		LOG.
Base of Naperian logarithms,	$E = 2.7182818$	0.4342945
Log E = Modulus of common logarithms,	$M = 0.4342945$	9.6377843 — 10.
Radius reduced to seconds,	206264.8	5.3144251
" " " minutes,	3437.7468	3.5362739 ·
" " " degrees,	57.29578	1.7581226
360 degrees expressed in seconds,	1296000.	6.1126050
" " " minutes,	21600.	4.3344538
" " " degrees,	360.	2.5503025
Diameter 1, circumference,	$\pi = 3.14159265$	0.4971499
	$\dfrac{1}{\pi} = 0.3183099$	9.5028501 — 10
	$\pi^2 = 9.8696044$	0.9942997
	$\sqrt{\pi} = 1.7724539$	0.2485749
	$\sqrt[3]{\dfrac{\pi}{6}} =$	9.9063329 — 10.

DIMENSIONS OF THE EARTH.

[ACCORDING TO BESSEL, TAKEN FROM VEGA'S TABLES.]

			LOG.
Semi-axis major..................	$a =$	3272077.14 toises	6.5148235
" " minor.............	$b =$	3261139.33 "	6.5133694
a in English feet	$=$	20923597	7.3206363
b " " "	$=$	20853654	7.3191822
a " " miles	$=$	3962.8025	3.5980024
b " " "	$=$	3949.5557	3.5965582
Ellipticity of meridian	$= \dfrac{a-b}{a} = \dfrac{1}{299.1528}$		7.5241069 — 10.

$$\text{Excentricity of meridian.. } \sqrt{\frac{a^2 - b^2}{a^2}} = 0.08169683 = \frac{1}{12.24038} \quad 8.9122052 — 10.$$

LENGTH OF DEGREES OF LATITUDE IN FEET.

0° — 362,734	50° — 364,862
10° — 362,843	60° — 365,454
20° — 363,158	70° — 365,937
30° — 363,641	80° — 366,252
40° — 364,233	90° — 366,361

LENGTH OF POLAR AXIS BY VARIOUS AUTHORITIES.

(Clarke).. .... 41,707,796 feet.
Russian... ·................. 41,711,019 feet.
Indian..... .... 41,712,534 feet.
French.... .... 41,697,496 feet..

MASSES OF THE PLANETS, THE SUN'S MASS BEING = I.

TAKEN FROM VEGA'S TABLES.

Mercury $= \dfrac{1}{4865751}$ (Encke)   Jupiter $= \dfrac{1}{1047.879}$ (Bessel)

Venus $= \dfrac{1}{390000}$ (Le Verrier)   Saturn $= \dfrac{1}{3501.6}$ (Bessel)

Earth $= \dfrac{1}{354936}$ (Le Verrier)   Uranus $= \dfrac{1}{24905}$ (Lamont)

Mars $= \dfrac{1}{2680637}$ (Burckhardt) Neptune $= \dfrac{1}{18780}$ (Peirce)

Moon $= \dfrac{1}{79.667}$ of the mass of the earth (Hansen).

FURNISHED BY PROF. STOCKWELL.

Mass of Mars determined from the motions of its satellites by Hall, $\dfrac{1}{3093500}$

DENSITY OF THE EARTH.

Col. James, at Arthur's Seat, Edinburgh,..5.316
Carlini and Plano, at Mount Cenis, ...4.950
Prof. Airy, England,..6.565
Cavendish,..5.480
Reich of Freiberg,..5.438
Reich of Freiberg,..5.882
Francis Baily,..5.660

MISCELLANEOUS.

TAKEN FROM VEGA'S TABLES.

Horizontal equatorial parallax of the sun (Encke) 8".57116 Log. 0.9330396
Distance of the earth from the sun = 95464768 English miles 7.9793886

Year according to $\begin{cases} \text{sidereal} \\ \text{tropical} \end{cases}$ Hansen and Oluffson $\begin{array}{l} 365.2563582 \text{ mean days} \quad 2.5625978 \\ 365.2422008 \text{ mean days} \quad 2.5625809 \end{array}$

Precession according to Bessel $= 50".21129 + 0.0002442926\,t$ (epoch 1750)
Precession according to Struve $= 50".2298 + 0.000226\,t$ (epoch 1750)

Equatorial $\begin{cases} \text{(Bessel)} \\ \text{(Struve)} \end{cases}$ precession $\begin{array}{l} m = 46".02824 + 0".000308645\,t \quad n = 20".06442 - 0".0000970204\,t \\ m = 46".0481 + 0".000284\,t \quad\quad n = 20".0650 - 0".000086\,t \end{array}$

Diurnal precession $= 0.".13759$ (1856).

$$\begin{array}{lll} \text{Aberration according to Delambre} & = 20".255 \\ \text{\quad\quad\quad '' \quad\quad\quad '' \quad Struve} & = 20".4451 \\ \text{Nutation \quad\quad '' \quad\quad v. Lindenau} & = 8".97707 \\ \text{\quad\quad '' \quad\quad\quad '' \quad\quad Peters} & = 9".2231 \end{array}$$

Obliquity of the $\begin{cases} \text{according to Struve} \\ \text{and Peters} \end{cases}$ ecliptic $\begin{array}{l} (1750)\ 23°\ 28'\ 17".44 \\ (1800)\ 23°\ 27'\ 54".22 \end{array} - 0.4645\,t$

Light is propagated from $\begin{cases} \text{according to Delambre in} \\ \text{according to Struve in} \end{cases}$ the sun to the earth $\begin{array}{ll} 493\text{s. }198 & 2.6930213 \\ 497.827 & 2.6970785 \end{array}$

Velocity of light $\begin{cases} \text{according to Delambre} \\ \text{according to Struve} \end{cases}$ per second $\begin{array}{ll} 193360.0 \text{ English miles} & 5.2863666 \\ 191562.0 \text{ English miles} & 5.2823094 \end{array}$

Attraction of the sun $\begin{cases} \text{K in parts of the radius} \\ \text{K in seconds of arc} \end{cases}$ according to Gauss $\begin{array}{ll} 0.0172021 & 8.2355814 - 10 \\ 3548.18761 & 3.5500066 \end{array}$

MEAN VALUES.

FURNISHED BY PROF. STOCKWELL.

Tropical year, 1850, in mean solar days,............................365.242213655
Annual variation of tropical year,.................................0.0000000669

Maximum length of tropical year,..................................365.242783910

Minimum length of tropical year,..................................365.241529283

Length of a lunation in 1850,.......................................29.530588572

Maximum length of a lunation,............................ .... 29.53153417

Minimum length of a lunation,......................................29.53053100

NOTE.—The figure and magnitude of the earth are easily deduced from two measured arcs of a meridian at different latitudes, the most favorable case being where one arc is situated at the equator and the other as nearly as possible to the pole.

RECENT DETERMINATIONS OF THE PARALLAX OF THE SUN.

FROM TRANSIT OF VENUS IN 1874.

1875	Pinseux,..	8".879
1877	Lindsay and Gill,..............................	8".765 or 8".815
1877	Airy,.....	8".760 or 8".754
1878	Stone, ...	8".884
1878	Tupman,..	8".813

FROM TRANSIT OF VENUS 1882.

Hongean, Royal Observatory of Brussels,......................8".878

A LETTER TO COL. INGERSOLL.

66 WEST 4TH ST., NEW YORX, MAY 24, 1884.

HON. ROBERT G. INGERSOLL :

Dear Sir : I see in the *Truth Seeker* of New York (Saturday, April 26, 1884), 'A New Lecture by Col. Ingersoll.'

In the third paragraph you say : "There was a time when the astrologer sought to read in the stars the fate of men and nations. The astrologer has faded from the world, but the astronomer has taken his place."

I cannot believe that you, having always been an advocate of reason, freedom of thought and speech, and justice, would intentionally make a misstatement, or, having done so, would hesitate to retract it were you shown to be in error. I wish, therefore, to ask you, Are these your words, and where is your authority for saying the "astrologer has faded from the world," or do you of your own knowledge know it to be so?

You will excuse me for troubling you, but I am very much interested in such matters, and I think if you examine into the subject you will find that astrologers have not all faded from the world. It is true that they are not as common as they were centuries ago, but that is not for the reason that astrology has lost any of the truths it has always contained, but because of the bigoted theological element in the world which has endeavored to carry out the words of God in the Bible who is said to have told the children of Israel, "Thou shalt not suffer a witch to live," and the so-called civilized nations of late years have done everything possible to exterminate astrology, knowing not the difference between it and witchcraft.

When the persecutions of astrologers have ceased, and the time comes when men will not be reviled, proscribed, or condemned for their belief in subjects that they have been compelled to admit to be true by rational and unbiased investigation, then you will find that the astrologer has not faded from the earth. You state, "The astronomer has taken his place." This is the first intimation I have ever had that astronomers have ever attempted to read the fate of men and nations. You speak of the great discovery in astronomy by Kepler, from which we may almost date the "birth of science." Are you aware that Kepler made equally as important discoveries in astrology? And "Kepler's Aspects," which he first discovered, will be known by his name equally as long as his first, second and third laws in astronomy.

Is it not strange that the ancients, who excelled in poetry, sculpture, mathematics, architecture, and also in astrology, putting it to the test every day for thousands of years, never discovered the falsity of it ; while, in these days when very few persons know anything of the subject, every ignorant person supposes that astrology has been "exploded?" Probably you were not aware that for thousands of years all the calculations in astronomy were made for the sole and only use of astrologers, similar to the astronomical calculations of the present day being made almost solely for the purpose of navigation. The only person I have ever read, or heard tell of, that ever attempted, systematically, to explode astrology, was Bishop Butler, author of 'Analogy of Religions.' He wrote a number of articles against astrology, but finding he was so ignorant of the subject, it occurred to him that he could write against it with more advantage if he only understood the science. He began its study and ended up by writing one of the best works we have on the science, called 'Butler's Astrology.' Why has not his 'Astrology' been used as a text book in our universities, like his 'Analogy of Religions?' Simply because astrology is not fashionable in our day. Yours respectfully,

L. D. BROUGHTON, M. D.

LETTERS.

LETTER FROM F. A. R. WINTER.

DEMERARA, June 4th, 1884.

'CHARLES LATIMER, ESQ.,

Dear Sir :—I have had the pleasure to own receipt of Miss Sanford's favor with documents and map and first number of the second volume of the STANDARD, and have now to acknowledge the second of May number. Enclosed you will please find three dollars for the cost of first volume of STANDARD, which you will oblige by forwarding. Would you kindly let me know the cost of a Pyramid thermometer and Fahrenheit combined ? The STANDARD is a most interesting magazine to me, for I have for years blindly endeavored to fathom the mystery of the chronology of the Pyramid measures. The last numbers are especially acceptable, as I have now in Mr. Banks' hands a short paper on the correlation of Bible chronology with Pyramid measures, and I was in hopes of being in a position to send copies of it to you by this vessel, but am disappointed, not having heard from the gentleman who kindly took charge of my paper. I sent him corrected proofs quite in time to have heard ere this. My view is that the Bible chronology is in solar years as a thorough reckoning, but that there is a computation for short periods ; that after Terah the shortened chronology is in calendar years, but going back from Terah to Peleg the intercalary years have to be added to the Bible record in calendar years ; thus from Peleg to Shem the period embraced in the 215 inches or years of the doubled line of wall, the symbols here indicate not only a change of notation, but also a difference in length of year, for if we here double the intercalations and deal with the results as lunar years, we get the solar dates of the birth of Shem 2742 B. C., deluge 2628 B. C., in the double line of wall, thus accounting for all the specific measures in Our Inheritance from Exodus, 1542 B. C. Adding to this date for them 2742, 1656 — 114 = 1542 we get 4283 B. C. for Adam's creation--and I am pleased to see this strongly confirmed by Mr. Wood in his paper on the genealogical stones of the Pyramid, as well as by Mr. Reeves in his History of the Redemption. Mr. Wood's diagram on page 70, March number, gives the horizontal length of the ascending passage to the intersection with the descending passage as 3956 + but as this intersection is 215 + above the base line, we have a repetition of the 15 + concealed in the double line of wall. Now if the 215 + be produced in continuation of the descending passage at some angle, will it not increase the horizontal distance by about 204 inches, making the whole 4160? which is the date I bring out as the birth of Seth, the 126 years of Adam's period being merged in the measures in the passage to the subterranean chamber, and when this is added to 4160 we have 4286, a very close approximation to Mr. Reeves' deductions.

I fear this will be unintelligible to you in the absence of my paper, but in order to give you a clearer idea of my argument, I enclose some rough notes on the MS. sent to England with table. I got my 4809 from Hand book to the Bible, and I utilize it to show that the pre-Adamite measures are also to be found in this great record of Almighty foreknowledge. I am very strongly of opinion that using the π proportions in respect to these subterranean measures that they will be found to give the precessional period anterior to the first Pleiades year 2170 B. C., *e. g.*, the length from end of descending passage to entrance of subterranean chamber $\frac{224}{\pi} = 103 \times 5 = 515$. Breadth of sub-chamber

$\frac{324}{\pi}$ = 103 × 100 = 10300 + 515 = 10815 from south wall of sub-chamber to end of descending passage; from thence say at birth of Seth to Isaac 2170 B. C. is 1990 + 10815 = 12805, or half the precession of the equinoxes = one diagonal of the Pyramid, or say 324 — 126 = 198 pre-Adamite years in sub-passage. 198 × π × 5 = 3110 — breadth of sub-chamber $\frac{324}{\pi}$ 103 × 200 = 20,600 + 2116 from creation of Adam to birth of Isaac 2170 B. C. or Pleiades year — 3110 + 20, 600 × 2116 =25,846, a full precession of the equinoxes. I am not a mathematician, but I am certain there is more in these approximations than appears on the surface. Cannot your more talented friends work out this idea? Wishing you success in your noble work, I am, my dear sir,

<div align="center">Yours in faith,   F. A. R. WINTER.</div>

The following table shows that the thorough chronology of the Bible agrees with the Anno Sacro thorough record in solar years. It also shows that the Pyramid measures are in close accordance with both, and further, that as indicated by the symbology of the doubled line of wall at the entrance to the descending passage of the Pyramid, there is a dual reckoning all through, and that when the intercalations, suggested by the sign placed against the ages of the several patriarchs, are supplied, they give the true date. Thus we find 637 Bible years from Exodus to birth of Isaac ; these reduced from calendar to solar years give 628, the number of inches marked in the Pyramid ; and from Isaac to Peleg the Bible record is 357 years, while the Pyramid requires 357 inches. Now if we supply the intercalations indicated, at the rate of one year for each patriarch, say 11, we shall have 362 calendar years equal to 367, the number of Pyramid inches required ; the intercalated years being the exact difference found in the record from Exodus to Isaac ; proving the duality of the Bible record from Exodus to the dispersion. This brings us to the entrance of the descending passage in the Pyramid, and here the doubled line of wall not only symbolizes the dual chronology, but marks a change in the mode of reckoning. In Genesis V, we have a period from Peleg to Noah's 500th year of 200 years. The double line of wall is 215 inches long. Now if we take the 11 intercalated years and double them, we shall have 223. Dealing with them as *lunar* years, we find them equal to 215 solar. One hundred years from Peleg to the end of the flood, and 115 years to the birth of Shem, including the duration of the flood, covering the exact measure of the double line of wall, giving 2,628 as the date of the deluge, and 2,742 as that of the birth of Shem. Here we must note the peculiarity of the division in the number of the intercalated years before and after the flood ; in the latter period we have seven following in unbroken notation ; in the former we have *one*. separated from the remaining three. This was done without intention, but with design and purpose. It appears certain that the three ember numbers were intended to be cut off from the reckonings at some portion of the record, leaving eight to be computed. Applying this to the section now in hand, if we double these eight and add them to Noah's 500 years, we shall have 516 = 501 solar years ; there are 321 years back to Enos, add to them 16 years and we have 837 as lunar years = 812 solar. There are yet 105 years to the birth of Seth, adding the three remaining intercalations and we get 108 as lunar years = 105 solar, leaving Adam's era only to be dealt with. And as this period is covered by the passage to the subterranean chamber, we deal with the 100 years as lunar years without any additions, and we get 126 solar years ; deducting these from the 324 inches of the passage length, there remains 198 years, and as the breadth of the subterranean chamber is 325 inches, the pre-adamite period is shown to be 523 years, the sum total being 4809 years.

One hand-book places the death of Herod the Great at 4806, and remarks that the nativity of our Lord is supposed to have taken place about this period, and begins the vulgar era at 4800.

Now if we take Noah's era at 1056 Bible years as calendar, they are equal to 1040 solar

years, and 1040 years is a soli-lunar cycle—at which period all the reckonings coincide, and this appears a most appropriate time for the appearance of Noah, or *rest*. Now the number of years from birth of Seth to Noah is 4160 = to four Daniel cycles of 1040 years each—six of these cycles will end in 1950—1885. It cannot fail to strike the eye of Pyramid students that $\frac{2628}{100}$ = 26.28, the angle of the descending passage, and as the length of that passage is shown by Mr. Latimer to be 4125, we have the king's chamber multiplied by 10.

LETTER FROM C. PIAZZI SMITH.

KURN HATTIN, HAVSTOCK, WINCHESTER, June 19, 1884,

My Dear Mr. Latimer :—I lately sent you a pithy anti-French metrical quotation from a private letter, on the back of a post-card. From another letter by the same party I now quote as follows :

" At school we were taught the king's English, *i. e.*, miles, yards, furlongs, feet, etc. ; now, an unholy, Baalite, small sect, who think no small beer of themselves, try to force upon Englishmen such terms as centimetre, milligram, kilometre, etc., etc. All which terms convey *no meaning whatever* to an Englishman ; and the people won't have it. ' No, not for Joe,' meaning, I suppose, Joseph, of whom Ephraim came.

" It is high time for active resistance to be made against these as well as other abuses which are sought to be imposed upon us. It is not for us to judge men, but I cannot help noticing that the greater part of the men who advocate these changes are not God-fearing men. I believe that Satan is making a last stand, and using every means in his power to blind those who are within his reach.

" There are in fact and truth, very, very few people in England who care to have the false French measures, and they belong to one set only. I will give every support in my power to aid in resisting such a movement. Prayer is a great weapon in our hands, necessary, as we are fighting against principalities and powers ; but besides prayer we must use such other weapons as are available. A clergyman is not content only to pray for his people, he *works* among them. I do earnestly pray for and wish our good American cousins of the International Institute and INTERNATIONAL STANDARD every success."

Now who is the person who writes thus nobly, do you ask? He is Mr. J. Leyland Feilden, of Proppynden, Burwash, Sussex, the author of a little book published a few years ago entitled, ' Israel's Jubilee," and since then of a larger book entitled ' The Word, the World, the Branch,' wherein he sets forth a chronology indicating that the present year is in truth only 1880 A. D., and that the year 1882 of Israel's Jubilee is yet to come, and will be specially signalized ; and he has much to say with regard to the site of Jerusalem, and the plans and purposes of the Great Pyramid. Further, while of Scandinavian descent he is a thorough English gentleman, living at his place in the country, but occupying himself *con-amore* with many questions both in science and religion. To him, then, I had sent a copy of my little book dedicated to the International Institute, viz : the ' New measures of the Great Pyramid, etc.,' and he was so much taken with the account there given of the International Institute, that he said that he must send them a subscription of £5. I gave him an opportunity of second thoughts on the subject, but that has made no difference, for in his second letter he has actually enclosed a check for £5, which I propose to take into Winchester on Monday, get cashed, then converted into a post-office order, I sent to you as President of International Institute, Cleveland, Ohio, U. S. A.

On going home, which may be in nine days now, I must see if I have a spare copy of

any of Mr. L. Feilden's books to send you, and you may be sure that he will be glad to hear straight from you.

<div align="right">Yours truly,</div>

<div align="right">C. PIAZZI SMITH</div>

<div align="right">July 21, 1884.</div>

P. S.—Alas ! Poor dear Abbe Moigno is dead, with all his fine aspirations for science with God, as against science without God ; and God the ruler of his own world, God in history and God in revelation.

<div align="right">C. P. S.</div>

LETTER FROM F. HESS.

<div align="right">FORT DODGE, IOWA, August 8, 1884.</div>

CHARLES LATIMER, President, Cleveland, Ohio.

Dear Sir : Your esteemed favors of the 18th and 19th ult., as well as your circular and a copy of ' New Measures of the Great Pyramid by a New Measurer,' reached here in due time, and would have received earlier attention but for a protracted absence from home and pressure of other business.

I shall take great pleasure in reading more carefully than I have so far been able to do Prof. C. Piazzi Smyth's just and generous criticism of Mr. Petrie's work at Jeezeh, which, when rightly applied, so gloriously confirms the very theories it was designed to overthrow, and shows how the wrath of man is made to praise the Lord.

I too, am very thankful to Mr. Flinders Petrie for unwittingly bringing out into clearer light also the luni-solar character of the Great Pyramid, and I now believe more firmly than ever that the very discrepancies between the different measures of the base lines, arising from different levels of the corner sockets, were designed to show the inequalities of the moon's motions, and the different lengths of the seasons of the year, as well as of the great equinoxial cycle, and, perhaps, of those of the still greater cycle of the solstices from pole to pole, comprising at the present rate of decrease in the obliquity of the ecliptic a period of some 2,590,000 years, or ten equinoxial cycles, with its long ages of a world's winter and summer, spring and autumn.

This seems to me suggested by the present slight deviation of the base lines of the Great Pyramid from a true meridian and prime vertical.

I have neither the time nor the inclination just now to wrestle with hair-splitting fractions, which I must leave to our mathematicians, begging them to fully investigate this luni-solar character of the Great Pyramid in the light of Mr. Petrie's new measures and the following simple equations, viz. :

25 common years = 309 lunations.

7 common years = 365 weeks = one Sabbatical cycle.

7 Sabbatical cycles + one sacred year of 377 days = 618 lunations + 12 days = 50 years = one jubilee cycle, typical of the final restitution of all things.

10 jubilee cycles plus one day = 500 tropical years, the average length of which = 365.2420 days = the length of the tropical year A. D., 5,000, etc.

Let them compare these numbers with the different lengths of the base lines of the Pyramid, with the dimensions of the queen's chamber upon the 25th course of masonry, and of the king's chamber upon the 50th course of masonry, and see what additional new harmonies they may discover there, and say whether the combined wisdom of modern science and modern religion can suggest a better chronology for a *novus ordo seclorum* than the one so plainly flowing from this hoary Altar and Pillar of Jehovah at Jeezeh into all the world.

I should like to go further into details, but other more urgent duties claim my attention.

Some of our young men here manifest considerable interest in the work of the International Institute, and when I get a little more leisure I will send you another list of names. Those I have already sent you are not to be proposed for membership except at their own personal and direct request, upon renewal of their subscription to the INTERNATIONAL STANDARD for the coming year.

Very truly yours,

F. HESS.

LETTER FROM J. R. SKINNER.

110 BROADWAY, CINCINNATI, July 2, 1884.

My Dear Mr. Latimer : I received one copy of the Society's Magazine, and I want the second or duplicate copy, as I consider this the ablest and most important paper ever published on the Pyramid and its measures.

Now to the July number. I have been amazed. The combined effect of the several articles independently written caused such a feeling of gratification as I am unable to express. The convincing power of the combination seems irresistible, while, besides, there is a curious tendency toward coming together and agreement as to perplexities such as I have never yet seen, and which heretofore has seemed impossible, a rest from our weariness. Surely the Great Spirit is brooding providentially over the work.

(1) Comes P. Smyth with an astronomical value of great importance—viz., the tropical year of $365.^{24224}$. I have always held to this because Parker worked it from his ratio. Now Smyth confirms it by statement.

(2) In order, Dr. Redfield gets so hot as to his mention of Shechem, that if he but knew that which is supplementary to what he says he would get on fire with the discovery of an amazing matter.

Then (3) the two remarkable and telling papers of Mr. Dow, so well put and so unanswerable ! Strange, however, when he finds such a use of the very terms of $648 : 206264.7$ out of the form of $20612 : 6561 : : 648 : 206264.7$ that he does not see the necessary connection. But his second paper is exquisite. Had I worked two years and discovered this relation, I should feel that I had found one more crown jewel. You wrote me about it, but I thought I would say nothing. But now please look at crown jewels at height from ground level, I believe, to intersection of floor line of grand gallery with vertical height, in inches diameter to 5184, as 1296×4, 5184 being indication of 5184000''', or 1 solar day of 24 hours, 5184 inches being 4 square yards of 1296 inches each. The top of this vertical height leads and connects with his development of same use in the totality of king's chamber. But this vertical height line is there seen to be connected with and in the area of 63360, or 5280×12, whose base side is $\sqrt{63360}$, connecting Mr. Dow's development with the British inch, foot, yard and nile measure in this area, thus bringing in support and confirmation of Rev. Mr. Wood's researches.

(4th) And next in order your superb resumé and discussion of the bases of measuring calculation and various application. My friend, you may be proud indeed of that article. Surely, surely, there is a God in Israel.

Besides these I have to notice the singular and valuable article of Mr. Faber, and the conservative and sound paper of Prof. Stockwell.

Such work tells of a power which must be felt, and must have great convincing weight and influence wherever it goes and is read.

It is true man proposes, but here it seems as if God was laying hold of the matter and

was disposing. It is the cause of truth, wherefore we may rejoice in such leaders—strong in their strength.

Your friend,

J. R. SKINNER.

LETTER FROM PROFESSOR PIAZZI SMYTH.

KURN HATTIN, near Winchester, June 21, 1884.

My Dear Mr. Latimer : Your last enclosure with a reproduction of Mr. Osburn's portrait, and a commendable apology for Mr. Dow's hasty paper, have reached me here, where we have come for a few weeks ; but you can still go on directing your letters to Edinburgh, where they are daily forwarded.

I had recently a long letter from Rev. Mr. Perry, and he communicated one from you to him, advising that I should be applied to for an idea of the expense to be incurred by the American expedition. I replied, if they do not yet know what they are going to do, how can I tell them what their unknown project will cost in doing ? You must have a definite idea of all of what requires to be done, and then apply to some one more accustomed than I am to large works of co-operative schemes, and who knows Egypt as it is now.

One thing you have a firm conviction ought to be done, and ought to have been done long ago, viz : the connecting of Great Pyramid for longitude with the Venus Transit telegraph station of 1874 on the Mokattam hills. Make this the No. 1 of the programme of your coming expedition.

Next I would suggest, find out from F. Petrie's book something, probably a great deal, that should be checked by a new worker. He presumes greatly on his deduced or supposed limits of "probable error." But I never yet knew of any operation in applied science in which a second worker did not show that the first worker was three, six, or ten times more in error than what he had computed according to theory of probable errors.

You may perhaps be led to select some points of F. P.'s work, for this re-examination after you have seen my little book about it. The one hundred copies for the International Institute, through you, their president, are now sent off by the Smithsonian agent in London, to the Institution in Washington, to be forwarded to you in their parcel 14752, and that in case No. 635. For all that, however, I shall send off the first single copy, I hope to get next week, to you, per post, so that you may have an early look at it, in the above point of view.

I am expecting a visit from Egypt soon, from a Mr. James Hewat, son of a Mr. Hewat, late an Edinburgh citizen, whose scheme of the city having an electric fired time-gun, as well as an electric dropped time-ball, I took up and have maintained ever since as one of the duties of the Royal Observatory, Edinburgh.

Mr. James Hewat is an accountant, is delighted to hear of your probable visitation to him at Alexandria, Egypt ; says he is the oldest British resident in Alexandria, dating years of residence there only, and will be delighted to give you and your party all the information and all the help in his power.

There is a Colonel A. T. Fraser, R. E., in Trichinepaly, Madras, superintending public works there, who writes to me every ten days or a fortnight on Pyramid and other such matters, and has done so ever since he passed through Egypt in 1881 and saw F. Petrie at work, and said, spite of the Vyse casing stones and pavement being within the line, that he thought the sockets at the corners looked more like what the ancient builder *intended* to make and be taken as the fiducial references for the size of the whole building.

I remain yours very truly,

PIAZZI SMYTH.

LETTER FROM JOSEPH BAXENDELL.

SOUTHPORT, January 25. 1884.

CHARLES LATIMER, ESQ., C. E.

My Dear Sir :—Your letter of the 8th instant enclosing copy of Mr. Wood's letter has just come to hand, but as I have not yet received a copy of this month's number of the Magazine I cannot offer any remarks on the criticisms of Mr. Petrie's measures, or the results of Mr. Wood upon the cycloid and British mile.

With respect to Mr. Wood's criticism of my equation for the moon's mean period, I observe he has commenced by applying the sign $\sqrt[3]{}$ to 40 $\sqrt{}_2$ as well as to 36525.95983 in the denominator of the first member of the equation, which of course has led him to the " something wrong."

Mr. Wood says that "if in the formula $\dfrac{\sqrt{a}}{d+d'}$ = sine 26° 17′, 26.47″ we let d = equatorial dia. and d′ = polar dia. we shall have $\dfrac{\sqrt{a}}{d+d'}$ = sine 26° 18′ 10″, which is nearer Professor Smyth's and his own " theoretical passage angle" ; but the limiting value of the expression $\dfrac{\sqrt{a}}{d+d'}$, is exactly sine 26° 18′ 9.77″, and, therefore, "the theoretical passage angle " cannot have reference to the figure or dimensions of the earth, as no one will admit that its form is that of a true sphere having its polar equal to its equatorial diameter.

On the next page I give you a few relations of pyramid measures and numbers which may, perhaps, interest you and some of the members of your Society ; and, awaiting the arrival of this month's STANDARD, I remain,

Yours sincerely,

JOSEPH BAXENDELL.

RELATIONS OF PYRAMID MEASURES AND NUMBERS.

The square root of the length of a diagonal of the base of the Pyramid = 113.636552. 113.636552 miles = 200,000 yards.

The square root of 200,000 = 447.2135.

447.2135 divided by 3 = 149.07117 = mean height of ante-chamber.

447.2135 divided by 4 = 111.80337 = height of western granite wainscot of ante-chamber.

The height of the king's chamber, 230.38868, multiplied by the mean height of the ante-chamber, 149.0712 = 34.344 × 1000.

The length of the grand gallery, 1881.6, multiplied by 50, and divided by the length of the great step 61 = 1542.295 = length of first ascending passage.

LETTER FROM L. F. HASKELL.

SAN FRANCISCO, August 6, 1884.

CHARLES LATIMER, ESQ.:

My Dear Sir: In reply to your favor of the 19th ult., and circular just received, I enclose one dollar to help on the good cause, and wish I were in a position to do much more for it.

I believe you are doing a good and great work, and I hope that no obstacles, however great, will discourage you. I admire your devotion and enthusiasm, and these are what accomplish results. I think you should feel greatly encouraged that the Institute can muster six hundred names as members already, but I hope this is only a beginning and that you may see the interest in it so general, that not only will the Magazine be amply supported, but when the time comes definite and right action may be had in perfecting

our system of weights and measures ; but we want to be sure that the action is right before it is taken. Do not be in a hurry about doing this. With very best wishes,

L. F. HASKELL.

LETTER FROM SARAH PLUMPTRE.

EWELME, WALLINGFORD, July 17, 1884.

Dear Mr. Latimer: I am deeply interested in your letter, and in the contents of the Magazine. I really seem to read it next to my Bible, and I only wish I could further the cause far more than I can. I try to interest every one I can, but many laugh at it, and few are able to grasp the subject and grapple with it. I know so few scientific men. Mr. Godwin, perhaps, I have helped to bring you, but he was interested in the subject as early as I was, from his love for and his appreciation of Mr. Taylor, and I think he first took the manuscript of 'The Great Pyramid' to Mr. Taylor's publisher.

If there is yet time, cannot steps be taken to make *well* known amongst scientific men the great struggle coming on at Washington, the need for all to take their part?

I hope the universal meridian will be the Great Pyramid.

If I may venture to make a remark, I would avoid if I were you letting the Magazine bear any political complexion. Doubtless most persons in America are Democrats, while most persons in England are, I hope, ardently attached to a constitutional monarchy. I know I am, and I would die any day for the dear queen.

I write hurriedly ; pray excuse it, and believe me,

Very sincerely yours, SARAH PLUMPTRE.

LETTER FROM E. P. INGERSOLL.

ROSEVALE, CLAY CO., KANSAS, AUGUST 5, 1884.

CHARLES LATIMER, C. E. CLEVELAND, O.

My Dear Brother :—I thank you much for the little book of Prof. Smyth's 'New Measures,' etc., which came in company of the back numbers of the INTERNATIONAL STANDARD. How triumphantly Prof. Smyth has vindicated himself and all his great work touching the Great Pyramid. Yes, error can never stand the conflict with truth any more than darkness can with the blaze of light.

I am glad to learn that the plan of sending an exploration party to Egypt is likely to be acomplished. If I had the means I would defray the whole expense myself, rather than that the work should fail. I hope, therefore, we shall soon hear of the departure of this expedition, with you yourself at the head of it.

In love,

E. P. INGERSOLL.

EXTRACT OF LETTER FROM REV. W. COOKE, D. D., TO PIAZZI SMYTH.

LONDON, June 21, 1884.

I have read with grateful interest your work on the 'New Measures at the Great Pyramid,' and present my warmest thanks to the esteemed and gifted author. It is Christian in spirit and quite conclusive in argument, in reply to Mr. F. Petrie. Indeed Mr. Petrie's findings corroborate for the most part the bases of your argument, and if his mind were not perverted by foregone conclusions, the remarkable coincidences between his findings

and yours would have extorted from him an acknowledgement that the several commen-surabilities, both externally and internally, between the Great Pyramid and the mathe-matical phenomena of the universe, were at least wonderful, and that *until* some other explanatory reason could be given for the scientific structure of the Pyramid, those which you assign should be regarded as worthy of the profoundest investigation by the most advanced philosophers of the day.   For my own part Mr. Petrie's findings strengthen your scientific arguments.

I am glad to observe how you have kept your pen under restraint, even when there was just occasion for a degree of severity.   All the better for your argument ; for truth does not need ridicule, though error often deserves it.

You have done well to reprint the admirable paper of the Rev. H. G. Wood.   Its logical, philosopical and mathematical arguments form an excellent appendix to your facts and your discoveries.

Accept my grateful thanks.   You have indeed done great service to the cause of truth.
Yours most faithfully,

(Signed)   WILLIAM COOKE.

EXTRACT FROM LETTER OF REV. JEVONS J. M. PERRY, M. A., TO PIAZZI SMYTH.

St. Paul's Vicarage, Alnwick, Northumberland, July 2, 1884.

Let me thank you most sincerely for your charming little book on the Great Pyramid, which has interested me extremely, especially part iv, chapter 4.   Our blessed Lord's re-turn in glory is my hope and desire, as it ought to be of every Christian man ; and if, among other astronomical marvels, the Great Pyramid gives us warning of the approach of that blessed day, we cannot but be thankful for its teachings.

COPY OF LETTER FROM REV. DR. MACKAY TO PIAZZI SMYTH.

Ventnor, Isle of Wight, June 28th, 1884.

My Dear Prof. Smyth :   Please accept of my warm thanks for the valuable little book you have just sent me—' New Measures of the Great Pyramid by a New Measurer. '

I am very glad to have it, for it has very greatly relieved my mind in regard to many things on which Mr. W. F. Petrie had thrown some doubt.   Your reply, thank God, is really triumphant, more especially as supplemented by the Rev. Mr. Wood's admirable paper "on the present state of the base side length."   In that paper he gives very cogent reasons for holding that the sockets, and not the pavement, are the all and in all of the Great Pyramid.   I earnestly hope the Americans will soon put into execution the noble purpose announced at page 101.   When this is done, the testimony of the Pyramid must be complete.

On most points Mr. Petrie has been met ably and honestly, and you have shown a noble spirit towards your subtle antagonist all throughout.   You have emerged triumphantly from this last, and by far most skilfully planned attack that has ever been made on your great work ; and my hope and prayer is that God may prolong your life to see the top-stone placed on your life labor.   And I am yours, very faithfully,

(Signed)

ALEX. MACKAY.

LETTER FROM E. P. INGERSOLL.

ROSEVALE, KANSAS, August 12, 1884.

CHARLES LATIMER :

My Dear Brother : I use this term in more senses than one; in these two, at least : (1.) a brother in Christ; (2.) a brother in the pursuit of exact knowledge respecting the Pyramid. It is in this last sense I desire now to write.

I have found the July number of the INTERNATIONAL STANDARD, an exceedingly interesting one, because it deals in facts and established truths, all except Dr. Redfield's article. I have read his article with all the care I can bring to bear on the subject, and still I have to say, where is the evidence that Joseph ever had anything to do with the Great Pyramid ? But especially, what shadow of evidence is there that Joseph's embalmed body ever lay in that wondrous coffer ? Surely, the Scriptures make no allusion to the subject in that direction, and history—what does history say ? If there is any such history where shall it be found but in Egypt ? Who has ever seen that history ?—let him speak. Again, what saith the Pyramid itself ? Where is the entrance through which the bearers brought that sacred body ? What does Dr. Redfield say ? He *supposes*, if I have read correctly, that they must have entered by some subterranean passage, and thence ascended up the "well;" thence up the grand gallery till they reached the king's chamber. But how does this look to you, my dear brother ? What is the evidence of it ? Can we credit such a supposition without the first ray of evidence hitherto adduced ? Especially when we encounter obstacles that throw all those met by infidels about the Bible utterly in the shade. By the doctor's theory they entered by a subterranean passage, in the solid rock, an hundred feet below the base ! ! Thence they ascended up that crooked, zig-zag, perpendicular "well-passage ! !" And when they came to the ante-chamber, what then ? Well, let the Doctor answer. So, also, in taking the "bones of Joseph" out of the Pyramid, how did they manage. Did they go out as they came in ? Who can tell ?

Now is this the ground we have to work upon, to prove the divine inspiration of the Pyramid, and of its wonderful structure throughout ! If so, I utterly despair of ever seeing that thing accomplished. It seems to me that the reading of the article on "The Altar and Pillar to Jehovah" must repel every one, whose mind is already established. How the doctor could ever have got that idea into his head, I cannot conceive.

No, I think when we bring forward theories, or rather I should say hypotheses, which when worked out are found to rest on fancy only, we shall never get ahead, whatever else we may do. I have found, in advocating the cause of the Great Pyramid, and also the identity of the Anglo-Saxen with Israel, *facts, known facts*, which are founded on history and reason, are the only weapons I can use in this warfare against Satan and his hosts. For is not everything opposed to the truth originated by Satan ? Is not he the father of lies ? And he can be met by truth, by truth alone, and not by fancy.

Now, my brother, I have no fears as to the final result of this great controversy, no more than I have that God will die. The evidence is, to me, as clear that this Great Pyramid was built by divine inspiration, as that the Bible was divinely inspired. That the builder of the Pyramid, whoever he was, was inspired, as certainly as Moses was inspired to write the Pentateuch. For, in both cases, the work performed was beyond the powers of all human beings combined. Why should I doubt then ? God promised that he would fulfil the covenant made with Abraham : that his seed should become like the sands of the sea for multitude ; that kings should come out of his loins ; that Israel should become a nation of great power and wealth, "lend to many and borrow of none." To Ephraim it was promised that he should become a multitude of nations ; and Manasseh a great nation. These things, these promises, are now fulfilled up to the present time (especially the two last), so that the crossing of a " t, " or the dotting of an " i, " cannot be found wanting. And will not God—the same God—bring to light all truth con-

tained in the Pyramid? Indeed is He not now summoning His "witnesses" to testify before the world to the great truths imbedded in the great monument of stone?

E. P. INGERSOLL.

P. S.—I hope I may be permitted to meet with you at one of your fortnightly meetings ere long.

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LETTER FROM EPH. M. EPSTEIN M. D.

VERMILLION, D. T., JUNE, 29, 1884.

My Dear Mr. Latimer :—I take the pleasure of replying to yours of the 17th inst., and begin by replying to the second part of your letter.

(1). The Ensign and Banner of the Common Version have in the Hebrew two terms: " Nai S " and " De Ge L."

"Nai S " occurs in the following passage:

Exod. xvii., 15, 16.—" And Moses built an altar and called his name Ja H Ve H of my Nai S ;" (in Heb. "Ja H Ve H Ni Si J,") for he said : "For (the) hand is on the seat of Ja H, (the symbolic bodily attitude during an oath, compare Genes. xxiv., 2), there is war unto Ja H Veh against Amalek from generation of generation."

Numb. xxi., 8, 9.—"And Ja H Ve H said unto Moses : Make thee a Se Ra F, and put him upon a Nai S ; and it shall come to pass, that every one who is bitten, and should see him, and should live. And Moses made a serpent of copper, and put him upon the 'Nai S.'" (I suppose this Nai S, flag, was the most notable one in front of the chief commanders tent.)

Numb. xxvi., 10, 11.—"And the earth opened her mouth and swallowed them up, and Korah also, in the dying of the congregation, when the fire consumed the 250 men ; and they were for a Nai S—(an outstanding miracle). But the sons of Korah died not "—(a singular escape).

Ps lx., 6—"Thou hast given to Thy fearing ones, a Nai S—(flag—banner—ensign) to rally themselves together, because of separation."

Isaiah v., 26.—" And he shall lift up a Nai S to the nations, (i. e., give a signal to all but only one will act upon it); and he will speak unto him, and behold, quickly, lightly he will come."

Isaiah xi., 10.—" And it shall come to pass in that day, that the root of Iishai, which stands for a Nai S of (the) Nations, unto him shall the nations inquire, and his repose shall be glory."

Ibid. 12.—"And I will lift up the Nai S unto the nations, and gather the cast-away-ones of Israel, and the scattered ones of Judah he will pick up from the four skirts of the earth."

(In the above three passages the prophet speaks of what we would call "An International Banner," or a "Nations' Banner.")

Isaiah xiii., 2.—"Upon the evening mountain lift ye up a Nai S. Raise ye a voice unto them, wave ye a hand, and let them come into the doors of the generous ones, (i. e., noble in actions)."

Isaiah xviii., 3.—"All ye settlers of the world and dwellers of earth, ye shall see when the Nai S of the mountain will be lifted up, and when the horn-trumpet shall peal ye shall hear."

(But you and the whole chapter deserve that I should translate the whole of it, adding brief remarks. (1). " Ho, land buzzing with wings !" (*i. e.*, where there is an unusual amount of insects and birds, compared with other lands) where there is an unusual amount of quadrupeds and reptiles, "which is situated from opposite to the streams of

Cush !"—(Africa, *i. e.*, the southern part of the American continent). (2). O thou sender of forerunners in the sea, and with vessels of rushes, (*i. e.*, light boats) upon the faces of waters !" (Spanish early explorers of America,) "Go, ye swift messengers to a people pulled apart and plucked, (the Indians), to a folk terrible, (but) from now and onward a people of streak and streak, and trodden down, whose land adventurers have despoiled." (The So-American Indians). (3). "All ye settlers of the world and dwellers of earth when the Nai S of the mountains shall be lifted up, (then) ye shall see, and when the horn-trumpet shall peal, (then) shall ye hear. (4). For thus saith Ja H Ve H to me ; I will be quiet, and will look at it in my habitation ; as (in) pure warmth by (genial) light, as (in) a cloud of dew in the heat of the cutting time—(vintage). (5). For before the cutting time, when the blossom had completed, and the ripening grape had had her flower, and the pruner had removed (and) cast aside the useless and cast off (branches) with cutshears, (6). they (indeed) together shall be abandoned to the hawk of the mountains, and to cattle of the land ; and the hawk shall disgust himself upon it, and all the cattle of the land shall defile itself upon it." (i. e., when the worldly people shall have had their disgustful fill upon the useless, cut off members of American society outside of the people of the Lord). (7). "At that time there shall be carried a present unto Ja H Ve H of Hosts, a people (also) pulled apart and plucked, and (some) from (that) people terrible, (but) from that time and onward a nation of streak and streak, whose land adventurers have despoiled unto the place of the name of Ja H Ve H of hosts, (even) Mount Zion." (i. e., the return of Israel and Judah to the Lord and to Zion takes place after the discovery and Christianization of America. My friend, there is neither fancy nor forcing in this interpretation and translation. Simple history is my faithful interpreting guide).

Isaiah xxx: 17. "One thousand before the threat of one, before the threats of five ye shall flee, until that ye shall remain like a mast upon the mountain top, and as a Nai S upon the height."

Isaiah xxxiii: 23. Thy sailors (rope handlers, from "sail" a rope, in German), have forsaken (thee), they will not fasten properly their mast, they have not unfurled a Nai S (flag); then was the great booty divided, until the (very) lame ones robbed spoil."

Isaiah xlix: 22, "Thus saith the Lord JaHVeH, Behold I will bear up my hand unto the nations, and unto the folks my Nai S and they shall bring thy sons in (their) skirt, and thy daughters upon the shoulder shall be carried " (*i. e.* in sedan chairs, compare Numbers vii: ix, with Numbers iv: 10-12, and xiii, 23).

Isaiah lxii: 10, " Pass ye, pass ye, through the gates ! Clear ye (*i. e.* who are inside of Zion), the road of the people ! Cast ye up ! Cast ye up the upward causeway ! Clear it out of stone ! Lift up a NaiS unto the folks !" (*i. e.* the different returning families).

You will notice that the consonants of NaiS are the same as are *sounded* in the word "sign," only they are read transposed. The letter " g " is likely more primitive than its omission in the Hebrew.

The word "ancient" is derived from "anteannus"—former year ; the *t* before the *e* becoming softened into an S sound, ancient—antient. It has nothing to do with "ensign," which is from the Latin "insigno," where the "in" has the meaning of instrumentality, whereby a thing is done. The Hebrew for "ancient of days," is "Jhatik yomain," where the first word is the same as the Latin "antiquus."

The other Hebrew word for banner, viz: DeGeh, seems to denote a private flag. It is found in connection with the tribes in their march through the wilderness. Also in Ps. xx: 6, " We will sing about thy salvation (of us), and with the name of our ALoHIM we will bebanner ourselves." Also in Canticles ii: 14, "and his banner over me was love." Ibid. v: 10 "My friend is pure and ruddy; banner-like uplifted from ten thousand." Ibid. vi: 4, "Awe-inspiring as bannered host."

Of the signification of the Fleur de lis I know nothing, but would suggest the possible derivation from Fleur del Isis, or Fleur del Ulyss. This may bring it nearer in connection

with the Labarum cross, and the four main petals of the corolla of the Lotus, which in Hebrew would be Lo T = 39, hence either $3 + 9 = 2 \times 6$, or $3 \times 9 = 27$, but to 60 or 600 I see no connection.

I have thus given you, with great pleasure, all that I could collect with my present scanty means of research. The translations are all from the original Hebrew, and without even a look into any version. Perhaps you may find something useful to you in them.

As to the tabernacle, I received a very flattering letter from P. Smyth telling me that a new society in Ireland began to study the tabernacle, and asking him about it, he referred them to my key as the best authority. I answered him, and stated my longing to exhibit a perfect model of it to the world. I can not help believing yet that this exhibition would be a service unto the Lord, in and with which I would be glad to close my earthly life.

The good Lord be with you and yours.   Yours,

EPH. M. EPSTEIN, M. D.

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LETTER FROM W. F. ALLEN.

NEW YORK, July 28, 1884.

"The testimony of all persons, without exception, with whom I have come in contact, either in person or by correspondence, has been that wherever the cities have followed the example set by the railroad companies and adopted standard time, not the slightest inconvenience has followed. I have been able to supplement the information on this subject received through a quite extensive correspondence, by an examination of local newspapers from widely separated parts of the country received at this office. No city has returned to local time after really adopting standard time. Louisville partially adopted it ; the mayor ordered the city clock changed and the common council ordered it changed back again, other clocks in the city not having been changed. A question of authority was raised and the mayor submitted. While I have no positive information as to this action, I have seen it stated that personal feeling had something to do with the matter.

"On the other hand, the city of Omaha adopted standard time on May 1, 1884. In examining a list of the cities of over 10,000 inhabitants in the United States, I find that 185 out of 229 use standard time. Of those that do not, Ohio furnishes 15, Michigan 8, and the Pacific Coast 8, the rest being scattering. As to the railways the situation is entirely satisfactory. All railroads east of Ogden, Utah; The Needles ; Deming, N. M., are using standard time except the two local roads at Pittsburgh, which aggregate about 20 miles in length. Standard time is used on the Northern and Canadian Pacific Railroads for their entire lengths, and by all roads in Washington and Oregon. The only notable exceptions in the entire country are the Central and Southern Pacific Railroads and branches or connecting lines in Utah, Nevada and California. Even the Southern Pacific uses standard time between Deming and El Paso. The railroads in the maritime provinces use Eastern standard time. The city of Halifax uses the time of the 60th meridian. To sum up for the railways, out of about one hundred and twenty-five thousand miles now in operation in this country and Canada, all with the exception of barely four thousand (4,000) miles are being operated by standard time. I have yet to hear the first intimation from any railway official (and I think I should have heard) that the new system does not work with entire satisfaction, nor has any proposition been made to return to local time.

" Of course, the best results have not been secured where the times of cities have not also been changed.

You are probably aware that by act of Congress duly approved by the President,

standard time governs the city of Washington and the District of Columbia. In the city of Boston, Judge Holmes, of the Supreme Court of Massachusetts, decided in a case brought before him that standard time, being generally in use, was legal time. In Savannah, where the change was 36 minutes, the largest employer of day labor opens his shop at 6:30 A. M. and closes at 5:30 P. M., and not the slightest confusion or trouble has been caused thereby. I mention this, not as an isolated case, for there are probably many such, but because it happened to come under my own observation. Since absolutely accurate local time cannot be kept, except by a fixed object, we must use one or another standard. One govering a limited area may be used if one's ideas or business are limited, but to such persons the use of one or another standard would make no practical difference. But since some arbitrary standard must be used in any case, it appears merely common sense that as many as possible should use the same standard. You may ask then: "Why not use a single standard for the whole country?" The answer is that so radical a change is not necessary. If the minutes agree everywhere the hours may have an agreed difference, which all can readily understand. Besides, there was no precedent for such a radical change, while there were a number of cases existing before standard time was adopted where the time used differed from local time by half an hour or more without inconvenience to those who used it. The experience of those who have adopted standard time is simply confirmatory of this. Some object because the hours of labor will be interfered with. The old hours of 7 to 6 have long since ceased to govern the labor of this city, because found inconvenient, and various other times have been substituted. The labor question will settle itself, as all questions relating to time keeping must be settled, and that is on the basis of convenience to the larger number."

W. F. ALLEN.

JUNE 18, 1884.

At the meeting Martin Coryell, C. E., Lambertville, New Jersey ; F. G. Darlington and Henry Snyder, Pittsburgh, Pennsylvania ; John W. Durkee, Bowling Green, Kentucky ; A. A. Folsom, Boston, Massachusetts ; Rev. L. B. Hartman, Hon. H. S. Little, Lewis Parker and Rev. Samuel Studdiford, Trenton, New Jersey ; Dr. F. O. Nodine, Cleveland, Ohio ; John MacLeod, Louisville, Kentucky ; Dr. C. G. MacManus, Brownsville, Texas ; W. L. Nicoll, New York ; and John B. Kellogg, E. Coombs and Mr. Burbage, Washington, D. C., were elected members.

After the routine of business, the report of the Special Committee on Standard Time, of the American Society of Civil Engineers, was discussed.   The report of the Chairman, Sandford Fleming, read at the recent Convention in Buffalo, stated that a number of questions bearing on the whole subject were submitted to men in prominent positions in the railway world throughout the United States and Canada.   Ninety-two per cent. of those heard from gave their unqualified support to the proposal to abandon the old traditional division of the day into halves of twelve hours each, and to adopt a single series of hours from midnight to midnight, numbered from one to twenty-four.

Mr. Latimer stated that he approved of the 24 o'clock system, but objected to counting from midnight to midnight, as that idea is promulgated with the object of calculating from the meridian that passes through Behring's Strait, and which is wholly in the ocean.

Mr. Latimer said that railroad and steamboat time should all be counted from astronomical time from o to 24 hours, the prime meridian being fixed upon the Great Pyramid of Gheezeh, a monument which has lasted for more than four thousand years, and will last, thus : All the people living on the longitude of the Great Pyramid and half an hour or $7°.5$ on each side would have the universal time, and would use but two hands to their clocks and watches.   The people living at $15°$ west and $7.5°$ each side of that meridian would have Pyramid time and another hand to mark local time, which would be just one hour earlier than Pyramid time, agreeing, however, exactly in minutes and seconds , the people of $30°$ west and $7.5°$ on each side would have for local time a hand differing exactly two hours from universal time, and so on around the earth ; the difference between the hour hands would at once give the longitude. Every watch and clock on this planet should show Pyramid time, have minutes and seconds for railroad and steamship time, and a third hand should be added to show local time, suited, of course, to the twenty-four meridians around the globe ; but every person on the globe would have the same hour, minute and second for recording the arrival and departure of all steamboats and railroad trains in the world.

In conformity with an act of Congress, the President has called an International Conference to be held at Washington, on the 1st of October next.   The Conference will endeavor to establish a prime meridian as a zero for reckoning time and for the computation of longitude.   It would appear that at the Geodetic Conference which took place in Rome last October a sop was thrown to England and America in order to secure for the pride of France the adoption of the metric system.   The meridian of Greenwich was recommended for adoption as the prime of the world ; but the hope was expressed that if the entire world should agree to accept the meridian of Greenwich as the point of departure Great Britain would find a motive on her side to make a move in favor of the

unification of weights and measures in adhering to the Conventiou of the metre of May, 1875. The approval of the proposal of the United States for a special conference in Washington was probably a concession merely as a means to secure the ends of the metric men. The act of Congress has authorized the appointment of three delegates for the United States to the Conference to be held October, 1884. A Committee of three was appointed by the President of the International Institute to consider what steps should be taken to have the interests of anti-metric advocates represented.

Rev. H. G. Wood, of Sharon, Pennsylvania, was introduced by the President at the close of the discussion. He gave an exposition of his paper on the subject ' Genealogical Stones in the Great Pyramid.' He showed some remarkable coincidences depending upon the order and position of the courses and floor stones already determined in the Pyramid and the order and number of generations from Adam to Christ as they are given in the first chapter of St. Matthew. Mr. Wood held the rapt attention of his audience, and at the close of his remarks a vote of thanks was passed, and the hope expressed that he would lecture before the Society at an early period.

A general discussion then took place, after which the meeting adjourned till July 2d.

JULY 2, 1884.

The attendance at the meeting evinced the increasing interest manifested in the objects of the society. Seth Dean, Glenwood, Iowa, and H. Darlington, Allegheny, Pennsylvania, were elected members. The Rev. Jevons J. M. Perry Alnwick, England, wrote with reference to the proposed expedition to Egypt, the probable expenses and the work to be accomplished. Theodore Gribi, Elgin, Illinois, wrote respecting the International Conference to be held in Washington in October. He says : '' I am looking forward to the . International Conference on standard time and meridian with great interest, and I think it very important that we should make a decided effort to make our voice heard there. But first of all, we must seek the sympathy and co-operation of the American Society of Civil Engineers. It seems to me that society should be able to exert a great influence. We should have resolutions printed and supported by the ground on which they are made, and circulated freely among all the members of Congress. Our course will win among all honest men if it is rightly understood. But politicians, as a rule, are comparatively ignorant on the subject, and many of them are easily swayed by what comes from exalted positions, unless they are able to judge for themselves. For this reason they ought to be provided with ample literature on the subject, with an urgent appeal from acquaintances or influential men to look into the merits of our course and the demerits of that which the foreign delegates will urge. Even if the International Congress should pass resolution in favor of the metric system—which is all they could do—it would still require legislative action on the part of our House of Representatives before it could become a law, and all we need to accomplish is the prevention of this. I am inclined to think that the majority of our legislators, professors and engineers are too sensible to be moved to the adoption or even advocacy of the French system, and then the mass of our people and particularly the manufacturers and owners of machine shops who would have to defray the expense of the change, will surely be consulted first and have something to say.''

Mr. Gribi's letter was followed by one from Professor Piazzi Smyth, and Mr. Latimer announced that in consequence of the address to be made other important communications would be reserved for the next meeting. Mr. A. M. Searles then read a paper from Mr. George C. Davies, whose impaired health prevented his attendance. Mr. Davies paper was addressed to the metrologists of the institute, and was a plea for simplicity of terms. He says that some of the metrologists of the institute seem to think that an ideal system must be evolved from the old, forgetting that the mission of the society is to " preserve and perfect " the weights and measures in use. He says, " Could the society realize the fact that the easiest and shortest way to dispose of the French metric system will be to memorialize Congress to make the Anglo Saxon weights and measures the legal and only

standards of the country, I think we should cease to hear of the French metric system and its zealous advocates, for we have the people with us."

Rev. H. G. Wood then read an able paper refuting many of the arguments of President Barnard in his articles on the Pyramid, in "The School of Mines Quarterly." At the conclusion of Mr. Wood's paper, Mr. Latimer read a letter addressed to President Barnard, asking for a public discussion of the subject by three representatives from each side.

Mr. Joslin, who had requested to speak at this meeting, then took the floor. His most important point was the correction of the calendar, which, in his opinion, will fully settle the question of time which is now being discussed by scientists.

The meeting then adjourned for two weeks.

JULY 16, 1884.

At the usual fortnightly meeting of the society the following persons were elected members: F. W. Newman, Dresden, Germany; Alexander Hudunt, New York; Henry W. Bigelow, Toledo, Ohio; Dr. J. D. Buck, S. H. Randall, Dr. John Wiggins, Rev. Henry D. Moore, Dr. J. H. Hunt and Charles C. Wood, C. E., all of Cincinnati.

A resolution was passed thanking Professor Smyth for the honor he had conferred on the institute by dedicating to it his new book 'New Measures of the Great Pyramids by a New Measurer,' and for the copies received for distribution to the members.

Mr. F. A. R. Winter, of Georgetown, British Guiana, in a letter which was next read, endeavored to prove that the thorough chronology of the Bible agrees with the Anglo-Sacro thorough record in solar years; and showed that the pyramid measures are in close accordance with both, and further, that as indicated by the symbology of the doubled line to the descending passage of the pyramid, there is a dual reckoning all through, and when the intercalations suggested by the sign placed against the ages of the several patriarchs are supplied, they give the true date.

Letters were also read from Professor Smyth, Royal Astronomer for Scotland; Abbe F. Moigno, Paris, France; Professor R. Kelso Carter, Pennsylvania Military Academy, Chester, Pennsylvania; Professor Theodore Gribi, Elgin, Illinois; Emili Low, C. E., Pittsburgh, and F. Hess, Fort Dodge, Iowa.

On account of limited time the reading of valuable letters from J. R. Skinner, of Cincinnati, and others, was postponed for a future meeting.

The paper of the evening—'Some Objections to the French System of Metrics,' by Jacob M. Clark, C. E., of New York, was then read by Mr. William H. Searles, C. E.

Mr. Clark's principal objections to the system are:

First—It is not a scientific system, violating in its fundamental idea the principle that direct and square measure cannot be logically expressed by a curved line. Again, the system is simply a geographical measure based on a very imperfect division of the circle.

Second—The difficulties attending its introduction, the people being opposed to it in places where introduced and its lack of native popularity.

Third—The advocates of this change in our own country are mainly non-practical men —professors, chemists, some druggists, and the like—to whom the convenience of decimal reckoning outweighs the far greater one of manipulation in engineering, surveying, and the constructive arts; or else those who from foreign training or motives of interest desire a change. If saving of labor is to be sought, experience in handling the measures in the broader and more important works of man might effectually change their views.

The testimony of such experts as Mr. Coleman Sellers, one of the most prominent manufacturers of iron machinery, and others like him, who have tried the French system for years at great expense in their own works only to regret it as inconvenient, together with the almost universal feeling of American architects, engineers and builders, so far as the writer can judge from an extensive acquaintance, is decidedly against the attempt.

Mr. Clark in closing presents a metric or decimal system with the English inch, and the Arabian gauge or guz (equal to 25 English inches), each increased by its 1-1000 part a

units. The paper was discussed at some length, after which the meeting adjourned for two weeks.

JULY 30, 1884.

Notwithstanding the inclement weather the last meeting of the society was largely attended. Members were elected as follows : James A. Collins and William Archer, C. E., of Cincinnati, and C. N. Dubbs, C. W. Fell and Frederick G. Roeder, of Cleveland. Rev. Gustave Seyffarth, Phd. D. D., etc., Yorkville, N. Y., was elected an honorary member.

The Chairman announced the death of L'Abbe Moigno on the 17th instant, and read a brief biographical sketch from the Paris *Le Figaro.*

An article in the New York *Herald,* by Joseph Baxendell, English astronomer, criti- cising Professor Barnard's new book, was then read.

In reference to the successful working of the new system of standard time, Mr. W. F. Allen, editor of the " Travelers' Official Railway Guide," wrote the Society that of the 125,000 miles of railroad in the country, all with the exception of about 4,000 miles were operated on standard time, and that it worked very satisfactorily, although the best results were attained in cities which had adopted it ; and stated that of the 229 first-class cities in the United States, 185 had adopted standard time.

The remainder of the evening was taken up in discussing standard time and prime meridian, Messrs. Samuel Beswick, C. E., of Canada, Rev. H. G. Wood, of Sharon, Mr. Robert French, chief engineer Mt. V. & C. Railway, Professor Stockwell and others taking part in the discussion.

Letters were also read from Mrs. Plumptre, of England, and Mr. W. McAllister, of New York.

Meeting was then adjourned for two weeks.

AUGUST 13, 1884.

Rev. H. G. Wood read a paper on ' The Correlation of Anglo-Saxon Measures,' which exhibited some new and most interesting features of the Pyramid.

Mr. Wood also made a few remarks in reference to standard time, and presented a very feasible plan for fixing the watch faces for keeping both Greenwich and meridian time.

The President in a few remarks stated that there had been a bill presented before the last Congress for making the use of the metric system compulsory in the government de- partments after the year 1889.

Professor J. E. Hilgard in a letter which was read stated that four of the five members of the Committee for the International Conference on zero of longitude, etc., to be held in Washington next October had been appointed, and that he understood that the fifth member was to represent the American Society of Civil Engineers.

The following new members were elected : Louis Queen, C. E., Elizabeth, New Jersey ; Thomas J. Hyde, Sharon, Pennsylvania ; and M. J. Leyland Feilden, of Rappynden, Burwash, Sussex, England, was constituted a life member.

After some discussion the meeting adjourned for two weeks.

AUGUST 27, 1884.

At the meeting the members elected were : Life member, Archdeacon Stock, Welling- ton, New Zealand ; members, Mrs. M. E. Locke, Hamilton, Canada ; T. Bahan, Shaws, Pennsylvania ; J. Richardson, Cochranton, Pennsylvania ; M. Hollaran, Carlton, Penn- sylvania ; P. McMahon, Utica, Pennsylvania ; M. Vining, Sugar Creek, Pennsylvania ; David Isanburgh, Franklin, Pennsylvania ; William Hennessy, Reno, Pennsylvania ; Dr. H. R. Heard, Cleveland.

A letter was then read from Professor W. Rogers, of Cambridge, with reference to the metallic bars which he is preparing for the society.

Mr. J. N. Wing wrote respecting the open letter recently sent the President of the United States, requesting that the International Institute may be represented at the approaching International Conference at Washington.

Encouraging letters, enclosing donations to the society, were read from Professor Piazz Smyth and Lewis Biden, Port Sea, England. The recent appeal for aid has received a liberal response and prospects are very encouraging.

A discussion upon the relation of the pyramid measures to Bible chronology then took place, the principal speakers being Drs. Redfield and Newcomer, Messrs. A. M. and W. H. Searles and Mr. Latimer.

In consequence of the length of the discussion the reading of extracts from Lieutenant Totten's work on metrology was again postponed, but a resolution was passed that it should be made the order of the evening at the next meeting.

Meeting then adjourned for two weeks.

EDITORIAL NOTES.

Mr. J. M. Goodwin will accept our hearty thanks for his kind and encouraging words touching the work and prospects of the INTERNATIONAL STANDARD.

In our next issue we will present and compare the systems of tables proposed by Prof. C. Piazzi Smyth, Jacob M. Clark, Lieut. C. A. L. Totten and John H. Felton.

In our last issue the letters on Pyramidal Free Masonry, by mistake, attribute to Mr. Wood the theory that the displacements in the Pyramid were caused by heat and warping. It was Mr. S. Beswick who presented this theory.

We have received a letter from Thos. Holland, London, acknowledging, in admirable tone, some criticism made on his problem of the practical construction of the Pyramid. The square and compass are excellent pioneers in Pyramid study, and we hope to have more of Mr. Holland's investigations, even though they may be subjected to the test of mathematical accuracy.

We are glad to present in this number of the Magazine the portrait of one of the most distinguished, though not widely known, workers in the Great Pyramid subject—Robert Menzies. There seems to have been an inspiration in this man's mind which led him to announce that the grand gallery represented the Christian dispensation, for his discovery, which has been accepted by Pyramid students everywhere, has been fraught with most important consequences, and the influence of it has scarcely yet begun to be felt. He was a young ship architect of Leeds.

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The Rev. James French has sent us from the Philadelphia *Inquirer* of July 23, notice of a Bill introduced at the last session of Congress to enforce the use of the French metre with the following provisions:

" Beginning on March 4, 1889, the metric system shall be exclusively employed in all Government transactions. In order to secure this employment a knowledge of this system shall be taught in all schools and colleges under the control of the government or hereafter aided by it, or such knowledge shall be required for admission to those institutions.' There is a proviso to the effect that in all other transactions than those in which the United States is a party it shall be lawful to employ the weights and measures now in use. This bill was read twice on June 30 and referred to the Committee on Coinage, Weights and Measures."

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A correspondence has been submitted to us between Emile Low, C. E., of Pittsburgh, and Mr. Theo. Gribi, of Elgin, Ill., in which the former declares himself an earnest advocate of the metric system, '' not on account of its being *French*, but a decimal system." He states that the Waltham Watch Company has used the metric system for eight years, and quotes them as saying that " the advantages of its general adoption are so palpable that it would be useless to state them, as anybody at all acquainted with the subject would know "; and

adds, "These are my sentiments exactly." To which Mr. Gribi, of the Elgin National Watch Company, replies : " We have never used any other system than the English—the inch decimally divided—and we do not find the least inconvenience, nor feel the slightest practical disadvantage. If the advantages of the general adoption of the French metric system are so palpable, it must be very easy to state them, which would be wiser and carry more force than to discredit the intelligence and honesty of the reader who may happen to disagree with the writer, by saying, 'it would be *useless* to state them,'" Mr. Gribi further says, "I am, myself, practically acquainted with the metric system, having been born and educated in a country (Switzerland) where it is enforced, and having used it all my life until within the last six years ; yet I find reasons, and good ones, for regretting its introduction. Our legislators may commit the folly of passing a law making it legal, but they can never compel its adoption, and if they should try to do so, it will cause incalculable mischief and wrong."

MONTHLY RECEIPTS FROM SUBSCRIBERS TO THE INTERNATIONAL STANDARD FROM JUNE 9TH TO AUGUST 31ST.

JUNE—Martin Coryell, $5 ; F. G. Darlington, $5 ; Thos. B. Lee, $2 ; John W. Durkee, $2 ; Prof. C. Piazzi Smyth, $1.22 ; John N. Poage, $10 ; John B. Kellogg, $2 ; E. Coombs, $2 ; Mr. Burbage, $2 ; Seth Dean, $2 ; F. A. R. Winter, $3 ; Miss Augusta Barr, $2—Total from June 9th, $38.22.

JULY—H. G. Morse, $2 ; John MacLeod, $5 ; C. T. Heisel, Magazine, .80 ; H. W. Bigelow, $2 ; Hon. Peter Watson, $2 ; Dr. J. D. Buck, $2 ; Dr. John Wiggins, $2 ; F. W. Newman, $2 ; Dr. C. MacManus, $2 ; Alex. Hudunt, $2 ; Capt. J. S. Richards, $2 ; T. H. B. Beal, $2 ; F. Hess, $10 ; S. H. Randall, $2 ; Chas. A. Wood, $2 ; J. Ralston Skinner, $5 ; Dep't Interior, Educational, $2 ; Col. J. F. Hammond, $2 ; James A. Collins, $2 ; Wm. Archer, $2 ; Wm. McAllister, .40 ; E. W. Fell, $2 ; C. N. Dubs $2—Total for July, $57.20.

AUGUST—Thos. R. Reeves, $20 ; James G. Johnson, $10 ; Louis Quien, $2 ; J. H. Devereux, $25 ; Thos. J. Hyde, $2 ; C. L. Redfield, $2 : Jesse H. Jones, $2 ; Wm. Chisholm, $50 ; Clark Fisher, $20 ; E. Collopy, $12 ; P. Collopy, $10 ; Geo. M. Tuttle, $2 ; J. Leyland Feilden, $24.35 ; John H. Walsh, $10 ; Arthur S. C. Wurtele, $2 ; Charles Kellogg, $10 ; C. S. Maurice, $10 ; Sandford Fleming, $10 ; James McIntyre, $10 ; L. F. Haskell, $1 ; Frederiek G. Roeder, $2 ; Rev. H. G. Wood, $5 ; Mrs. Angie Damon,

$10; Miss Emily Damon, $10.85; John Forrest, M. D., $2; Geo. Kellogg, $10; F. R. Kimball, $5; G. M. Atwater, $10; Thomas Bahan, $5; James Richardson, $2; M. Hollaran, $2; P. McMahan, $2; Michael Wing, $2; D. Isanburg, $2; Wm. Hennessey, $2; Michael Kating, $10; P. Bowen, $10; Lewis Biden, $9.74; Prof. C, Piazzi Smyth, $24.35; Dr. H. R. Heard, $2; J. Wylie Smith, $2—Total receipts, August, $364.29.

REVIEWS.

We have received the masterly work of Lieut. C. A. L. Totten, 'An Important Question,' and we heartily commend it to our readers.

It was written to be read before the members, at the meetings of the International Institute, but on account of the extent of the work, Lieut. Totten decided to publish it in its present form.

His system of metrology is cosmical; to call it ingenious would be a tame meed of praise. It is the development of a genius. In one point we disagree with him, viz., in the rejection of the 360° circle and the substitution of the 240°. Many of us feel assured of the relation of the 360° circle to the Pyramid.

We, however, ask a most candid examination of this work, and think it the duty of all members who are able to buy the book to do so, and aid so noble and disinterested a worker. He has no hope of pecuniary gain; he works only for the cause of truth, and will devote the proceeds to the advancement of our whole work.

Referring to an utterance of Garfield regarding the standard of weights and measures, " By laws higher than human legislation, length, depth and height were created; men can only name and declare a definite length as a standard," Lieut. Totten says: "We believe that our ascestors have bequeathed to us a system based upon these higher laws. By the attrition of full four thousand years, our Anglo-Saxon system has lost so little of its ancient truth, that we believe its present possessors —direct descendants of a mighty race—may return to the ancient perfect standards without any inconvenience, and with-

out altering a single name familiar to our children and to history."

Respecting the inch, he says: " Without reference, therefore, to the absolute length of the unit inch, save that it shall be, when determined accurately, one 500-millionth of the polar axis (and until so determined shall be held at its present statute value), we may agree beforehand that the rectified long measure shall be as heretofore, and as follows." He then gives a table of rectified long measure.

The cuts of the obverse and reverse of the U. S. seal are made by Lieut. Totten upon the advanced and perfect rule of Heraldic art. The cut of the reverse—a pyramid unfinished—is beautiful, and in Mr. Totten's opinion it should be so cut for government use.

We will have a more extended notice and examination of this work in our next issue, but, meanwhile, recommend our members to read the book.

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New Measures of the Great Pyramid. By a New Measurer. Described and Tested by C. Piazzi Smyth, Extended and Corrected from the Review in the *Banner of Israel* for November and December, 1883.

The dedication is as follows:

" To the International Institute, Cleveland and Boston, U. S. A., for preserving and perfecting hereditary weights and measures, more especially the Anglo-Saxon, and for the discussion and dissemination of the wisdom contained in the Great Pyramid of Jeezeh in, but not of, Egypt, this little book, descriptive of some new information on the grand subject which the members have so much at heart, is dedicated by one who has worked at this Pyramid question for close upon twenty years (or ever since the death of the late John Taylor, who commenced it on its present lines), and with continually increasing belief that there is more than accident, more than man's intent, in both its primeval origination and now latter-day intellectual development, is dedicated most respectfully, by their devoted fellow-laborer, C. Piazzi Smyth, Astronomer Royal for Scotland, and for this cause, Ex. F. R. S., London."

At a meeting of the Society, July 16th, a resolution of thanks was passed to Prof. C. Piazzi Smyth for the honor he had conferred upon the International Institute by dedicating to it this valuable contribution to Pyramid literature. As the review from the *Banner of Israel* has already appeared in our Magazine, we will not give here an extended notice of this work, but recommend it to our readers as an epitome of the latest information on the subject of the Great Pyramid. It is printed and published by Robert Banks, Racquet Court, Fleet street, London, England.

NOTES AND QUERIES.

APOCRYPHA AND APOCALYPSE. What is the true meaning of these words?

A SEEKER.

The word Apocrypha is from the Greek *apokryphus*, and means *hidden, spurious*. In Matthew's translation of the Bible, published in 1537, the dutero-canonical books were separated from the others, and prefaced with the words "The volume of the books called Hagiographa." In Cranmer's Bible published in 1539, the same words were continued ; but in the edition of 1549, the word Hagiographa was changed to Apocrypha which passed through the succeeding editions and into King James' version. These apocryphal books are received as canonical by the Roman Catholic church, and are intermixed with the Old Testament books in the Douay version. The Protestants reject them as being canonical, but receive them as historical. Hence the term as now generally used is in the sense of uninspired.

The word Apocalypse is from the Greek "apokalypsis," and means "to uncover," "to reveal." It is the Greek name of the last book of the New Testament, translated Revelation. From the many interpretations put upon this book it would seem to be a misnomer, and the hidden sense of apocrypha to be more in accordance with its estoric meaning.

ENOCH THE SECOND MESSENGER OF GOD. I am led to inquire further in reference to this recent edition or version of the Book of Enoch by Dr. Kenealy, and why called the Second Messenger of God? I never heard of only Richard Laurence's translation of the Book of Enoch.

E. M. J.

In answer to this correspondent we will take the facts as they appear in the works of Dr. Kenealy, six thick octavo volumes having been published prior to the author's death which occurred about four years after publishing the Book of Fo. This eloquent author's volumes are ample proof of the onward progress of the human race. He asserts the Apocalypse to be far older than christianity, and to have come down from the most remote antiquity, being the revelation of the whole drama of human history. With almost infinite learning and patience, he has endeavored to show that the Apocalypse was originally revealed to a primeval John, otherwise called Oannes, and identical with the First Messenger of God to man. His theory is sufficiently remarkable to be given here. The Messengers of God are twelve in number, and are claimed to have appeared at intervals of 600 years as follows :

1. Oannes (Adam), A. M., 3,000 ; 2. Enoch, A. M.. 3,600 ; 3. Fo-hi (Budda), A. M.,
4,200 ; 4. Brigoo (Brahma), A. M., 4,800 ; 5. Zaratusht (Zoroaster), A. M., 5,400 ;
6. Thoth (Hermes), A. M., 6,000 ; 7. Amosis (Moses), A. M., 6,600 ; 8. Loa-Tseu (Con-
fucius), A. M., 7,200 ; 9. Jesus (Christ), A. M., 7,800 ; 10. Mo'-Ahmed (Mo-hammed),
A. M., 8,400 ; 11. Chengiz-Khan (King of Kings), A. M., 9,000 ; The 12th Messenger
yet to be revealed, A. M., 9,600.

With the aid of this theory the whole history of the world down to the present time is
shown to be foretold in the Apocalypse, and although it may be difficult for many to agree
with this accomplished author's conclusions, supported by him with an array of learning,
and a sincere belief in what is stated, no one with any taste for these studies should be
without this illustrated wonderful series of books.   Throughout the many thousand pages
of closely printed matter, the writer manifests a sincere reverence for true religion, and
seeks only to expose the errors which priests and interested persons have promulgated
from time immemorial.   The author remains strictly anonymous throughout his entire
series.   The title-pages of his volumes are printed in colors, and all bear the symbolic
name, " by ⊙,'' (the central spot being black), followed by quotations.   Their titles are
as follows :

The Book of God.   The Apocalypse of Adam-Oannes, by ⊙.   " I will teach you by
the hand of God ; that which is with the ALMIGHTY ONES will I not conceal."—Job
xxvii, 11—pp. 647.

The Book of God.   An Introduction to the Apocalypse, by ⊙.   " Unto you, O Men,
I call : and my voice is to the sons of Adam."—Proverbs viii, 4—pp. 752.

The Book of God.   A Commentary on the Apocalypse, by ⊙.   " I will declare dark
sayings of old."—Psalms lxxviii, 2—pp. 853.

The Book of God.   Enoch the Second Messenger of God, by   . Vol. I, Frontis-
piece—Circle of Inchoation.   *Alpha* and *Omega*—pp. 368. Vol. II, Frontispiece—
Cwenila.   *Alpha* and *Omega*—pp. 339.

The Book of God.   Fo the Third Messenger of God, by ⊙.   Introduction illustrated
with Budda—pp. 333.

When this volume was through the press the author's death was announced which
closed the elaborate plan of the author.   The next two volumes which were in prepara-
tion were, ' The Book of Lao-Tseu, the Fourth Messenger of God," and " The Book of
Zaratusht—The True Zend-a-Vesta—the Fifth Messenger of God.''

ERRATA.

PAMPHLET.

Report on Standard Time, also same report appended to INTERNATIONAL STANDARD July, 1884.

Page 15—5th line from bottom, for "unexplored" *read* explored.

Page 16—5th line from top, for "exploration" *read* exploitation; 3d line from bottom, for "nearly attainable" *read* nearly perfect attainable.

Page 19—33d line from top, for "the geography" *read* geography.