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STANDARD

A MAGAZINE

DEVOTED TO THE DISCUSSION AND DISSEMINATION OF THE WISDOM CONTAINED  
IN THE  
GREAT PYRAMID OF JEEZEH IN EGYPT

MARCH, 1885.



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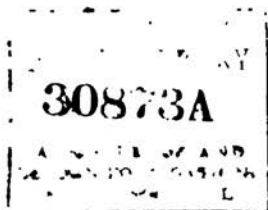
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FOR PRESERVING AND PERFECTING THE ANGLO-SAXON WEIGHTS AND MEASURES

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THE  
INTERNATIONAL STANDARD.

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A PREFACE TO THE STUDY OF ANGLO-SAXON  
HISTORY.\*

The message which Edward Hine has crossed the Atlantic to bring unto Manasseh (or the United States) is one momentous far beyond all tidings that have ever come to man in modern days. It involves questions so grand and so far reaching—questions which run back throughout all written history, and which, sweeping on beside the stream of prophecy, map out the very future of the human race—that to consider them in brief is well nigh but in vain. This message is primarily one of *peace* between two brother nations. It assures us of an ever growing concord between the land of Ephraim (Great Britain) and our own "Great People." It looks towards the moulding, not remotely, of every spear and sword into the pruning-hooks and plows of a world recovered from strife, and whose nations shall have accepted blessings which are to be theirs in Abraham our father. It is idle to predict a limit to the influence for good which an acknowledged acceptance of this truth will secure to

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\* Written as a preface to Edward Hine's forthcoming work, addressed to the American people, "One Hundred and Forty-seven Identifications of England and America with Ephraim and Manasseh." *To Joseph was the birthright. The earth and the fullness thereof.*

England and America alone. Nor may we ever set a boundary to the far wider influence which an uncontested fraternity in Joseph (the son of Jacob, son of Isaac, son of Abraham) must exert in turn upon the nations round about us.

The nations of the earth must see this truth in time, and in its light must "flow unto the Lord" in willingness. But were the truth by others scorned, and yet by them, themselves, by brothers John and Johnathan, believed, the greatness of the Saxon stock would dominate the world more irresistibly than even now; with only faint acknowledgment, it reaches on towards its certain destiny.

Edward Hine is undoubtedly the father of that division of this most absorbing topic, which resulted in distinguishing, in the English-speaking peoples *alone*, the true body of "Lost Israel." It was he who, in particular, was allowed to clear the originally crude Teutonic Identity of John Wilson of all its fatal objections, and to make a truth of what before had only been a theory. Since its first promulgation, Mr. Hine has publicly advocated the facts of the identity before at least five million people in the British Isles. The printed editions of his numerous works have reached unprecedented numbers, and the prospect is that, far from diminishing, the demand for them is vastly on the increase. Born of the truths presented in these volumes, a whole literature has been created, and, flowing into it, moulded at last into a form with real existence, the whole of Anglo-Saxon history seems destined to be drawn.

The confusion of the original conception as it clothed itself in Wilson's mind was but a natural one. Impressed with the grandeur of the evidence which deep study was formulating before him, and knowing that the ancestors of Britain had certainly come across the channel from its eastern and Teutonic shores, he concluded that of this stock they surely were, and that therefore, in their latter day inheritance, the whole Teutonic growth should have a part.

It was not clear to him that just as Israel of old, in leaving Egypt, journeyed years among the nations of the wilderness, and here and there left impress on them, so the Khumric emigration might have been across the "northern wilderness"



among its people, leading them, resting with them here and there, then leaving them, without a grain of wheat remaining, in their onward course to western empire.

It was through Europe, as they trended "westward" towards "the north country"—"the isles" wherein they were to "recover their strength"—that the exiled "house of Ephraim," or "All Israel," *i. e.*, "The Lost Tribes," or the Cumbri of modern historians, made their way. In this great emigration they strewed their course with the "signs" of their pilgrimage, "setting up waymarks" here and there, and even left their customs impressed upon the peoples through whom they passed, and whom, accompanying them like the stragglers and camp-followers of a vast invasion they left behind, settled here or there along the journey, while they—the dominant people, the leaders of the movement—impelled by destiny, moved on beyond in spite of failing strength, and reached at last their "little sanctuary."

There is no grander theme in history than the story of this struggle of the Anglo-Saxons westward. The very streams of Europe mark their resting places, and in the root of their names (*dan*) recalls the sacred stream, the Jordan, from whose banks, so far away, as exiles, they set out. But even were these people not indeed "Lost Israel," yet, nevertheless, their history is wonderful beyond the story of all other nations. "Terrible from their beginnings, and hitherto" they certainly were led by the God of Abraham, and led differently than other nations have been, and towards a grander destiny. And they parallel the promises to Israel so perfectly, from their very origin in Media, whither Israel was departed, to their resting place upon the British Isles, as tribe by tribe they gathered there, that to find another people who shall counterpart both Israel and Saxon is a fruitless effort for the student of history. In this expanding theme the true philosophy of history is spread before us. The reflection from its panoramic slides, beneath the glare of the identity, assumes a significance so new and startling, so marvelous, so thrilling, that all the links of universal history become but one harmonious sequence in a chain of evidence which is anchored in conviction. Beneath its light the pages of

prophecy read as the story of to-day. God's *word*, so sure and fixed, becomes the very record of our own great race. In dignity this topic has no compeer, and to him who lends himself a willing and unbiased student of its claims, it will afford a subject of unending scope.

In that its evidence is cumulative lies its truth, and though for fifteen years its advocates have challenged the production of a single fatal objection, not one of any kind has been advanced that has not easily been overthrown. The very identity of the "Jews," a people scattered among all nations, never lost, and literally fulfilling every prophecy against *them*, a people whose existence is a standing demonstration of the integrity of Jehovah, demands that *likewise*, and to the *same degree*, the Ten Tribed kingdom shall fulfill all prophecy relating unto *them*. There is no spiritualization about the *curse* that has pursued our brethren of Judah for full eighteen hundred years; the burden has been heaped upon them in its full material weight, and they are under it to-day. Not one jot nor tittle has been lifted. Why, therefore, should we longer seek to find in *Israel's* promises merely spiritual meanings, and sever from "the birthright," which was *Joseph's*, and which, more than all, was meant by Jacob to be *temporal*, its very substance? To the kingdom of Judah was promised "the Lawgiver," and, though His own received Him not, He came, fulfilling all that prophets had predicted of Him. So unto the kingdom of Israel must pertain the blessings of the birthright, and be as literally realized, wherever Ephraim and Manasseh are to-day, as are the bitter burdens that make Judah mourn. Whatever may have been involved in the blessings originally given unto Abraham, and repeated by Jehovah to Isaac and to Jacob, it is certain that they were understood and expected to last, expanding constantly to the very end of time. To the patriarchs themselves they were explicitly conveyed under two widely separated and contrasted heads—spiritual and temporal. They were blessings not alone to them, but to them, as instruments and means, were far more broadly promised unto all mankind. Truly the ways of the Almighty are past finding out, and a retrospection over what has thus far transpired in the history of a creature driven

out of Eden, but with the promise of return at last, only goes to establish more conclusively the unsearchableness of Him whose ways lie in the deep.

When the time arrived for Jacob, the last of the three patriarchs, to be gathered to his fathers, he was moved of God to assign these two classes of blessings severally, as follows: Unto Judah he gave the spiritual blessings, for of him, the Lawgiver, Christ, was to come—*did* come, say all "Christians," and will *yet* come, say all "Jews." But to Joseph, the beloved son, gave Jacob all the purely temporal blessings that pertained unto "the birthright." The dying and far-seeing patriarch was, however, even more explicit in this assignment of these temporal blessings, as a brief *résumé* of the circumstances of its transmission will clearly establish.

As the time drew near for his departure from the earth, he exacted from his son, then vice-regent of all Egypt, a promise that though he was to die in Goshen he should not be buried there, but should find his last resting place with his fathers, in the Land of Promise. This Joseph swore, and returned to the administration of Pharaoh's affairs. But the end drew near, and when it was told to Joseph "Behold, thy father is sick," he took with him his two sons, Manasseh and Ephraim, and hastened back. Now it was told to Jacob that his son was coming. So "Israel"—as the angel had named him—strengthened himself and sat upon the bed, and then was enacted that most significant ceremony which, in the light of subsequent events, is seen to have ushered in the means towards the full fruition of the will of the Almighty. The patriarch perceived that it was not enough to set aside his eldest sons, Reuben and Simeon, and to give "the birthright" to Joseph in general terms, no matter how pregnant they might be with import. So to quiet forever among his descendents any dispute as to its nature and degree, he then and there *adopted*, before blessing them, the two half-Egyptian boys of him who was beloved. "And now thy two sons, Ephraim and Manasseh, which were born unto thee in the land of Egypt, before I came unto thee in the land of Egypt, *are mine; as Reuben and Simeon shall they be mine.*"

Though separated from his brethren, it was most grandly for

their good that Joseph had gone down into the land of Egypt long before them. It saved them from the famine, and by its outcome the very dreams that originally led his brethren to banish him had already been, in type, at least, fulfilled. There was then in Egypt none who did not bow to Joseph, as second in that mighty realm he rode the chariot of Pharaoh.

Now it will be remembered that at this remarkable scene of blessing, the dying patriarch conveyed his prophetic gifts in a manner that was somewhat contrary to custom and a surprise and disappointment unto Joseph. For though Manasseh was the eldest, and had purposely been brought near by Joseph "towards Israel's right hand," while Ephraim had been withdrawn towards his grandfather's left, yet Jacob stretched out his right hand and laid it upon Ephraim's head, who was the younger, and his left hand upon Manasseh's, "guiding his hand *wittingly*," say the Scriptures, "for Manasseh was the first born." It will also be noticed that in this *crossing* of his hands, by which "he set Ephraim before Manasseh," the patriarch made the latter the *thirteenth* tribe of a now and henceforth ever to be *thirteen-tribed* Israel. For Joseph's withdrawal from the twelve left eleven, and his reacceptance in the persons of his two sons made the whole number *thirteen*, while the precedence given to Ephraim in the adoption left Manasseh last or thirteenth in the order of his tribal birth.

Now, the blessing was in this wise: "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 my name be named on them, and the name of my fathers Abraham and Isaac; and let them grow in the midst of the earth as fishes do increase." The ceremony had proceeded thus far without interruption when Joseph noticed that his father had laid the right hand upon Ephraim's head, and as it displeased him he essayed to lift his father's hand and remove it to Manasseh's head, saying: "Not so my father, for this is the first-born; put thy right hand upon his head." But his father *refused* (and so pointed a refusal, at the termination of a long life of special favors showered upon Joseph, is deeply significant) and said: "I know it, my son, I

know it; he also shall become a *people*, and he also shall be *great*; but truly his younger brother shall be greater than he, and his seed shall become a multitude of nations." And thus he blessed them that day, saying: "In thee shall Israel bless, saying, God make thee as Ephraim and as Manasseh."

It was just after the foregoing scene that Jacob called unto all his sons and said, "Gather yourselves together that I may tell you that which shall befall you *in the last days*." It is with Joseph and with Judah, as the particular representatives of the two kingdoms into which, at the death of Solomon, the several tribes were divided, that we have most directly now to deal. Like as *Judah* became the general term by which the kingdom set up at Jerusalem by Rehoboam became known in later history, so *Ephraim*, now made the elder son of Joseph by the blessing, became a general one for that of the Ten-Tribed Kingdom founded across the Jordan by Jeroboam. Throughout the Scriptures, from the day of Solomon's death, this distinction is so explicitly maintained that to confuse it is to wander hopelessly from the paths that lead these peoples down to latter or to *present* times.

Gather yourselves together, and hear, ye sons of Jacob;  
And hearken unto Israel your father.

\* \* \* \* \*

*Judah*, thou art he whom thy brethren shall praise;  
Thy hand shall be in the neck of thine enemies;  
Thy father's children shall bow down before thee.  
Judah is a lion's whelp—From the prey, my son, thou art gone up:  
He stoopeth down, he croucheth as a lion—and as an old lion; who shall rouse him up?  
The scepter shall not depart from Judah, nor a lawgiver from between his feet,  
Until Shiloh come—And unto him shall be the gathering of the people be.  
Binding his foal unto the vine—And his ass's colt unto the choice vine.  
He washed his garments in wine,—And his clothes in the blood of grapes:  
His eyes shall be red with wine,—And his teeth white with milk.

\* \* \* \* \*

*Joseph* is a fruitful bough,—Even a fruitful bough by a well;  
Whose branches run over the wall:  
The archers have sorely grieved him—and shot at him and hated him:  
But his bow abode in strength,—And the arms of his hands were made strong  
By the hands of the mighty God of Jacob;—(From thence is the shepherd, the stone of  
Israel:)  
Even by the God of thy father, who shall help thee;  
And by the Almighty, who shall bless thee—With blessings of heaven above,  
Blessings of the deep that lieth under,—Blessings of the breasts and of the womb:  
The blessings of thy father have prevailed above the blessings of my progenitors

Unto the utmost bound of the everlasting hills:—They shall be on the head of *Joseph*,  
And on the crown of the head of him that was separate from his brethren.

\* \* \* \* \*

Two hundred and thirty-eight years after the utterance of this prophecy, Israel's greatest prophet—Moses—about to bid farewell to the people he had led from Egypt, repeats these blessings, and, when the heads of the people and the tribes of Israel were gathered together, says of *Joseph*:

Blessed of the Lord be his land—for the precious things of heaven,  
For the dew and for the deep that croucheth beneath,  
And for the precious fruits brought forth by the sun,  
And for the precious things put forth by the moon,  
And for the chief things of the ancient mountains,  
And for the precious things of the lasting hills,  
And for the precious things of the earth, and the fullness thereof,  
And for the good-will of him that dwelt in the bush,  
Let the blessings come upon the head of *Joseph*.  
And upon the top of the head of him that was separated from his brethren.  
His glory is like the firstling of his bullock—and his horns are like the horns of unicorns.  
With them he shall push the people—together to the ends of the earth.  
And they are the ten thousands of Ephraim—And they are the ten thousands of Manasseh.

\* \* \* \* \*

These blessings are explained in no uncertain words. They sweep onward throughout all the course of history, and in their comprehensive scope lead up to what, as Jacob said, should be the circumstances surrounding the posterity of Judah and of Joseph at the latter days.

It is in these latter days that Moses and all of his successors of the school of prophets, have looked for the return of Judah unto Ephraim—the two tribes to the ten—and for their united return, immediately thereafter, to their land recovered from the sword. In the words of Moses, thus re-echoed down the stream of prophecy by all of his successors, we have the mention of this gathering as follows:

And this is the blessing of *Judah*; and he said, Fear, Lord, the voice of *Judah*—and bring him unto his people. Let his hands be sufficient for him—and be thou an help to him from his enemies.

\* \* \* \* \*

The sin of Judah consisted in mistaking the character of the blessings entailed by the promise of Messiah. They believed that when Shiloh came, and closed the line of David, he would come to rule in might beyond magnificence in Jerusalem. They

looked for purely *temporal* blessings, and when in a meek and lowly Saviour they found only *spiritual* ones, they crucified him, and went out among all nations desolate. But blindness, too, has fallen upon Israel in part, for here we find the circumstances just reversed. Upon the sons of Joseph, ruling as chief among the nations of the modern world, we find the *temporal* blessings literally as foretold, poured out and running over, and yet we find them blind to the rock whence they are hewn, proclaiming themselves Gentiles everywhere, and as only in possession of the purely *spiritual* gifts that come of Christianity alone. The Anglo-Saxon thinks that he is only Israel by spirit and by grace, and that his might and prominence among the nations of the earth are his from other reasons than inheritance from Jacob. Equally with Judah has the house of Israel thus misconceived their blessings. But the day of their awakening has come. An unprecedented feeling of unrest has fallen upon all mankind. Expectancy is more intense than ever in the history of man. All nations feel it, and if the sure word of God is an abiding rock, then unto it must Christians turn for knowledge of these latter days, and, having identified not only Judah, but Israel, speed their feet towards the Land of Promise.

The *identity* of the Anglo-Saxons of the British Empire, and of the United States, with Ephraim and Manasseh and the tribes their fellows, is a claim so startling to us, who have thought ourselves but Gentiles, that our first impulse is to reject it wholly. "But whoso is wise will ponder these things, and they shall understand the loving-kindness of the Lord." The proofs are such as cannot be gainsaid; they have only to be examined to become as fruitful as the promises themselves. If this message, then, from Ephraim is true, how grand the mission of the stranger now among us to "the great people" of Manasseh. What crowding thoughts awaken at the fact of this unheard of news! It is the most momentous question of the day, for on it hangs a future pregnant with stupendous political movements.

Under the guidance of the providence of the Almighty, the great drama of man is drawing towards its closing scene. With varied interest, intensified by our necessary participation in its



several acts, we have studied, in all ages, the grand problem of human existence, and concluded, as its scenes unfolded, now one thing, now another, until the very intensity of the mystery has wrapped the attention of the listening world.

The curtain rises upon the first scene of its closing act, and what a surprise awaits the audience. As the thought speeds backward over former passages in the drama, the past at last is understood, and with the dawning light the present, too, assumes proportions far beyond cyclopean. The hero is at last disclosed. The secret of his many phased identity is given out. At once we recognize him as he stands before us, not only in his long familiar character as the Anglo-Saxon race, but the intellect of humanity is staggered at the crowding possibilities involved in his recognition, also, as the dim shadow that in every eye has hitherto so mystified the plot. This mighty race of modern times, this giant of the story, is now revealed as *identical* with *Israel* itself—with that Ten-Tribed Kingdom "lost" amid the mountains of the Medes so many centuries ago!

A silence falls upon the audience as, hushed in its intensity, it waits to hear the hero speak. What may we not expect beneath this strange, unlooked for recognition of an *origin* we least anticipated?

The curtain has not fully rolled away; the huge proportions of the stage require a large one; so, as it rises, we will study what we see before us, for the play will soon begin again and sweep us onwards with no time for retrospection.

C. A. L. TOTTEN, U. S. Army.





THE ALTAR AND PILLAR TO JEHOVAH.

VIII.

The first four steps in our exposition of Isaiah xxii, 15-25—Shebna's office, his treasury, what he had there, and who he had there—lead us to the consideration of the fifth:

(5) *What Shebna had done there.* He had hewed him out a sepulcher there, probably "on high," in imitation of the treasurer with whom he is compared. Had he followed what was customary in the conversion of a treasury-stronghold into a monumental tomb, he would have hewn out his sepulcher in the rock foundation on which his treasury stood. The usual subterranean sepulcher seems referred to in the figure under which Ezekiel predicts the downfall of Tyre: "When I shall bring thee down with them that descend into the pit, with the people of old time, and shall set thee in the low parts of the earth, in places desolate of old, with them that go down into the pit." (xxvi: 20.) Its association with a treasury is seen in the reason of Job's wish that he had died in infancy: "For then had I been at rest, with kings and counselors of the earth, which built desolate places for themselves; or with princes that had gold, who filled their houses with silver." (iii: 13-15.) Add to this the expression in Isaiah lix: 10, "we are in desolate places as dead men," and we see clearly that the "desolate places" which "kings and counselors of the earth built for themselves" in Job's time, and in which "princes who had gold, and who filled their houses with silver," slept their last long sleep, were monumental tombs, converted into such from their primary use of treasury-strongholds. It should be observed also that "kings and counselors" are kings and treasurers, the king's treasurer or ruler over his house being his privy counselor. It was therefore by no means an unprecedented ambition in Shebna, that of desiring to be buried in the "desolate place" wherein he would have served in the capacity

of treasurer while it was yet a treasury. His sin appears to have consisted in presuming upon the honor of a superterranean sepulcher, like that of the treasurer whose act of "hewing him out a sepulcher on high" was celebrated in sacred song, without an imitation of those humanitarian virtues and achievements which justified the anticipation of such an honor in that distinguished exemplar. Shebna had no *proprietary* right in the honor to which he aspired.

(6) *The logical connection between the possessions and the deed.* This is the point of crucial interest: by what right the king's treasurer could hew out for himself a sepulcher on high in the king's treasury. It was, if I mistake not, by virtue of treasures there of his own more valuable than the king's, and by virtue of an image and likeness of himself there so true to nature as by no reasonable contingency to be taken for anything else than the original. The reason of such means to such preferment lay in their proof of divine inspiration, and in the divine right of God's prophets over the divine right of kings. Treasures of infinite wisdom and goodness, symbolized in precious stones and appropriate forms of silver and gold, as reflex embodiments of their manifestation in man and the material universe, constituted the sacred mysteries of that grand masonic structure, the Great Pyramid, and of similar structures of the house of David, independently of the mere financial wealth with which they were associated; and if the man who was inspired of the divine Spirit to represent them in such forms was the treasurer himself, as in the case of Joseph, they belonged to him rather than to the king. This, with a divinely inspired image of himself, as I will endeavor to show by-and-by, entitled him to burial in his Great Treasury-Stronghold, rather than under it, on the principle that "where his treasures were his heart was also;" but Shebna could lay claim to no such honor.

(7) *The person with whom Shebna is compared.* Who it was, though abundantly presupposed, has not yet been proved to the extent possible. Hebrew Joseph was to Pharaoh-Shofa, or at least to Pharaoh somebody, what Hebrew Shebna was to King Hezekiah, so far as the office of treasurer was concerned. In answer to Joseph's advice, "Let Pharaoh look out a man dis-

creet and wise, and set him over the land of Egypt," etc., Pharaoh replied, "Forasmuch as God hath showed thee all this, there is none so discreet and wise as thou art: thou shalt be over my house, and according to thy word shall all my people be ruled: only in the throne will I be greater than thou." We see by the marginal reading, in connection with the Scripture parallels already adduced, that a more correct rendering of the above would be, "Thou shalt be over my treasury, and according to thy word shall all my people be armed." If Joseph was to be "set over all the land of Egypt" for the accomplishment of the stupendous work before him, it was necessary, first of all, that he should be put in complete control of the means in men and money, as well as possessed of the wisdom and discretion, commensurate with the end. The people were required to be armed according to the word of Joseph, either with implements of masonry or implements of war, because his treasury was a stronghold, requiring to be defended by military power, and possibly to be replaced by a larger, as the most concentrated and comprehensive means to the defence of the Pharaoh and his kingdom.

Of the words translated "be ruled," Lange says, "'be armed,' as some read it; and then it bespeaks him general of the forces." According to the same authority, the words to Joseph, "I am Pharaoh, and without thee shall no man lift up hand or foot in all the land of Egypt," mean, "without thee shall no man lift up his hand to hold a weapon, or his foot to ride a horse." We read also that in place of the name "Zaphnath-paaneah," the Septuagint gives us "*Psotom-phaneh*," which "signifies, as Jerome observes, and as the Coptic or old Egyptian language shows, *Saviour of the world*." It reminds us of Isaiah's statement of the humanitarian object of the altar and pillar to Jehovah in the midst of the land of Egypt, that the Egyptians "shall cry unto Jehovah because of the oppressors, and he shall send them a saviour, and a great one, and he shall deliver them." It also confirms my opinion that Joseph is the Bible's most perfect type of the Saviour of mankind. In these respects the relation of Joseph to Shebna is that of contrast rather than of comparison. Godfrey Higgins, in his "Anaca-

lypsis," says that "to Joseph in Egypt" was given the name "Scalit," signifying "wise man," as well as the name "Salus," signifying "a saviour." This "wise man, who built his house on a rock," is the person with whom Shebna is compared, not because of likeness in character, but because of likeness in hewing him out a sepulcher on high in "the house" over which the king had set him for the care and management of the royal finances.

(8) *His Sepulcher on High.* Judging from the sarcophagus in the king's chamber of the Great Pyramid, I take this chamber to be the "sepulcher on high." To justify this conclusion it is incumbent on me to show, in the first place, that "the granite coffer" was truly a coffin; and, in the second place, that it was the "coffin" referred to in the statement: "So Joseph died, being an hundred and ten years old; and they embalmed him, and he was put in a coffin in Egypt." (Gen. l: 26.) Prof. Smyth says: "The inside dimensions of the coffer being, by our measures, (roughly) 6.5 feet long, 2.2 feet wide and almost 3 feet deep, are at least long enough and broad enough for a coffin; and if rather deeper than convenient or necessary, I will not object to that, as there is now proved to be a ledge cut in the top of the thick sides of the vessel, and quite suitable for a lid. As there is a ledge, an intention at some time to put on a lid may or must be inferred; but it is still to be proved whether a lid ever was put on by the architect of the Great Pyramid, and especially for sarcophagus purposes; because, first, with a sarcophagus lid of the ordinary style and thickness fastened into that ledge, the coffer could not have passed through the closely fitting door-way of the room; it would have been several inches too high. Second, a sarcophagus lid fastened in that ledge would have betokened the accomplishment of the last rites of the dead; and they would have included, among all eastern nations, but more especially the contemporary, indigenous, profane Egyptians, the engraving of the deceased's name, titles, deeds and history on the coffer, both inside and out. But there is nothing of the kind there." ('Our Inheritance,' p. 161.)

To the first objection to the sarcophagus theory and practice

I reply, that the coffer must have been introduced into the king's chamber while this was open to the outside on the fiftieth course of masonry; because, as Professor Smyth shows elsewhere, Dr. Grant proved, by careful measurements, that the coffer could not have passed the angle between the descending and ascending passages, where the granite portcullis now blocks the way. Besides this, the coffer is too heavy to have been used for the transportation of a dead body to its last resting place; but this fact comports exactly with the language regarding the burial of Joseph: that "they embalmed him, and he was put in a coffin in Egypt." It is evident from this language and from the circumstances of the case, that he was embalmed by "his brethren," and was "put in a coffin in Egypt" by the king and the highest dignitaries of the kingdom, with rites and ceremonies significant of the honors he so richly merited. The last words in regard to him clearly imply that he was not conveyed in a coffin to a sepulcher, but was conveyed *to* a coffin, *situated* in a sepulcher, and was there put into it. The simple question therefore is: what is meant by "Egypt," the place in which the coffin was located? The "*midst* of the land of Egypt," marked by the Great Pyramid, was a definite representative of Egypt as a whole, as the peach-pit in the stone is a representative of the peach, tree and all. Moreover, it is pretty generally known that the word translated "Egypt" is "Mitzraim," and from the elements of this word, by the *gematria* (a certain recognized art of interpreting the numerical values of the Hebrew letters), Mr. J. Ralston Skinner deduces "the Rock out of the Water," which he says means the Great Pyramid. According to this rendering the last words of Genesis are: "They embalmed him, and he was put in a coffin in the Great Pyramid." This is not saying that the Great Pyramid was built by Joseph; but to the many pyramidologists who hold to the cabalistic interpretation of the name Mitzraim, the question as to what use was made of the granite sarcophagus in the king's chamber ought now to be considered settled. And surely, in the light of the implication by Moses that the body laid in the coffin in the Great Pyramid was Joseph's, Professor Smyth's second objection to the sarcophagus theory of the cof-

fer, namely: that there are on its external no hieroglyphics setting forth "the name, titles, deeds, and history" of the deceased, is no longer tenable. As well might we expect to find Egyptian hieroglyphics on the walls of the king's chamber, and on other parts of the Great Pyramid; for he of whom it was said or sung—

" He heweth him out a sepuchor on high,  
And graveth a habitation for himself in a rock."

must have been the architect of the entire structure. And in view of the fact that Joseph's coffin rested on the Great Pyramid's fiftieth course of masonry, I can hardly help expressing the opinion that his prophetic interment therein was commemorated by Moses in the fiftieth year of the Hebrew calendar, "the year of jubilee," when both the people and the ground rested from their labors, awaiting the time of revival, and when "liberty was proclaimed throughout all the land, to all the inhabitants thereof, and every man returned to his possessions," signifying the rest of the body in its native dust, and the emancipation of the spirit from its earthly thrall into the free air of Heaven, to return to its rightful possessions, not of the body only, but of the whole land of Canaan, "in the resurrection," when "the Kingdom of God shall come, and when his will shall be done on earth as it is done in heaven."

Though I have cited Prof. Smyth as opposed to "the sarcophagus theory," and though his disciples, in supposed loyalty to their master, are arrayed against it with a sort of uncompromising hostility, I am inclined to believe that he leans to it quite strongly; for, quoting from 'Life and Work at the Great Pyramid,' he speaks of "the top margin" of the coffer as "cut into in a manner implying that a sarcophagus lid once fitted on, sliding into its place from the west, and fixable by three steady pins, entering from the lid into holes on the western side." ('Our Inheritance,' p. 155.) One could hardly make this statement without seeing clearly that the sarcophagus had once sat snugly against the west wall of the chamber, and had been removed from the wall by the rolling of its alternate ends upon the jasper pebble beneath it, to its present position, ere any small, loose stone was to be found within the Pyramid, in order

that the lid might be withdrawn to permit a removal of the bones, or of whatever the lid may have concealed at the bottom of the sarcophagus. Quoting further from 'Life and Work,' Prof. Smyth says, "It is inconceivable how the French academicians could have pictured the coffer, as they did, without representing anything of this ledge cut-out or of the fixing-pin holes, unless they looked upon these traces as a comparatively modern attempt to convert the original pure coffer into a sarcophagus, and which they were therefore bound to overlook in their description of the *original* vessel." (Ib., p. 156.) Here the coffer is recognized as presenting to the careful observer the alternative of believing it to have been a sarcophagus, or else believing a thing utterly incredible, namely, that the ledge and pin-holes for a lid were made since access to the coffer by El Mamoun's forced hole, for the purpose of deluding us into taking it for what it was not. Again he says: "John Taylor had suggested, but not very strongly, that the shape of the coffer was derived from the hot bath, the *calidarium*, long known in the east—a long and deep box-shape—in which a man might lie down at full length or sit up, and such a shape, he showed, had been found more convenient for a corn-holder, or large corn-measure, than a cube of the same contents. But in the presence of four thousand years or more, which the Great Pyramid now represents to man, the most solemn case of lying down is that of the tomb; and the full length, horizontal extension is as characteristic of what was ever taught in the Hebrew or Christian religion, as it was radically opposed to the wretched, bent up and shortened attitude of some miserable idolaters, and of the Parsees in India in the present day, or of the cremation methods of Hindoos, or the ancient Egyptian plan of bringing out the mummies of their ancestors and setting them *up* 'round the dinner-table at the greater family feasts. The very look of the coffer evidently does produce, in some minds, the idea of solemnly and religiously lying down extended, looking upwards, peaceful and strong in faith of a future awakening by the power of God." (Ib. p. 263.)

After reading the above, I was much touched with the following in Mrs. C. Piazzi Smyth's memoir of John Taylor, it



seemed so like an impression of this lesson of the coffer on the good man's mind in his last moments. Of his prayers on his death-bed she writes: "Again and again he would say, 'O! let me lie down, let me lie down in the arms of Thy mercy, and when I wake may I enjoy Thy blessing continually. Grant this, O Lord, for Thy dear Son's sake. Amen.' The next night his prayer had changed; it was now, 'O! let me lie down in the arms of Thy *pity*, and *when I rise up*, may I dwell in Thy presence forever.'" And, rightly understood, this prayer of the dying Christian was not inconsistent with the idea entertained by himself and others, that the coffer in the king's chamber was the original corn-measure from which the Britains derived their "quarter," and the Israelites their "four homers." In justification of "the shape of the coffer as a capacity measure," Professor Smyth says: "We have already given a variety of reasons of a somewhat mathematical order, but have no objection now to add thereto this general verbal apology: that the shape of the coffer is to enable it, with its elemental-founded size, to typify and be most suitable to the size, shape, forces and purposes of man; not of man trying to scale the heavens by his own might, but man living in obedience to and dying in harmony with the commands of God his Creator." (Ib., p. 263.) Just such a man was he "who built his house on the rock," to whom Jesus likens "every one that cometh unto Him, and heareth His words, and doeth them." Joseph came to Jesus in the prison, heard his words during those seven years of provident abstraction from the world, and executed them openly in the forms and proportions of both his cosmic treasury and his micro-cosmic sarcophagus therein. Moreover, "all flesh is as grass, and all the glory of man is as the grain of grass: the grass withereth, and the grain thereof falleth away: but the word of the Lord endureth forever." (1 Peter, i: 24.) The compend of his word is his "name forever," recorded in his "memorial to all generations," and that by "grass" is meant the stalks of grain, is evident from Psalms cxxix: 6, 7. Therefore, least of all can we see any inconsistency with each other in the coffin and corn-measure theories of the coffer in the Great Pyramid, if we consider it to have been the coffin of the great



gatherer and dispenser of the corn of Egypt—the casket to which were entrusted the sacred remains of the treasurer who “gathered up all the money that was found in the land of Egypt and in the land of Canaan, for the corn which they bought,” and who “brought the money into Pharaoh’s house,” the house over which Pharaoh had set him, *i. e.*, the Treasury-Stronghold. The question before us is: the place of Joseph’s interment, and for the discovery of this we need to enquire: Did Joseph foresee the necessity for a new, greater and more impregnable fortress in which to bestow his treasures, and did he provide for the emergency? Or was the greater necessity in the case, in subserviency to the over-ruling motive for the erection of “an altar to Jehovah in the midst of the land of Egypt,” the necessity for employing the people during the years of famine, and during the years that would necessarily be occupied in the redemption of their horses and asses, their flocks and herds, their bodies and their lands? Moses tells us that, “as for the people,” whose bodies even Joseph bought for Pharaoh, “he removed them to cities, from one end of the borders of Egypt even to the other end thereof;” and to what cities if not to Memphis and Heliopolis, the cities of Joseph and Asenath? And for what more worthy and enduring purposes than the construction of Joseph’s great citadel and the still-existing nilometer called “Joseph’s Well?”

J. W. REDFIELD.

## THE UNVEILING OF ISIS.

## VIII.

The picture which forms the frontispiece of this Magazine represents the birthplace of American liberty. If the reader will turn to my paper in No. 1, Vol. 2, he will find the narrative of the circumstances that led me to this old house. I had supposed that the birth of American liberty should have occurred in the Old South Church, but found, as I have related, that the Suffolk resolves were not passed there. The first symbol of the birth of liberty occurred when the constellation of the northern crown was on the eastern horizon. I believed this constellation to be the star or sign in the east referring to the united colonies of New England, and had calculated by the position of the sign in the heavens that the time should be nine o'clock in the morning of the seventh of September, old style, or the seventeenth, new style.

When the wise men sought Jesus, saying that they had seen the star of the Messiah in the east, they supposed that Jerusalem was the birthplace, but they were informed that Christ was born in Bethlehem, which is only three hours walk from Jerusalem; and when they departed to seek Him, the star rose before them and stood over the place where the young child was. The meaning of this expression may be explained by the fact that when meridian observations are taken when the sun or star passes the meridian, it is nearly in the centre of the arc of the heavens, and, when we say that the sun is on a stand, we mean that it has ceased rising and shows nearly the exact time of the passage of the meridian. If the star or heavenly body should pass the zenith in crossing the meridian, then the standing over would be almost instantaneous. It will be remembered that the Corona Borealis was exactly vertical over Bethlehem in the year one.

It is, therefore, not without reason that I supposed that the

moment of the passage of the Corona Borealis, or of Alphaeca, or of some other periodic star of that constellation, such a one as appeared in the crown in 1866, the date of the close of the great slavery war, might denote the consummation of this grand historical event—the birth of LIBER-ty. The passage occurred at four o'clock in the afternoon on the ninth day of September, 1774. The meeting began at nine o'clock in the morning, at which time the constellation was rising in the east. The birth of liberty would naturally have taken place in the Old South Church, but our forefathers were forced to meet outside of the city on account of the great number of troops occupying the neck; therefore the old house of which we give the picture in this Magazine, was the birthplace. The nativity in Bethlehem occurred when the whole world was up to be taxed, and the agitation of the ninth day of September was on account of taxation, and on the afternoon of that day the act was consummated which gave rise to or completed the birth of American liberty.

It was said by Higgins that a new mythos should arise in about latitude  $45^{\circ}$ , when corn should be ripe in September. Was not this fulfilled in our case? Dupuis gives one planisphere to show that the birth of Christ was an astronomical myth, which occurred, he says, at one A. M. of December 25, when the sun had reached its farthest southern point—and was born again. This is the season of the Roman Saturnalia—and he shows the constellation of Virgo as it is in the picture, and the Corona rising beneath it on the planisphere. "We have seen His star in the east, and have come to worship."

I had written to Dr. Seth Pancoast, of Philadelphia, with reference to my interpretation of the sign in the heavens, and he replied as follows:

The Book of Revelation is a key to the New Testament, and the books of Ezekiel are a key to the inspired books of the Old Testament. They must be understood subjectively before they can be clothed objectively. This wise precaution was taken by the ancient Kabbalists in order to preserve their sublime and heavenly wisdom from those who might abuse it. When the subjective knowledge is obtained through subjective unfoldment there will be no danger of abuse. Christ was a Kabbalist, and He merely unveiled and revealed; and St. John wrote the key that will enable anyone who understands it to throw aside the veil, and which is, Kabbalistically speaking, raising the veil of Isis. Isis is the woman clothed with the sun and standing upon the moon with twelve stars encircling her head. She represents a symbol that, if understood, would almost afford a key to unlock

the doors of the ancient sanctuary. All objective scholars have so far failed, and will continue to do so until they become subjectively enlightened.

Up to this time I had thought of Isis only as an Egyptian goddess, and I did not suppose that she had anything to do with the United States of America or with the Scriptures. For one year I endeavored to trace the connection between this subject and the picture. My first investigation showed me that the very term Isis was the Egyptian name for Virgo, and that the constellation Virgo in the Latin had the same meaning as the constellation Isis in the Egyptian; that Ariadne was a similar term, and that the Corona Borealis was Virgo's, or Isis, or Ariadne's crown.

In passing through Philadelphia I called upon Dr. Pancoast and, in the presence of Mrs. Pancoast and my brother, I narrated most of the circumstances that had occurred in my investigation up to that time in 1879.

He said then that I had the truth, but he subsequently declared that it could not be. It will be remembered that in seeking for a woman who should represent the sign in the heavens I had selected Isabella of Spain, who, in herself, represented a nation and the church. In September, after my visit to Dr. Pancoast, it suddenly struck me that the name Isabella meant beautiful Isis—Isa-bella. I searched in various books, and in Anthon I found that *Isa* bore the meaning of Isis or lady, and seeking in other works I found that *Isabella* meant also WORSHIPER OF GOD. Then the thought came to me "What is that which always was and is and is to be?" A worshiper of God. And embodied in this is divine wisdom. The more fully I have investigated this subject the more clearly do I see that it will bear the interpretation given. The name of the woman who sent forth Columbus should be symbolic and referable to the whole subject.

One day a stranger in the train spoke to me of a wonderful work by Godfrey Higgins, entitled 'Anacalypsis.' The author calls it "AN ATTEMPT TO DRAW ASIDE THE VEIL OF THE SAITIC ISIS." The thought had come to me, Luther is "Eleutheros," that is "Libertas," both meaning freedom, liberty. Turning to the word liber in Anacalypsis, I found that Bacchus was Liber

and that he was really the god of the Book. Luther holds an open book in his hand as the angel of the tenth chapter of Revelation. And the Boc, or Book, or Liber, and Bacchus or Boccus are synonymous. Then the thought began to grow upon me that Luther was the Bacchus of the myths. Luther's symbol was a swan, and I said it would be another link in the chain if I should find that Bacchus also was represented by a swan. Turning to Anacalypsis I found these words: "The Brahmins say that Brahma, like Jupiter, for the love of Leda, was turned into a swan. When he was about to be killed by Iswara he sang hymns and verses to her praise to pacify her. From this came the story of the musical singing of swans when they were about to die. Brahma carries a book as an emblem. This was because he was the first emanation of divine wisdom, and the wisdom contained in the Veda, or Book of Wisdom, came from him. Hence in Greece Bacchus, or Brahme, was called "Liber."

Bacchus, the god of Freedom, not of wine, but Bacchus, or Liber, the god of the Book, was traduced and ridiculed even by the seed of Noah, mixed with other races, and called the god of wine; and so Luther, having denounced the crimes of old Rome, which sold indulgences and gave only bread to the laity, gave wine also to the laity, and hence they call him, as the Pharisees called Jesus, a glutton and a winebibber.

I sought then to discover how Bacchus, the ancient, could be the same as St. Martin, the modern saint. Looking into the Book of Days I found that the eleventh of November is Bacchus' day and also St. Martin's day, and that in Europe the statues of Bacchus and St. Martin stand side by side. The eleventh of November is the old Advent day and the present Advent day of the Greek church. Luther was born close to midnight on the tenth, so that either the tenth or eleventh may be celebrated as his birthday. The month of November is called the month of the Magi. Luther was of the Magi, and his Lotus symbol proves it. One of his crests was a cross rising out of a rose. This Lotus is a Rose. The birthplace of Luther was Eisleben, and he was called the Swan of Eisleben. Godfrey Higgins says that Eis is Isis; therefore Eisleben may be rendered the "Life of Isis." And as Luther translated the Scriptures into the vernacu-

lar, he bears in his hand the Book which may be interpreted, as we will show hereafter, "The Life of Isis."

I then began to search for the symbolism concerning Columbus. If the reader will turn to the legend that I applied to Columbus in Vol. 1, No. 6, the connection will be found as I proceed. I had sent for the remarkable book, *L' Histoire de Christophe Colomb*, by Roselly de Lorgues. This book on its way fell among a hundred dead and dying at Ashtabula, and was dug out of the ruins all wet and injured; but I had it dried and rebound, and there I found my very thought. I had before placed Columbus as the real St. Christopher, for he bore Christ over the waters to the new world. The statue of the saint was known and venerated through the whole of Christendom, and Roselly de Lorgues says that after the advent of Columbus the worship of the saint ceased, for the personage whom he represented had come.

Now as Bacchus, the god of the ancients, represented St. Martin, it appeared to me that Serapis symbolized St. Christopher. Serapis was the god of navigation. He was regarded as the saviour of Egypt. It was under his temple at Alexandria that the cross was found when it was destroyed by one of the Roman emperors. He was considered by Hadrian and the Gentiles to be the peculiar god of the Christians. Clement, of Alexandria, assures us, in his *Stromatis*, that all those who entered into the temple of Serapis were obliged to wear on their persons, in a conspicuous situation, the name of I-ha-ho, or I-ha-hou, which signifies the God eternal. From this and the other proofs to be shown hereafter, I think we may fairly infer that the Egyptians were of the same religion in its fundamentals as were the Jews. Columbus always bore upon his banner the symbol now employed by the churches as the monogram of Christ, the cross and the P, and also used it with his signature. It is the very symbol found beneath the foundation of the temple of Serapis at Alexandria. This cipher is also inscribed on the staff of Isis and of Osiris. Serapis was represented in Sais as holding aloft a globe in his hand, and if we look to the east of the capitol at Washington we find the statue of Columbus bearing in his hand a similar ball or globe.

Examining the name of the place whence Columbus came, I found that he sailed from Palos, which was the Ispalis of the ancients, and the country of Tartessus or Tarshish. The meaning of the word Ispalis may be represented as the mast or staff of Isis. We have seen that the symbol of Christ was also the symbol of Isis, and as St. Christopher held in his hand the staff with which he bore Christ over the water, so Columbus bore his banner from Ispalis or Tarshish, fulfilling the prophecy, "The ships of Tarshish first shall bear thy sons from afar."

When he set out from Palos he gave the order, "Unfurl the sails in the name of Jesus Christ," thus acknowledging Him as his captain. His vessel was the Santa Maria, or Holy Isis, and he planted his staff upon the shores of the new world in the harbor of San Salvador, or Holy Saviour.

The Pillars of Hercules were said to be at Ispalis, near Gadir, or Cadiz, and here was a temple of Isis whose fires were always kept burning and whose priests constantly looked westward in longing expectation of the opening of that great sea whose waters had covered the ruins of THE LOST ATLANTIS.

In *Le Peuple Primitif*, by Frederic de Rougement, we find the following allusions to the dove, the swan and the eagle. It will be seen how appropriate is the symbol of the dove to Him who represents the God of navigation: "The dove represents the love of the Spirit of God for the earth, unformed and void, which he will vivify and organize, and this symbol responds exactly to that other construction which describes the Spirit brooding over the waters. To judge from the commentaries of the Jews upon the second verse of Genesis, the comparison of the Spirit of God to a dove brooding on its eggs must have been at all times familiar to that people."

"From the allusions to the blue dove in the myths of the Basques, it is evident that the bird of the primordial waters is signified. The Latin, the Greek and the German agree with the Basque in making the dove an aquatic bird. Columba comes from the Greek *columbao*, to swim. *Peleia*, Greek for Colombe, comes from *pleo*, to which corresponds the Latin *pluo*, to rain, and the German, to plunge in the water."

"Legend, language and mythology testify that the swan was



a demi-urgic bird in the belief of the people of the white race. In the ancient world the god of the primordial waters takes the name of the eagle. This bird has always represented a God supreme, the sovereign God who has fashioned the earth upon which he reigns."

The reference to Hercules standing with one foot upon the dragon in the work of Madame Blavatsky, "Isis Unveiled," suggested to me that Washington, as St. Michael, probably represented the ancient god Hercules. We read that Hercules sailed with the Argonauts in search of the golden fleece. Godfrey Higgins tells us that the "sough" meant divine wisdom and also fleece, and that the Greeks took the wrong interpretation. The work of St. Michael was to drive the dragon out of heaven, and the work of Hercules was to put down the power of the dragon, and to seek, not the golden fleece, but divine wisdom beyond the seas. The birthplace of Washington was Virginia, named in honor of Elizabeth, the antitype of Isabella—beautiful Isis. This name is synonymous with Virgo. Hence the leader who was to defend the woman, or the church, came from the State named after a woman. To this man, typified by St. Michael and Hercules, a monument has just been reared, to which all of the nations of the earth have contributed a stone. When General Lafayette sent to him the key of the Bastille by Thomas Payne, he said: "I send this key from the apostle of liberty to its patriarch and founder." Columbus, Luther and Washington represent the magi who came to assist at the birth of liberty, the three kings of the Orient. They are all typified by their birds, their signs and their mythology.

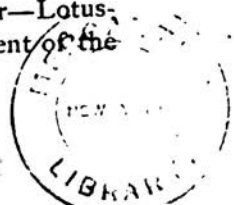
In my interview with General Garfield, early in 1879, he asked: "What do you make of the Mayflower?" I replied: "I do not know." I had always thought that the name of the ship should be symbolic. The ship seemed to be typified by the wings of an eagle, upon which the woman fled into the wilderness, and upon examination I found that the flagship in which John Winthrop sailed was called the Eagle, the name being afterwards changed to Arabella, in honor of a most noble and pious woman who sailed in her. And the church formed on board, of a company of worshippers, seemed a double fulfill-



ment of prophecy. The words of John Winthrop and his followers to their old mother, England: "We go to found a church in the wilderness, where we can worship God according to our consciences," have a special and marked import.

I told General Garfield all of these circumstances, and said, "some time I shall find out the meaning of the Mayflower." After he was elected President, Jesse H. Jones, a personal friend of his, came to my house, and as we stood before the picture he said: "What do you make of the Mayflower?" I replied: "General Garfield asked the same question, but I do not know." While looking at the picture the thought had often come to me: "This picture is like a flower, constantly casting off blooms, but all flowers wither and die, and this does not." Being invited one evening by some friends to speak about the picture, I said: "Since I last saw you it has opened like a flower." I said "like a lotus flower," but, at that time, I was ignorant of what the lotus was. I appealed to my friends, but they did not know. I said then: "I will investigate." I wrote at this time to Mr. Skinner, and said: "I have a thought; it is that the lotus flower is connected with the picture." In his answer he asked: "Did you know that Isis and Osiris were born in a lotus flower?" The morning Mr. Jones left this thought suddenly forced itself upon me: "Lotus flower, May flower—there must be a connection, but what proof can I find?" That morning I went to the Y. M. C. A. for the purpose of asking a question about a room. As I stood before the fire I saw for the first time a picture of the compact in the Mayflower, on the eleventh day of November, 1620. The sun is shining down the hatch of the vessel; ~~Robinson~~ has his hand lifted up as if in exhortation or prayer, and the company is signing that wonderful agreement of which the historian says: "Humanity recovered its rights in the cabin of the Mayflower." It begins: "In the name of God, amen." My meeting with this picture more fully impressed upon me the connection between May and Lotus flowers. I examined to see if "May" could refer to Isis, and I found that the word MAY was from MAIA, and that Maia was Isis. Mayflower—Isisflower, Mayflower—Lotusflower. And here it seemed to me that the fulfillment of the

x Brewster



myths took place. For humanity recovered its rights in the Mayflower, or Lotusflower. The day of the signing of the compact was November 11. This was the true ancient day of advent and the advent day of the Greek Church, and it was the advent of the sons of God to a New World. It will be remembered that Isis finds Osiris between the seventeenth and nineteenth, and on the ninth the Mayflower sighted land, which is the nineteenth new style. Here we have in the Mayflower the birth of a nation concealed. It seemed like the grain of mustard seed or the leaven, for the Christianity of the Pilgrim Fathers has leavened the whole lump of this nation. Here was the mother flower of liberty, the germ from which came the full blown Lotus—Liberty—on September 9, 1774.

Of the lotus flower Maurice says: "Among the different plants which ornament our globe there is no one which has received so much honor from men as the lotus or lily, in whose consecrated bosom Brahma was born and Osiris delighted to float. This is the sublime, the hallowed symbol that eternally occurs in oriental mythology. Throughout all the northern hemisphere it was everywhere held in profound veneration; and from Savary we learn that the veneration is still continued among the modern Egyptians. It still continues to receive the respect, if not the adoration, of the Christian world, unconscious, perhaps, of the original reason of their conduct."

In the account given by Mr. Payne Knight, we read: "It is employed in every part of the northern hemisphere where symbolical religion, *improperly called idolatry*, does or did prevail. The sacred images of the Tartars, Japanese and Indians are all placed upon it."

Nimrod says: "The lotus is a well known allegory of which the expanse calyx represents the ship of the gods floating on the surface of the water, and the erect flower arising out of it the mast thereof. The ship was Isis or Magna, mater. This plant was also used in the sacred offices of the Jewish religion, and in the ornaments of the Temple of Solomon the lotus or lily is often seen."

In Anacalypsis we find: "Jesus Christ was called a Nazarite, not a Nazarene. He was a Nazarite of the City of Nazareth.

But he was something more than this; he was a renewed incarnation of divine wisdom. He was the son of Maia or Maria. He was the rose of Sharon and the lily of the valley which bloweth in the month of his mother Maia. Thus when the angel Gabriel gives the salutation to the Virgin (see hundreds of very old pictures in Italy) he always presents her with the lotus or lily. And where did this lily grow? It was in Carmel, the garden or vineyard of God, that this nazir was found at Nazareth. But nazir or natzir means a flower, and that flower the lotus or lily; and it grew in the valley of the garden of God. My reader may think this very mystical, but let him turn to the Bible and read the account of the lilies and pomegranates in the temple of Solomon, on the high priest's dress, and in the Canticles and works of Solomon. Nazareth, the town of nazir, the flower, was situated in Carmel, the vineyard or garden of God. Jesus was a flower; whence came the adoration by the Rosicrucians of the rose and cross, which rose was ras, and this ras, or knowledge or wisdom, was stolen from the garden, which was also crucified as He literally is, on the red cornelian, the emblem of the Rosicrucians or Rosé-crucians—a rose on a cross. This crucified flower plant was also liber, a book, a letter or tree, or Bacchus or IHS. One of Luther's crests was a cross rising out of a rose, precisely similar, another proof of the identity of Bacchus or Liber and Luther. "This IHS. was logos, letters, LTR=650. The God was also called rose or ras, because he was R=200, O=70, Z=90=360. Or rose 365; RS=RST=600; the rose of the water or water rosea, as it is called to this day, but this rose of Sharon, this logos, this word, was called in Arabic and Chaldean *werta* and word, the same as our word. Thus it was generative principle and lingua, a word or words, language. How curiously the system is interwoven! The red rose of the Rosicrucians, when it can be done, is surrounded with a glory and placed on a Calvary. This is the naurutz, natzir, or rose of Isuren, of Tamul, or Sharon, or the water rose, the lily-padma, pema, lotus, crucified for the salvation of man."

"Sul, the sun, would form lus or lux, lusus. From this the lotus or flower of the sun, the manifestation of wisdom or love,

came to be called flower of lus or lys—the rose of the water, ice, Isis, Isuren, Sharon.”

The pyramid was called by the ancients AOR or light, and the thought had come to me that it might be compared to a lotus flower. Some time after this I received the work of Mr. Robert Ballard, of Australia, ‘The Solution of the Pyramid Problem,’ and under the head, “The pentalpha, or five-pointed star, the geometric symbol of the Great Pyramid,” he says: “A plane geometric star, or a solid geometric pyramid, may be likened to the corolla of a flower, each separate side representing a petal. With its petals open and exposed to view the flower appears in all its glorious beauty; but when closed many of its beauties are hidden. The botanist seeks to view it flat or open in its geometric symmetry, and also closed, as a bud, or in repose—yet judges and appreciates the one state from the other. In the same manner must we deal with the five-pointed star and also with the Pyramid of Cheops.

In dealing with so quaint a subject I may be excused, in passing, for the quaint conceit of likening the interior galleries and chambers of this Pyramid to the interior whorl of a flower, stamens and pistil, mysterious and incomprehensible.”

If the reader will study the mythology of *the* Pyramid, he will find that it was said to be erected in honor of Isis; and the symbol of a triangle, with the eye in it on the reverse of our seal, is a symbol of Isis and Osiris, or, in other words, of the sun clothing the constellation of Isis. Let it be remembered that this constellation was in the east on the morning of the ninth of September, 1774. The symbol, Ariadne’s crown in the Corona Borealis, was placed in the heavens by Bacchus; it is the symbol of Isis, the symbol of Eve, the mother of our race. In the ‘Hierophant’ we read: “The word Eve is synonymous with Isis, the Egyptian, and Ceres, the Greek goddess, and had her domicile in August, now in September. In the heavens we find the figure of a female, which astronomers call Virgo. In the Adamic projection of the spheres she is called Cavah (pronounced *Ka-a-vah*); in the Chaldaic projection, Eve; in the Egyptian, Isis; in the Latin, Maria; all of these signifying Mother of Life. A little to the north of this virgin, we find

the constellation Bootes, the Io-seppe of the Greek zodiac, whence our word Joseph; in Phœnician, according to Sanchoniatan, Ad-ham, whence our word Adam. So here in Paradise we find Adam and Eve in actual existence,"\* Io-Suph (Joseph) is wisdom of Isis.

Frederic de Rougemont, in his '*Le Peuple Primitif*,' speaks thus of the Egyptian myth of Isis:

Isis is, in a special sense, the mother and founder of humanity, and the traditions relative to Eve are fixed upon her in the same manner as Seth is confounded with Thoth. Eve, in the primitive legend, is a prophetess, and Isis, a woman, had first filled the office of priest. She also founded medicine, in discovering numerous remedies, and she cured by means of dreams those who came to consult her in her temple.

Eve is the sybil, the prophetess with the ear of corn, who, by her fall, introduced agriculture into the world, and who, so to speak, gave wheat to men. Isis taught the Egyptians the use of wheat and barley, but the remembrance of this benefit was tinged with a sadness of the cause of which they were ignorant. In the time of harvest they dressed the first sheaf, after which they lamented while invoking the goddess.

Why these tears in the midst of abundant crops? Why is wheat, whose culture calls for the vigorous arms of man, the gift of Isis, a woman, and not of Osiris? Because these crops, and these rude works that they prepare, date from the lamentable condemnation that Eve, the woman, drew upon humanity by her fall. The discovery of bread made from the lotus was attributed by some to Isis, by others to Menes. Now Menes is Adam, and Isis may then well be a deified Eve.

Isis, having taught agriculture, gave to Egypt her civil and criminal laws; but, when they relate how Isis, in the beginning, spun flax and hemp and made linen, they but repeat the traditions of the Jews respecting Eve.

Isis is an altered form, but always recognisable as the Biblical Eve. Through Genesis we can explain the consecration of the perseæ to the goddess. The perseæ is a symbol of immortal life. We see it on the coffins of mummies and upon other funeral monuments. It corresponds to the *mysterious tree of Paradise, whose fruit would have procured to man eternal life.*

With these strong proofs it appears to me that the word Genesis will bear the interpretation Gen-*Isis*, or Gen-es-is, the generations of Isis, or Eve, and this means the children of the white race only, in contradistinction to the children of other races on the face of the globe. The fact that the aborigines of this country and other nations have preserved the traditions of the flood, and not the knowledge of the Scriptures concerning the Noachian race, goes to prove that they are not the same people.

The ignorance of the Chinese, Japanese, Malays and Negroes of the truths in Genesis concerning the race of Eve, appears to

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\* The word Paradise is compounded of two words, meaning among the stars.

show that they are an entirely different and separate creation. If it were not so the myths would be found in their possession universally, but in many of the nations outside of the whites there is not a trace of mythology, and in the others only indistinct records, evidently borrowed from the children of Eve, or Isis, from the very source of mythology, inspiration, christianity, that is Egypt. Isis was the guardian of the constellation of the scales, and of the calendar, and of weights and measures. She is represented in all the great court-houses of our land as the goddess of justice. The kings of Egypt were required to swear upon her altars to preserve the calendar, their weights and measures. In the forepaws of the wonderful sphinx there is a temple of Isis, and I believe that it was upon its altar that these ceremonies were performed, and that to-day the Sagas-sons, or Saxons, through their measures, hold in their hands the key that will unlock all of these ancient mysteries.

THE Pyramid was said to be erected in honor of Isis. I believe that the constellation laid out in the heavens in the primeval world, as well as the Pyramid, will teach the fact that the Messiah proceeded from the Noachian race, that his glory as well as that of his kingdom is written in the rocks of that monument in the land of Egypt, and that this Messiah, who is the son of Isis, the seed of the woman who should bruise the serpent's head, came to set up a kingdom upon the earth, whose government is represented by the divine symbol—a woman clothed with the sun—which is called the sign of the Son of man in the heavens.

General Schuyler Hamilton, in his book upon the American flag, says that the stars represented a constellation, he thinks LYRA. In Admiral Preble's book upon the flag we find that the first banner ever thrown out by the race emanated from Egypt. This was the Labarum, or Banner of Isis. (We have but to add the colors and we have the stars and stripes.) In their processions they carried the symbol of the woman clothed with the sun, the crown of twelve stars under her head and the moon under her feet. This must be four thousand years old. Now, look upon many of our coins and we have the woman in the circle, representing the sun and the diadem of thirteen stars,



holding the liberty cap, or the cap of Liber, or Bacchus, and at her side the shield or coat-of-arms of George Washington, the defender of the woman, from which our flag emanated. On the other side we have the eagle, or symbol of Hercules, of a God supreme.

In the name Hercules is to be found the number 600; it is also in Bacchus and in Serapis, and on the banner of Columbus the symbol bears the same numerical value. Kabbalists consider the numerical value the climax of proof for the correct interpretation of a word or thought. Throughout the picture this cycle of 600 is manifest, and will, I think, by its understanding, prove the correctness of my thought. To this line of investigation I ask the attention of theosophists, kabbalists and students of the deep things of the world.

We find the following reference to the phoenix, which represents the cycle of 600, in De Rougemont: "In the celebrated myth the Egyptian phoenix had the grandeur and the form of an eagle. It appeared, they say, at certain astronomical periods, which are supposed to correspond to grand phases of the life of nations. According to some savants, the word phoenix signifies the dove, which would completely identify this bird with the spirit of God hovering over the waters. Its Hebrew name, 'Choul,' has the meaning of revolution, circle, cycle. In Job xxix: 18, we read: 'I shall die in my nest and shall multiply my days as the phoenix' (not as the sand). This bird dies on a funeral pile and arises from its ashes, as the world must perish by fire, to be born again to a new existence. The semenda of the Hindoos, like the swan and the phoenix, sings, at the approach of death, a song full of sweetness, the song of a world that perishes to arise again more pure and happy"—the new heaven and the new earth.

I shall hereafter endeavor to show the relation of the cycle represented by the phoenix to the truths I have essayed to set forth in the picture, and the relation of both to the Pyramid.

Citizen Dupuis, a French astronomer, published in 1793 a most remarkable work, with a large number of engravings and planispheres from all parts of the world. He endeavored to

prove that the Messiah never came, and that the whole of the Christian religion was founded upon an astronomical myth.

Upon Dupuis' work much has been written, some claiming that the teaching of the New Testament was the work of the Essenes. There are some theosophists, also a low order of astrologers and infidels, who follow the teachings of such writers as Dupuis, and stand to-day without faith.

Godfrey Higgins wrote a work of most marvelous research in 1834. I cannot say that he follows in his unbelief the conclusions of Dupuis, but digging deep into the Kabbala, astronomy, and all the ancient lore called mythology, he, like Dupuis, has given us the means to prove that the Messiah came in person, and that the stars and constellations will positively show it. And further, that this country and this government is that which he came to set up as the nucleus or leaven, or grain of mustard seed, foreshown in an astronomical myth, which has been fulfilled in the landing of the Santa Maria on the shores of San Salvador, and of the Mayflower on the shores of the new world; and that the prophecies which were set forth as myths have been fulfilled in the rise of this country, which is the manifestation of THE NEW HEAVENS AND THE NEW EARTH—the Stone Kingdom of Daniel—which kingdom will yet stretch from the icy capes of Labrador to the frowning battlements of Cape Horn, and from that Hoary Rock of the Pilgrim Fathers to the Golden Gates of the Great Pacific Ocean.

Mons. Dupuis thought the Argonautic story merely astronomical. Sir W. Jones calls it a mixed story. He says: "This is a mixed fable which is astronomical in one sense and chemical in another. But it is of Egyptian, not of Grecian invention. The position of the ship Argo in the heavens would render this assertion evident, were we even without the authority of Plutarch for saying that this constellation is of Egyptian origin. Now the chemical sense of the fable, say the alchemists, is so clear that some ancient Greek author, of whom Suidas, according to his custom, probably borrowed the language, thus expresses himself: 'Golden Fleece—This is not what it is poetically said to be, but it was a book written on skins, containing the mode of making gold by the aid of chemistry.'" (I quote



General Hitchcock when I say this was the philosopher's stone of the alchemists *i. e.* DIVINE WISDOM, and had nothing to do with transmutation of metals.)

Upon this passage Higgins thus comments: "I believe that whatever was meant by the golden fleece of the Argonauts was also meant by the apples of the Hesperides. The same mythos is concealed—that the Ionian heresy of the Magna Mater (Isis), and the tree of knowledge of good and evil of paradise, and the allegories of the tree bearing twelve fruits, are all implicated. In one case the book or written skin conveyed the knowledge; in the other the tree, of which the leaves were letters; the fruits, the books conveying knowledge."

"Every one has heard of the celebrated boat of Isis among the Egyptians, Greeks and Romans, but the northern nations also worshiped her in the form of a ship. This ship was placed in the constellations and called Argo. In Egypt this was called Sothis or the star of Isis. This very well connects the Arga and Isis the Saviour—the ship in which the seed of nature (Noachidæ) was preserved. The Argo is clearly the Arga of India, or Omphalos, in which voyages of salvation were made. Jason, the captain, is IHS-on or the Saviour. Minerva, or divine wisdom, invented the ship." Is not Jason Ia-son, the Son of God?

"The emblematic fruit of the tree of knowledge has been generally considered to be the apple; but it was very often described by the grape growing on or hanging to the elm. On ancient cameos the tree of knowledge is constantly described by a vine, producing its fruit among the branches of the marital elm. There is nothing in the apple or its mythical history to favor its pretensions; but the grape, the fruit of Bacchus, is described by the Greek word meaning wisdom, and again *the* wisdom in the Latin rac-emus. The Greeks made out the apples of the Hesperides and the golden fleece from this mythos. In the Oriental language the fruit was *souph* or wisdom; and as *souph* meant also wool, of course they took the gross idea, and instead of sacred wisdom, made golden fleece. And their word for fleece meaning also apple, thus they got their golden apples. In a similar manner arose almost all the vulgar mythologies of

the Greeks—a very elegant but generally very unscientific nation. The elm is commonly planted in Gaul and Italy for the vine to ascend, and is selected as the tree of knowledge because it was the name of the first letter of the alphabet, or the Aleph of the Hebrews, which meant the trunk of a tree, the tree which Virgil met with at the side of the road to hell, loaded with science—as the *mem*, the 600, was united to the *vin* in the name of the word Muin, the name of the letter which denoted the most sacred of the cycles.”

Here we have the golden fleece, the yellow parchment, the roll upon which the Divine Word was written. The Scriptures were written upon the fleece, and hence I believe that the Greeks understood what they meant when they used the word fleece—a great truth was concealed. *Diplomas* are always written upon parchment, and the expression, getting our sheepskin at college, meant also, the obtaining of divine wisdom, the knowledge of which is written on the skin or fleece of a sheep. It will be remembered that Luther said, “*The Bible is a great tree and sometimes I pluck off a few pears or a few apples.*” It was the fruit for which the Argonauts sailed to the garden of the Hesperides. This was the golden fleece, the divine wisdom, the Book which our forefathers established in the new world, the parchment or scroll, the written word which they planted in our schools, and no man may, with impunity, attempt to move this candlestick out of its place.

CHARLES LATIMER.

## EARTH'S RADIUS THE RULING METRON.

There could scarcely be a more inexpert argument for the beauties of the French system of metrics than the one lately used by a correspondent of the *New York Evangelist* ("G. J." of Boston), that our decimal currency affords an apt means of "object teaching" in schools. If our currency were wholly decimal the argument might apply, in the same sense only, however, that it would to any other decimal system founded on the inch, foot, yard, cubit or ell. The French idea would dispense, both for actual use and as "objects" in teaching, with the familiar half dime, quarter and half dollar, and quarter and half eagle. These convenient relations, founded on the binary arithmetic, are the only fractional ones which are really indispensable, except for circular measure, and will never be discarded by our people. They substantially subsist between the inch with its decimal correlations, and the acre with its decimal cubit and perch, the quarter and half inch, the five inch "span" of Lieut. Totten, the cord measure and the rod. That these relations can be made exact, and earth-commensuric with the best known and easily determined cosmic hue, by an adjustment so slight as to be of no inconvenience, and interfere with no vested rights, has been shown a thousand times, from Sir John Herschel down. Why, then, ask us to change for a foreign system, every way non-commensuric and unscientific, of which but a fragment, its decimal feature—a partial recommendation at the best—remains?

Possibly, as Lieut. Totten suggests, the adjustment had better not be made until the people are better informed on the subject, and the cosmic dimension, or grand metron of comparison, more exactly ascertained. This last can never be done by the old method of assembling and comparing scattered short arcs, measured upon the varied contour of our earth, but only by a connected line upon a meridian like that of the Pyramid,

supplemented by such physical tests as can be instituted at points along its nether limb.\*

Doubts are often expressed whether the prediluvians or the ancients possessed such knowledge of the size of the earth, of the  $\pi$  ratio, and of profound cosmic principles, as has been ascribed to them; and whether such scientific knowledge was really at the bottom of their systems of metrics. Most certainly, the ignorance of Europe less than a hundred years ago is suggestive of such doubts. But, looking beyond the European veil and through the strictly mathematical forms of ancient Grecian and even prehistoric architecture and sculpture, to and beyond the dawn of history, we realize that we are in the presence of men whose attainments, in many respects, were the growth of ages of thoughtful development, compared with which our own recent emergence from the incubation of the middle ages is but as a day. Whatever may have been the state of things before the deluge or the Pyramid, the earliest writings and decipherable tablets alike reveal the heavens mapped into constellations to mark "times and seasons," in part, at least, the sky-marks of to-day. So, too, the ancient mariners of Phenicia, Syria and Tyre must have observed at sea, in every direction, the distant approaching top-mast before the hull, and as they neared the land, the mountain crest before the foot-hills on the shore. And the apparent rate of curvature was always the same. The earth was a sphere, its dimensions, one of the most important facts in nature, an everlasting and unimpeachable metron! But how to measure it? As they went north, the pole-star arose, and the southern constellations and the noonday sun sank; and as they sailed through the Erythrean sea and around Lybia, returning through the Pillars of Hercules, the sun, for a long part of their voyage, blazed on their right hand, northward. Herodotus speaks of it. These

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\* In the French measurement to ascertain the length of the metre there were two serious sources of error. In Peru the presence of vast mountain masses had the effect to deflect the plumb-line or spirit-level out of normal relation with the earth's centre. On the other hand, the Lapland arc was measured on the frozen surface of the Tornea. The expansion and contraction of ice—the effect of varying temperature—would be a constant and serious source of error in linear measurement. It may be doubted whether the effects of either of these disturbances was wholly eliminated.

sailor-merchants made three-year voyages to the most distant lands. The tin of Cornwall was a familiar and important commodity in the time of Moses. These things are but a type of what always must have been, so far as we can conceive of the existence of the human mind. And as often as civilization—the true phœnix—may have arisen from her ashes, some Eratosthenes or Posidonias must have revived the ancient thought, to measure the earth by meridian observations. And however it may have happened, unless we reject all written and monumental authority, ancient systems of metrics were inter-correlated, on the one hand, either radially or circumferentially, with the earth; and on the other, with the normal articulations of the human frame. And as a radius is the guiding unit of geometry, so would the radius of the earth be the ruling metron.

It is on considerations like these, irrespective of any one monument or book, that the theory of correlation in ancient metrics and the doctrine of the sacred cubit really rest. We know it is not a *mathematical demonstration*, but it is the conclusion to which we are at present driven by that severe law of induction which compels us to reject theory after theory until we reach one which squares with all the ascertained facts. After all, this tentative process underlies many of our most profound convictions.

#### ALMAMOUN AND THE SACRED CUBIT.

A distinguished scholar has recently thrown some discredit on the character or existence of the sacred cubit among the Jews. On the contrary, for thirty years it has been known to the writer that among that people the tradition is pervasive and distinct. It is two-fold, some saying that, after the destruction of Jerusalem, the Romans sunk it in the Tiber; others, that being of precious metal, it was sunk in the imperial treasury. These seem to be two halves of the same story. To conceal the meanness of the vandalism the Emperor may have enacted a farce. Rabbis say that, the dimensions being lost, they cannot restore the tabernacle or the temple. Different impressions, the result of traditional influence, exist as to its probable

length, from the ancient Egyptian cubit of about  $17\frac{1}{2}$  inches, up to 28 or 30.

But it is only in the light of its radial character, and of the foregoing tradition, coupled with the world-wide story, expressed in various forms, that the antediluvians, foreseeing the destruction of civilization by cataclysm or fire, had concealed enormous treasures and all the mysteries of nature and science in some vast monument, and with the wide-spread and immemorial search for "something lost," that we can rationally account for the operations of the Caliph Almamoun. Ambitious and learned, a patron of science and art, surrounded by "wise men of the east" who had kept aflame the torch, realizing that the recovery of that which was lost would make the Moslem the arbiter of the world and invest him with the master key, he pierced the Pyramid *six hundred and sixty-six(!)* years before the time when the learning and religion of Europe, having expelled the learned Orientals and Jews from Spain, were contesting the position of Columbus and Queen Isabella and maintaining the world to be flat. Failing to find what he sought, or to interpret what he saw, he enacted a "pious fraud" to satisfy his followers and impress on them the wisdom of the builders, returned to Bagdad and resorted to an astronomical test. He summoned astronomers, who, on the plain of Mesopotamia, measured the length of a Babylonian degree,  $56\frac{2}{3}$  Arabian miles. Taking the received dimension of 2,146 English yards, the result for the earth's circumference is 131,335,200 English feet, nearer by miles than is deducible from the French measurements less than one hundred years ago. Possibly this may account for the singular approach to correctness of the Arabian gauge to-day.

#### CIRCULAR DIVISION IN THE PYRAMID AND TEMPLE.

I am aware that many, whose opinions are entitled to the highest respect, trace an apparent connection of the current division of the circle,  $\frac{1}{6 \times 60n}$ , with the Pyramid. But on theoretical grounds I believe it to be wholly Babylonian, and not clearly traceable in that monument. Lieutenant Totten has shown

that, for an arithmetical reason, the geometric division,  $\frac{1}{24 \times 10n}$  applies equally well,  $n$  being in each case a positive whole number. And in fact, to fit the plan according to the views of Mr. Ballard, the royal Babylonian cubit has to be adjusted out of its relation to the Karnak rule. And where the 12-inch foot, the 24-inch gauge, and the 36-inch yard have been pointed out, they seem simply to indicate the geometric inch as an unit in connection with the natural divisions of time—the months, the hours and an *approximate* year in days—but certainly not sexagesimal subdivision. And if the English mile were contained exactly 21,600 times in the small circle swept by the Pyramid, there would still be room for some ingenious critic to claim that  $21,600 = 240 \times 10 \times 9$  indicates simply the geometric degree, the decimal arithmetic and the 10:9 slope of the arsis. And certainly the ratio between the homologous dimensions of the equatorial circle and that swept by the Pyramid, is an *approximation* to that between the sacred and Mosaic cubits.

The fundamental diagrams illustrate some of the correlations as well as the simplicity of the geometric degree. From either the Egyptian or Persian figure, by simple parallels and lines drawn through the centre and exact intersections, the division by 24 is reached, and the square disclosed in several positions without having been used as an implement (Fig. 4). From the Syrian, in the same way, the  $\frac{1}{18}$  is reached, and, in fact, the  $\frac{1}{24}$ , with its fundamental triangle, by simply observing that the chord  $cd$  of the  $\frac{1}{3}$  is drawn through the intersections of the crossed diagonals of the quarterings. To disclose the principle of subdivision we resort to the square and compass, or to the compass alone, upon the diagonal  $ab$  in Fig. 3, determine extreme and mean ratio, and so the chord of the  $\frac{1}{10}$  and the  $\frac{1}{8}$  or pentalpha of King Solomon. And  $\frac{1}{8} - \frac{1}{10} = \frac{1}{40}$ ; also  $\frac{1}{8} - \frac{1}{18} = \frac{1}{72}$ ; and all the commensurable arcs above this limit, except six unimportant ones [they are the  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{3}$ ,  $\frac{1}{6}$ ,  $\frac{1}{12}$  and  $\frac{1}{15}$ ] obtainable only by successive bisection, are disclosed without empiricism or rupturing the degree. This is not possible in the Babylonian or any other method.



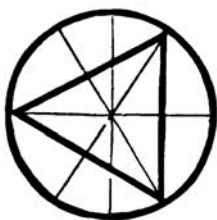
Taking the diameter at the normal human height of 70 inches, the versed sine on the chord of  $\frac{1}{4}$  is the Egyptian cubit, and that on the inscribed square the natural foot of 10 inches, to the closeness of Archimides' ratio. In the same manner, taking the statuary height of 84 inches (Professor Felts' method), we have the Russian fathom, the Babylonian cubit and the 12 inch foot.

Figures 1, 2 and 3 were sacred symbols of high import among the Egyptians and Orientals, the Mexicans and Peruvians, and known to the North American tribes. Fig. 5, the pentalpha, came to be highly prized as the symbol of absolute perfection. It is the very seal of the Temple, and was borne on the banner of King Antiochus, the Washington of Syria, and is in general use as a talisman (Ballard, "Solution of the Pyramid Problem," p. 91). Its connection with the Pyramid is clearly brought out by Mr. Ballard, and in Lieutenant Totten's remarkable work ("An Important Question in Metrics," etc.) recently published.

Search among the ruins fails to disclose the  $\frac{1}{8640}$  division in the temple. Nor does the indication in the compromise system of Moses for civil use (72,000,000 cubits = 18,000,000 fathoms = 180,000 stadia = 18,000 miles to the circumference) clearly connect that system with the tabernacle. Realizing, however, that the temple was planned by King David, every article by "measure and weight," at a time when, having composed his wars, he was settling all the affairs of the kingdom on a permanent basis, preparatory to his abdication; that the entire scheme was the work of one mind, illumined by all the light which then shone among men; that it was a unit, each part of the state and temple consistent with a pervading, uniform and perfect type; and that the institutes might furnish some index to the distinctive principle of circular division—if such there was—recourse was had to the royal will (I Chronicles, chapters 25, 26, 27).

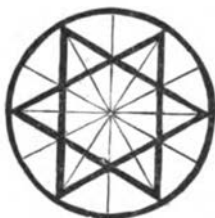
The priesthood was divided into twenty-four orders; the musicians into twenty-four hereditary bands, with twelve leaders in each. But in no department is a strictly scientific system, having perfect regard to time, number, order in assignment to duty, equal privilege of instruction, subsistence and every con-

FIG. 1.  
EGYPTIAN,  
PHENICIAN.



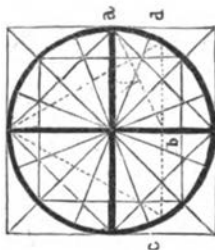
300,000 Stadia,  
30,000 Miles,  
3,000 Schoeni, or Stathmoi.

FIG. 2.  
PERSIAN.



6,000 parasangs,

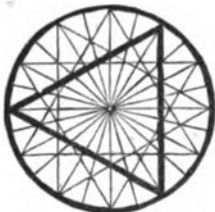
FIG. 3.  
SYRIAN,  
PHILETAIRIC.



16,000 Miles,

To the Earth's Circumference.

FIG. 4.  
GEOMETRIC,  
KING DAVID,  
TURKISH.



POSITONIAS,  
ST. JOHN.  
240,000 Stadia, 24,000 Miles.

FIG. 5.  
PENTALPHA.



ceivable detail, so as to complete the circle of routine without jar or friction, more imperative than in the army. The royal orders arranged the National Guard in twelve Grand Army corps, each corps to serve as grand guard for a month in rotation, and so complete the year. Each corps was 24,000 men, 24 battalions of 1,000, or 240<sup>0</sup> companies by the hundred. For there were "captains of thousands" and "captains of hundreds." The month being a lunation of 29½ days, by throwing out the Sabbaths, each battalion would serve on police or outpost, or other assignable duty, one day in rotation, the training be complete within the month, with a day or so for muster and review. Josephus confirms it (*Antiq. Book vii, cap. 13*).

$$\text{Circular division was } \frac{1}{24 \times 10 n}.$$

NOTE.—The Babylonian (mythic) chronology (see 'Ancient History from the Monuments, Babylonia,' by George Smith) is:

REIGN.	DURATION.
Alorus . . . . .	10 sari = 36,000 years.
Alaparus . . . . .	3 " = 10,800 "
Amelon . . . . .	13 " = 40,800 "
Ammenon . . . . .	12 " = 43,200 "
Amegalarus . . . . .	18 " = 64,800 "
Daonos . . . . .	10 " = 36,000 "
Eudoreskus . . . . .	18 " = 64,800 "
Amempsinus . . . . .	10 " = 36,000 "
Otartes . . . . .	8 " = 28,800 "
Xisuthrus (Noah) . . . . .	18 " = 64,800 "

#### DELUGE.

:86 kings.	Evekhaus, 4 neri = 2,400 years.	} 34,080 or 33,091 years.
Porus, 35 years; Nekhubes, 43 years; Nabus, 48 years.	Comosbelus, 4 neri and 5 sossi = 2,700 years.	
Oneballus, 40 years; Zincerus, 46 years.		
War of Titan (Nimrod) etc.		

The system is, counting a year as one second of arc,  $\frac{1}{6 \times 60 n}$ , that is:

Great Cycle = 360 deg. or sari = 2,160 neri = 21,600 min. or sossi = 1,296,000 yrs. or sec.			
Prophetic day = 1 " " " =	6 " =	60 " " " =	3,600 " " "
	1 " =	10 " " " =	600 " " "
		1 " " " =	60 " " "
			1 " " "

The Hindoo is (Dawson's 'Archaia') :

1 day of the gods	=	1 year.
1 year of the gods	=	(if 360) 360 years.
1 Critya or Saya age = 4,000 years of the gods	=	1,440,000 "
1 age of the gods = 4 Critya	=	5,760,000 "
1 day of Brahma (calpa) = 1,000 ages	=	5,760,000,000 "
1 Manwautara = 72 ages	=	414,720,000 "
1 month of Brahma = 30 calpa	=	172,800,000,000 "
1 year of Brahma = 12 months	=	2,075,600,000,000 "
1 life of Brahma = 100 years	=	207,560,000,000,000 "

which is about half elapsed.

The factors seem to be Mosaic or Abrahamitic, anyway, not Babylonian. By using the tropical year the figures would be changed.

JACOB M. CLARK.

## REPORT ON "THE METROLOGY OF COINS OR VALUES."

The monetary system of the ancient world must necessarily have been of the simplest and most universal character, but well adapted to answer all the purposes of a universal system of exchange between nations in primitive times. The money consisted of pieces of gold, silver and copper. It was uncoined, without any authority stamped upon it, excepting the impress of its weight which designated its value. In more modern times coins were issued in gold and silver, whose value in weight and quality were certified by a design of some kind being stamped upon them. But the ancient money at first consisted simply of ingots of gold and silver uncoined, with the weight stamped upon each piece. Abraham is said to have been "very rich in cattle, in silver and in gold." (Gen. xii: 2, xxiv: 35.) This money was bullion or ingots of silver and gold. He also purchased the cave of Machpelah for 400 shekels of silver, *current money* with the merchants. (Gen. xxxiii: 16.) This was bullion also, or uncoined money. In fact, this was the only kind of money then in use all over Arabia, Syria, Babylonia, Assyria, Egypt, Persia, Media and Palestine. A fixed weight was given to single pieces as parts of some standard; the largest

and heaviest standard appears to have been a *talent*. The denominations into which it was broken were such as made them suitable to the value of the articles usually dealt in by the traders of different nations.

We have no proof that *coined* money was in use before the Exodus, nor until some time near the epoch of David and Solomon. The Hebrew nation certainly used Persian, Assyrian, Babylonian and Egyptian coins; but nowhere in the times of Moses can we find in the Pentateuch any mention of coined money. But when we come to the time of Ezra and the exile, we read of Persian coins being in use in Palestine. In the excavations in Palestine, Egypt, Assyria and Babylonia, no coined money has ever been found whose date is as far back as the Exodus.

The oldest coins extant are electrum *staters* coined in Lydia about the epoch of King Hezekiah (B. C. 720), which appear to have been issued on different standards to suit the different nations with which the Lydians had commercial intercourse. The first Greek coins were made of silver and were struck at Ægina about fifty years after Lydia (B. C. 670-660). The earliest coins mentioned in the Bible appeared about a century afterward (B. C. 538), in the time of Ezra, and are called *drams*, but were really Persian *darics* or gold *staters*. Their first general appearance in Palestine was during the reign of Cyrus (B. C. 538), and may have been sent by him to help the exiles on their return from captivity. (Ezra ii: 69.) The writer of the Chronicles mentions the same coins in relation to the money stored up by King David for the building of the Temple: "Five thousand talents of gold, 10,000 *drams* in gold, and 10,000 talents of silver." (I. Chron. xxix: 7.) The *dram* was a foreign coin of Persian origin, and better known as the Persian *daric* or *stater*, and had an average weight of 130 grains of pure fine gold. The double *daric* weighed 260 grains, or more correctly, 259.2000 grains.

The talent is evidently the prime unit or standard of the ancient system of weights, from which all the secondary units have been derived and determined. Its branches and denominations were determined by a circular unit of  $360^{\circ}=1,296,000''$

of arc, and their values were fixed by the relative values of gold, silver and copper. The Egyptian talent cannot be traced to any other; it forms an independent system, and appears to be the actual parent of all the talents and monetary systems of the western world. The foreign names of all Hebrew measures are clearly indicative that the measures themselves were obtained elsewhere. The Hebrew bath is subdivided into 72 *logs*, and the Greek *metretres* into 72 *xestæ*, which cannot be accidental, but shows a community of origin, for the wise men of Greece and Rome were trained, like Moses, in all the knowledge and wisdom of the Egyptians. Euclid, Pythagoras, Solon, and a long list of the sages of almost all the countries of the ancient world, were students in the schools of Egypt, and carried its wisdom with them to enlighten the newly-born nations of the earth. Hence we find all the first systems of weights and measures amongst the Hebrews, Greeks and Romans have a unity of character and community of origin. In later times new variants sprung up and new systems were developed, with different modifications suited to a new order of things, which rendered a change necessary or desirable.

All the old systems of weights belonging to Babylonia, Greece and Persia, are divisible either by 6,000 or 3,600, and the six-thousandth or three thousand six hundredth part of the talent is a divisor of all higher weights and coins than a talent, and a multiplier of all lower weights and coins, excepting two-thirds of a talent. Why is this a feature of all primitive systems? Because the prime unit of a talent was originally divided and subdivided into secondary units by a circular system of  $360^\circ$  reduced to seconds of arc =  $1,296,000''$ . The chief standard gold coin, and the only one for a long time, was the Persian *daric* = 129 (129.6) grains. This was the standard coin according to which the silver money was adjusted. It is the ten-thousandth of  $1,296,000''$  of arc in the circular system. This was the base of the ancient system, and it represented 1,296,000 grains, or  $1''$  to a grain. The gold shekel or *daric* consisted of 129.6 grains when fully expressed, and the gold talent consisted of 100 manehs and 10,000 shekels or darics; so that the shekel

or daric was the ten-thousandth part of a gold talent consisting of 1,296,000 grains.

The first change was probably an adaptation of the standard scale to suit the relative values of gold and silver, which seems to have been as 1 to 12; so that the number of units would be reduced from 10,000 to 7,200, the maneh would be made to contain 120 instead of 100 units, and the talent lowered to 60 instead of 100 manehs. Thus 6 units of the gold talent would pass for 72 silver, and 10 gold units would be equal to one silver maneh. Other changes would be grafted upon the standard system, and the variant values would multiply. When we consider the general tendency of money—coined and uncoined—to depreciate in value and weight, it is a wonder that this standard system should have been preserved at all by any nation. Polux tells us that the oldest Greek talent, the Æginetan, contained 10,000 Attic drachms and 100 Attic minæ. Aulus Gellius, referring to the time of Demosthenes, says a talent is equal to 10,000 drachms or shekels.

It is not known when it was found convenient to change this system and reckon 3,000 shekels instead of 3,600 to the talent, nor when a deviation from the sexagesimal division of the maneh was made and limited to 50 instead of 60 units. It must have been before the Exodus, for 3,000 shekels to the talent are reckoned in Exodus xxxviii: 25.

The Babylonian talent, as determined by existing weights found by Mr. Layard at Nineveh, may be illustrated by the duck-stone weight with a cuniform inscription of xxx manehs, which weighs 233,300 troy grains. It is half a talent. Hence  $\frac{233,300 \times 2}{3,600} = 129.5444$  grains to each shekel, which is certainly a very near approximation to the standard 129.6 grains, when we make allowance for the wear of coins by age and weather and errors of weighing.

Thus, on reviewing the most ancient systems of values, in coined and uncoined money, the bullion pieces of uncoined gold and silver had definite denominational weights assigned them, which were determined by a circular system based upon a circular value of  $360^\circ$  expressed in seconds of arc, representing



1,296,000 grains in troy weight, thus giving to the talent 10,000 shekels and to each shekel 129.6 grains. But in later times the fraction of a grain in this shekel was discarded, and 129 grains took the place of 129.6.

MODERN SYSTEM.

The monetary system of the United States is really a return to the first and oldest system of the ancient world, having 1,296,000" as the numerical base of circular measure, in which seconds of arc represent troy grains in weight. The half eagle, when correlated with circular measure, has the old ancient value of the shekel = 129 grains of standard gold, with the fraction of a grain discarded for convenience of computation. It is the ten-thousandth part of the ancient talent in worth and value. The *eagle* contains 258 grains of standard gold. Its value by circular measure would be  $129.6 \times 2 = 259.2$  grains; but, when fractions of this prime unit are discarded, as in the old system, the eagle would be  $129 \times 2 = 258$  grains of standard gold, just as we now have it. The double eagle, eagle, half eagle, quarter eagle and gold dollar are of like proportions in grains of standard gold, and follow the same system of circular measure.

The silver dollar also is constructed upon a circular base of 1,296,000", which also represents 1,296,000 grains. It contains 412.5 grains of standard silver, which is determined by dividing the circular measure by the ratio of diameter to circumference, or  $\frac{1,296,000}{3.141592} = 412.5$ . This is the length in inches of the king's room in the Great Pyramid of Egypt, and correlates with circular measure and the British inch. *Thus the gold coins of the United States stand correlated with the circle, and the silver coins with the diameter of that circle.* To have made this system complete, the silver half dollar, quarter, and all lower denominations should have followed the same system in like proportions, as is the case with gold coins. The copper currency is an anomaly. It ought to have been based on the value of a fractional part of the silver system. The cent contains 168 grains of pure copper. It ought to have been  $\frac{412.5}{2.5} = 165$  grains, so as to

correlate with the gold and silver system, because the standard gold and silver coins consist of pure copper in a definite proportion. The alloy of gold coin consists of equal weight of silver and copper, and the alloy of silver is pure copper. The alloy of both gold and silver coins is 900 parts of pure metal and 100 parts of alloy. Hence the half silver dollar should contain 206 grains instead of 192, and the quarter dollar should contain 103 instead of 96 grains.

In comparing the United States system of currency with the French system, the former is more directly correlated with cosmic values, and can be directly classified without any adjustment or allowance. For instance: The old daric or shekel weighed 129 grains, and this is the weight of the Federal half eagle = ten-thousandth part of the old talent, and the ten-thousandth part of  $360^{\circ} = 1,296,000''$ , representing 1,296,000 grains in Troy weight, omitting fractions. Now the relative value of silver and gold may be taken, as the ancients took it, as 1 to 12; therefore,  $129 \times 12 = 1,548$  grains. This may be divided, after the plan of the ancients, into the weights of all the old principal and heavier coins of the Persian currency, which formed the first currency ever made in the world so far as we know.

$1,548 \div 6 = 258$ , three *sigli* = 1 United States gold eagle.  
 $1,548 \div 9 = 172$ , two " =  $\frac{2}{3}$  United States gold eagle.  
 $1,548 \div 18 = 86$ , one " =  $\frac{1}{3}$  United States gold eagle.

Suppose now we construct a table with these values showing the French decimal notation and values and the United States decimal system, with equivalent values in the present currency in troy grains, beginning with the one hundred thousandth of a gold eagle, we should have:

FRENCH.	TROY GRAINS.	UNITED STATES.
1 Milligramme,	.0154	.0154
1 Centigramme,	0.1543	0.1548
1 Decigramme,	1.5434	1.5480
1 Gramme,	15.4340	15.4800
1 Decagramme,	154.3402	154.8000
1 Hectogramme,	1543.4023	1548.0000

Evidently the United States system would be more accurate and in perfect correlation with every form of cosmic force, even

if the denominations were constructed upon the French scale, and the United States gold eagle = 258 grains made the base on which the scale must rest.

The Canadian and United States currencies are based on the *Decimal System of Notation*. The values increase and decrease from right to left and left to right in a tenfold ratio by simply sliding the decimal point (or separatrix) right or left. The values are then computed like simple numbers. It is to this circumstance that these currencies owe their great simplicity. To my mind, the decimal currency of the United States is one of the most simple, comprehensive and convenient for commercial purposes, and for international and universal use amongst the nations of the earth, ever invented.

In the ultimate adjustment of our systems of expressing values and their correlation with the various forms of force and circular measure, the  $\pi$  relation must come in somewhere. The United States system of currency shows practically how this can be done. The *gold* currency is correlated with the circle, and the *silver* currency with the  $\pi$  relation of diameter to that circle. The classification is cosmic, and the correlations of all national systems of currency can be expressed by simple factors under this system, so that all would stand related to the cosmos, and to circular measures of time, place and every form of force in nature.

The prime unit—the golden eagle—is at the head of the scale, and any small error in practically obtaining its weight in grains would virtually disappear in the lower denominations.

#### GENERAL REMARKS.

The past experience of almost every nation using currency has decided practically, beyond all controversy, that but few denominations are really necessary for all the practical purposes of trade and commerce, from the merchant and trader down to the manufacturer and mechanic. We have eagles, dollars, quarters, dimes and cents; but the ones most in use are dollars and cents. The French metric system has a formidable list of denominations, but the people mainly use the killogramme

unit and gramme. A very few denominations answer all the purposes of trade and commerce.

Herein lies the immense superiority of the decimal system over all others, because few subdivisions are necessary. As a system of currency the duodecimal and octonary systems have no advantage. The number of coins when halved and quartered are about the same under any system. We have 100, 50, 25, 10, 5 and 1 cent for decimal currency; and 80, 40, 20, 10, 5, 1 for octonary currency; and 60, 30, 15, 10, 5, 1 for duodecimal. Six different coins for each system, and one-half are common to all. We cannot do without the duodecimal and octonary systems of weights and measures, because we find it convenient to subdivide some things into twelve and others into eight parts, both in the workshop, warehouse, store and market. But neither the one system nor the other is adapted for counting-house work; and, in a commercial community, counting-houses and banks form probably the most important branches of all commercial institutions. Nor are the duodecimal and octonary systems adapted for mental arithmetic and rapid calculations when transacting business and estimating values in currency. The decimal system is essentially a currency system for banking and counting-house purposes. After we have made one binary, decimal, duodecimal, octonary and other divisions in the market, workshop, store and warehouse, in the practical operations of weighing and measuring, according to such tables of weights and measures as are in use, and we come to represent these weights and measures by values in coins and currency, we then want a simple, easy and rapid system to take up the values in weights and measures that needs but little reckoning and handling of figures. It is when all this has been done that the decimal notation steps in and asserts its preëminence over all others, for by this system the largest and most complicated fractional part can be expressed and computed as part of the integral factor as if no fraction was present.

The practical value and utility of any prime number as a metrical radix is oftentimes urged on purely mathematical grounds, and the numbers 12 and 8 are proposed because of the number of their subdivisions and general use in certain cases.

Thus 8 as a radix has given rise to the octonary system, and 12 to the duodecimal. But in a system of currency we don't look for a radix that can be bisected into the largest number of denominations; we look for a number as a radix that will multiply and divide quantities without any alteration of the figures, so as to save time and troublesome calculations and entries of figures of different denominations, and to prevent the chance of errors in computation. The decimal system is the only one that can do this. Whoever undertakes to devise a system of notation must remember that the very structure of all numbers implies a decimal notation; for the figures, as they stand in the order of rotation, are multiples of ten—as units, tens, hundreds, thousands, tens of thousands. A decimal notation is in the very structure of every number above ten.

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## THE E. N. E. TRENCH AND OBLIQUITY OF THE ECLIPTIC.

The four great trenches on the east side of the Pyramid have attracted much attention. Found by Prof. C. Piazzi Smyth in the winter of 1864-5, they are now sufficiently investigated to warrant the belief that they held an important place in the construction of the wonderful monument with which they are connected. Some have maintained that they were only mortar troughs or reservoirs for water; others that they were connected with the azimuth and altitude of the Pyramid. I am not aware that an altogether satisfactory explanation of their use has yet been offered, and it may be that the following attempt at a solution of the question will not quite satisfy antiquarians, nevertheless the facts we here present may lead to the truth of the matter.

Without being very exact, we may say that these trenches are in length about 175 feet each. Close upon the east side of the Pyramid, and midway between the lines of its northern and

southern boundaries, a basalt pavement was constructed about 175 feet square. It was a magnificent work, which covered more than one-third of an acre. The blocks of basalt were all sawn and fitted together. Only one-quarter of it now remains *in situ*. Outside of this basalt square are the four great trenches, radiating, as it were, from its centre—one on the north side, beginning about 115 feet from the centre and running in a northerly direction; one on the south side, beginning about the same distance from the centre, and running in a southerly direction; and one on the east side, beginning about 90 feet from the centre and running E. N. E. The depth of these three trenches varies from 6 to 24 feet, and the breadth, near the surface of the rock in which they are cut, varies from 10 to 20 feet. The fourth trench, beginning at the very edge of the basalt square, runs N. N. E. with a gradual downward slope. It is about 3 feet wide and 20 inches deep. It has been thought that this shallow trench was built for a water conduit to carry off the washings of the basalt pavement. But whether this be correct or not, such evidently was not the use of the three deep trenches we have described, for they were built with extreme care, even the natural rock excavation being cut to fit the stones with which they were lined, and have no water outlet as yet discovered.

Having thus given in a rough way the form and relative position of these trenches, we may present our theory of their use. The fact that all point inwardly towards the centre of the fine basalt square may be taken as evidence that they were constructed purposely to bear certain definite relations to one another and to the basalt paving, and thus to the Pyramid. To determine the character of these relations, it might serve us well if we could find some reason for the size and form of the square itself. We ask then, What was in the mind of the architect when he laid out this fine piece of paving?

The width from north to south through its centre is 2124.7 inches; the east side is located 2148.3 inches east of the line of casing stones found by Mr. Petrie on the east side of the Pyramid. But these casing stones being 36 inches west of the meridian of the outer corner of the S. E. socket, the east side



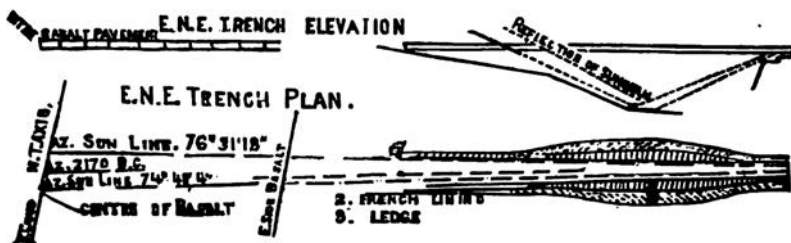
of the basalt square is  $2,148.3 - 36 = 2,112.3$  inches east of that meridian. Therefore so much of this square as lies east of and contiguous to the meridian of the S. E. socket measures  $2,112.3$  from west to east and  $2,124.7$  from north to south. The polar axis of the earth being computed at  $41,708,000$  feet, one  $20,000$ th part of it on a scale of one inch to a foot is  $2,085.4$  inches; and the equatorial axis in long. E.  $31^\circ$  being computed (Captain Clarke) at  $41,852,000$  feet, one  $20,000$ th part of it, on the same scale, is  $2,092.4$  inches. Hence if an ellipse having a major axis equal to  $2,092.4$  inches and a minor axis equal to  $2,085.4$  inches were traced on the basalt square, as upon a drawing-board, tangent to the meridian of the S. E. corner socket, it would represent the meridional perimeter of the earth and leave a margin or border on the north, south and east sides equal to  $19.6 \pm 1$  inches, which is one-half the length of a second's pendulum in lat.  $29^\circ 58' 51''$ , and one-fourth the length of the coffer. From these evidences we may conclude that in laying out this basalt square the architect had in mind the equatorial and polar diameters of the earth.

Allowing this to have been the case, a legitimate inference is that the great trenches constructed north, south and east of the square, and pointing towards its centre, have an astronomical bearing upon the work and design of the Pyramid. Of the N. and S. trenches some uncertainty exists in Mr. Petrie's figures for the position of the inner end of the N. trench, owing to neglect to measure that end. According to his computations their axes are nearly parallel, but if they were designed to be meridional axes they would be distant from each other at the centre of the basalt square by  $45.7$  inches (one  $100$ th of a half side of the geometrical base of the Pyramid), instead of  $50$  inches, as he gives it in his survey. However, the relation in which they stand to each other and to the basalt square, and the great probability that their axes were due N., appears to indicate that they were designed for transit observations, the bottom and sides being blackened and water introduced for reflection.

This hypothesis would greatly strengthen the theory that the E. N. E. trench was built for some astronomical use. Mr.



Petrie makes the azimuth of this trench  $75^{\circ} 58' 23''$ , and says "the axes at the ends were estimated by means of the plans here given, but on double this scale," which is  $\frac{1}{800}$ , "and the rock is so roughly cut in most parts that nothing nearer than an inch need be considered." The trench has a narrow ledge at its east end, but along either side 140 feet westward the ledge is about 50 inches wide and 40 inches deep; the central or deeper part—that is, the trench proper—is 43 inches wide at the east end. The bottom or floor then is reached, by a somewhat abrupt descent, at 200 inches below the surface, thence it slopes downward 200 inches at an angle of about  $20^{\circ}$ , then runs level 300 or 400 inches, then slopes upward 300 or 400 inches at nearly the same angle as before, then gradually rises towards the surface at an angle of about  $6^{\circ}$ .

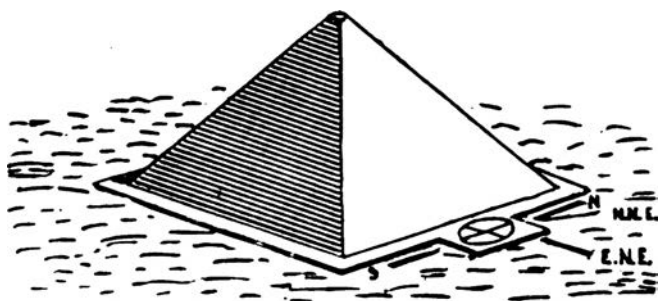


From the east end the sides of the deep part at first diverge rapidly and the trench widens as it approaches the basalt square, the widest place, however, being at the deepest part, or about 50 feet from the east end. Mr. Petrie found abundant evidence that this, as well as the north and south trenches, was lined with fine hard stone, "hardly less than 30 inches thick, considering the height was 20 feet" at the deepest part. Stones 10 or 15 inches thick would suffice for lining the shallow part of the trench towards the west end. This agrees well with the somewhat oval form of the rock cutting, as shown in the plan.

At 1,603 from the east end, where the bottom rises up to the level of the ledge, the whole width, including ledge, is 172. Supposing the ledge to be as wide there as at the east end, about 50, and the lining stones 10, a space of 52 inches would be left for the trench proper,  $172 - 2(50 + 10)$ . This remarkable widening, in a direction opposite the sun rising,

suggests some astronomical use connected with an eastward azimuthal position of the sun. The mean azimuth of the trench being about  $14^\circ$  north of an east and west line, it is evident that, in a general way, it points towards the sun at his rising about the time of the summer solstice or longest day. But the sun does not always make the same distance from the equator on the longest day. His declination varies  $2^\circ 37' 22''$ , consequently, if it were desired to build a narrow trench to receive his rays on the longest day of *every* year, and at about the same hour of the day, the trench must be widened in the direction opposite the sun rising. But could the sun's rays ever touch the deepest part of this narrow E. N. E. trench? Certainly not while he is south of the equator, nor when on the equator, nor at his rising when farthest north. But, as he ascends above the eastern horizon at the summer solstice, there comes a moment when his rays are in the same vertical plane as the axis of the trench. Let us see how this is when his northern declination is the greatest—that is,  $24^\circ 35' 58''$  north of the equator. His polar distance is then  $65^\circ 24' 2''$ , and when he has risen  $24^\circ 35' 58''$  above the horizon, his zenith distance is  $65^\circ 24' 2''$ . Now, the polar distance of the observer in latitude  $29^\circ 58' 51''$  being  $60^\circ 1' 9''$ , we have the three sides of a spherical triangle from which to compute the sun's azimuth. In this triangle let  $P$  be the pole,  $Z$  the zenith and  $S$  the sun, then will the sun's azimuth be the angle  $PZS = 74^\circ 40' 4''$ . In like manner we find that when the sun's declination at the summer solstice is least—that is,  $21^\circ 58' 36''$ —and his altitude in latitude  $29^\circ 58' 51''$  is  $21^\circ 58' 36''$ , his azimuth is  $76^\circ 31' 18''$ . Under these conditions the difference in his azimuth at the greatest and least declination is  $1^\circ 51' 14'' = 76^\circ 31' 18'' - 74^\circ 40' 4''$ . Therefore, at a point 1,603 inches from its east end, the trench must be  $51.36$  wide  $= 1,603 \times 2 \text{ tang. } \frac{1}{2} (1^\circ 51' 14'')$  to allow for this difference in azimuth, which is within three fourths of an inch of what we found to be the probable width of the trench between the lining stones at that point. It will be observed that one of these solar azimuths is  $52' 55''$  south of Mr. Petrie's axis, and the other is  $1^\circ 18' 19''$  north of it—a small difference that may easily be accounted for in the

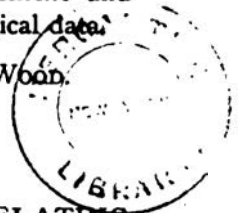
uncertainty of Mr. Petrie's "plan" and the unknown line of finish of the trench walls. A remarkable coincidence may here be noted. When the sun is at his greatest possible declination,  $24^{\circ} 35' 58''$ , and his altitude is  $24^{\circ} 35' 58''$  at the Pyramid, the vertical plane of light that rests upon the centre of the east end of E. N. E. trench also rests upon the centre of the basalt square,  $\pm 1$  inch. In the year 2170 B. C. the sun's northern declination at the summer solstice was  $23^{\circ} 57' 43''$ . When he had risen on that morning to the altitude  $23^{\circ} 57' 43''$ , the shadow of a plumb line had an azimuth  $75^{\circ} 7' 22''$ , and the plane of light from a vertical slit at the east end of the trench cut the N. trench axis 25 inches north of the basalt centre. At his least declination,  $21^{\circ} 58' 36''$ , his azimuth would cause the vertical plane of light to cut the N. trench axis 103 inches north of the basalt centre.



We conclude, therefore, that the E. N. E. trench was a time indicator based upon the variable obliquity of the ecliptic, and that it was used in making observations of the sun's solstitial declination and in determining the position of stars and constellations in their relation to the sun and earth. It is said that a small structure originally stood just east of the Pyramid, supposed to have been a "temple." In view of the foregoing relations which we have traced between the trenches, the earth and the sun, may not the "temple" have been an observatory built over the very centre of the basalt square for astronomical purposes? The theory we have advanced of the design and use of the basalt square and trenches, particularly the E. N. E.

trench, may or may not be correct, but it certainly does not conflict with the best measurements of the pavement and trenches yet obtained, nor with established astronomical data.

H. G. Wood.



REPORT OF COMMITTEE ON STATISTICS RELATING  
TO WEIGHTS AND MEASURES.

CLEVELAND, O., February, 1885.

CHARLES LATIMER, ESQ., PRESIDENT INTERNATIONAL INSTITUTE, ETC.:

*Sir.*—The committee appointed to obtain statistics relating to the weights and measures in use in the several States and Territories of the United States, have the honor to report that they have communicated with the governors of the several States and Territories, and have received replies more or less complete. From these replies, and from such other sources of information as were accessible, the committee has prepared a table showing the number of pounds of various commodities assumed by law to be equivalent to one bushel in bulk in such States and Territories as have enacted laws on this subject. How extremely arbitrary such enactments are is evidenced by the great variation in the number of pounds assigned to a bushel of the same commodity in the several States, and still more so by the fact that, in the same State, the numbers are subject to alteration from time to time by an amending act of the Legislature. This anomaly is due to the fact that, while merchants have found it more convenient to determine the quantity of a bulky material by weight rather than by measure, they still persist in the old habit of reckoning the value by the price per bushel. But, not being able to agree upon the number of pounds constituting a bushel, they have appealed to the legislatures of their respective States to fix by law that which cannot be fixed in fact. The result is a complication of matters rather than a simplification, so that, among so many States and such a large number of commodities, one is at a loss to know what does constitute a bushel until the table has been consulted. Some of the States seem to have no law on this subject, but conspicuous among these is the State of Nevada, which not only avoids all such arbitrary legislation, but provides that her people shall sell all grains and vegetables by the pound. The Hon. J. W. Adaws, Governor of Nevada, remarks in his letter, alluding to this custom: "We find it much more convenient than the old plan."

The additional "Items and Remarks" following the table furnish a variety of curious and useful information, gathered from our correspondence, which could not find place within the limits of the table.

All the States and Territories adopt the units of weight and measure of the United States, standards of the same being furnished them by the general government. Many of the States provide that duplicate standards shall be deposited with a proper officer in each County. The weights and measures in common use are then required to conform to these standards. But this is not the case in all the States. Thus in Iowa, which has the United States standards at the capital, the law providing for standards in the counties, and a sealer in each to take charge of them, is permissive only, and not mandatory. A majority of the counties have never applied for standards, and even in counties that have obtained them there has been only a temporary effort to secure uniformity in the manner

contemplated by law. The Hon. B. R. Sherman, Governor of Iowa, remarks on this subject: It is believed, however, that the inaccuracies resulting from this neglect do not "exceed those common in other States. The people seem well satisfied with the weights and measures in common use. The opinion seems to be that they are sufficiently accurate for ordinary use, and hence little effort is made to have them adjusted. But my information leads to the belief that the metric system is preferred by persons engaged in investigations that require strict accuracy."

The States of New York and Massachusetts have made the use of the metric system permissive by law.

His Excellency, the Governor of the Commonwealth of Massachusetts, has very kindly furnished us, by the hand of his private secretary, Mr. T. E. Major, an abstract of the records of that colony and commonwealth, giving copies of the orders of the General Court relating to weights and measures from May 18, 1631, down to date, including the most recent legislation upon the subject, copied from the public statutes of the Commonwealth enacted November 19, 1881. This abstract is so valuable and interesting as a matter of history that it is appended entire to this report.

[Signed]

Respectfully submitted,

JAMES S. LAWRENCE, Chairman.  
GEORGE C. DAVIES,  
H. M. ADDISON,  
WM. H. SEARLES.



## ADDITIONAL ITEMS AND REMARKS:

Arizona.	Small white beans 60 lbs., other beans 55 lbs., one ton 2000 lbs.
Dakota.	Broom corn seed 30 lbs., one ton hay, 2000 lbs. = 343 cubic ft. One perch masonry = 25 cubic feet.
Delaware.	Sifted meal 44 lbs., unsifted meal 48 lbs.
Georgia.	Peaches peeled 38 lbs., unpeeled 33 lbs., plastering hair 8 lbs.
Illinois.	Coarse salt 50 lbs.
Indiana.	State coal 70 lbs., imported coal 80 lbs., one bbl. beef or pork 200 lbs., one bbl. flour 196 lbs.
Iowa.	Herd grass seed 45 lbs., cherries 40 lbs., peaches and quinces 48 lbs.; no standards deposited in the county seats; raspberries and straw- berries 32 lbs., grapes, currants and gooseberries 40 lbs.
Kansas.	Plastering hair 8 lbs.
Kentucky.	Peanuts 24 lbs., plastering hair 8 lbs., one bbl. Irish potatoes 160 lbs.
Louisiana.	One barrel $3\frac{1}{4}$ bushels. Uses the <i>arpent</i> for land measure = 32,400 sq. feet.
Maine.	Uses the Winchester bushel.
Maryland.	Uses the U. S. standard "slightly modified" by Art. 32, Revised Code, 1878.
Massachusetts.	Cracked corn 50 lbs.
Michigan.	Orchard grass 14 lbs., State salt 56 lbs., dried plums 28 lbs., cranberries 40 lbs.
Missouri.	Orchard grass 14 lbs., red top 14 lbs., onion top buttons 28 lbs., green apples and pears 48 lbs., green peas in hull 56 lbs., one bushel coke or charcoal = 2680 cubic inches.
Montana.	Twenty-eight bushels = one ton of 2000 pounds.
Nebraska.	Plastering hair 8 lbs., one gallon strained honey 12 lbs., one ton = 2000 lbs., one bushel = 2150 cubic inches.
New Jersey.	Sugar cane seed 27 lbs., one bushel = 2150.42 cubic inches.
New Mexico.	Uses the old Spanish measures, the fanega, the almud and the cuartilla = 1 pint. The fanega = 4952 $\frac{1}{4}$ cubic inches; the almud = $\frac{1}{2}$ fan- ega. The U. S. standard also used.
Ohio.	Hominy 60 lbs.
Oregon.	Green apples and pears 45 lbs.
Pennsylvania.	Coarse foreign salt 85 lbs., coal at Pittsburgh 76 lbs., coal at Greens- burgh 75 lbs.
Rhode Island.	All berries 32 lbs., all root crops except onions 60 lbs.
Tennessee.	Peanuts 23 lbs., broom corn seed 42 lbs., dried blackberries 28 lbs., onion top buttons 28 lbs., charcoal 20 lbs., cement 80 lbs., green corn in ear with shucks, 100 lbs., dry corn in ear with shucks, 74 lbs., green apples and peaches 50 lbs., pears 56 lbs., blackberries, cucumbers, raspber- ries, gooseberries, quinces and strawberries 48 lbs., cherries with stems 48 lbs., cherries without stems 64 lbs., green peas in hull 30 lbs., green beans in hull 30 lbs., horseradish 100 lbs., cabbage 100 lbs., pieplant 100 lbs., cantelopes 125 lbs., plums 64 lbs., grapes 60 lbs.
Vermont.	Green apples 46 lbs.; one bushel charcoal, lime or ashes = $\frac{1}{2}$ bushel and $\frac{1}{4}$ peck; milk is sold by wine measure.
Virginia.	Red top seed 12 lbs., peanuts 22 lbs., chestnuts 57 lbs., unpeeled peaches 32 lbs.
Wisconsin.	Rape seed 50 lbs.
Nevada.	Buys and sells all grain and vegetables by the <i>pound</i> .

States not named have no arbitrary legislation relative to the bushel so far as heard from. All States and Territories use the U. S. standards, except as noted above.



## GENERAL COURT-RECORDS, VOL. I.

A Gen<sup>r</sup>all Court holden att Boston the 18<sup>th</sup> day of May, 1631.

It is ordered, that every plantacon within the lymitts of this pattent shall before the last day of June nexte guide comon measures & waights, w<sup>ch</sup> shalbe made by some that the Gouv<sup>r</sup> hath already sealed, & by w<sup>ch</sup> also all others that will have waights & measures of their owne are to be made

JUNE 3, 1635.

It is ordered that evry towne within this jurisdiccon shall provide a pecke & a bushell, as also for waights a quart<sup>r</sup>, halfe a pound, 1, 2, 4, 7, & 14<sup>l</sup>, as also a meate yard, all to be made by the standard att Boston, & sealed by James Pen, the marshall, before the Genrall court, in Septembr<sup>r</sup>, under the penalty of fforty shillings for evry defect

MARCH 12, 1637 or 1638.

The m<sup>r</sup>shall, taking w<sup>th</sup> him a cowper, shall w<sup>th</sup> convenient speede, give notice to the constable of every towne to require all the inhabitants there to bring their measures & weights to a certain place, & at a certaine day; & then, w<sup>th</sup> the assistance of the said constable, hee shall try all the said measures & weights, & make them even, & so set a seale upon them; & for his paines hee shall have of the owner of the weight or measure two pence for evry measure, & a penny for every weight or yard, that is defective or too great; & if any weight or measure bee so defective as hee cannot amend it, hee is to breake or de-face it; & whosoever shall sell by any other weight or measure, hee shalbee punished by the discretion of the Court wheare it shalbee complained of

VOL. 2.

OCTOBER 30<sup>th</sup>, 1644.

It is ordered, y<sup>t</sup> the two form<sup>r</sup> ord<sup>r</sup>s made by this Co<sup>r</sup>t, the one of the 3<sup>th</sup> 4<sup>th</sup> m<sup>o</sup> 1635, the oth<sup>r</sup> of the 12<sup>th</sup> first m<sup>o</sup>, 1637, conc<sup>r</sup>ning weights & measures, shall still remaine in force, & from year to year shalbe put in execution by the marshall, &

that w<sup>th</sup>in one month next ensuing hee is required to put the said ord<sup>s</sup> in execution for this pr<sup>es</sup>ent year.

11 NOVEMBER 1647

To y<sup>e</sup> end measures & weights may be one & y<sup>e</sup> same throughout y<sup>s</sup> iurisdiction, it is ord<sup>ed</sup>, by y<sup>e</sup> authority of y<sup>s</sup> Co<sup>r</sup>te, y<sup>t</sup> w<sup>th</sup>in one month aft<sup>r</sup> y<sup>e</sup> publication hereof, y<sup>e</sup> auditor gen<sup>r</sup>all shall guide, upon y<sup>e</sup> countr<sup>y</sup>e's charge, such weights & measures, of all sorts, as are hereaft<sup>r</sup> exp<sup>ss</sup>ed, (for a continuall stander, to be sealed w<sup>th</sup> y<sup>e</sup> countr<sup>y</sup>e's sealer) viz, one bushell, halfe bushell, one peck & halfe peck, one ale quart, one wine pint, one halfe pint, one elle & yard, as also a set of weights of brasse, to 4<sup>lb</sup>, w<sup>ch</sup> shalbe aft<sup>r</sup> 16 ounces ye pound, w<sup>th</sup> meete scales, steele beame to weigh w<sup>th</sup> all: & it is furth<sup>r</sup> ord<sup>ed</sup>, by y<sup>e</sup> authority aforesaid, y<sup>t</sup> y<sup>e</sup> cunstable of ev<sup>r</sup>y towne w<sup>th</sup>in y<sup>s</sup> iurisdiction shall, w<sup>th</sup>in 3 months aft<sup>r</sup> y<sup>e</sup> publication hereof guide, upon y<sup>e</sup> townes charge, at y<sup>e</sup> least of leade, or such like, all such weights & measures as are above expressed, tryed, & measured, by y<sup>e</sup> countr<sup>y</sup>es standert, & sealed by y<sup>e</sup> auditor gen<sup>r</sup>all, (to be kept & used onely for standerds for their sev<sup>r</sup>all townes, who is hereby authorised to do y<sup>e</sup> same, who shall receive, from y<sup>e</sup> cunstable of each towne, 2<sup>d</sup> for ev<sup>r</sup>y weight & measure so proved & sealed, & y<sup>e</sup> said cunstable of ev<sup>r</sup>y towne shall comit these weightes & measures to y<sup>e</sup> custody of y<sup>e</sup> select men of their towne for y<sup>e</sup> time being, who are hereby enioyned, w<sup>th</sup> y<sup>e</sup> cunstable, to choose, out of their numb<sup>r</sup>, one able man to be y<sup>e</sup> seal<sup>r</sup> towne fro<sup>m</sup> time to time, & till anoth<sup>r</sup> be chosen, whom they shall pr<sup>es</sup>ent at next County Co<sup>r</sup>te y<sup>r</sup> to be sworne to y<sup>e</sup> discharge of his duty, who shall have pow<sup>r</sup> to send forth his warrant, by y<sup>e</sup> cunstable, to y<sup>e</sup> inhabitants of the towne, to bring in all such measures & weights, (as they make use of,) in y<sup>e</sup> 2<sup>d</sup> mo, from yeare to yeare, at such time and place as he shall appoint, & make returne to y<sup>e</sup> sealer in writing of y<sup>e</sup> p<sup>so</sup>ns so sumoned, y<sup>t</sup> y<sup>r</sup> & y<sup>r</sup> all such weights & measures may be p<sup>ro</sup>ved & sealed w<sup>th</sup> y<sup>e</sup> townes seale, as in y<sup>e</sup> ord<sup>r</sup> for towne matt<sup>r</sup>s, p<sup>ro</sup>vided by y<sup>e</sup> constable, at each townes charge, who shall have, for ev<sup>r</sup>y weight & measure so sealed, 1<sup>d</sup> from y<sup>e</sup> own<sup>r</sup> y<sup>r</sup> of at y<sup>e</sup> first sealing; & all such measures as cannot be

brought to y<sup>e</sup> iust stand<sup>t</sup>, he shall deface, & aft<sup>r</sup> y<sup>e</sup> first sealing to have nothg, so long as they continue iust; & y<sup>t</sup> none may neglect their duty herein, it is y<sup>r</sup>fore ord<sup>d</sup>, by y<sup>e</sup> authority aforesaid, y<sup>t</sup> if any cunstable, select men, or sealer, shall neglect to execute y<sup>s</sup> ord<sup>r</sup>, they shall forfeit, to y<sup>e</sup> comon treasury, 40<sup>s</sup> for ev<sup>r</sup>y months neglect; & also ev<sup>r</sup>y pson neglecting to bring in y<sup>r</sup> weights, at y<sup>e</sup> time & place appointed, they shall pay 3<sup>s</sup> 4<sup>d</sup>, one halfe to y<sup>e</sup> seal<sup>r</sup>, who shall have pow<sup>r</sup> to levy y<sup>e</sup> whole by distres, & pay y<sup>e</sup> oth<sup>r</sup> pt into y<sup>e</sup> comon tresury.

VOL. 3.

MAY 18, 1653.

The question beinge put, whether one chose for pruing of weights and measures, being a select man when chosen, and being left out the yeare followinge, may not yet remayne in y<sup>e</sup> place aforesd, it was resolved in the affir.

VOL. 5.

OCTOBER 15, 1679.

As an adition to the law, title Weights & Measures, this Court doeth order, that the country Treasures doe provide, upon the country chardge, these further brass weights following, viz<sup>t</sup>, one seven pound weight, one fowerteene pound weight, one twenty eight pounds, & one fiuey sixe pounds, which shallbe after sixteene ounces to the pound, w<sup>th</sup> fitt scales & steele beame, to weigh and try w<sup>th</sup> all; and the constables of every toun, w<sup>th</sup>in this jurisdiction, where such weights are frequently used, shall, w<sup>th</sup>in sixe months after publication hereof, provide, upon the tounes charge, all such weights, at least of lead, to be trjed & sized by the country standards, & sealed, kept, & used in the severall tounes as standards, & improved by y<sup>e</sup> select men & constables as the law directs for smaller weights.

MAY 20, 1680.

“It is ordered by this court & the authority thereof, that henceforth the new measures that are now come ouer from England by M<sup>r</sup> Foy shallbe the standard for this colony of the Massachusetts, which sajd measures are of bell metle, the halfe bushell and the pecke for measuring of corne & other grajne, &

salt, &c; also one quart and one pint, for beere or ale, w<sup>ch</sup> are attested to by Daniel Man, keeper of the Guild Hall of the citty of London, yeoman of the chamber thereof, & sizer and sealler of the weights & measures to be just and right, according to a statute for measuring called Winchester measure, together w<sup>th</sup> a standard of brasse, to size a yard and ell; and also one gallon, one quart, and one pint, being wine measures, according to the custome of London, and that all halfe bushells & bushells shall be sized by this halfe bushell, and all other measures shall be sized by these other measures before expressed, and the country Treasurer issue forth his warrants forthwith to the constable of euery toun in this colony, to bring in all the old standards of the seuerall tounes to whom the Treasurer shall order, to be sized by the new measures now allowed and approved of by this Court," &c. &c.

[17 March] 168½.

It is ordered by the Court and the authority thereof, that henceforth the new brasse weights that are lately come from England, & haue bin sealed at the Exchecquer in Westminster, as appeares by a writing testimonial under the hand of M<sup>r</sup>. J<sup>n</sup>º. Law @ M<sup>r</sup> Nicholas Stuart, principall officers there, and seale of the sajd office, are just and true averdupojce-weights, such as are used in London, diuers of which are fell fashioned, vis<sup>t</sup>, one fiuety sixe pounce, one twenty eight, one fowerteene, one seven, one fower, one two, @ one one pound, the rest are fflatts weights, and are one halfe pound, one quarter, one eighth part, and one  $\frac{1}{8}$  or ounce, as also one halfe ounce, one quarter of an ounce, one eighth @ one sixteenth part of an ounce, shall be the standards for this colony of Massachusetts, by which all other weights are to be sized, and that the country Treasurer issue forth his warrants forthwith to the constables of euery toun in this colony to provide, at the tounes charge, all the abouesajd weights of brasse or lead by the tenth of May next, which are to be brought in to the sajd Treasurer, or whom he shall appoint, to be sized and sealed by the aforesajd weights; and henceforth it shall not be lawfull for any person to buy or sell by any other weights or styljards but such as are sealed by

or made agreeable with the aforesaid standards; and the penalty of such as neglect or act contrary to this order shall be the same, and disposed of according to the order of this Court made in May, 1680, title Measures.

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THE PUBLIC STATUTES OF THE COMMONWEALTH  
OF MASSACHUSETTS,

ENACTED NOVEMBER 19, 1881, TO TAKE EFFECT FEBRUARY 1, 1882.

CHAPTER 65 OF WEIGHTS AND MEASURES.

SECTION 1. The weights, measures and balances received from the United States and now in the treasury of the Commonwealth, to wit, one-half bushel, one wine gallon, one wine quart, one wine pint, one wine half pint, one yard measure; a set of avoirdupois weights consisting of fifty, twenty-five, twenty, ten, five, four, three, two and one pounds, and from eight ounces down to one drachm; one set of troy weights, from five thousand pennyweights down to half a grain, and from one pound down to the ten-thousandth part of an ounce; and three sets of balances; also the measures caused to be made by the treasurer and now in the treasury, to wit, one of eight quarts, one of four quarts, one of two quarts, and one of one quart, dry measure, shall, except as provided in chapter sixty-six, be the sole authorized public standards of weights and measures.

CHAPTER 66 OF THE METRIC SYSTEM OF WEIGHTS AND MEASURES.

SECTION 1. The weights and measures of the metric system may be employed and used in this Commonwealth, etc., etc.

## LETTERS.

SHARON, PA., February 7, 1885.

*Dear Sir:*—There appears to be a remarkably close relationship between Anglo-Saxon, ancient Hebrew, old Egyptian and Pyramid metrology. The fountain of ancient measures was probably the cubit AMMAH—"mother"—derived from the circumference 1,296,000, of which the radius is 2,062,648. One ten-thousandth of this radius is 20.62648, and one ten-thousandth of one-fourth of the inscribed square is .7292. An old Egyptian cubit in the museum at Turin is 20.611 inches. It is divided into twenty-eight digits; three of them at one end (for some special purpose, probably to indicate the quadrature of the circle) are longer by three inches than any three of the others, which measure .729 inch each. The ancient digit is thus identified with one ten-thousandth of one-fourth of the side of a square inscribed in a circumference of 1,296,000.

The Hebrew gold talent was equal to 10,000 Persian darics, and the daric was the thirty-six-hundredth part of the Babylonian talent. A half talent Babylonian, discovered by Mr. Layard at Nineveh, and well preserved, weighs 233,300 grains, giving 466,600 grains for a talent. One thirty-six-hundredth of this is 129,6100 grains, or one daric, equal to a Hebrew shekel. Dr. William Smith says the daric was about 129 grains. I think, therefore, we may safely assume that the standard Hebrew gold talent of 10,000 shekels contained 1,296,000 grains.

It was a custom of the Hebrews to call their measures by descriptive names. Thus "talent" meant *circle*, and "gerah" meant *a grain*. It appears also to have been their custom to express the relative numerical value of a measure by its name, thus sheah, which means a third part, was the name of a measure equal to one-third of the bath. The smallest of Hebrew measures of liquids or grain was the log, about an English half pint. The bath contained seventy-two logs. Other measures were derived from the log or the bath by multiplication or division, thus:

1 bath	=	72 logs.
1 homer	=	10 × 72 logs.
1 omer	=	$\frac{1}{10}$ of 72 logs.
1 sheah	=	$\frac{1}{3}$ of 72 logs.
1 hin	=	$\frac{1}{2}$ of $\frac{1}{3}$ of 72 logs.
1 cab	=	4 logs.

A similar division by tenths, halves, thirds and half-thirds, obtained in Hebrew coins. If the exact capacity of the log or the bath were known, the other measures could be determined. The numerical expression for the word BaTh, is B 2, and Th 400, or  $2 \times 400$ ; omitting the ciphers it becomes  $2 \times 4 = 8$ . The numerical expression for the word log is 30 × 3; omitting the cipher it becomes  $3 \times 3 = 9$ . But the bath equals  $9 \times 8$  logs. If nine logs equal a standard of reference, the bath must be eight times that standard. According to the Rabbinites and Dr. William Smith's computation, the log contained .0615 imperial gallons (10 pounds or 70,000 grains of water being the capacity of one such gallon) equal to 4,305 grains. Now, a digit being .7292 inch, 10,000 cubic digits are 38,783 inches, and  $\frac{1}{3}$  of this is 4,309, which, taken in grains weight of water, is but four grains in excess of the weight of the log as computed by Dr. Smith. I think, therefore, we may reasonably assume that the Hebrews used 10,000 cubic digits,

equal to 38,783 cubic inches, as a basal number or standard of reference for their measures of capacity, taking one-ninth of this standard in grains for the log and eight times the standard for the bath.

Another method, however, may have been adopted which would give results but slightly different. The coffer in the Great Pyramid contains, below the ledge, 40 cubic feet. Let

$$\begin{aligned} 1 \text{ coffer} &= 4,000 \text{ logs.} \\ 100 \text{ logs} &= 1 \text{ cubic foot.} \\ 1 \text{ log} &= 17.28 \text{ cubic inches.} \\ 17.28 \text{ inches} &= .0625 \text{ imperial gallons.} \end{aligned}$$

This is not quite so close to Dr. Smith's computation as we come by means of the digit. The following are the comparative results of the three standards when applied to the cor or homer, which is the largest of Hebrew measures:

$$\begin{aligned} 1 \text{ cor or homer} &= 10 \text{ baths} = 12,276 \text{ inches} = 44.286 \text{ gallons, Rabbinist standard.} \\ 1 \text{ cor or homer} &= 10 \text{ baths} = 12,277 \text{ inches} = 44.323 \text{ gallons, digit standard.} \\ 1 \text{ cor or homer} &= 10 \text{ baths} = 12,441 \text{ inches} = 45 \text{ gallons, coffer standard.} \end{aligned}$$

The difference is so little that it might be difficult to substantiate an indisputable preference for one above the others, nevertheless the comparison affords strong ground for the belief that ancient Hebrew weights and measures not only stood in close mathematical relation to one another, but were coincident with Pyramid metrology. Now, "cor" means "round," and "homer," which is another name for the same measure, means "heap," that is, the two names together signify a round heap. A cone of wheat corn equal to the measure of the cor, has a base diameter of  $50 \pm .1$  inches, the angle of rest being  $37^\circ$  according to Haswell. If we take as the unit of measure  $\frac{1}{16}$  in. =  $\frac{1}{812}$  of the length of a second's pendulum at the Pyramid, the base of the cone is 800, the height is 300 and the sloping side is 500 sixteenths. The proportions of the height, slope and half-base, 3, 5 and 4 will be recognized as the sides of a commensurable right angle triangle. Grain could be bought and sold by the cor with practical accuracy without a balance or measuring basket.

The facts have been noted touching the numerical relation of Hebrew weights and measures, and the numerical signification of their names may give the key to the entire construction of ancient Hebrew metrology. A thorough investigation of these aspects of the subject by some capable Hebrew scholar would be likely to lead to exceedingly interesting and valuable results.

H. G. WOOD.

#### LETTER FROM HON. FREDERICK T. FRELINGHUYSEN.

DEPARTMENT OF STATE, WASHINGTON, January 29, 1885.

TO THE PRESIDENT OF THE INTERNATIONAL INSTITUTE FOR PRESERVING WEIGHTS AND MEASURES, CLEVELAND, OHIO:

*Sir:*—I herewith transmit the enclosed extract from a dispatch from Mr. N. D. Comanos, United States vice consul general at Cairo, No. 2, of the fifth instant, showing the conditions upon which the government of Egypt will grant you authority to explore the pyramids of Ghizeh and the Sphinx.

I am, sir, your obedient servant,

FRED'K T. FRELINGHUYSEN.

*Enclosure*—Extract of dispatch mentioned:

AGENCY AND C. G. OF THE U. S. OF AMERICA, CAIRO, January 5, 1885.

HON. F. T. FRELINGHUYSEN:

*Sir:*—It is to be understood that all the objects discovered by the explorer in the course



of his excavations should be given up to the Boulac museum; it is further indispensable that he should come to an understanding with the administration of antiquities for the object of deciding upon the limits of ground upon which he desires to dig. The same condition also applies to a depot to be fixed upon, for the purpose of accumulating upon the same the sands and the earth resulting from such excavations, the mass of which will evidently be considerable, for, it is feared, that, unless the advice of the antiquarians be not previously secured, the "debris" may cover some tomb or important monument. The same necessity is also imposed in leaving intact any portion of ruins, or any part of a wall, even insignificant, which might, notwithstanding its small importance, be the result of the disappearance of ruins belonging to the Greek, Roman and Byzantine epochs. It would, hence, be desirable that the service of antiquities be duly advised and consulted.

The Egyptian government trusts that the explorers will thoroughly understand the motives of such reserves, and will, consequently, appreciate their importance so far as the science is concerned, and under these conditions it grants, with great pleasure, the authorization solicited. The minister further adds, in one of his dispatches, under date of twenty-fifth December, 1884, that a decree or a firman is not necessary to permit the gentleman named to start upon the studies which he purports carrying out in Egypt. A simple authorization of the council of ministers will suffice in order to facilitate him in the accomplishment of the mission with which he has been entrusted. And, as soon as this agency will announce to the Egyptian ministry the arrival here of the exploring party, the necessary authorization will duly be transmitted to this office.

I have the honor to be, sir, very respectfully, your obedient servant,

N. D. COMANOS,  
U. S. Acting Consul General.

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LETTER FROM COL. S. M. CHESTER.

ELIZABETH, NEW JERSEY, February 19, 1885.

*Dear Sir:*—In the January number of your excellent magazine I observe that my name is honored by being added to the list of members of the "committee on weights and measures," and from Mr. Clark I learn that the several members of the committee are each assigned to a special department, and that I will probably be expected, at some future time, to report upon "units of electric measurement."

While I accept with pleasure the appointment, and with full determination to grapple with the duties zealously, I may be permitted to suggest that I conceive that serious practical objections exist to the independent, separate action of several persons, each in a separate department, entrusted with the arrangement and preparation of units of measurement, and terms of expressing the value of many different modes of action, all of which have in fact exact correlations, although the scientific (?) nomenclature of the day affords no sufficient or appropriate terms by which such correlative values can be expressed. The inconvenient, perplexing and illogical nomenclature alluded to, has doubtless come into existence by reason of such separate and independent action of scientists in separate departments. The electricians of France, with an amount of self-complacency and assurance equally displayed in the efforts of their compatriots to force upon the world French conceptions of the measurement of physical matter, have *invented* a system of quite arbitrary terms for expressing the value and condition of electric action. But, it is to be observed, that the several units herein employed have no relation to, nor connection with any of the units employed by themselves or by any other nation in measuring.

I desire to explain as clearly as I can my reasons for believing that it is of paramount importance that the members of the committee should work conjointly and not independently in separate paths. Permit me, then, to make a brief resume of what I have before on diverse occasions expressed more fully. I submit the following propositions, which I conceive to be self-evident truths:

*First*—"Different forms of force," is but an expression denoting different "modes of action," or different ways of exhibiting, employing, or utilizing "force," which is the *perfected condition of action*.

*Second*—One kind of action, or use of "force," has an exact equivalent in another kind of action or other way of exhibiting force. Or, "there is correlation between forces."

*Third*—An *action* cannot be even described in the abstract, but only can it be made apparent, and its value estimated, by estimating and describing its effects upon visible, measurable, physical matter.

*Fourth*—The description of such effect is insufficient if made in one term. It cannot be measured by the application of one unit. Motive action cannot be completely described by saying a pound is moved.

*Fifth*—At least three classes of measurement, each employing a unit of different character, must be employed to estimate such effect, namely: *quantity* of matter affected, extent of effect, energy of effect. In movement, we state the amount of matter moved, first unit; the distance moved, second unit; the velocity or energy of movement, third unit.

*Sixth*—As three terms must be used to express value of one action, its exact correlative in another action must correspond in each of these terms. Let "a" represent quantity of affected material, "b" extent, etc., "c" energy or velocity, and let an electric or heat force be thus described: *4a, 2b, 1c*. Motion, *2a, 4b, 1c*, is not its exact correlative, although in expressing two conditions of the same action, *4a, 2b, 1c*, is the exact equivalent in *value* to *2a, 4b, 1c*.

*Seventh*—In expressing a degree of motive force we do not express each of the several conditions in direct terms. For instance: "Energy," or velocity, is expressed by a double measurement, "so many feet moved in a minute." Exactly similar terms may not be used to describe heat, or electric energy, though we may very clearly express an amount of heat force by describing the amount of material affected, extent of effect (to what degree), time in producing such effect.

*Eighth*—It is desirable that we should be able to exactly express, in similar terms, the amount of material affected, extent of effect, energy of effect, whatever kind of force acts upon it.

Excuse my long letter—not long enough perhaps to clearly enunciate the several points I have attempted to call your attention to, but my purpose will be served if you agree with me that we cannot labor independently.

I am yours, very truly and sincerely.

S. M. CHESTER.

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LETTER FROM COL. A. T. FRASER.

TRICHINOPOLY, MADRAS, INDIA, January 20, 1885.

C. PIAZZI SMYTH, ESQ.:

*My Dear Sir*—While spending a Sunday on the way to the Neilgherry hills at the small native junction town of Erode, on the Madras railway, I asked if there was any church, and was told there was a Roman Catholic chapel. I went and found one of the ordinary domed plan, in a dilapidated state, in a small shrubbery in the heart of the town. There was a native priest, a tall, stout built individual, walking up and down a footpath. I

spoke to him, and got into conversation. He was a Mysore Brahmin, knew English moderately well, but not only understood how to read, but spoke Latin fluently, and said he wrote all his letters in it on church affairs. He took me into his house, which was unlike anything a native ever lives in, having European furniture, and everything tidy, with books and writing desk, an astonishing proof of what education can accomplish. I asked him what the Catholic Church teaching was as to the future of Jerusalem, and he said the Jewish temple was destroyed, and its organization gone forever. No, I said, and asked for the Latin Vulgate, and turned to the chapter in Revelation about the "holy city they shall tread under foot," the temple of Ezekiel will be rebuilt. I asked who he thought the two witnesses were, and the reply was that, without a doubt, they were Enoch and Elijah, whom the church expected to appear before the end, they having never died. They were alive now, not "*in corto nec in inferno*," but where they existed no one knew. It was extraordinary, falling in with a native who could talk Latin as if it were a modern tongue, and he had to eke out his explanations to me in the language, not having enough command of English.

I have recommended Erode to Professor Michie Smith as an excellent place to test the green sun through steam, as there are always powerful engines there with steam up at dawn, and the sun always rises in a clear sky.

I see in Nature for December 4, strong remarks by Sir William Thompson in favor of the metric system. It is possible metric is used by British men of science in place of "decimal" system almost without thinking. Of course, for many engineering purposes in the measurement of small and very large areas, tenths are best, but for anything in the shape of architectural or structural design, inches and eighths are indispensable. In chemistry I take some trouble to change the French weights I meet into familiar grains. Sir William was also very decided, you will have noticed, in the same paper, on the reality of the luminiferous ether. His mode of accounting for matter going through it differs from mine, but I can hardly take to task so great a philosopher.

I have observed in last newspapers the death of Major J. Scott Phillips, from whom I had a letter dated the fifteenth of August last on the subject of the valley to be formed by the great earthquake at Jerusalem when the Mount of Olives was to be cleft in twain, and his idea about the "beast from the sea." I had hoped to have heard more from him, but V GBR IMUT V ICHLSH, V IGUY ADM V AI U, "and strong man will die and be overthrown, and man will expire and where [is] he?" Job, xiv: 10.

I am yours sincerely,

A. T. FRASER.

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EXTRACT OF LETTER FROM PROF. C. PIAZZI SMYTH.

That England should have the aid of her daughter in her present wars and complications, is a very kindly sentiment on your part, you typifying the United States of America as her "daughter." But it strikes me she is more—more on an equality; and as I have nowhere seen any political and national theory better proved by every successive year's history than Mr. Hine's view that the Irish, the Milesian Irish of the west and south, are descendants of the Canaanites whom Joshua spared by mistake, and who were, therefore, left by God to be pricks in the eyes and thorns in the sides of the Israelites ever after, so do I believe that the United States of America, *i. e.*: the Yankees, with their tall stature, do represent the elder, aristocratic son of Joseph, Manasseh, and Britons, the worldly, better-to-do and fatter, stouter, shorter, second son, Ephraim.

During the process of fixing themselves in the new world, the Manassehites have had to rough it exceedingly, but now that they are fixed, they are coming hand over hand with

us in refinement of dress, refinement of electrical apparatus, refinement of publications in government observatories, grandeur of astronomical instruments for beholding the glories of the heavens, so that by the time that the times of the Gentiles are fulfilled, Manasseh will be patent to all the world as the elder brother, and Ephraim, spite of having royalty within his bounds, as the younger.

You have got some kind of leave, license, or authority through your consul general at Cairo to examine Great Pyramid.

So far, very good. In theory an excellent beginning; but take care how you enter into it practically. If you could take a whole army corps with you, the whole thing would be plain before you. But two, three, or a dozen scientists of moderate incomes would find themselves opposed at the place to the vested interests of two or three hundred noisy, impudent Arabs, whose whole support in life is derived from extravagant fees and remnants of luncheons given by the endless crowds of "travelers" who go out there day by day, and who, moreover, would, for the most part, join the Arabs, and insist that the Great Pyramid is theirs. Even the British consul (of Alexandria) said to us, in most discontented tone, "Can't you go and measure some other pyramid, and not interfere with the parties of visitors to the Great Pyramid?"

Then, as to your measuring apparatus. I was right glad to read in the *Cleveland Plain Dealer* that the institute was getting a first-rate steel scale, and microscopic comparator from so eminent a scientist in that line as Professor Rogers. For instant microscopic and micrometric accuracy nothing could be better. But for all time, or to replace the Great Pyramid, and its four thousand years, who can guarantee a steel rod keeping its length? Newton pointed out, before measures were very refined, that a steel bar, hammered in manufacture, relaxes at rest; and then where are you? But cannot you get Professor Rogers to put his infinitely fine graduation on some anti-hygrometric, hard stone, Brazilian "smoky agate," if you could get one large enough; chalcedony next, after that porphyry or granite, as hard material; and black marble as the least expansible from heat.

Yours very truly,

C. PIAZZI SMYTH.

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#### EXTRACT OF LETTER FROM THEODORE GRIBI.

I have taken a great liking to Pyramid studies. I think the whole matter of its existence and preservation, its wonderful proportions and commensurabilities a theme of extraordinary inspiration. There is a wonderful weight of meaning in one of R. A. Proctor's expressions concerning it, "that the Great Pyramid will be in its youth (or remain) when every other structure of human origin shall have disappeared from the face of the earth"—something to that effect, I do not remember the exact wording—and I think there is more in that testimony than Proctor himself meant; why, therein lies the whole meaning and intent of the architect and builder.

I have very much enjoyed your articles on the "Unveiling of Isis." There is something extraordinarily fascinating, if not convincing, in the coincidences you make; everything is so plausible, and I am not one who doubts for a moment that in God's eternal purpose this nation is a provisional factor, but I am of opinion that that kingdom which Jesus Christ is going to establish on earth has not yet appeared in substantial form, and will not, until He comes. There is something so radically wrong in our social and political institutions, and this social wrong is so deep-seated and time-honored that nothing short of a divine manifestation will convince the world of it. I cannot believe that a government under which such dire poverty and destitution crawls alongside luxurious affluence in proportions beyond arithmetic, a government which is manipulated often by tricksters and wily politicians, who work only for the spoils of office, can be in any sense

the government of Jesus Christ. Nor is there any other government on the face of the earth besides this fitted for the appellation. Yes, the principles of liberty, justice, and equality are there, if you please, and must have been in the hearts of the founders of this government; but those principles have never been in operation fully, and we are receding from the realization of them in the exact proportion as time separates us from the fathers. Everything must have a beginning, however, and God's eternal purpose on earth has a history. That you have traced that history in the pages of your "Unveiling of Isis" can scarcely be a matter of doubt to a believer, and that God may intend something more with this nation than has hitherto appeared is "devoutly to be wished." At any rate, I willingly and humbly subordinate my judgment in the matter to yours.

THEODORE GRIBI.

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LETTER FROM JACOB M. CLARK.

119 Liberty Street, NEW YORK, February 27, 1885.

*Sir*:—A few days ago I received from Rev. Mr. Wood, some explanations as to the markings on the "Turin Cubit." While waiting for Mr. Wood to answer as to more exact statements as to the dimensions to certain points which I conceive to be fundamental, I will explain frankly to you where I think the index is.

The "Turin Cubit" is, as to its whole length, a Babylonian dimension;  $20\frac{3}{4}$  British inches or so. We see at once, that according to the idea of Babylon, it is not cosmic. It simply lands us in an error of about 500 miles as to the circumference of the earth, and does not relate to the radius in any simple way. But, on the other hand, if we conceive that while the total dimension is Babylonian, the markings are Egyptian and Hebrew, we can see at once that the mathematician who marked this implement, used such markings to impress on the minds of the workmen.

- I. The circle is divided into 24 parts.
- II. The final number of the cubit is 25.
- III. The modulus is the pyramidal inch and the sacred cubit.
- IV. The measure of the Temple is a perfect measure—"according to these measures."

Truly yours,

JACOB M. CLARK.

TRANSACTIONS OF THE OHIO AUXILIARY SOCIETY OF THE INTERNATIONAL INSTITUTE.

JANUARY 28, 1885.

Eli Baldwin, Niles, O., Richard Bull, Hamilton, Ont., J. G. M. Hursch, Vandalia, Ill., Gustav Vogelsang, San Marcos, Tex., were elected members.

Letters were read from Cockburn Muir, of Melrose, Scotland; Charles Casey, Carlow, Ireland; F. Gass, Reigate, England; Miss Agness Menzies, Edinburgh, Scotland; J. Hursch, Vandalia, Ill., and C. A. L. Totten. The President then spoke of the loss the society had sustained by the death of Hon. John B. Jervis, C. E., one of the most earnest members. One of his earlier letters, expressing his deep interest in the society, was read. 'Mr. Jervis was a distinguished civil engineer.

The circular of the Rev. H. G. Wood, Chairman of the Committee on Weights and Measures, was read, discussed and approved. On motion of Mr. A. M. Searles the names of Prof. W. A. Rogers, Professor Stockwell and Colonel Stephen M. Chester were added to the committee.

A paragraph from the Messenger entitled "The Astronomical Day," was read. "Shortly before midnight on the 31st ult. the authorities at Greenwich made preparations to receive the year 1885. The public clock was so altered that instead of indicating twelve hours when the neighboring clocks were striking that number it pointed to 0, thus showing that the astronomer royal had taken the necessary steps for adopting the universal time. This change will render the astronomical day coincident with that of the civil day." After this subject had been discussed Mr. W. H. Searles read and illustrated upon the blackboard a proposition of Mr. Jacob M. Clark, and also read criticisms upon it from Mr. J. H. Dow.

Mr. W. E. Bond's paper upon weights and measures was then read by the President. In the discussion upon it Mr. A. M. Searles stated that he considered Mr. Bond's proposed system to be both simple and practicable. We will present the main features of it in a subsequent paper.

Mr. F. Gass, of Reigate, England, sent a criticism upon Mr. Flinders Petrie's recent work. Mr. Gass' article is entitled "The New Measure of the Great Pyramid and the Sun Distance," and like the papers of Rev. H. G. Wood and other members goes to prove that the full force of Mr. Petrie's stroke will rebound upon and injure no one but himself. Indeed, that his measures will ultimately be of great assistance to all true believers.

A model sent by Rev. H. G. Wood representing the theory of connection between E. N. E. trench of the pyramid and summer solstice B. C. 2170 was examined. It can be tried by sunlight or gas light. And is so constructed that a difference of 10m. in the sun's altitude can be readily detected by the change of the solar shadow upon it.

The mission of Edward Hine to America, and the feasibility of inducing him to lecture in Cleveland at an early date, were discussed after an animated debate upon the Pyramid and British inches.

FEBRUARY, 11, 1885.

Mr. A. M. Searles, Vice-President of the Ohio Auxiliary Society, presided. An interesting letter was read from a resident of Cairo, Mr. P. F. Boulad, who gave his ideas as to the motives, origin and probable consequences of the insurrection in Egypt, and of the career of Arabi Pasha. A letter was then read from the Secretary of State. He en-

closed an extract from the letter of Mr. N. D. Comanos, United States Acting Consul General at Cairo, in response to the application of the International Institute for a firman to explore the pyramids of Ghizeh and the sphinx.

Mr. G. L. Heisel read a communication from J. K. Hornish, Denver, Colorado, a criticism upon Mr. Faber's  $\pi$  proportion. Mr. Hornish says: "The true  $\pi$  proportion between diameter and circumference of the circle is the prime necessity in all geodesy, astronomy and mensuration. Until this  $\pi$  proportion is discovered, mathematics cannot have a philosophy; and numbers and structure as God has built them into cosmos cannot be formulated into true table of weights and measures." Mr. Hornish then gives five formulæ of the  $\pi$  proportion: 1, the Archimedes  $\pi$ ; 2, the metrics  $\pi$ ; 3, the Parker  $\pi$ ; 4, the Faber  $\pi$ ; 5, the Hornish  $\pi$ . The first three, Mr. Hornish says, are admitted to be "incommensurable and infinite." Mr. Faber claims his proportion to be finite, and the same claim is made by Mr. Hornish for his own discovery.

The views of the writer were opposed by Mr. W. H. Searles and Mr. Shongo. Mr. Heisel defended Mr. Faber's solution.

A letter from Rev. H. G. Wood was read, showing clearly the connection between the ancient Hebrew measures, the Anglo-Saxon measures and the coffer of the Great Pyramid. The demonstration contained in the letter was placed upon the blackboard and explained by W. H. Searles.

FEBRUARY, 25, 1885.

G. A. Hammond, of Kingslear, New Brunswick, Canada, and Mrs. A. E. Waters, Cleveland, were elected members. Vice President A. M. Searles occupied the chair. A paper received from Egypt stated that by order of the Egyptian government the midday gun was fired by Great Pyramid time.

C. C. Schenck, of Allardt, Tennessee, wrote repudiating the idea that the Great Pyramid could have anything to do with modern weights and measures, and suggests that the advocates of that theory should extend their opposition to federal money and Arabic figures and notation.

Reverend James French, of Philadelphia, wrote respecting the present condition of affairs in Egypt, and their fulfillment of prophecy.

The correspondence between Professor R. A. Proctor, astronomer, and Dr. John Forrest, of Charleston, South Carolina, was then read. Dr. Forrest wrote to the editor of the *Charleston News and Courier* stating that in his lecture entitled "Into the Star Depths," Professor Proctor had made the false statement that Piazzi Smyth had predicted that the world would come to an end in 1882. Proctor replied that he had said "the Christian dispensation, and with it, I presume, the end of the world, was to come to an end in 1881—the date being subsequently deferred to July, 1882." In proof of this assertion he quoted Professor Smyth's words in "Our Inheritance in the Great Pyramid," and also said that Professor Smyth hailed the comet of 1882 as portending the close of the Christian dispensation. Dr. Forrest rejoined that Mr. Proctor had evaded the point, and that no one who read Professor Smyth's works with ordinary attention could confound his idea of the close of the Christian dispensation with the totally different idea of the end of the world. That moreover Mr. Proctor had said the same thing as long ago as 1879, in an article published in the *Contemporary Review*, and that Professor Smyth had replied in the *Banner of Israel* that he had not only not said that the end of the world was to take place in 1881, but had said he printed and published, and was still printing and publishing the opposite. Professor Proctor replied that he had not read Piazzi Smyth's words in the *Banner of Israel*, as he regarded that very remarkable periodical as unsuitable reading for sane folks, but he imagined that only a very small section of the Christian world would accept the modified doctrine that the Christian dispensation came to a close in 1881 or 1882, or that the end of the world and the close of the dispensation might be sep-



arated by some considerable interval of time. He then said that he desired the controversy to close.

For the benefit of members unacquainted with Professor Smyth's theory Mr. W. H. Searles explained it by means of a large chart of the Pyramid, and showed how pyramidists believed that the various passages of the Pyramid symbolized different periods of time. The wide and lofty grand gallery referred to the Christian dispensation, and a low passage leading from it to the king's chamber signified a period of tribulation, on which Professor Smyth and others believed that we had now entered. Mr. Searles then explained Mr. Wood's theory with regard to the E. N. E. trench, and stated that Mr. Petrie had shown that the trenches corresponded to the passages in the Pyramid, as if the plan had been laid in them before the building was erected. There was one vertical trench for which no corresponding passage had yet been found in the Pyramid, and Mr. Searles suggested that it should be the work of the next explorers to discover that passage, which might lead to other passages and chambers now unknown.

Mr. Dow then explained with regard to the Pyramid and British inches that Professor Smyth and others across the Atlantic found the Pyramid inch and cubit in the measures. That he and others on this side of the water could prove with equal clearness from correlations that the British inch was there. He thought it not improbable that both could be found there. A discussion then took place on this subject, after which the meeting adjourned for two weeks.

MARCH, 11, 1855.

Thomas Bassnet, Jacksonville, Florida; J. A. Long, Akron, Ohio; Colonel T. M. Sanderson, Youngstown, Ohio, and F. B. Whittemore, Toronto, Canada, were elected members.

A letter from Professor C. Piazzi Smyth referred to the total defeat of a Mr. Hamilton Smyth's proposal at the Institute of Civil Engineers, in London, to substitute French metric for English measures in civil engineering work.

Letters from Mr. Jacob M. Clark upon the Turin cubit, from Dr. John Forrest relative to his controversy with Professor R. A. Proctor, from J. K. Hornish on the value of  $\pi$ , and from Hon. N. F. Safford, giving a history of the elms by the old house where the Suffolk resolves were passed, were also read.

The remainder of the evening was devoted to the reading and discussion of a paper by Samuel Beswick, C. E., a member of the Committee on Weights and Measures, on "the metrology of coins or values."



## EDITORIAL NOTES.

Through the kindness of Mr. Sauter, who recently visited Egypt, we have been presented with a small specimen from the coffer in the king's chamber in the Great Pyramid. It is of red granite. He has also specimens from the Temple of the Sun at Heliopolis, from Cleopatra's needle, and Pompey's pillar. Examination and comparison show that they are all of precisely the same material as the coffer in the king's chamber, that is, of red granite.

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Our thanks are due Prof. C. Piazzì Smyth for a copy of *The Egyptian Gazette*, published at Alexandria. It contains the following announcement: "Notice to Shipping—On and after Monday next, 19th inst., the midday gun will be fired from the signal station (Kom-el-Nadoura), by Great Pyramid time; the time ball will be dropped at local time, which will be 4m. 58s." later—Port Office, January 16th, 1882: In reference to this announcement, Prof. Smyth says "we are holpen with a little help even in the matter of time and its publication."

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With reference to the report that action had been taken by the metric advocates to bring a bill before Congress for the compulsory adoption of the metric system in this country, we have heard from Hon. B. P. Bland that nothing has been done and that it is not probable that anything will be done in regard to this question at present. The committee have made no report on the subject.

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As we have now the necessary authorization from the Egyptian government for the examination and exploration of the Great Pyramid and the Sphinx, we trust that our friends who have means will subscribe liberally to this object. It will be

remembered that one gentleman in this city proposed to give \$10,000 if others would agree to do likewise. If he will now place this sum in bank to be used for the exploration fund, it would be proper to start the expedition. Doubtless other subscriptions would follow. We ought to have not less than \$25,000 for the purpose. There are many points of vital importance to settle in order to arrive at a full understanding of Pyramid measures and chronology. Who will be the patron saint of the society in this matter? Friends, do not delay.

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The ancient elms represented in the engraving of the "Suffolk Resolves" mansion, now standing in Milton, Massachusetts, acquired a historical and local significance in that part of the suburbs of Boston in which they were first and early transplanted. They were of the Dutch-English stock, and the fact of the circumstances of their transplanting being well known has probably contributed to enhance the interest in them as a favorite in that immediate locality, in addition to their massive strength and proportions and rich and enduring foliage. Many of these old trees have disappeared, yet a few remain as ancient landmarks at their first American home, and scattered in that vicinity. Those first transplanted here were brought from Brompton Park, England, in 1734, or soon after that, by Mr. James Smith, who then owned a fine estate in Milton, now in the ownership of Hon. James Murray Robbins, at Brush Hill, one of its eminent and venerable citizens. Coöperating with Mr. Smith at that period was Mr. John Jones, of Dorchester, the adjacent township. About the year 1762, at the instance of Mr. Smith and Mr. Gilbert Deblois, some of these trees, later known as the "Paddock Elms," were planted in Tremont street, Boston, near the site now occupied by the Park Street Church, where they grew and flourished for more than a century. Trees of this stock appear to have been transplanted as favorite ornamental forest trees upon several patrimonial estates in Dorchester and Milton, from the middle to the close of the last century. Few of them were privileged, however, to occupy so prominent a historic spot as that whence emanated the Suffolk Resolves, at the birthplace of the Revolution.

## REVIEWS.

THE GREAT PYRAMID, A SCIENTIFIC WITNESS TO THE COMMON AUTHORSHIP OF NATURE AND THE BIBLE. A lecture by Rev. H. G. E. St. Dalmas, Poona, India. Pamphlet, 50 pp.

The Great Pyramid has long been a world wonder because of its mystery. It is a greater wonder than ever now that its mystery is being solved. In connection with recent discoveries and theories, it is interesting to know that Arabian writers in the ninth and tenth centuries have preserved a tradition which had come down to them from the ancients, that this Great Pyramid contained "all things that had been told by wise men; all recondite science of the stars, of arithmetic, of geometry, divers celestial spheres, and what they operate in their aspects, *what has been and what shall be from the beginning of time to the end thereof.*"

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THE PLANETARY DISTANCES. By Lawrence McCurrick, author of 'Papers on Elementary Education,' etc.

The theories propounded in this work are in every sense revolutionary, and, therefore, will meet with much opposition. The variety of methods bringing out the same results, and the remarkable coincidences, which cannot reasonably be regarded as accidental, are strong presumptions in its favor.

While the cry is still for more light, this essay may in some measure tend to promote the spread of truth and the increase of knowledge.

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THE TOWER OF EGYPT, OR THE TYPES AND CHRONOLOGY OF THE GREAT PYRAMID. By A. R. G. Illustrated by fifteen diagrams. Published by S. W. Partridge & Co., No. 9 Paternoster Row, London, England. 193 pp.

This little work has been prepared under the firm conviction that the Great Pyramid of Jeezeh, in Egypt, is the grand embodiment of the sacred types; that it was not a tomb for one of the Pharaohs, but was constructed under God's direction by

Shem, or one of the early Shemite patriarchs, as a stone witness to His decreative purposes on earth—of His providence with respect to the True Church; and that it is a prophecy extending from the flood to Christ's second advent, and possibly to the close of the world's history.

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'THE MEETING OF THE NATIONS IN THE UNIVERSAL DAY.' By J. Leyland Feilden, author of 'The World, the Word, and the Branch,' and other works. Published by Robert Banks & Son, Racquet Court, Fleet street, London.

This pamphlet points out the juncture of Christianity and Islamism at Khartoum, Israel's return hastened thereby, and not far off. Egypt the land of the meeting of the nations, as seen in the many nationalities now met there together towards a final strife. The battle preliminary to something greater. Khartoum not the place of battle prophetically spoken of, but it will surge back to Cairo, be prolonged beneath the shadow of the Great Pyramid, be fought finally near the Holy City, Jerusalem, the great battle of Armageddon. The time will not be long in coming. The agony and blood-shed will be great, but the triumph will be greater; for then the saints will be truly seen, and assigned their proper places. There are many calculations proving the prophetic periods, and the grand and final events now drawing near. The author pays a gratifying tribute to the International Institute and its magazine, the INTERNATIONAL STANDARD.

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We gratefully acknowledge the receipt from the publisher, C. H. Jones, of Chicago, of an exceedingly interesting work entitled, 'The Coming Age, its Nature and Proximity,' by J. P. Weethee, of Millfield, Ohio. The author has devoted many years of careful study and profound thought to the preparation of this work. It treats of topics which of late years have more and more commanded the profoundest study and interest of Christian thinkers. The writer believes that the great increase in knowledge, the rapid strides of modern inventions, in machinery, railroads, telegraphs, telephones, navigation, etc.,

coincide with the prophecies of God's work in showing the near approach to the grand consummation of the world's history, the coming of our Lord to establish His kingdom and millennial reign with His saints over the earth. He reviews the history of the earth from its first formation, through the six geologic stages of progress the past ages and dispensations, and God's government in their political and religious history, the fulfillment of prophecy, and His plans and purposes, brought out therein in those six past ages. The coming seventh age is to be ushered in by great geologic and atmospheric changes, to be purified and renovated by fire, for the reception of the church, the bride, and her bridegroom, the Messiah, the Second Adam.

It unfolds the meaning of Daniel's vision of the five monarchies, and the symbols and visions of St. John in the Apocalypse. Many passages are of thrilling interest. We commend the work as a valuable acquisition to any Bible student or thoughtful seeker of truth.

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Prof. C. Piazza Smyth has sent us a little pamphlet entitled, "The Two Witnesses:—The Bible—The Great Pyramid." The author, Mr. R. Courtney, of the Bombay Civil Service, takes up the chronological matters connected with sacred and secular history as shown in the Pyramid. He claims that the Scriptures and the Pyramid prove each other by the fulfillment of the prophecies of Daniel. We think that it will yet be clearly proved that the Pyramid contains an epitome of the history concerning our race. As we proceed in our investigations, our respect for the knowledge of the ancients in astronomy and all the sciences must increase. Events great and small are recorded in the Scriptures, as upon a parchment or scroll; in the Pyramid, the proofs of the truths of the Scriptures are written in the rocks.

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We have received from Com. S. M. Franklin, a pamphlet, "Letter from the Secretary of the Navy, Transmitting Communications Concerning the Proposed Change in the Time for Be-

ginning the Astronomical Day." It contains a large number of interesting letters in connection with the recommendation of the change of the prime meridian, made by the recent International Meridian Conference held at Washington.

Our thanks are due Dr. W. F. Quinby for an ably written pamphlet entitled, "Silver." And to Prof. F. Hess for a copy of the *Fort Dodge Daily Chronicle*, containing his very interesting paper, "The Eclipse, from an Historical and Astronomical Point of View."

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OUR REST AND SIGNS OF THE TIMES. Published monthly by C. H. Jones, 77 Clark street, Chicago, Ill. Terms one dollar per annum.

*Our Rest* is strictly undenominational, but is a firm advocate of the inspiration of the Holy Scriptures, and of salvation only through faith in the atoning sacrifice of Christ.

*The Youth's Examiner*, published monthly by the above, endeavors to bring Bible-truth before our children in simple language. Terms, forty cents per annum.

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THE GOSPEL ACCORDING TO ST. MATTHEW. Translated from the Greek text of Constantius De Tischendorf and other standard textual authorities. By Charles Gardner, M. A. Printed on extra heavy, tinted paper, elegant cloth binding. Post paid, only sixty cents.

As the object of publishing this gospel was merely to show the style and design of the whole work, we will allow all those who purchase this book at sixty cents this amount of discount on the price of the whole new testament when completed. C. H. Jones, 77 Clark street, Chicago, Ill.

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THE NUMBER COUNTED 666, AND THE NAME COUNTED 888. By the Rev. James Upjohn.

These books investigate the numerical values of names in the Hebrew Scriptures; they are companion volumes, price one dollar each. They will be sent postage paid by remitting the price to Rev. James A. Upjohn, Neenah, Wisconsin.

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THE RESTITUTION. Issued weekly by the Christian Publishing Association, Plymouth, Indiana. Terms, two dollars per year, payable in advance.

*The Restitution* advocates the final "restitution of all things which God hath spoken by the mouth of all his holy prophets since the world began." As a means to this end, the establish-



ment of the Kingdom of God on the earth, with the Christ as King of kings, the restoration of Israel, the literal resurrection of the dead, the immortalization of the righteous, and the final destruction of the wicked, eternal life only through Christ, and many other kindred truths.

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MONTHLY RECEIPTS FROM SUBSCRIBERS TO THE  
INTERNATIONAL STANDARD FROM JANUARY 31,  
TO MARCH 14.

FEBRUARY—J. H. Osborn, \$7; D. E. Shongo, \$2; Henry Kellogg, \$2; Professor Piazzi Smyth, \$4.14; Mrs. W. A. Plumtre, \$2.43; Eli Baldwin, \$2; James H. Moore, \$2.35; John E. Blunt, \$2; Dr. W. F. Quimby, \$5; Mrs. A. J. Waters, \$2; B. F. Morse, \$2; Mrs. E. B. Benjamin, \$2; E. C. Frisbee, \$2; G. A. Hammond, \$2; L. B. Mowny, \$2; W. W. Williams, \$10. Total, \$50.92.

MARCH—Ole Olsen, \$5; Lieutenant C. A. L. Totten, \$2; H. A. Powers, \$8; Rev. Joseph Wild, \$5; C. D. Whyte, \$2; Mrs. R. M. Hazard, \$2; Robert Potter, \$2; John Jay Laman, \$2; H. W. Oswald, \$2; Dr. H. R. Hurd, \$2. Total, \$27.

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ERRATA.

Volume II, No. 2, page 191, last line, O. W. Kyle, Youngstown, Ohio, \$2.00. *Read* \$6.00.

International Standard, January, 1885:

"THE SARED CUBIT, ETC." JACOB M. CLARK.

Page 617—Seventh line from top of text, for "inch," *read* inches. Eleventh line from top of text, for "killogramme," *read* kilogramme. Last line, for "polar," *read* semi-polar.

"COLONEL CHESTER'S REPORT AND ADDRESS."

On page 609, second and third line from top, *read*, While a correlative *motive* force is indicated by other units expressing measures of weight, distance, and velocity, as applied to matter affected. Eleventh line from bottom, *insert* the word *not* between the words "may" and "logically," making the sentence negative.