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STANDARD

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THE INTERNATIONAL INSTITUTE

FOR PRESERVING AND PERFECTING THE ANGLO-SAXON WEIGHTS AND MEASURES

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# INTERNATIONAL INSTITUTE FOR PRESERVING AND PERFECTING WEIGHTS AND MEASURES.

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# THE INTERNATIONAL STANDARD

JANUARY, 1885.

## THE UNVEILING OF ISIS.

### VII.

THE UNITED STATES OF AMERICA IS THE KINGDOM OF HEAVEN WHICH JESUS CHRIST CAME TO ESTABLISH UPON THE EARTH.

Turning now to Charles Sumner's 'Prophetic Voices Concerning America,'\* the first lines of his monograph are as follows:

"THE DISCOVERY OF AMERICA BY CHRISTOPHER COLUMBUS IS THE GREATEST EVENT OF SECULAR HISTORY."

On the title page is the following: "I have a far other and far brighter vision before my gaze. It may be but a vision, but I will cherish it. I see one vast confederation stretching from the frozen north, in unbroken line to the glowing south, and from the wild billows of the Atlantic westward to the calmer waters of the Pacific main; and I see *one people* and *one law* and *one language* and *one faith* over all that wide continent—the home of FREEDOM and a refuge for the oppressed of every race and of every clime."—JOHN BRIGHT'S speech at Birmingham, December 18, 1862. Speeches by Rodgers, Vol. 1, p. 225.

Of the following prophetic voices the author says: "Brought

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together in one body, on the principle of our national union—*E Pluribus Unum*—they must give new confidence in the destinies of the Republic.” From these I glean a few of the more remarkable.

“Foremost among the ancient prophecies are the well known verses of Seneca, so interesting from ethnical genius and a tragic death, in the chorus of his *Medea*, which for generations has been the finger-point to an undiscovered world.” “A prophecy of the discovery of America”—and this they may well be, if we adopt the translation of Archbishop Whately, in his notes to the *Essay on the Prophecies*”—

*“There shall come a time, in later years, when ocean shall relax his chains and a vast continent appear, and a PILOT shall find new worlds and THULE shall be no more earth-bound.”*

Fox, writing to Wakefield, says: “The prophecy in Seneca’s *Medea* is very curious indeed. These verses were adopted by Irving as a motto on the title page of the revised edition of his ‘*Life of Columbus*.’”

Four, if not more, copies are extant in the undoubted hand-writing of Columbus—two in his work on the prophecies, another in a letter to Queen Isabella, and still another entered among his observations of lunar eclipses at Hayti and Jamaica.

Before the voyage of Columbus two Italian poets seem to have beheld the unknown world. The first, Petrarca,

“The daylight hastening with winged steps  
Perchance to gladden the expectant eyes  
Of far-off nations in a world remote.”

The other, Pulci, who, in his *Morganta Maggiore*, sometimes called the last of the romances and the earliest of Italian epics, reveals an undiscovered world beyond the pillars of Hercules.

“Know that this theory is false; his bark  
The daring mariner shall urge far o’er  
The western wave, a smooth and level plain  
Albeit the earth is fashioned like a wheel.  
Man was in ancient days of grosser mould,  
And Hercules might blush to learn how far  
Beyond the limits he had vainly set  
The dullest sea-boat soon shall wing her way.”

“Men shall descry another hemisphere,  
Since to one common centre all things tend;

So earth, by curious mystery divine,  
Well balanced hangs amid the starry spheres.  
At our antipodes are cities, states  
And thronged empires, ne'er divined of yore,  
But see the sun speeds on his western path,  
To glad the nations with expected light."

And Drayton :

" And ours to hold  
Virginia  
Earth's only paradise."

And George Webb, '1728 :

" Rome shall lament her ancient fame declined  
And Philadelphia be the Athens of mankind."

Milton, in 1641 :

" What numbers of faithful and free-born Englishmen and good Christians have been constrained to forsake their dearest home, their friends and kindred, whom nothing but the wide ocean and the savage deserts of America could hide and shelter from the fury of the bishops! O, if we could but see the shape of our dear Mother England as poets are wont to give a personal form to what they pleased, how would she appear, think ye, but in mourning weeds with ashes upon her head and tears abundantly flowing from her eyes, to behold so many of her children expelled at once and thrust from things of dearest necessity because their conscience could not assent to things which the bishops thought indifferent. Let the astrologer be dismayed at the portentous blaze of comets and impressions in the air as foretelling troubles and changes to States; I shall believe there cannot be a more ill-boding sign to a nation (God turn the omen from us) than when the inhabitants, to avoid insufferable grievances at home, are enforced by heaps to forsake their native country."

And Herbert, in 1600:

"Religion stands on tip-toe in our land,  
Ready to pass to the American strand."

This may well suit the idea of a woman fleeing upon the wings of an eagle toward the west.

The poet died in 1632, twelve years after the landing of the Pilgrims at Plymouth, and only two years after the larger movement of the Massachusetts Company which began the settlement of Boston.

Fuller, writing a little later, was, perhaps, moved by Herbert when he said: "I am confident that America, though the youngest sister of the four, is now grown marriageable, and daily hopes to get Christ for her husband by the preaching of the gospel."

This calls to my mind the scripture: "The land shall no more be called Hepzibah, but Beulah (married).

And Abraham Cowley, in 1667:

Meanwhile, your rising glory you shall view,  
Wit, learning, virtue, discipline of war,  
Shall for protection to your world repair  
And fix a long illustrious Empire there.

Sir Thomas Brown, 1630, probably:

When New England shall trouble new Spain,  
When Jamaica shall be lady of the isles and main,  
When Spain shall be in America hid,  
And Mexico shall prove a Madrid;  
When Africa shall no more sell out their blacks  
To make slaves and drudges to the American tracts;  
When America shall cease to send out its treasure,  
But employ it at home in American pleasure,  
When the New World shall the Old World invade,  
Nor count them their lords but their fellows in trade—  
Then, think strange things have come to light  
Whereof but few have had a foresight.

Bishop Berkeley, 1726:

"Pope let drop a tribute which can never die:

'To Berkley every virtue under Heaven.'

"Such a person was naturally a seer."

"In distant lands now waits a better time,  
Producing subjects worthy fame."

"Westward the course of Empire takes its way,  
The first four acts already past;  
A fifth shall close the drama with the day,  
Times's noblest offspring is the last."

It is difficult to exaggerate the value of these verses, which have been so often quoted as to become a commonplace of literature and politics. There is nothing from any oracle, there is very little from any prophecy, which can compare with this.

A famous improvisatoire to the great artist Benjamin West, 1760:

*"But all things of heavenly origin, like the glorious sun, move*

westward; and truth and art have their periods of shining and of night. Rejoice thou, O venerable Rome, in thy divine destiny; for though darkness overshadow thy seats, and though thy mitred head must descend into the dust, *thy spirit immortal and undecayed already spreads towards a new world.*"

Drilled into a rock on the shore of Monument Bay in our old colony of Plymouth:

"The Eastern nations sink, their glory ends,  
And empire rises where the sun descends."

Samuel Sewall, 1727:

"Berkeley saw the sun of empire travelling westward. A cotemporary whose home was made in New England, Samuel Sewall saw *the new heaven and the new earth*. He may be called our first abolitionist."

This is remarkable, taken in connection with the words of Columbus: "I am the messenger of the new heaven and the new earth mentioned in the Apocalypse of St. John and in the Prophecies of Isaiah, and the Lord told me where to find it."

In 1713 Sewall wrote with the following title:

"*Phænomena quædam Apocalyptica ad aspectum Novi Orbis Configurata*, or some few lines towards a description of the New Heaven as it makes to those who stand upon the New Earth, by Samuel Sewall, A. M., and some time Fellow of Harvard College, at Cambridge in New England."

This is followed by verses from the Scriptures, among which is Isaiah xi: 14: "*But they shall fly upon the shoulders of the Philistines toward the west;*" and,

"*And one that has been born or has lived in America more than three score years, it may be pardonable for him to ask, Why may not that be the place of the NEW JERUSALEM?*" and,

"*Of all the parts of the world which do from this charter entitle themselves to the GOVERNMENT OF CHRIST, America's plea in my opinion is the strongest.*" For when once Christopher Columbus had added this fourth to the other *three* parts of the foreknew world, they who sailed further westward arrived but where they had been before. The globe now failed of offering anything new to the adventurous traveller; or, however, it could not afford another new world. And probably the consideration of

*America's being the beginning of the East and the end of the West,* was that which moved Columbus to call some part of it by the name of ALPHA AND OMEGA. *Now, if the last Adam did give order for the engraving of his own name upon this last earth,* 'twill draw with it great consequences; even such as will, in time, bring the poor Americans out of their graves and make them live."

Again he says:

*"May it not with more or equal strength be argued New Jerusalem is not the same with Jerusalem; but as Jerusalem was to the westward of Babylon, so New Jerusalem must be to the westward of Rome to avoid disturbance in the order of mysteries."*

Afterwards he adduces, learned Mr. Nicholas Fuller, the extract of this new authority is remarkable for its indication to Columbus of the name of the new continent, as follows:

*"Which everywhere they call America; truly and deservedly they should say rather COLUMBINA, from the magnanimous Christopher Columbus, the Genoese, first explorer and plainly divinely appointed discoverer of these lands."*

Commenting upon this, very soon thereafter he breaks forth in words printed in large italic type and made prophetic:

*"Lift up your heads, O ye gates (of Columbina), and be ye lifted up ye everlasting doors and the King of Glory shall come in."*

It is a strange coincidence that one evening, at our Society meeting, I, feeling deeply impressed with the importance of our work, used the same verse, with the thought that it refers to our land, *America*.

The Marquis d'Argenson, 1745:

*"Another great event to arrive upon the round earth is this. The English have in Northern America domains great, strong, rich, well-regulated. There are in New England a parliament, governors, troops. I say some bright morning these dominions can separate from England, rise and erect themselves into an independent republic. What will happen from this? Such a country in several ages will make great progress in population and in politeness; such a country will render itself in a short time *master of America*, and especially of the gold*



mines." \* \* \* "A day will come when one will go in a populous and regulated city of California, as one goes in the stage-coach of Meaux."

How wonderful, when considered that these words were written in, or near, 1745.

How little, however, should our good *old mother* England feel jealous or troubled over these things now of the past, for surely are we not Joseph sent a little in advance to prepare a place for her and her children, our brethren taking in all the children of Eve—the rest of mankind.

Turgot, 1770 :

"As a citizen of the world, I see, with joy the approach of an event which, more than all the books of philosophers, will dissipate the phantom of commercial jealousy. I mean the separation of your colonies from the mother-country, WHICH WILL BE FOLLOWED SOON BY THAT OF ALL AMERICA FROM EUROPE. \* \* \* *The asylum which it opens to the oppressed of all nations must console the earth.*"

Horace Walpole, 1774 :

"But there is an ostrich egg laid in America where the Bostonians have canted three hundred chests of tea into the ocean, for they will not drink tea with our Parliament. \* \* \* Lord Chatham talked of conquering America in Germany. I believe England will be conquered some day in New England or Bengal." Send for Lord Chatham! They had better send for General Washington, or, at least, call our troops back. *I own there are very able Englishmen left, but they happen to be on t'other side of the Atlantic.*

"Liberty has still a continent in which to exist. I do not care a straw who is minister in this slandered country. It is *the good old cause of Liberty* that I have at heart."

"*Old England is safe—that is—America, whither the true English retired under Charles I.*"

John Adams, 1756 :

"Soon after the Reformation, a few people came over into this New World for conscience sake. *Perhaps this apparently trivial incident may transfer the great seat of Empire to America; it looks likely to me.*"

"I always consider the settlement of America with reverence, as the opening of a grand scene and design in providence for the illumination of the ignorant and the emancipation of the slavish part of mankind all over the earth."

"I am well aware of the toil and blood and treasure that it will cost us to maintain this declaration (Independence, July 2, '76) and support and defend these States. Yet, through all the gloom, I can see the ray of ravishing light and glory, and that posterity will triumph in that day's transaction." \* \* \*

*"You must know that I have undertaken to prophecy that English will be the most respectable language in the world, and the most universally read and spoken in the next century, if not before the close of this."*

In reading this I am reminded of the words of the prophet: "They shall not be of a deeper speech than thou canst understand;" and I am moved to say also I predict that not only will the English language be the universal language, but that its system of weights and measures will so likewise be the universal system.

"A prospect into futurity in America is like contemplating the heavens through the telescope of Herschel. Objects stupendous in their magnitudes and motions strike us from all quarters and fill us with amazement."

\* \* *"Our pure, virtuous, public-spirited, federative republic will last forever, govern the globe and introduce the perfection of man."*

Abbé Raynal, 1770:

"Let the English clear the land, purify the air, change the climate, meliorate nature—a new universe will proceed from their hands for the glory and happiness of humanity."

Jonathan Shipley, 1773:

"My lords, I look upon North America as the only great nursery of freemen now left upon the earth."

"The true art of government consists in not governing too much."

Dean Tucker, 1774:

"Rather let the seat of empire be transferred, and let it be fixed where it ought to be, namely, in great America."

“Must they not, in the nature of things, cover in a few ages that immense continent like a swarm of bees?”

David Hartley, 1775 :

“*Let the only contention henceforward between Great Britain and America be, which shall exceed the other in zeal for establishing the fundamental rights of liberty for all mankind.*”

May the Lord grant this spirit to both peoples.

“*The fate of America is cast. You may bruise its heel, but you cannot crush its head. It may revive again. The New World is before them. Liberty is theirs.*”

Belonging to the Latin race, Galeani was entitled to speak thus freely :

“*The epoch has come of the total fall of Europe, and of transmigration to America.*”

Dr. Richard Price, 1784 :

\* \* \* “*A new era in future annals and a new opening beginning among the descendants of Englishmen in a New World. A rising empire extended over an immense continent without bishops, without nobles and without kings.*”

Governor Pownal, 1777 :

*To Franklin*:—“I congratulate you in particular, as chosen by Providence to be a principal instrument *in this great Revolution*—A REVOLUTION THAT HAS STRONGER MARKS OF DIVINE INTERPOSITION SUPERSEDING THE ORDINARY COURSE OF HUMAN AFFAIRS THAN ANY OTHER EVENT WHICH THIS WORLD HAS EXPERIENCED.”

Cerisiet, 1778-1780 :

Then addressing Englishmen directly, the Frenchman thus counsels :

“Englishmen ! It is necessary for you to submit to your destiny. To avoid giving them anxiety and to prevent all dispute in the future, have the courage to abandon to them the surrounding countries which have not yet thrown off your yoke. \* \* \* Let Canada make a fourteenth Confederate State.”

Never let it be with blood shed, we trust, but with a blessing to mother and child.

The Abbe Gregoire, 1808 :

“The American Continent asylum of liberty is moving

towards an order of things which will be common to the Antilles, and the cause of which all the powers combined cannot arrest."

This vigorous language is crowned by a prophecy of singular extent and precision when, after dwelling on the influences at work to accelerate progress, he fortells the eminence of our country.

"When an energetic and powerful nation, to which everything presages high destinies, stretching its arms upon the two oceans, Atlantic and Pacific, shall direct its vessels from one to the other side by an abridged route—it may be in cutting the Isthmus of Panama ; it may be in forming a canal communication, as has been proposed, by the river St. John and the Lake of Michigan—it will change the face of the commercial world and the face of empires. Who knows if America will not then avenge the outrages she has received, and if our old Europe placed in the rank of a subaltern power, will not become a colony of the New World ?"

Thus resting on the two oceans with a canal between, so that the early "secret of the strait" shall no longer exist, the American Republic will change the face of the world, and perhaps make Europe subaltern. Such was the vision of the French abolitionist lifted by devotion to humanity.

Of all the predictions in the book this is the most portentous: "The tongue of the Egyptian sea has been destroyed and the Suez canal has fallen into the hands of one branch of the family which possess the gates. And now the same spirit is endeavoring to set up a barrier to the domination of the Anglo-Saxon whose dominion has been predicted to extend from the 'icy capes of Labrador to the Spaniard's land of flowers,' and again to take in as one brotherhood co-equal all the realms to the frowning battlements of Cape Horn. The Panama canal is to present that barrier, but upon this question will come the mighty struggle, which '*will change the face of the commercial world and the face of empires.*' "

George Canning, 1826:

"The Monroe doctrine, as now familiarly called, proceeded from Canning ; he was its inventor, promoter and champion, at least, so far as it bears against European intervention in Ameri-

can affairs. Earnestly engaged in counteracting the designs of the Holy alliances for the secretion of the Spanish colonies to Spain."

\* \* \* "With mingled ardor and importunity the British minister pressed his case. At last after much discussion in the Cabinet at Washington, President Monroe accepting the lead of Mr. Canning, and with the counsel of John Quincy Adams, put forth his famous declaration, where after referring to the radical difference between the political system of Europe and America, he says that we should consider any attempt on their part to extend their system to any portion of this hemisphere as dangerous to our peace and safety, and that when Governments have been recognized by us as independent 'we could not view any interposition for the purpose of oppressing them, or controlling in any other light than as a manifestation of an unfriendly disposition toward the United States.'"

The message of President Monroe was received in England with enthusiastic rejoicing.

Said Canning:

\* \* \* \* \* "I called the New World into existence to redress the balance of the old."

"If the republics of Spanish America, thus summoned into independent existence, have not contributed the weight thus vaunted, the growing power of the United States is ample to compensate deficiencies on this continent. There is no balance of power it cannot redress."

Alexis de Tocqueville, 1835:

"So in the midst of the uncertainty of the future there is, at least, one event which is certain: At an epoch which we can call near, since it concerns the life of a people, the Anglo-Americans alone will cover all of the immense territory comprised between the polar ice and the tropics; they will spread from the shores of the Atlantic even to the coasts of the Southern Seas."

"There will then arrive a time when there will be seen in North America one hundred and fifty millions of men equal together, who will all belong to the same family, who will have the same point of departure, the same civilization, the same

language, the same religion, the same habits, the same manners, and over which thought will circulate in the same form and paint itself in the same colors. ALL ELSE IS DOUBTFUL, THIS IS CERTAIN. Here is a fact entirely new to the world, of which imagination can hardly seize the extent."

No American can fail to be strengthened in the future of the republic by the testimony of De Tocqueville. Honor and gratitude to his memory.

Richard Cobden, 1852:

*"I agree with you that nature has decided that Canada and the United States must become one for all purposes of free outer communication.."*

Why should he not have said the mother-country too, for are we not brethren. Conquest should never be breathed amongst us. National jealousy should never be tolerated, except the jealousy for right doing. Is not the Land of Liberty for all? Is there sacrifice in coming into one fold as brethren? If the Lord has set up his kingdom, then, as children of the kingdom, our hearts and arms should reach out to all. Why should not our prayers ascend for that gracious and noble woman the queen of Great Britain, Ireland and Scotland and empress of India. The Lord pulls down and he builds up the fortunes of individuals as well as nations. Why should not our prayers ascend for the prosperity of all kingdoms and powers, and that all should prosper that do his will. Firm in our conviction in the eternity of the government founded upon civil and religious LIBERTY which we possess, whilst we should guard its temple, our hearts and sympathies should go out to all of the nations of the globe of whatever kind with as broad and comprehensive a prayer as that of the Huguenots for that dreadful prince, the scourge of Almighty God to them, Louis XIV. For we know that all kingdoms and powers and peoples and races must become the followers of the Lord Jesus Christ and parts of his kingdom when he shall reign over the whole earth.

But I will pass on to the last quotation that I shall make from this invaluable contribution to our literature.

Lucas Alaman, Mexican statesman and historian, 1844:

It is on account of the valedictory words of this historian that I introduce the name of Alaman, and nothing more striking appears in this gallery. Behold:—

“Mexico will be without doubt a land of prosperity from its natural advantages, *but it will not be so for the races that now inhabit it.* As it seemed the destiny of the peoples who established themselves therein at different and remote epochs to perish from the face of it, having hardly a memory of their existence; even as the nation which built the edifices of Palenque, and those which we admire in the peninsula of Yucatan, was destroyed without its being known what it was nor how it disappeared; *even as the Toltecs perished by the hands of barbarous tribes coming from the north,* no record of them remaining but the pyramids of Cholulu and Teotihuacan; and, finally, even as the ancient Mexicans fell beneath the power of the Spaniards, *the country gaining infinitely by the change of dominion, but its ancient masters being overthrown,* so, likewise, its present inhabitants shall be ruined, and hardly obtain the compassion they have merited, and the Mexican nation of our days shall have applied to it what a celebrated Latin poet said of one of the most famous personages of Roman history, ‘*Stat magni nominis umbra.*’ Nothing more remains than the shadow of a name illustrious in another time. May the Almighty, in whose hands is the fate of nations, and who, by ways hidden from our sight, abases or exalts them according to the designs of His providence, be pleased to grant unto ours the protection by which He has so often designed to preserve it from the dangers to which it has been exposed.”

“Most affecting word of prophecy,” says Mr. Sumner, and so it is—but God has given us the duty to bless them and make them even as brethren, co-heirs with us, if they will accept.”

Conclusion of Mr. Sumner:

“Such are the prophetic voices, differing in character and importance, but all having one augury and opening one vista, illimitable in extent and vastness. Well did Webster say:

'The prophecies and the poets are with us.' And again, with regard to this country, there is no poetry like the poetry of events, and all the prophecies lag behind the fulfilment; but my purpose is not with the fulfilment, except as it stands forth visible to all.

"All these various voices, of different times and lands, mingle and intertwine in representing the great future of our Republic, which from small beginnings has already become great. It was at first only *a grain of mustard seed, which is indeed* the least of all seeds, but when it is grown it is the greatest among herbs and becomes a tree, so that the birds of the air come and lodge in the branches thereof. Better still, it was only *a little leaven*, but it is fast leavening the whole continent."

Here Mr. Sumner gives the strongest evidence of the theory original with me, but especially announced by Jesse H. Jones, and before less distinctly by some of the prophetic voices quoted by Mr. Sumner; and I have frequently used the same simile, viz.: that the work of our Pilgrim fathers is the leaven which has leavened the whole lump, and that this foundation upon Plymouth rock by God's people establishes the kingdom of God; the New World was the mustard seed, and to be used not as a mere simile but as the positive, unqualified fulfilment of the Lord's prophecy—that the kingdom of heaven was like leaven and like a mustard seed.

Charles Sumner concludes thus: "God bless the words, and may He keep our statesmen from ever deviating from that which is the highest and noblest, that which is worthy of the kingdom which Jesus Christ came to set up upon the earth."

"It is easy to see that empire obtained by force is non-republican and offensive to the first principle of our Union, according to which all just government stands only on the consent of the governed. Our country needs no such ally as war. Its destiny is mightier than war. Through peace it will have everything. This is our talisman: give us peace and population will increase beyond all experience; resources of all kinds will multiply infinitely with immortal beauty; the name of Republic will be exalted until every neighbor, yielding to irresistible attraction,



seeks new life in becoming part of the great whole, and the national example will be more puissant than army or navy for the conquest of the world."

CHARLES LATIMER.

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THE ALTAR AND PILLAR TO JEHOVAH.

VII.

A curious and highly instructive illustration of the convertibility of a treasury-stronghold into a monumental tomb, and that, too, not always for the king, but sometimes for his treasurer, is this in the 22nd chapter of Isaiah: "Thus saith the Lord Jehovah of hosts, Go get thee unto this treasurer, even unto Shebna, who is over the house, and say, What hast thou here, and whom hast thou here, that thou hast hewed thee out a sepulcher here, as he that heweth him out a sepulcher on high, and that graveth an habitation for himself in a rock? Behold, Jehovah, who covered thee with an excellent covering, and clothed thee gorgeously, shall surely whirl and toss thee like a ball into a large country: there shalt thou die, and there the chariots of thy glory shall be the shame of thy lord's house. And I will drive thee from thy station, and from thy state shall he pull thee down. And it shall come to pass in that day, that I will call my servant Eliakim, the son of Hilkiab: and I will clothe him with thy robe, and strengthen him with thy girdle, and I will commit thy government into his hand; and he shall be a father to the inhabitants of Jerusalem, and to the house of Judah. And the key of the house of David will I lay upon his shoulders; so he shall open, and none shall shut, and he shall shut, and none shall open. And I will fasten him with a nail in a sure place; and he shall be for a glorious throne to his father's house. And they shall rest upon him all the glory of his father's house, the offspring and the issue, all vessels of small quantity, from vessels of cups, even unto all the vessels of flagons. In that day, saith Jehovah of hosts,

shall that which is [now] fastened with the nail in the sure place be removed, and be thrust down a descent; and the burden that was upon it shall be thrust out: for Jehovah hath spoken it."

This address to Shebna, which we have rendered according to the marginal reading and the rule of consistency, naturally divides itself into three parts;—the first part, in which Shebna is compared with some person in a like position and office with himself; the second in which his destiny is the reverse of his expectations, because deservedly the reverse of that of the treasurer with whom he is compared; and the third, in which Eliakim is made treasurer in place of Shebna, apparently for no other reason than because of sufficiently resembling in character the treasurer with whom Shebna is compared to lawfully imitate him in actions. The prophet refrains from mentioning the name and treasury of the person with whom he makes the comparisons, probably because the great treasurer's identity, and his sacred treasures of wisdom and virtue, were not to be revealed until the fullness of times, when they would be ultimated and fulfilled in the Christ, and in his revelation of those mysteries of the Kingdom of Heaven which the Christ assured His disciples it was given them to know.

Perhaps the greatest difficulty in the way of a clear understanding of the above address to Shebna is that the example which he is charged with having unwarrantably imitated is referred to in the present tense; but this difficulty is greatly lessened by the reflection that the example must, in the very nature of things, be regarded as historic. According to Lange's Commentary, the incongruity is explainable by evidence of a poetic construction in the part of the sentence in which it occurs, going to show that it is a quotation from some ancient poem, probably written contemporaneously with the event alluded to. It may be a quotation from the chant of a masonic ritual, accompanying performances commemorative of those of the first master-mason, enacted by the members of a fraternity into which the kings and treasurers of the house of David were initiated by the prophets, who constituted its highest order, "the school of the prophets," and who were the only persons

able to penetrate its deepest and most sacred mysteries. Certainly language implying the occurrence of an example after the imitation of it requires explanation; and if this poetic theory be not the true one, or even if it is, there may be this other explanation of it, namely, that there was a sort of immortality belonging to the example, as to something inspired, like that which makes us refer in the present tense to Isaiah's reference to it in the present, or like that which makes us speak of what John says in the Revelation, or of what David says in the Psalms, notwithstanding the fact that these inspired men wrote so long ago, and have been dead to the external world hundreds and thousands of years.

A still more definite and appropriate example of the preterit in the present is that of the "first martyr" of our race, in "actions that speak louder than words." "By faith Abel offered unto God a more excellent sacrifice than Cain, by which he obtained witness that he was righteous, God testifying of his gifts; and by it, though dead, he yet speaketh." (Heb. xi: 4). In like manner, by faith in the righteousness of the Lamb of God, a later "keeper of sheep" than Abel, the Shepherd Philition, built an altar typical of that on which was to be offered the "Lamb slain from the foundation of the world," near to the altars on which the Cainitish tillers of the ground offered to the gods "the fruits of the earth," their "radishes, onions and garlics"; and, anticipating the conversion of his Great Altar of Sacrifice into the Great Altar of Witness, under cover of its "head and hairs like the pure wool," and of its "garment white as snow" from the head "down to the foot," the prototypal "shepherd of Israel" hewed him out "a sepulcher on high," and graved "a habitation for himself in a rock," to signify the faith by which he obtained witness of the appropriation and the righteousness of the Lamb of God to himself, to clothe his nakedness, in the absence of all righteousness of his own, and to shelter him from the impending retribution of God's righteous law in the day of judgment. And so, too, of that faith and righteousness, even more than of the proportions and commensurabilities of mathematics and astronomy, the Shepherd Philition, though dead long before the time of

Shebna, yet spake to Isaiah, and "yet speaketh" to us, in the masterwork of his hands, demonstrating the eternal truth of the words of Jehovah to the children of Israel, "This is my Name forever, and this is my Memorial unto all generations."

But I did not reach this grand conclusion by so long a stride, and cannot expect my readers to do so. Let us therefore proceed step by step, making sure of the ground on which we tread, till the last step shall have brought us to our destination, the final truth in the matter, whether it accords with my theory of the uses and builder of the Great Pyramid or not. The steps to be taken appear to be these: (1) Shebna's office; (2) his place, to which Isaiah was to go to find him; (3) what he had there; (4) whom he had there; (5) what he had done there; (6) the logical connection between the possessions and the deed; (7) the person with whom Shebna is compared; (8) his sepulcher on high; (9) his habitation in a rock; (10) the sense in which he may have been said to hew out and grave them, as in a solid rock, in a superstructure of individual stones; (11) what he must have had in the one, and who in the other, to justify his making them for himself rather than for his king; (12) significance of the honors conferred on Shebna in the light of his forfeiture of them and their bestowal on another; (13) likeness of Eliakim to somebody as to a type of the Christ; (14) the conclusion.

(1) *Shebna's office.* It was that of treasurer to King Hezekiah at the beginning of his reign; and to be treasurer of the house of David was to be Prime Minister, or what in Turkey is called Grand Vizier. That this is so is easily seen when we reflect that sovereign power lies in the means essential to its exercise, and that whoever in those days was intrusted with the care and management of the royal finances, to increase and expend them in accordance with his own good will and pleasure, was invested with the supreme control, so long as he retained the confidence of his king. This makes the treasury and the kingdom in a manner synonymous with each other; and to be "over the house" was to be over both, though the phrase was sometimes used in relation to the one, and sometimes to

the other. Lange says: "The office seems to have been the highest under the king, as was the case in Egypt, when Pharaoh said to Joseph, 'Thou shalt be over my house; only in the throne will I be greater than thou.' (Gen. xli: 40)." Supposing the primary meaning of "the house" to have been the treasury, Pharaoh's "house" and his "throne," the one under Joseph and the other under himself, represented the actual and the nominal rulership of his kingdom; and so absolute was the delegation of power to Joseph's superior wisdom and goodness that only in name was the king greater than his viceroy.

That by "the house" over which Shebna presided was primarily meant the treasury, and that by inference this is what is meant by "the house" over which Joseph presided, may be seen by comparison with "the house," "secret place" or "tower" in which the business functionary of the Prophet Elisha bestowed the sacrilegious fruits of his covetousness. (2 Kings, v: 124). Another illustration is "the house of Baalberith," which is shown by the circumstances connected with it to have been both a tower and a treasury, constituting a treasury-stronghold. (Judges, ix: 4). But the most positive proof that the primary sense of the phrase "over the house" is over the treasury is the following in Isaiah, concerning the treasury of Hezekiah, which in all probability was the one in which Shebna had hewed himself out a sepulcher, in imitation of a treasurer who had done the like elsewhere. The proof to which I refer is this: "At that time Merodach-Baladan, the son of Baladan, the King of Babylon, sent letters and a present to King Hezekiah, for he had heard that he had been sick, and was recovered. And Hezekiah was glad of them, and showed [the messengers] the house of his precious things, the silver, and the gold, and the spices, and the precious ointment, and all the house of his armor, and all that was found in his treasures; there was nothing in his house, or in all his dominion, that Hezekiah showed them not. Then came Isaiah the Prophet unto King Hezekiah and said unto him: What said these men? and from whence came they unto thee? And Hezekiah said: They are come from a far country unto me, even

from Babylon. Then said he: What have they seen in thine house? And Hezekiah answered: All that is in mine house have they seen: there is nothing among my treasures that I have not showed them. Then said Isaiah to Hezekiah: Hear the word of Jehovah of hosts: Behold, the days come, that all that is in thine house, and that which thy fathers have laid up in store until this day, shall be carried to Babylon: nothing shall be left, saith Jehovah." (Isa. xxxix: 1-6).

After such clear proof that "the house" over which the King's Prime Minister presided was his "treasury," I think I may reasonably quote "the Shepherd, the Stone of Israel," as referring to Joseph and his Great Treasury-Stronghold, and to their defiance of the inundation of the Nile, when he said to his disciples, "Every one that cometh unto me, and heareth my words, and doeth them, I will show you to whom he is like: he is like a man building a house, who digged and went deep, and laid a foundation upon the rock: and when a flood arose, the stream broke against that house, and could not shake it, because it had been founded upon the rock." (Luke vi. 47, 48.) The idea that "that house" was a treasury derives additional support from the fact that it is presented as a figurative illustration of the spiritual teaching immediately preceding it: "The good man, out of the good treasure of his heart, bringeth forth that which is good; and the evil man, out of the evil treasure of his heart, bringeth forth that which is evil: for out of the abundance of the heart his mouth speaketh." A treasury-stronghold, like a mastaba, is also evidently meant by "the house," in the words of our Lord: "But this ye know, that if the master of the house had known in what watch the thief would come, he would have watched, and would not have suffered his house to be digged through." (Mat. xxiv. 43.)

(2.) *Shebna's place.* Now that "the house" is seen to be the treasury, "Go, get thee to this treasurer, even to Shebna, who is over the house," is as specific a direction for finding him as for determining the nature of his office. Lange says, "The thrice repeated '*here*,' intimates that the place was a select one, not standing open to every person." Indeed, the awful question of the man of God, "What hast thou here, and whom

hast thou here, that thou hast hewed thee out a sepulcher here?" more than intimates that even the treasurer himself might have become guilty of profane intrusion, and was in this more responsible to the prophet than to the king. Conversion of the treasury-stronghold into a monumental tomb was something too sacred and solemn to be undertaken for the gratification of any mere selfish or worldly ambition, or for anything less noble and self-sacrificing than the glory of God and the good of mankind. Let us therefore consider what Shebna's answer to these questions must have been.

(3). *What Shebna had there.* The only treasures there, about ten years after this question, were those which King Hezekiah, in the unsuspecting gratitude and generosity of his heart, so foolishly exposed to the deceitful spies of the hypocritical King of Babylon; and of these, though some were consecrated to Jehovah, and though some were for the anointing and embalming of the dead, none belonged to Shebna, but all pertained to the house of David, of which the heir and representative was Hezekiah.

(4). *Whom Shebna had there.* I think he had there a so-called Shebna, a sort of Baal-berith, standing in a niche of the sepulcher which he had there hewed out for himself, near to the sarcophagus in which he intended his body to be laid when it should be anointed and embalmed for the burial, all in accordance with the fashion of deification in the land of Egypt, the country with which Judea was at that time disposed to enter into intimate alliance, both military and religious, against Assyria and Babylon. I am aware of the boast of the Egyptian priests to Herodotus, that the gods of Egypt, unlike those of Greece, had never lived on earth; but, in the light of abundant proof to the contrary of this, it can only be looked upon as an implicit recognition of the superiority of the Divine Trinity of the Hebrews, with whose claim on the hearts and lives of mankind they had good reason to be considerably acquainted. Notwithstanding this, however, the Israelites were forever relapsing into the idolatry of the Egyptians, and there is nothing improbable in the supposition that Shebna was ambitious of such a place among the gods as had been accorded

by the Egyptians to the greatest of their benefactors, the man whom a certain Pharaoh made ruler over his house, and over all the land of Egypt. I allude to the opinion put forth by Professor Bush, not without the support of other learned commentators, that Osiris, Apis, Sirapis or Osirapis, was the Egyptian representation of Joseph, whose symbol in the escutcheon of the twelve tribes of Israel was Taurus, affording to the Egyptians what seemed to them good reasons for his transportation to the constellation of the Pleiades, and for their worship of him on earth, especially in Memphis, the place of his residence, under the form of a sacred bull, born again, with certain distinguishing marks, every twenty-five years. Whether intentionally or not, he was mythologically incarnated in successive periods of as many years as there were inches in his sacred cubit.

Of course, I cannot suppose the deification of Joseph, under the name of Osiris, without supposing that of Asenath, the wife of Joseph, under the name of Isis. Mr. Latimer thinks that the originals of Osiris and Isis were Adam and Eve. If God put Joseph where he put Adam (and that he did I hope to show under the head of "The Midst of the Land of Egypt"), we may believe that he inspired him not only with the design and execution of the "altar and pillar to Jehovah," in memory of the "trees of Life and Knowledge in the midst of the garden," but with the idea of naming his wife in memory of Eve, whom Adam "called Isha, because she was taken out of Ish." It is easy to imagine the conversion of Isha into Isis, when we remember that the temple and principal worship of Isis was at Sais, in the Nile delta. Some writers speak of Isis as identical with Neith, and of the inscription over the door of her temple and on the pedestal of her statue, "I am one and all things, all that has been and all that will be, and no mortal has hitherto taken off my veil," as being the inscription on the temple and pedestal of Neith, representing Dame Nature. Neith was not only chiefly worshiped at Sais, but was the "mother of the sun-god," *i. e.*, of Horus, son of Isis. But what have these two names and their associations to do with "Asenath, the daughter of Poti-



pherah, Priest of the City of the Sun"? Their combination gives us Isha-Neith, the first of which I take to be a prefix bestowed by Joseph in memory of "the mother of all living," and the last of which is most likely to have been the name bestowed on her by her parents. Seeing how easily in ancient times one vowel was substituted for another, and how often it was found expedient to omit a cumbersome *h*, the steps by which Isha-Neith became converted into Asenath can be easily traced. I even think that the name Osiris may be similarly accounted for. Joseph, as rendered by the Saracenic element of the language of Isa-bellea, is "José," and in the pronunciation all that is left of it is "Osé." I therefore think that "Ūs" was deemed to be, as it really was and is, all that was essential of the name Joseph; and my next thought is that "Iris" was Isis converted into a suffix, signifying in Egypt, as afterward in Greece, a prismatic halo, an iridescent chromosphere, a concatenation of glorious circles mathematically derived from the radiant lines and angles of "the terrible crystal." As to the children of Isis and Osiris, they were just three, the number born to Asenath and Joseph; and of the three, Horus, the youngest and the only one really worshipped, is likely to have been the ancestor of the Copts, the "issue" born to Joseph after Ephraim and Manasseh. According to this, the "king who knew not Joseph" was the king who so thoroughly misunderstood him as to deify him, reopening the idolatrous temples for the sake of adding him to the Egyptian pantheon, at the same time demonizing and enslaving his brethren under the name and form of the monster Typhon, with a serpent-entwined body and a hundred snaky fingers, because of the mingled malignity and avarice which prompted them to meditate his death and sell him into slavery. The 10 x 10 digits of the guilty brotherhood, who "hated him because of his dreams," were the 100 of the brother of Osiris.

Everything said about Osiris favors the idea that he was a deified representation of Joseph. Murray's 'Manual of Mythology' says: "The worship of Osiris was universal throughout Egypt, where he was gratefully regarded as the great example of self-sacrifice, as the manifester of good, as the opener

of truth, and as being full of goodness and truth." It reminds us of "Zaphnath-paaneah;" and who better fitted to be the builder of the Great Pyramid, in the estimation of those who claim it for their inheritance? His sleep of death in the heart of a mountain, awaiting his resurrection and victory over Typhon, is analagous to my idea of Joseph's sleep of death in the granite sarcophagus in the king's chamber. The story that "his dead body was fitted into a chest, thrown into the Nile, and swept out to sea," is connected with the search for him by Isis throughout the world, and may refer to the abstraction of his bones from the "coffin in Egypt" by Moses, whose ark of bulrushes was committed to the Nile, and who was "called Moses because he was drawn out of the water." At all events, there appears to be no authentic evidence of Isis and Osiris in the Egyptian mythology until after the death of Joseph. They are said to be "deities of the second cycle." On no other supposition than that they were the deified ancestors of Ephraim and Manasseh, and had been so for over a hundred years, can we reasonably account for the molten and graven image of the young Apis made by Aaron at the foot of Mount Sinai, in compliance with the demand of the children of Israel: "Up, make us gods, which shall go before us; for as for this Moses, the man that brought us up out of the land of Egypt, we wot not what has become of him." And on no other principle can we rationally explain the declaration: "These be thy gods, O Israel, which brought thee up out of the land of Egypt." (Ex. xxxii, 4). The Israelites could not have been so foolish as to credit the gods of Egypt with having brought them up out of Egypt, and Aaron could not have been so absurd as to build an altar of sacrifice to Jehovah before the golden calf, proclaiming before it, "To-morrow is a feast to Jehovah," if they had not recognized in that molten and graven image of the Egyptian Apis a representation of deified personages more nearly related and friendly to the Israelites than to the Egyptians, and more closely allied to "the Jehovah Gods of Israel" than to Neph, Amun, Pthah, Khem, Sati, Maut, Baubastis, or any of the other original and more distinctively Egyptian deities, of whom each and all would naturally be partial to the Egyptians

rather than to the Israelites. If Joseph was the builder of the "memorial" on which the name of "Jehovah Elohim" was inscribed, and if his bones, which the children of Israel had with them, were taken therefrom, it is not so very strange that they easily associated him with the Jehovah Gods of Abraham, of Isaac, and of Jacob, and were ready to accept him as their leader, under the visible form of "the firstling of his bullock," until the reappearance of Moses, with the tables of the law, to correct their mistake. Jehovah wished them to "honor," not to worship, their "father and mother," and therefore prohibited the substitution of "graven images, the work of men's hands," for the "image and likeness" of the Divine Love and Wisdom, the work of the Holy Spirit. The image of Shebna in the sepulcher which he had hewed out for himself in the treasury over which he presided, if he had one there, was offensive to Jehovah, because false to nature, as were all the images of that day, thus being liable to become an object of idolatry, instead of being a medium of access to the features and character of the human original.

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## METROLOGY.

Metrology is the science of weight and measure. In view of the discord that prevails in the numerous systems of weight and measure now in use, it can hardly be said that they are worthy of classification with the sciences. In philosophy, chemistry and astronomy, natural law is the foundation. Could the "weights and measures" of the world be put upon a similar basis they would be entitled to a respectable place in the catalogue of sciences, and great advantage would accrue from a corresponding readjustment of the now discordant metrologies.

In the discussion of this subject we lay down the following principles as essential to a perfect system of metrology:

First. The prime unit, or standard of the system, must be a determinable quantity.

Second. This standard must have a simple, and definite relation to the physical world; it must be cosmic.

Third. The several orders or branches of the system and their numerical subdivisions must be in simple and definite relation to one another.

Fourth. Fractional relations must be avoided as far as possible between two consecutive subdivisions.

Fifth. The subdivisions must be of practical convenience. Of several systems that equally combine these elementary principles, that is to be preferred which involves the least disturbance of existing metrological use.

Under the first rule, that the prime unit or standard be a determinable quantity, it is evident that this unit should not be the lowest of the subdivisions, because a small error in practically obtaining it would be greatly multiplied in the higher subdivisions. A pound rather than a grain should be taken as the unit of weight, and a foot or a yard rather than an inch as the prime unit of measure.

Under the second rule we meet a practical difficulty. To

derive a prime unit or standard from the physical world requires a close observation of many facts. Take as an illustration the British standard gallon, liquid measure. It is 231 cubic inches of distilled water at its maximum density  $39.83^{\circ}$  Fahrenheit, the barometer being at 30 inches. This quantity of water is defined as weighing 58,373 Troy grains. In this definition of a standard gallon we have four distinct orders or branches of metrology; linear measure, heat measure, atmospheric density, and gravity or weight. But even this is not complete, for gravity varies with a change of latitude and of level above or below sea level. A complete definition therefore involves the use of circular measure to indicate the latitude. From this it will be seen that the different denominations and orders of a system of metrology are necessarily co-related.

The importance of an exact and fixed prime unit or standard by which the secondary units of the system are defined and all its branches are united in mathematical relation is too manifest to need enforcing. The only question open to consideration under the second rule is what the prime standard of the system shall be, a weight unit, a heat unit, a capacity unit, a linear unit or a time unit. If the prime unit be established we may proceed to build upon it a system of metrology embracing denominations of whatever kind may be deemed needful.

What then shall be the prime unit? Evidently one that can be obtained with the least possibility of error. Regard being had to the accuracy of measurement, and the physical world as the source from which to derive this unit, it appears that it should be a straight line derived from a measure of time or the circular motion of the earth.

The prime unit of the French metrology is the metre. It is an approximate computation of one ten-millionth of a meridional quadrant of the earth, based upon the actual survey of meridional arcs. The exceeding difficulty attending such a survey, the unknown form of the earth, and the manifest differences in the curvature of the arcs even in the same latitude, cast a grave doubt upon the result. Similar difficulties would attend the effort to establish a prime unit on the basis of a longitudinal measurement of the earth. Laying aside, then, all geo-

detic processes as an uncertain basis of metrology, let us see what a time unit may produce.

It will be admitted that nothing can be more accurately measured than time. The mechanical instrument for its measurement is the pendulum. A pendulum that makes 86,400 vibrations in one mean solar day is called a seconds pendulum. Its length depends upon its geographical position: the nearer the equator or the higher above sea level, the shorter it must be. It has been found by experiment that a seconds pendulum at London is 39.13929 inches. A loss of one vibration in twenty-four hours indicates an increase of one one-thousandth of an inch in its length. The loss of one vibration in forty-eight hours indicates an increase of one twenty-five hundredth of an inch. This is sufficient to show how great accuracy can be obtained by using the pendulum, in connection with the diurnal revolution of the earth, to determine the prime unit or standard of measure.

It may be objected to this method that there is great difficulty in taking the measure of a mean solar day, the difference in two consecutive days exceeding sometimes twenty seconds. But this difficulty is overcome if the pendulum observations be made with reference to a sidereal day. Having found the number of vibrations in a sidereal day it is simply a matter of mathematical computation to determine what must be the length of a pendulum making 86,400 vibrations in a mean solar day at the place of observations. The only point left for consideration is, where shall that place be, at London, Paris, or Washington? Shall it be at sea level or some point inland? The place is of less importance in a system of metrology than the length of the pendulum.

If we resort to a seconds pendulum for a prime unit, the standard of our metrological system will be closely related to the specific gravity of the earth, and especially to the subdivision of the circle into degrees, minutes, and seconds. Evidently the subdivision of time and circular measure should be without fractions. This is the case in our present system; 86,400 seconds of time correspond exactly to 1,296,000 seconds of the circle. Whatever changes may have taken place

in other branches of ancient metrology, these divisions of time and the circle have remained intact. We shall not undertake to change them or depart from them.

Taking then 86,400 pendulum vibrations as the standard measure of a mean solar day, the length of such a pendulum will depend upon its geographical position. By experiment it has been found to be 39.13929 inches at London, and by computation 39.0152 at the equator. Whatever be the length, from which to derive the prime unit, it must be between 39 and  $39\frac{1}{4}$  inches, at any conveniently accessible point for observations. From a critical review of pendulum vibrations, observed in different latitudes between London and the equator, it appears that the length of a seconds pendulum at Gizeh, in Egypt, at the level of the king's chamber, is 39.0625 inches. The mathematical formula for the value of gravity on which the vibrations depend is  $g = \pi^2 l$ ,  $g$  representing gravity in feet and  $l$  the length of the seconds pendulum in feet. The equation may be put in the following form:  $\sqrt{g} = \pi\sqrt{l}$ . Hence at Gizeh  $\sqrt{g} = \pi\sqrt{\frac{39.0625}{12}} = 5.66812$ . In this formula  $g$  is apparent gravity; something must be added to express true gravity or mean density of the earth, on account of the centrifugal tendency of the motion of the earth to diminish the real weight of bodies as they approach the equator. The value, 5.66812, we have obtained for the square root of apparent gravity in latitude  $29^\circ 58' 51''$  thus corrected is nearly 5.69. In the Royal Society proceedings for 1878 Mr. Joule obtained, from new experiments, a modification of Bailey's result, and brought 5.69 for mean density of the earth. (Since the above was written, a reply from Colonel Herschel, in answer to enquiries put to him by Professor Smyth in regard to the value of gravity at the Great Pyramid, says that a five seconds pendulum there is 976.65 inches long, and a stone in five seconds falls 401.625 feet. According to this the length of a seconds pendulum would be  $401.625 \div 5^2 \times 2\pi^2 \div 12 = 39.06539$ . Colonel Herschel's computation may be based upon the mean meridional curvature of the earth at sea level; if so, a seconds pendulum in the kings chamber, vibrating in the air, must be  $39.06539 - .0025 = 39.06289$ . The slight difference of .00039 between this and

39.0625 might be quite eliminated by local causes, or if Colonel Herschel should base his computations on the meridional curvature of longitude E.  $31^{\circ}$ .

The advantage of this pendulum length, 39.0625, in relation to Anglo-Saxon metrology is evident from the fact that, if it be divided into 625 equal parts, each part is exactly  $\frac{1}{8}$  inch. The inch and foot rules are thus obtained in pendulum units clear of fractions. It may be well to notice here the coincidence of the number of subdivisions of this seconds pendulum 625 and the number of pounds averdupois in ten cubic feet of rain water, 625. If we were to construct a scientific system of metrology that would be nearly or quite identical with Anglo-Saxon weights and measures, we might take the seconds pendulum at Gizeh as our prime standard. The British Government sixty years ago recognized the value of a pendulum standard in declaring the number of inches in a seconds pendulum vibrating in a vacuum at sea level in the latitude of London to be 39.13929 inches. Not only is the practical part of this definition as a reference standard inconvenient, but it requires a very nice determination of the two parts of measurement, viz: the centre of oscillation and the centre of gravity of the pendulum, which may have led the British government, in 1855, to omit the pendulum clause from the act fixing a standard. Could we dispense with the necessity of finding these centres and still reach a definite result, the chief objections to a pendulum standard would disappear.

On examining the Gizeh pendulum of 39.0625 inches we find that if a shorter length be used so that the vibrations are 100 instead of 60 per minute, the difference in the length of the two pendulums is exactly 25 inches. The formula for the computation is  $100^2:60^2::39.0625:14.0625$ . This differential of 25 inches may be taken as a prime unit, or standard of measure, and this method of determining the standard might be called the differential-pendulum method. The period of a sidereal day may be determined by direct observation within 1-10th of a second of time. Admitting this limit of error, our differential of 25 inches would be  $25 \pm .000008$ , which is less than half the error arising from computations based on transit obser-



vations ten degrees apart on the same parallel of latitude, leaving out the possibility of errors in surveying the distance between the two points of observation. The apparatus for practically determining the measure of our differential is not complicated. First, a simple pendulum vibrating seconds at Gizeh. Another pendulum of such weight of disc and extreme lightness of rod that in shortning the rod twenty-five inches there will be no appreciable change of the centre of gravity. Let this be adjusted to synchronize with the seconds pendulum. Then lift it through its bearings till the vibrations are 100 instead of 60 per minute, every fifth vibration of the shorter synchronizing with every third vibration of the longer pendulum. The distance it is thus lifted will be 25 inches by observation, with a possible error of  $\pm .0001$  inch, or 1 250,000th part of the entire 25 inches. If the observations be continued through twenty-four hours, planetary or cosmic influences which might affect the number of vibrations, will be neutralized. Transfer these pendulums to London and the seconds pendulum of Gizeh will make 60.059 vibrations a minute, and the shorter one, making 100.059 a minute, will indicate a differential of 24.99 instead of 25 inches. At the equator, the differential corresponding to a difference of 40 vibrations per minute will be 25.007 inches. It appears therefore that if a Gizeh differential-pendulum measure, 25 inches as here given, were adopted as a prime standard of linear measure, with a small correction of 1-1000th of an inch for a difference of  $3^\circ$  of latitude, we would have an international standard convenient for reference in any part of the civilized world, and in accord with the first and second rules laid down at the beginning of this essay.

We come now to consider the third rule, viz: The several orders or branches of the system and their numerical subdivisions must be in simple and definite relation to one another. This rule finds an illustration in the correlation of time and circular measures, 1 second of time equals 15 seconds of the circle. The test is severe when brought to bear upon every branch in a system of metrology; and it might result in casting out certain special kinds of measures as useless and cumbersome. We have accepted 1,296,000" as the numerical base

of circular measure, and 86,400 seconds as the numerical base of time measure. To these we may add the Gizeh differential-pendulum standard, subdivided into 625 equal parts, of which 16 make exactly 1 British inch. Our object now is to establish a simple and definite relation between 1,296,000, the base of circular measure, and other branches of the system. The means which we shall use to this end is the inch, or 1.25th of our pendulum differential. A circle having a circumference of  $\frac{1296000}{10}$  inches has a diameter of 41252.95. The half side of the inscribed square is 14585.121, and the half of this is  $7292.56 = (9.00105) \times 10^8$ . Let 7292.56 represent the number of units, or, say grains, in 1 pint of water. On this basis we may construct a table of fluid measure that will bear a simple and definite relation to the base of circular measure, and the specific gravity of the earth, and yet differ from present Anglo-Saxon use by only 1.5 grains in a pint.

TABLE OF FLUID MEASURES.

6 drops	= 1 gravit	=	5.6973	grains.....	U. S. Dispensatory.
10 gravits	= 1 drachm	=	56.973	"	56.9618
8 drachms	= 1 ounce	=	455.785	"	455.6944
4 ounces	= 1 gill	=	1823.140	"	1822.7776
4 gills	= 1 pint	=	7292.560	"	7291.1104
2 pints	= 1 quart	=	14585.121	"	14582.2208
4 quarts	= 1 gallon	=	58340.484	"	58328.8832

The remarkably close agreement of our table with that given in the United States Dispensatory for the same measures will be observed. Notice may also be made of what we term gravit measure, one-tenth of a drachm, 5.6973 which is very nearly, if not exactly the numerical expression of the specific gravity of the earth.

One of the most important divisions of Anglo Saxon metrology in present use is the bushel with its subdivisions. The volume of the Winchester bushel, United States standard, is 2150.3955 cubic inches = 1.244 cubic feet, and contains 77.627413 pounds distilled water at maximum density. A cubic foot of rain-water weighs 62.5 avoirdupois pounds (Haskell), and 1.2444 cubic feet weigh 77.7775 pounds, which is very nearly equal to 5.65812, apparent gravity in the king's

chamber multiplied by 100000 and divided by 7292.56, the number of grains in 1 pint of water, or the ancient equivalent of 1 pound. The authorities I have for the weight of a cubic foot of distilled water do not agree: a mean would make the coincidence much closer between the pound weight of 2150,3955 cubic inches of rain-water and the pint pounds found by the formula  $\frac{5.66812}{7292.56} \times 100,000 = 77.7248$ . It is therefore worthy of remark that a change of about ten grains in our standard bushel would make it correlate perfectly with the apparent value of gravity in lat.  $29^{\circ} 58' 51''$ . Could the pint of water and pound of avoirdupois be identical, it might be of great advantage as well as of practical convenience in metrological use.

The relations of square measure, cubic measure and linear measure, the inch unit in Anglo Saxon metrology, are well understood. It is to be hoped that the historical and monumental evidences of the antiquity of our system of weights will be thoroughly investigated before we consent to allow it to be superceded by any other.

H. G. WOOD.

## CHEOPS AND JEZEEH.

Cheops is an Egyptian word with a Greek orthography. The orthography is not only Greek, but the conception which it describes is a degeneracy, indicating a mode of thought which could not comprehend the true idea as built into the Great Pyramid. The Greeks never could comprehend true philosophy. Besides, even the Egyptians, in the age of Herodotus, and even in the days of Isaiah, had become so degenerated from the archaic philosophy of their fathers that they could not comprehend the truth as taught by the original princes of Noph-Nouff, or Knoph. (Isaiah, chap. xix).

The *ch* is a Greek and Aeolic compound glyph, and, even in English, always describes that which rules in discrimination. The *ops* is Latin, and original Egyptian. It describes the essential in position. *That which is in fixed discrimination of the essential* is a very good definition of Cheops. But I do not think it exactly describes the truth or the original conception.

I take the original word to be Kiops. The *k* is archaic, and Accadian in every sense; and it represents that prime element in language which describes holding in containment, and carrying in the holding, and, with the vowel *i*, the symbol of likeness and similitude, we have this description: that which, in its own being, holds and carries, in similitude, the first or prime essential in manifestation and exposition. In this sense the Pyramid carries, in self-exposition, Jehovah's essential philosophy of numbers and structure, even to its moral and spiritual archetype. The Pyramid theorem is the essence of geometry, as it is built into cosmos "in measure, in numbers and in weight;" and it is a truth which should be kept in mind, that morals obtain their standard in the conception of right; right lines or measure, "exact" numbers, finite and intelligible, and just weights—that which is balanced and equal. This is the prime truth in structural cosmos. It is the prime truth in all moral

apprehensions, and hence the fact, an "irrational" geometry, and an "incommensurable" standard of "right," "exact" and "just," must be the breeder of all kinds of infidelity to the truth.

This Kiops conception, as exemplified in structure, carries itself even to the spiritual thought. Right, exact and just in mathematics develop into right, exact and just in morals, and in this the mind is carried to the archetype in the spirit of the meaning and design; and to the Divine Spirit, which is the fullness or the fulfilling of the entire conception in exemplification. In this sense this Pyramid is God manifest, not in the flesh, but in material exposition in stone, exemplifying or imaging the essential perfection of structural cosmos, and moral cosmos, and spiritual cosmos, as Jehovah has created them, in numbers, in measures and in weight, according to intelligent design.

God, in all his wonderful works, is always correlating himself, and even into man's intellectual being this truth is so fixed that we all feel that we are seeking truth. "But what is truth?" All truth leads to God. The mere scientist is an infidel, because his highest standard of truth, in the only perfect science, is a fraud and he knows it. His mind is permeated with "irrationals" and "unknown", and his science is without a philosophy to make it the true, exact and just exposition, exemplification and reflection of structural being; and hence, by sequence, he has no divine standard of moral or spiritual being. "God is not in all his thoughts."

Kiops is the imperial or king truth in exposition and symbolization in this Pyramid; and in this fact it is easy to understand how degenerate ages would, by personification, convert the one into a personal king and the other into his tomb. Kiops is indeed buried in this tomb, but not as a personal being or a dead ruler, but as the sum of that philosophy which constituted the religion and science and learning of those archaic ages when man "walked with God." The Kiops Pyramid is the Accadian bible; and to the test of its truth must yet come modern geometry; and when it is comprehended, mathematics will have a philosophy in numbers and structures,

religion an expounder in physics, and prophecy an interpreter which will bring order out of confusion and put sense into modern empiricism.

The true Pyramid is the pure, exact model of cosmic structure, and it carries in its theorem the similitude of all cosmic metrology, and the divine philosophy of numbers and structure, as Jehovah has built them into creation, and into the ten digits, which contain all possible metronic laws within the ability of intelligence to comprehend. In metrology, what the digits cannot describe man cannot comprehend, cannot even think; and before we get to their limits they will be found to contain a fineness of expression and a magnitude of comprehension now not even suspected. The arithmetical laws of addition, subtraction, multiplication and division, do not hold the key to Jehovah's philosophy, nor will they ever, of themselves, unlock this Pyramid. Jehovah is the author of geometry Cosmos is adjusted, measured, numbered and weighed in exact proportions, and equated in a just and all-inclusive ratio. This is geometry, and hence, so soon as the philosophy of geometry—by which every geometrical proportion of necessity is exact—is discovered, the true grandeur of the Kiop's Pyramid will be recognized as the self-demonstrating theorem, carrying in exposition and similitude Jehovah's philosophy of structural cosmos in totality and in microcosmic detail. This is conspicuously noted in the fact that geometry controls even motion, sound, light, electricity and magnetism, and gives to chemistry its combinations and results, and hence makes it a true science.

*Gizeh* is a modern orthography, and its meaning seems to have degenerated to a name of a place only. It describes that which *rules in its order or grade*. But all Accadian names are "*totems*," and hence describe generic ideas which were noted by the "*cartouches*" or ovals which inclosed them in ancient hieratic language. I regard this word as entirely inadequate to express any idea, prime in pyramidistry. It simply compares one pyramid with the others, or one place or locality with others.

I take the true orthography to be *Yeeseh*; *g* is a hardening of *j*, and *j* is a compound of *ye*, *yo*, etc.; *z* is also a compound, and hence they have no prime meaning; *a* short, with *h*, meas-

ures adjustment, exact, *e* means being, and *ee* being *in existence*; and *y* is the fine separate vowel which measures extreme perimeter and fineness, even to spirituality; it describes the finest tone known in the octave. *Yeesah* describes *that which, by virtue of its essential being, rules in exact and balanced adjustment*, and hence, per sequence, is the fullness and ultimate of all design, *per se*. When the word *Yeesah* began to be used as the name of the place or locality of the Kiop's Pyramid, we know not. But originally the words were evidently used to describe generic, prime truth; after ages misused them, as the Spanish in America used sacred names and words. This is usual when ignorance is associated with deep religious convictions. It is seen even amongst our Pilgrim ancestors. But in the use of these words, *Kiop* and *Yeesah*, the one to describe a king principle and the other to localize it, there may be something more than ignorant devotion. There is a propriety in localizing the king truth in the place or the person who is, in its own or his own being, the personification of all authority, truth and justice, and hence who is the fullness and ultimate of all cosmical design. The words, in their essential meanings, belong together, and are as true to themselves and to each other, as the words Christ Jesus or Jesus Christ are in Christianity. The word Christ describes that which primarily and entirely—from the beginning to the end—holds in discrimination and exemplification the essential image or truth; and Jesus, in the character described in the Scriptures, is an exact synonym for *Yeesah*. Should the analogy in the words lead to fixing a connection in philosophy and religion between our age and that which is marked by the Kiop's Pyramid, we need not be surprised. In fact this connection is a necessity. The Hebrew Scriptures are full of Pyramid metric expressions and references as the standards of all their measures and the measures of all the prophecies, and their Scriptures speak of Christ as the anointed measure of Truth; and in Jesus we have personified "the fullness of time," *i. e.*, the equation of the time, and the fulfillment of the Law and the Prophets. He claims a rulership in righteousness, and authority to the uttermost boundaries of Jehovah's design. Who-

ever will study the meaning of these words and the character of the Pyramid and Christ Jesus, will soon be convinced that there is more than a coincidence in the analogy.

In my investigations into the philosophy of numbers and structure, independent of Egyptian pyramidistry, and independent of Christianity, I have discovered one fact which most wonderfully illustrates the unity of the philosophy of the Pyramid and the Christian philosophy, as exemplified in Christ Jesus.

The Christian cross, or the *crux Christiana*, as a symbol of religion and philosophy, has a history extending back into and behind the mystic ages of antiquity, long before the Christian era. This symbol has been discerned among the antiquities of all ethnic peoples. It has been found even among the American Indians, and, with archæologists and ethnologists, and even mystics; it is the mystery of mysteries. Outside of Christ and the scenes on Calvary, none can give it a meaning; and yet all involuntarily bow to its sacred mystery. It is the acme of all symbolizations. The *crux Ansata*, the *crux labarum* and the *crux Christiana*! Who can interpret them? Yet all are geometrical, prime and essential in quadrature; and they represent the learning, the philosophy, the wisdom and the religion which existed among men previous to "the confusion" and "dispersion," and, hence, long before the age when a revelation became necessary. "The Pyramid religion" may yet become the synonym of all truth.

My idea of the Pyramid was drawn in 1877. Every line is controlled by the philosophy of geometrical proportions, which is the new law, I have discovered, and the true Pyramid key, and every proportion will stand the most exact test of the philosophy of numbers and structure, and that, too, by the double means proportional, which I have discovered. In this Pyramid the *crux Christiana* is the exact measure of perfection, and this fact stands out so conspicuously that one cannot but note it. It holds the fullness of time in its arms, and in this it equates substantive form into the perfection of being by fixing the slope of the sides, as well as all other proportions, in exact exposition of the ultimate, in all design in structure. Hence,



I hold that no man can quadrature the circle, or time, except by the Pyramid diagram, in such a way as to show a self-demonstrating theorem. The cross is the supreme symbol of the perfection of Jehovah's philosophy of numbers and structure as surely as it is the supreme symbol of the Christian religion. Yeesah and Jesus identify each other in this symbol, and the day is not far distant when science will become as firm a believer in the cross as the Christian.

J. K. HORNISH.

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#### COLONEL CHESTER'S REPORT AND ADDRESS.\*

Colonel Chester, chairman of the committee appointed to address to the President of the United States an open letter protesting against the appointment as American representatives to the International Congress about to consider the location of a prime meridian, exclusively those who were publicly committed to the adoption of the French metric system of weights and measures, reported:

That the committee had fully performed its duties, and that in reply to the letter sent as directed had been officially informed by the State Department that the whole subject matter had been referred to Professor Barnard, chairman of the American delegation, who had been requested to receive and consider any other documents the committee might desire to submit. In view of the fact that there then existed a strong probability that this congress, officially constituted to consider only the adoption of a prime meridian and such questions thereabout and around as might affect such choice, would endeavor at least to obtain some official recognition leading to the ultimate adoption by England and America of the French metric system, therefore all scientific societies interested directly or indirectly in weights and measurements had been requested to send delegates to meet with us and discuss the position. Hence this meeting.

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\*This paper was adopted in view of an anticipated emergency, a note of warning that subsequent action at Washington fully justified.—C.

Colonel Chester then proceeded to say: It is the more probable that sooner or later the subject of measurement will be discussed before this congress for the following reasons: In addition to the fact that European representatives have openly expressed their strong desire and even determination to make the adoption of the French metric system universal, the question of measurement has a close relationship to the uses of a meridian, and the consideration of the former may affect the choice of the latter. The choice of a meridian by this convention means simply an authoritative declaration of some location, monument, or geographical point selected, from which all nations will agree to measure. It would seem, then, of paramount importance to first determine upon a uniform system or mode of applying measurements to whatever base may be selected, even if different nations employ different units to the measurements of subdivisions. Therefore the suggested, if not officially adopted, plan of conducting measurements from any base may affect the question as to where the zero of such measurements shall be located. But the consideration of this suggestion leads us to recognize closer relations between geodetic divisions and systems of measurement.

It is now universally admitted that all forms of force have exact correlations, and that every action has an equivalent in value, condition and energy in some other mode of action. Motion, electricity, heat, magnetism, gravity, cohesion, are but different "modes of action." But even the cultivated and instructed mind with difficulty conceives of heat and electricity, for instance, as mere actions, verbs, and not nouns substantive, things, fluids or essences, permeating matter. This arises in great measure from a faulty mode of describing actions, a vicious nomenclature built upon the erroneous conceptions of the past, and to which we have accustomed ourselves. And, more than all, because we are accustomed to measure the value and effects of separate actions, having recognized and acknowledged correlations, by separate systems of arbitrary units having no relation whatever to each other. For instance, we speak of "currents" of electricity passing through certain conductors, as water through a pipe, and we indicate the value, condition

and energy of electric action by the meaningless units "volts," "ampere," etc., while a corresponding correlative motive force is indicating in other units, weight, distance, velocity of matter affected.

Now, no action in the mere abstract can be appreciated or conceived of, and we can only indicate exactly by describing the extent, manner and energy with which visible matter is affected by such action. Thus we describe motive force by indicating:

1st. Weight, or amount of matter moved, or amount of action.

2d. Distance moved, extent of action.

3d. How rapidly moved, energy of action.

These terms or units of measurements are, therefore, employed to exactly describe a motion, and these are not applied to the action but to the material matter acted upon. The difficulty arising in comparing an electric action, for instance, with a correlative motive action arises in part from the unfortunate attempt to describe the former action by units applied to the measurement of the action itself, or to an abstraction, and not to the measurement and description of the matter acted upon. As all actions have their exact correlations in amount, extent or condition and energy in all other actions, and as each action can only be appreciated and certainly estimated and measured by analysis of the matter acted upon, it is reasonable, logical and expedient that in each case the matter affected, as to its amount, conditions and energy indicated, should be measured by similar units and described in similar terms. We may logically, or conveniently, in describing one action, measure the matter affected by pounds, inches and time seconds, and in another by volts, farads, amperes, ohms, or by metres and grammes in a third, and in view of the fact that a correlative system of indicating active forces is becoming a world necessity, and the units employed therein must be those employed in measuring matter for all purposes, and must become universal and uniform.

Now the necessity of an international congress to discuss the question of a prime meridian has grown out of the varying practices of mariners in estimating geodetic positions and navi-

gating thereby. As a matter of fact, the prime zero from which each mariner calculates his position is the accidental though known and noted-nooning of his particular chronometer. This calculation he corrects, of course, by adding or subtracting the difference existing between the noon of his chronometer and that of the meridian upon which his charts are constructed. This will be almost certainly fractional. But the errors merely possible because of this unavoidable complication of computations become almost probable when we take into consideration these two facts: First—A senseless tradition has established the error-provoking practice of measuring and indicating longitude from both sides of the assumed zero, as if the world oscillated from side to side instead of revolving continuously in one direction. Secondly—The solar or time circle is divided and measured by units which have no relation whatever to those which measure and divide the equatorial and all other circles.

Time measurement is but a measurement of the velocity of the earth's revolution, and for that purpose we have divided the earth's circumference into twenty-four parts, or hours, which are again divided and subdivided by sixties. While many mathematical and historical arguments favor the belief that for all purposes the circle should be primarily divided by twenty-four, it is perhaps to be regretted that the hour had not been decimally divided, rather than into minutes and seconds. But so firmly and universally engrafted in the human mind, by tradition and custom, is this natural(?) division of the circle for time purposes, that the most radical would hardly venture to suggest any present modification. But for all other purposes of measurement the equatorial and all other circles have been, by Babylonish tradition, divided into three hundred and sixty parts, and again divided and subdivided by sixties—a division unreasonable, and, in the present condition of science, vicious, because in navigation and astronomical science the computations are to a greater or less degree based upon comparative simultaneous measurements of arcs of the solar circle (divided by twenty-four), and of other circles (divided by thirty-six).

Now, to the architect, mechanical engineer or designer of mall or great constructions of any kind, so far as his immedi-

ate avocation is concerned, it may be a matter of small moment whether the rules of his workmen are divided by centimetres or inches and parts, but certainly, in preparing his drawings, he would not employ such scale of equal parts as had a broken fractional relation, or no relation at all, to the divisions upon the rules of his workmen. As unreasonable is it to construct our charts upon a scale based upon the division of a circle into three hundred and sixty parts, when, for the reasons assigned, we are forced to apply to its analysis a scale based upon a division of the circle into twenty-four parts.

Since because of accepted tradition and universal custom we must accept the present division of the solar circle into twenty-four parts, why is it not reasonable and expedient to divide the circle similarly for all other purposes? In fact such expediency is significantly recognized by our own Government in that it has recently established a series of "hour" meridians to facilitate railroad management. But, as the earth revolves continuously in one direction, time is continuously, progressively, estimated from zero to zero. True, the dials of our time-pieces are graduated in twelve parts only, and in counting the twenty-four hours we annex different signs to distinguish the first from the second series of twelve hours. But they are still reckoned progressively, 12 of A. M. being reached, beginning with unit of P. M. For astronomical purposes the twenty-four hours have long been reckoned consecutively, and there is little doubt that this method of counting time will be popularized in the near future. But for the purpose of navigation, we have not only unnecessarily divided the geodetic circle into two semicircles, but in reckoning their divisions, after reaching the maximum, one hundred and eighty, in direct progression, we enumerate in reverse from 180, 179, 178, until reaching the original zero, requiring signs to be attached to distinguish those of the one semicircle from the other; and to these two semicircles, graduated from a common starting point in opposite directions to one hundred and eighty parts, we must apply a circle graduated continuously in one direction in twenty-four parts.

It would appear, then, that if a rational and convenient system of applying measurements to the circle be internationally

determined upon, the selection of the base line from which such measurements are to originate should be determined by more logical considerations than sentiment and national pride. England may insist that the world commences to revolve from her little isle. France may object to the Greenwich meridian from no more logical standpoint, and either or both may plead the danger and inconvenience arising from the necessity of discarding all their present charts. But this plea has no force, since it is evident that no modification of charts would be required beyond the substitution of other figures than those which now distinguish the lines crossing the charts from north to south. But in view of the fact that there is every reason to believe that the adoption of the Greenwich meridian will be violently opposed, for no better reasons perhaps than those just stated, it would be timely perhaps for scientists who will watch the action of this congress to urge our own representatives to propose the adoption of a neutral line, to be selected not because of national tradition and prejudice, but because of its rational and scientific fitness.

A line, to be the base of future measurements for all ages, should at least be one that may in future ages be readily identified. It should therefore be marked, or be susceptible of being marked, by a continuous line of indestructible monuments, a condition only to be realized by the greatest length of land lines, or points readily accessible, and permitting instrumental examination. Is not the line passing through the Great Pyramid one possessing such requirements?

S. M. CHESTER.

THE LATE ROBERT MENZIES.

We extract from November number, vol. iv., 1874, an obituary notice of Robert Menzies, written by his friend and correspondent, Charles Casey :

“ NOT DEAD, BUT SLEEPETH.”

“ Now on the eve of the time of tribulation—when men’s hearts fail them for fear, and for looking for those things that are coming on the earth—it seems as if the specially-chosen of the Lord were being taken to their rest. With deep sorrow we have to announce the decease of Mr. Robert Menzies, of Leith, at Almeria, in Spain, on the 23d of September, at the early age of forty-one. He was a zealous and profound student and exponent of the Scriptures, in their relation to the restoration of Israel. As recorded in the August number of the Magazine, he was led by the divine teaching to the discovery of the chronological metrology in the measures of the Great Pyramid. To those who were privileged to know and understand him, he was endeared by all the graces which characterize the true Christian gentleman. With the keenest and most chivalrous sense of honor, were combined a fearless and transparent candor, and a heroic fortitude which enabled him to bear with cheerful resignation the progress of the insidious malady which eventually conquered the body, but left the spirit rejoicing to the last in the victory over death, by a plenitude of faith in salvation through Christ.

He was a laborious archæological student and lucid expositor. When interrupted by death he was at work on a separate yet connected history of the Ten Tribes, and had proposed to himself a history of Portugal, in which would be brought out the Israelitish element in its people. But it was not to be. In the midst of his work he was summoned to the communion of the just made perfect, and to receive the Crown of Righteousness

from the Captain of his Salvation. His end was peace, and those who mourn his loss may truly say :

"Bright be the place of thy soul !  
No lovelier spirit than thine  
Ever burst from its mortal control,  
In the realms of the blessed to shine."

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## OBJECT AND BELIEF OF THE INTERNATIONAL INSTITUTE.

### I.

The object is anti-French metric. The creed of the Institute is not so clear. In a general way the Institute may be said to believe in the substantial identity of Anglo-Saxon metrology and the metrology of the Great Pyramid. It has been well nigh demonstrated with mathematical exactness that the circular and time measure used in building the Pyramid is identical with the circular and time measure of Anglo-Saxon use; also that the British inch was the prime unit of linear measure in the Pyramid. It is believed by many members of the Institute that the ancient Pyramid measures of volume and weight are preserved in Anglo-Saxon weights and measures. The object of the Institute is to keep this ancient inheritance from being destroyed by the introduction of other systems of metrology. Its historical relations are of too great value that the Anglo-Saxon world should run any risk of its being overthrown or abandoned. As a metrological science it is far superior to that proposed by the French. It has been somewhat modified by the adoption of two kinds of weights and measures. It is believed by many to be a useless modification, such as two kinds of pints, one for liquids and one for cereals, and two kinds of pounds, one for fine and one for coarse weights. One object of the Institute is to eliminate from present Anglo-Saxon use all needless denominations of weight and measure, without destroying its identity. In doing this it proposes to retain the inch as the unit of linear measure; the pint as the unit of ca-



capacity measure; the pound as the unit of weight; the second as the unit of time, and the second of arc or 1", as the unit of circular measure. The work of the Institute is not revolutionary like the French method, but conservative on historical as well as scientific and practical grounds, like the history of the Anglo-Saxon world. It may be said that not a few members of the Institute believe that Anglo-Saxon metrology is substantially of divine origin, and is closely allied with the history of the covenant people of God, and will be henceforth identified with the dominion of the Anglo-Saxon race.

H. G. WOOD.

## II.

Mr. Wood's statement of the object and creed of our Society is very satisfactory to me.

The objects are: The defense of Anglo-Saxon weights and measures against the attacks of the French metric advocates, and the study of the origin and history and merits of our system.

The creed of the Society, and the creed of its individual members, must not be confounded. The Society's creed is simply this: Anglo-Saxon weights and measures are better than French weights and measures, and therefore should never be superseded by them. Individual creeds range all the way from simple preference for our hereditary system to enthusiastic conviction of its divine origin and pristine perfection. The Society aims to discover and present facts, allowing each member to draw his own conclusions.

J. H. DOW.

## III.

The object of the Institute is expressed in its name, but not with sufficient distinctness. Reading the words, "International Institute for Preserving and Perfecting Weights and Measures," a stranger naturally inquires: "What weights and measures?" and, "preserved from what?" He soon learns that the weights and measures to be preserved and perfected are the Anglo-Saxon, and that the destruction from which they are to be preserved is that which threatens them from the deadly at-

tacks of the Robespierrean French metre. Thus much being made evident, the word "International," with which the word "Institute" is qualified, clearly shows that the object of the Institute is to render the Anglo-Saxon weights and measures, by means of their preservation and perfection, worthy of adoption and use in the scientific and commercial intercourse of the whole civilized world.

As to the creed of the Institute, I think it clearly inferable from the object of the Institute, and from the means by which this object is to be accomplished. It is that the Anglo-Saxon weights and measures, notwithstanding the degree of corruption and degeneracy which they have undergone, are worthy of preservation, and that by restoration to their pristine perfection they can be made what they were intended to be, *i. e.*, truly international, beginning in the midst of the inhabitable world, where they are recorded in imperishable stone, and proceeding thence to the utmost bounds of human habitation. To this creed and the accomplishment of its object, so clearly expressed and implied in the very name of the Institute, every member of the Institute is supposed to subscribe and set his shoulder, with a faith that will remove hence the mountain of the French metre, and cast it into the sea, clearing the ground for the growth of the little stone into the great mountain that is to fill the whole world.

J. W. REDFIELD.

THE SACRED CUBIT, THE HOUR-ARC AND THE LAW OF GRAVITATION.

PROPOSITION.

The space through which a body descends in  $\frac{1}{1000}$  of an hour, *in vacuo*, at mean latitude, near the surface of the earth, by virtue of the accelerating force of gravity, is precisely 2500 inches=100 geometric cubits=the side of a geometric square acre.

Haswell's constant would give  $(16'-1'' = 192.80717$  geometric inches)  $\times (3\frac{6}{10}$  seconds)<sup>2</sup> = 2498.78117 geometric inch., which may be taken as exactly 2500, in the present state of our knowledge.

Hence: the term "*pound-cubit*" is a vastly more cosmical expression than either "*foot-pound*" or "*killogramme-metre*."

The following table exhibits the relations :

Elapsed time in 1-1000ths of an hour.	Acquired Velocity.	Squares of the Time.	Total Descent.	Ratio of Space Each Time.	Space fallen through each Interval of Time.
1	200 cubits	1	100 cubits	1	100 cubits
2	400 "	4	400 "	3	300 "
3	600 "	9	900 "	5	500 "
4	800 "	16	1,600 "	7	700 "
5	1,000 "	25	2,500 "	9	900 "
6	1,200 "	36	3,600 "	11	1,100 "
7	1,400 "	49	4,900 "	13	1,300 "
8	1,600 "	64	6,400 "	15	1,500 "
9	1,800 "	81	8,100 "	17	1,700 "
10	2,000 "	100	10,000 "	19	1,900 "

That is:

In $\frac{1}{1000}$ of an hour the descent=	1 cubit=	$\frac{1}{100}$ acre-side.
" $\frac{1}{1000}$ " " " " =	100 " =	1 " "
" $\frac{1}{100}$ " " " " =	10,000 " =	100 " "
" $\frac{1}{10}$ " " " " =	1,000,000 " =	10,000 " "
" 1 " " " " =	100,000,000 " =	1,000,000 " "

Or ten times the polar axis.

JACOB M. CLARK.

New York, January 20th, 1885.

## EXTRACTS FROM LETTERS.

FROM F. HESS.

FORT DODGE, IOWA.

I can recall just now no other nation than the Chinese who count their time by cycles of sixty years, which, by the way, is not a "Saros" period. The Mohammedans have a cycle of thirty lunar years, in the course of which they add eleven days to their year of three hundred and fifty-four days, making the second, fifth, seventh, tenth, thirteenth, sixteenth, eighteenth, twenty-first, twenty-fourth, twenty-sixth and twenty-ninth year of this cycle a leap year of three hundred and fifty-five days. But neither this nor a Chinese cycle of sixty years, nor any other cycle I can think of, came to an end on the ninth of September, 1774. As far as I can determine from the very few and perhaps not very reliable data I can lay my hands on just now, the ninth day of September, 1774, corresponds to the fourteenth day of the seventh month of the Mohammedan year 1188, since the Hegira—to the sixth day of the ninth month of the Chinese year 4410, which was the thirtieth year of the seventy-third sixty-year cycle of the Chinese era, and to the tenth or eleventh day of the last month of the Jewish year 5534.

This is as far as I can go in this direction at present, and quite far enough to show that this confusion of dates, arising from a multiplicity of calendars, is as inconvenient to the historian as a multiplicity of zeros of longitude and time is to the navigator.

According to my very rough calculations, September 9, 1774, was a Friday, or Venus day. New moon occurred on the seventh, and its descending node was in the vicinity of Antares in Scorpio, and the moon's path through Virgo went below Spica; at 4 P. M. on that memorable day, Alphecea, in the Northern Crown, was on or very near the meridian of Boston, at an altitude of about  $74^\circ$ , and Spica, with the crescent moon at her feet, about  $33^\circ$  above the southwestern horizon, so that your apocalyptic picture of a woman clothed with the sun, a crown of stars upon her head and the moon at her feet, fits your date of the birth of American liberty exactly.

By the way, have you ever studied the structure and different colors of the enclosures of the ancient astrological temple of Ecbatana in connection with the latest disclosures of the spectroscope concerning the different colors of the planets? And have you ever compared the ground plan of ancient Babylon, as described by Herodotus, with the Great Pyramid of Jeezeh?

F. HESS.

FROM F. A. R. WINTER.

DEMARARA, September 12, 1884.

*Dear Sir:*—Thinking over my suggestion to you upon the possible value of the subterranean measures of the Pyramid, I remembered having some years since made a calculation of the division of time by Esdras, taking the Hebrew jubilee as a basis, 50 years of year days = 18262 years, I got an approximation to the end of the dispensation on the ground that Esdras wrote some 300 years B. C. Friends in England threw cold water upon it and I let it pass; now, however, it came into remembrance, and with the experience gained in correlating the Pyramid measures with Bible chronology, I approached the subject with more confidence, and I think I have succeeded in correlating the subterranean

can and other measures of the Pyramid with the account of the creation in Genesis, and also with the division of the times by Esdras, on the above basis. Taking 18262 years from the creation of the earth, which then was void and without form, and darkness covered the face of it, and as it is only from the creation or manifestation of light to the earth that time can be computed by astronomical processes, the question arises: how long did the darkness continue? Assuming the period called a day = 2000 years, and light appeared after 1200 years had elapsed, then we date light 800 years before the completion of the first period; the five succeeding periods up to the creation of Adam will make 10800 years from light to Adam. Now the breadth of the subterranean chamber is  $324 \times \pi \times 10 = 10178$  and 198 inches in pre-Adamite length of the passage to it  $\times \pi = 622 = 10800$  from light to Adam; add to this 2116 to birth of Isaac and we have 12916 = 2170 B. C. One diagonal of the base of the Pyramid, half of one precession of the equinoxes, confirmed by the astronomy of the Pyramid, from thence 2170 to the nativity, makes 15086 years from light to Anno Domini. Now let us take the divisions of times by Esdras—18262—1200 = 17062  $\div 12 = 1421.8$ .  $1421.8 \times 10.5 = 14929$  assuming Esdras to have written 157 B. C., then  $14929 + 157 = 15086 = \text{Anno Domini} + 1976 = 17062 + 1200 = 18262$ .

I send the calculation based upon the Hebrew great jubilee of 50 years (Leviticus, xxv: 10-13), taking each day for a year  $365.242 \times 50 = 18262$  years; comparing the narrative of the creative periods as given in Genesis i, and the creation of light on the first day, with the definition given in ii. Esdras, vi:40, shewing a correlation between the astronomical and chronological measures of the Pyramid, the Mosaic account of creation and the division of the times as given in ii. Esdras, xiv: 10-11-12. Assuming that each creative period called a day was equal to 2000 years, that darkness covered the face of the newly created earth for 1200 of these years before the creation or manifestation of light (ii. Esdras, vi: 40), then the first period was  $2000 - 1200 = \dots \dots \dots 800$  years.  
 Second, third, fourth, fifth periods of  $2000 \times 4 = \dots \dots \dots 8000$  "  
 Sixth period to Creation of Adam.  $\dots \dots \dots 2000$  "  
 From creation of light to Adam.  $\dots \dots \dots 10800$  years  
 From Adam to birth of Isaac.  $\dots \dots \dots 2116$  "  
 ————— 12916 years.

2170 B. C., birth of Isaac, one diagonal of the Pyramid, half one precession of the equinoxes:  
 Isaac to the Nativity.  $\dots \dots \dots 2170$  "  
 Anno Domini = years of light.  $\dots \dots \dots 15086$  "  
 Christian dispensation.  $\dots \dots \dots 1976$  "  
 ————— 17062 "  
 Add to period of darkness.  $\dots \dots \dots 1200$  "  
 ————— 18262 "

The measures of the subterranean chamber in the Pyramid and the passages leading thereto, are correlated to the foregoing thus:

Breadth of subterranean chamber  $324 \times \pi \times 10 = \dots \dots \dots 10178$   
 Part length of passage from end of descending passage,  $198 \times \pi = \dots \dots \dots 622 = 10800$   
 From creation of light to Adam.  $\dots \dots \dots 10800$   
 From Adam to birth of Isaac.  $\dots \dots \dots 2116 = 12916$   
 2170 B. C., one diagonal of the Pyramid.  
 Isaac to the Nativity.  $\dots \dots \dots 2170$   
 Anno Domini = years of light.  $\dots \dots \dots 15086$

Divisions of the times by ii. Esdras, xiv: 10-11-12. Taking the division from creation of the earth, including the period of darkness, a great jubilee:  $18262 \div 12 = 1521.8 \times 10.5 = 15978 + 1976 = 17954 + 308 = 18262$ ; this would give  $15978 + 308 = 16286 - 1200 = 15086$

time from light to Anno Domini, provided Esdras wrote 308 B. C. Or thus:

$$18262 - 1200 = 17062 \div 12 = 1421.8 \times 10.5 = 14929 + 1976 = 16905.$$

$$16905 + 157 = 17062 + 1200 = 18262.$$

$$\text{Or, } 14929 + 157 = 15086 + 1976 = 17062 + 1200 = 18262.$$

This gives the date of Esdras writing at 157 B. C. Is this coincidence or demonstration?

F. A. R. WINTER.

LETTER FROM S. BESWICK.

STRATHROY, ONTARIO.

*My Dear Sir:*—If the INTERNATIONAL is not printed yet, you might probably find a place for the following, which appears in one of my English exchanges.

S. BESWICK.

“UNIVERSAL TIME.”

“Shortly before midnight, on the 31st ult., the authorities at Greenwich made preparations to receive the year 1885. The public clock at the observatory was so altered that, instead of indicating twelve hours, or 12 o'clock, when the neighboring clocks were striking that number, it was set to 0 h, thus showing that the astronomer royal had taken the necessary steps for adopting ‘universal time.’ This change will render the beginning of the astronomical day coincident with that of the civil day.”

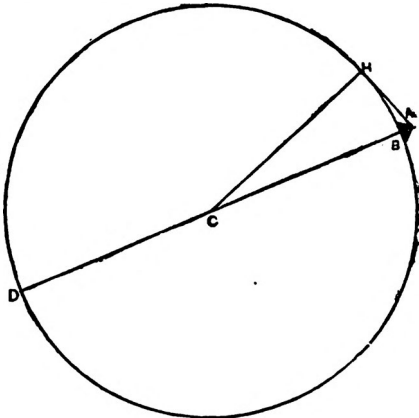
LETTER FROM JAMES SIMPSON.

16 PALMERSTON ROAD, EDINBURGH, December 10, 1884.

*My Dear Professor Piassi Smyth:*—Let me thank you, even at this late date, for your kind letter of first December.

I have wanted to correct some errors which occurred in mine of the 28th ultimo, but have somehow been hindered and must now trust to memory in doing so, for I kept no copy. Firstly in regard to polar compression theorem:

In the equation  $AB : AH :: AH : AD$ , AD is of course earth's diameter at the *Pyramid* and between M. terraqueous levels, plus Pyramid's own height. I was therefore wrong in working it out with the polar diameter 500,000,000.



As I cannot estimate the real length of AD let me call it hypothetically 501,134,000. Then will  $AH = 26.9675$  English miles; and ratio AB to AH, or AH to  $AD = \frac{1}{273.133}$ . The ratio, however, of AH to polar axis 500,000,000, will be  $\frac{1}{273.133}$ ; and ratio of AH



FROM REV. H. G. WOOD.

I have read the paper just received with letter from Piazzi Smith: That of the pendulum tends to confirm the result I have reached. Col. Herschel's computation for gravity *i. e.*, a body falling 5 seconds at the Pyramid, falls through 4819.50 inches. Hence the value of gravity is  $\frac{4819.50 \times 2}{5^2 \times 12} = 32.13$ , and the  $\sqrt{32.13}$  is 5.672 = specific gravity or mean density of earth less the effect of centrifugal force in lat. 30°. On this basis a seconds' pendulum at the Pyramid would be 39.0657 instead of 39.0625, as I have it. This shows at all events that I am pretty close to the truth. But it may be that Col. Herschel's computation is for sea level and in a vacuum, whereas mine is for 215 feet above sea level and in the air. Now the air will make a difference of .0018 in the length of the pendulum, and 215 feet above the sea level will make a difference of .00042 inch. Deduct the sum of these .00042 + .0018 = .00222 from 39.0657 and we have 39.0657 - .00222 = 39.06348. One other element is to be considered. Col. Herschel's meridional ellipticity  $\frac{1}{237}$ . If the ellipticity be more or less than this it will slightly affect the result, but on the figures furnished by Col. Herschel, 39.0625 is almost certain to be the length of a seconds' pendulum in the king's chamber. I am quite content to let my theoretical pendulum 39.0625 stand as the true seconds' pendulum at the Pyramid. It is not material whether the precise position of it be at the level of pavement or in the king's chamber, but quite likely the latter.

Faithfully,

H. G. WOOD.

FROM PROF. C. PIAZZI SMYTH.

15 ROYAL TERRACE, EDINBURGH.

I wish to bring to your notice some interesting remarks of my correspondence—friend Col. A. T. Fraser, R. E., in charge of Government works at Trichinopoly, Madras.

He had just been reading 'New Measures at the Great Pyramid,' and is still surprised at the finding of the pavement fragment. "A pavement," says he, "running all around the building, would not add to the appearance of the Great Pyramid, rather the contrary, in my opinion, as nothing can exceed the fineness of the contrast otherwise between rock and exact masonry. But it is difficult to imagine how the base was finished off, and I was not long enough at the place to form a clear idea. The roughness of the sockets in the rock is very strange (unless partly the effect of their exposure during the last twenty years to modern violence). Whereupon are the bases of it settled, or who laid the stone of its corner? (Job xxxviii: 9.) Their differences of level are admirably explained by the Rev. H. G. Wood, in the extract in your book. "The contrast between sloping rock and masonry would demand a bold angle and steep face, thus



and not a reëntering angle and pavement thus



but how it was actually constructed I could not determine.

"On the pavement portion, indeed, the casing stones run to a point





But the difficulty is with the corner stones and the sockets. In doing work of the kind I would either use mitred stones of this kind,



-or preferably



"I am somewhat inclined to think that the Great Pyramid was never completely cased; and that the Howard Vyse line of casingstones we see, are a pattern course; the work having been for some reason interrupted, and that the sockets themselves were never finally dressed or fitted with corner stones. The difficulty of dismantling such masonry would be enormous, and the pieces have not yet been positively traced to other buildings.

"I should much like to join the American expedition to re-measure the Great Pyramid, and could get leave for three months without affecting my interests, but I would like at least six, if the American expedition cared for my being on it and being associated with it.

"To me, it would be highly interesting, and more instructive than the results of what I could effect, or contribute, alone, to the solution of the problem.

"This country (India) is in such a state as regards public works that I am afraid of anything being carried out in my absence, if I were to take long leave just now. India is getting into the same mortgaged condition to bondholders that Egypt was before the people rose against the load in 1882, and that still keeps it in disquietude. Depend upon it, there is a risk of the Mahdi, if undisturbed in the upper Soudan, turning the Nile into the Red Sea!"

Thus it appears that next winter will be rather too soon for him; and I suppose that is precisely the prudent conclusion of yourself and friends.

I remain yours very truly,

C. PIAZZI SMYTH.

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FROM JAMES SIMPSON TO PROFESSOR PIAZZI SMYTH.

16 PALMERSTON ROAD, EDINBURGH, December 27, 1884.

It is curious to find Mr. Petrie, after putting aside the twenty-five-inch cubit theory, making approving mention of other earth-reference theories (p. 183) far less simple and philosophical, but quite as difficult for unaided human science of the Pyramid day to realize, as the lengths of various meridians and other circumferences of the earth, divided down into degrees and "miles." His various explanations of interior dimensions, by means of the "common Egyptian cubit," lineal or square, are far less simple, less connected and less rational than these offered by the sacred metrological theory, and require, too, a very elastic interpretation of the said common cubit, as being anything between 20.2 and 21.04 Br.—limits which look most absurd beside his remarks upon and measures of the exterior, and whole Pyramid where lengths of about 440 cubits show scarcely a greater error over all than is here assigned to single cubits by him.

But Mr. F. P.'s labors are most valuable as showing *what* the Pyramid builders could and did accomplish in the way of ensuring accuracy of line, angle, surface, level, etc., and *how* (although not *why*) they accomplished these things.

His explanation of the base-side as 440 cubits of 20.62 would look quite as well if stated at 22 lengths of the king's chamber (without reference to such a cubit), and the height (of the Pyramid) = 14 of the same lengths; giving the approximate  $\pi$  fraction by means of his short base, without disturbing the deeper astronomical meanings of the unit in which said fraction is expressed.

Touching that unit, as the square roots of king's chamber measures are:

"
   
For Length, 412.1318 = 20.30103
   
For Breadth, 206.0659 = 14.35499
   
For Height, 235.4377 = 15.34398
   
Sum = 50.00000 exactly,

is that not a subordinate proof that "inches" presided at the laying out of the dimensions of the king's chamber?

Yours truly,

JAMES SIMPSON.

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FROM DR. EPH. M. EPSTEIN.

VERMILLION, D. T., November 30, 1884.

I have not ceased to think of you and the great work of your life, and when that meridian conference met and the measures of that wicked woman (Zechar., 5:8, read so, and not "wickedness.") were not even mooted for this country and England, I thought the Lord must have blessed the Institute. At any rate, the danger is over for the present. Nor do I fear that a Democratic administration will ever think of such a violent measure as to impose the metric lie on the people of this country.

I do not feel like criticising "The Unveiling of Isis." Me, the subject will never tire, but, alas, I know as well as you do, that many people are not like you and me. Few are prepared, at present, to appreciate the underlying truths of mythology, for the many are ready to cry "mythology" at the Bible and reject it on this account.

I began to think of the propriety of writing for the magazine a series of articles on Biblical and Talmudic weights and measures, originally examined from the original documents. In doing so I came on the altar of Ezekiel, 43:13, etc. I think the meaning of the measure "Zereth" may be determined there. But I am now so far from mathematics that I am not able as yet to see whether I am right or wrong. Can I lay the matter before you for analysis? Say yes, and I will send you a faithful translation and diagram of the subject. There is in that passage, I think, a clear indication of the pyramidal basis of the altar. Let me hear from you at once, or soon.

Yours affectionately,

EPH. M. EPSTEIN, M. D.

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FROM PROFESSOR ASAHIEL ABBOTT.

Thanks for Professor Smyth's little review of Petrie, for I presume that it came from you. It is neatly done. Our Crapeau cousins have muffed, and not ventured to propose their measures to the convention at Washington, as they were refused last year in Europe. So that goes over for a while. I hope that the question of prime meridian will not be settled until they will all agree upon either Gizeh or Jerusalem, for this is where it should be. Gizeh is, in some respects, the best of the two, and there is left to us, without our

trouble or expense, the best conceivable and invariable model of just weights and measures for the benefit of all the world in coming times.

Yours truly, in haste,

ASAHEL ABBOTT.

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FROM REV. J. A. UPJOHN.

You certainly have brought to the front the three great liberators: 1. Columbus, from narrow confines. 2. Luther, from ecclesiastical corruption. 3. Washington, from political bondage. It makes a suggestive picture, and I am glad to have the three associated in my mind.

I was interested in the article on the Sphinx. If his interpretation of the name, "he cometh," be correct, then there might be a reference to the babe, the lion of the tribe of Judah, in the arms of the virgin, coming towards that spot where He was hidden in Egypt, and there might also be a fulfillment of that prophecy in Isaiah, xix: 1: "Behold, the Lord rideth upon a swift cloud, and shall come into Egypt," 999 making the number of judgment. Wordsworth says of these words: "This passage has been applied by ancient Christian expositors (as Origen, Cyril and Theodoret) to the coming of Christ in person into Egypt (Matt., ii: 20), and to the effects of His divine presence there, to which Milton refers in his 'Ode to the Nativity':

"Peor and Baalim

Forsake their temples dim,

With that twice battered God of Palestine;

And moonèd Ashtaroth,

Heaven's queen and mother both,

Now sits not girt with tapers' holy shrine," etc.

Yours truly,

J. A. UPJOHN.

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FROM REV. E. P. INGERSOLL.

Many thanks for your letter and the November number of the *Magazine*. It is a wonderful number—wonderful by every article it contains. Indeed, I have no hesitation in saying that every article must have been written under the divine direction. As to my own article, I can say with truth that I never could have written such an article with my own unaided power. Indeed, I often tremble, not with fear but joy, joy unutterable, at the evident approach of the Divine Spirit and His overshadowing power when I am writing or speaking on this wonderful subject of the "Identity," the fulfillment of the divine promises made to our fathers. My brother, God is revealing himself now, as it seems to me, in a most wonderful manner. His language to the world now is in tones so clear and so emphatic that all must hear, whether they will or not.

Whence this mighty impulse given to the whole human family, the like of which the world has never felt before? Infidelity—was it ever so rampant before? The history of the world gives us no account. And whence comes this mighty awakening of the whole Christian world—the Anglo-Saxon race—to preach the gospel in all lands, to every creature? This influence is not human in its origin—nothing but the Divine could ever have produced so mighty a movement. The time must ere long come when the great shout shall be heard: "That the righteous of this world have become the kingdom of our Lord and of His Christ."

In love,

E. P. INGERSOLL.

FROM REV. ALEX. MACKAY, M. A., LL.D.

VENTNOR, T. W., November 7, 1884.

Accept my best thanks for sending me THE INTERNATIONAL STANDARD for September of this year. I have read it very carefully, and find it brimful of deeply interesting matter relative to the Great Pyramid. The various articles are ably and eloquently written by men of the highest learning and scholarship, and would do honor to any first-class quarterly in this or any other country.

Yours faithfully,

ALEX. MACKAY.

FROM JAMES M. DURKEE.

I desire to call your particular attention to the views of Mrs. E. Bedell Benjamin, relating to the "Sphinx." She has reached the same conclusion which I had arrived at a year ago, and sent you in a printed paper, entitled, "Voice from the Pillar." She has "searched it out" by the constellations and lines in the heavens, and found it out by the "visible signs" on earth and the constellations of humanity! Would it be asking too much that my view may be stated in the next number of the Institute, and so expressed last December (or 1883) to wit: That the Sphinx was *intimately* connected with the Great Pyramid and symbolized as expressed in my paper, "The Watch of God."

"The Field of Zoan, in Egypt," is a great book; the pyramids are only illustrations. The dust of ages is going to be "brushed off." The angels of God are going to ascend "Jacob's Ladder;" but the angels are human beings, God's messengers of truth. We have to do with that by and bye. The world and even Christians put God too far away. He is near.

Yours truly,

JAMES M. DURKEE.

FROM J. L. DAMPIER.

LONDON, ONT., December 19, 1884.

The more one thinks of the series of links in the "Unveiling of Isis," the more one is impressed with the divine design of foreknowledge being brought to light therein. Now in these times when everything is tested, questioned and brought to the fore; when earth is casting up buried relics of past ages of Egypt, Assyria, Greece and Rome, shall His chosen people be without their signs, marks and footsteps, along and down the well-trodden paths of the ages? Shall Babylonians, Persians, Medes, Grecians, Romans, be made the subject of deep Scriptural language, and the fifth kingdom vanish in the idle fancies of a dream, or in a spiritual existence which we cannot see, take hold of, touch or handle? Shall men like Nebuchadnezzar, Cyrus, Alexander, come forward as leading actors on the world's stage, so much so as to be named in His Word, and His chosen people lie silent in the tomb? No. Let us be assured that this cannot be. These nations, peoples and men have been brought on the stage of life as aides subservient to His will and grand scheme. Is it more wonderful, out of the way or contrary to reason, to ascribe to such good and great men as Columbus, Luther and Washington, acts and deeds emanating from the same guiding hand as brought to the fore and made use of those great and mighty sovereigns before mentioned. No, but far more within the bounds of reason and common sense when we compare the three with those who have gone before, or have passed o'er the stage up to this time. Have we not examples enough in our own time of the power of genius, "That quality without which judgment is cold and knowledge is inert." Coming to the fore wonderfully, yes, we may say, miraculously, with inspiration with regard to the great men who have so prayerfully and earnestly taken up the grand

and absorbing questions of the day. "The Great Pyramid" and "Anglo-Israel," what a deep searching of the Scriptures they have occasioned, bringing to the light deeply hidden passages which were never understood, neither could have been, without a knowledge of these subjects.

Is not God the same yesterday, to-day and to-morrow? He changes not, but we do. This age does not associate in its mind the same idea of God as when reading of the God of Abraham, Isaac and Jacob. People seem to imagine that there is now a different state of things, a different dealer with the affairs of life; so that when prominent men are brought forward and spoken of as characters in close alliance with Him, and as acting and doing under His guidance, as Columbus before braving the unknown waste of waters, sailing he knew, not whither; Luther before casting down the gauntlet at the feet of the Pope, and Washington before fixing bayonets against the powerful armies of Ephraim, if such men (in these degenerate days of thoughts upon God and his deeds) are spoken of as devout and holy men, inspired by God and led by him, the writers are laughed to scorn. If such deeds are ascribed to them as brought forward in the "Unveiling of Isis," the ascribers are termed fanatics or lunatics, promulgators of a new religion. Thus, these railers, by their sarcasm, unveil their weakness and ignorance, and their skimming, surface reading of the Divine Book. To us it is most comforting and assuring to see what at first appeared a most complicated and entangled rope laid in regular coils upon the deck ready to sustain the anchor of our hope, that we are His chosen people, and that the Pyramid was built by His command and sealed unto the day of revealment. Oh, weak in faith, rest assured that the God who interested himself in the building of the ark, the tabernacle and temple, also garnished the Heavens with the "Serpent and the Cross," built the Pyramid a perfect symbol of earth, spoke and conversed with all the patriarchs of old and prophets up to Malachi, then spoke to us by His Son, and hath since then spoken in divers ways and manners to man.

J. L. DAMPIER.

FROM JACOB M. CLARK, C. E.

I notice that Professor Tylor, of Oxford, England, stated to the National Academy at Newport, among other things, in reference to the North American Indians: "The prevalence of the *five-pointed star* of the Asiatic Magician was paralleled among the Indians, too."—[*N. Y. Tribune, Oct. 16.*]

In the same paper, the announcement of the discovery of a new asteroid, by Palisa, at Kiel, Germany, affords an illustration of the advantage of the geometric over the prevalent system for expressing co-ordinates in astronomy.

	TERMS OF ARGUMENT.	CURRENT METHOD.	GEOMETRIC. 240° TO THE CIRCLE
	Greenwich Mean Time,	4.033	40°.33
	Right Ascension.....	2 h. 18 m. 26.3 sec.	23.073
Epoch, Oct. 14, 1884.	Declination.....	plus 13° 47' 11"	+ 9.1907
	Daily Motion.....	West (time) 56 seconds.	W. 0.1611+
		South (arc) 6 minutes.	S. 0.0666+

The Metrological Society are flooding the land with their pamphlets in the interest of French metrics. There are many things firmly believed in by us (though with minor differences) which are unintelligible to the masses, and which they will not stop to investigate; yet the world will come in, in the appointed time. Therefore, I think much effort should be now directed towards diffusing knowledge of the scientific basis and the peculiar convenience of our fundamental units *in themselves*, in such plain terms that the hum-

blest people can understand it. Jurists should be particularly advised on these matters.

Mrs. E. Bedell Benjamin's article on the "Sphinx" contained much that was **decidedly** new to me. It will attract much attention.

Truly yours,

JACOB M. CLARK.

FROM LIEUTENANT TOTTEN.

November 30, 1884.

Mr. Edward Hine, the great advocate of Anglo-Israel, has been out here staying with me. He has come to America to thoroughly lecture over it, and I pray God will have eminent success. You must give him a large meeting in Cleveland when he reaches you. You will enjoy his conversation. His personal copy of the Bible is a wonder. He has underscored in red all verses which refer to Israel, in blue all to Judah, and in green all to the Gentiles, and it reads like a new book.

The "Unveiling of Isis," and the secret of it, lies in England and America, as his "chosen people." Oh! that all the world could have to-night a present of Hine's "47 Identities," and not sleep till they had read them. What an awakening we would have to-morrow. I sincerely trust his mission will be blessed on this continent. I am now devoting my time to a study of certain lines of history relating to this phase particularly, and have made some very astonishing Anglo-Saxon synchronisms on to the times of the Gentiles as tabulated in H. Grattan Guinness' work, "The Approaching End of the Age." I can run Anglo-Saxon chronology on to the scheme of Guinness in such a way as to startle the "wise," though the wicked will continue to close their eyes to the truth. I believe 1885 is to be a very important year in Anglo-Saxon history, and probably in that of the whole world.

LIEUTENANT TOTTEN.

FROM ARCHDEACON STOCK.

WELLINGTON, NEW ZEALAND, November 22, 1884.

I was delighted to hear from Professor Piazzi Smyth that your Society was determined to explore thoroughly the Pyramid, and hope that you will be able to commence work at an early date. I have long thought that if the rubbish on the north side were removed discoveries of no small value would be made—that there is a second entering passage, running under and parallel to the first passage, concealed by the north side pavement. My reasons are, that there is such a passage in the second pyramid, confessedly a copy of the first; Herodotus speaks of the burial of Cheops in the Great Pyramid; that this is indicated by the vertical position of the side-walls' stones at one portion of the descending passage, and that diorite fragments were found in abundance by Professor Piazzi Smyth amongst the rubbish on the north side, while there is as yet no diorite work found in the Pyramid.

Mr. Petrie has suggested that the level of the Pyramid base line must be taken from the level of the pavement. It would seem to be more in accordance with the intention of the Pyramid architect to conceal his design, that the true base line should be hidden by the pavement.

Yours obediently,

ARTHUR STOCK.

LETTER FROM JAS. SIMPSON.

16 PALMERSTON ROAD, EDINBURGH, November 28, 1884.

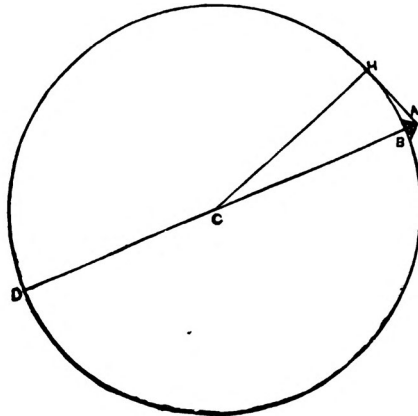
*My Dear Professor Piassi Smyth*.—I have been too long in acknowledging your kindness in sending me Colonel Herschel's valued memorandum on the pendulum. I have copied it for future reference, and now return it. I must say that, whatever objections the colonel may have to Great Pyramid testimony on scientific matters, he has shown an excellent spirit in answering so promptly and succinctly the enquiries you were so good as to put to him in regard to gravity representatives at the Great Pyramid. He makes :

Length of 5 sec. pendm. there= . . . . . 976.65 inches }  
 and drop of stone in 5 sec., or  $\frac{\text{gravity}}{2} = 4819.50$  inches } = 5796.15 B. ins. = 5790.56 P. ins.

a quantity which he considers can only very slightly be affected by local causes. I would merely note that this quantity (or indeed any other estimate for the same conditions, or even varying the elevation within the Great Pyramid's height, etc.) is contained within the various limits for height which the building, with its sunken sockets and added pavements, must needs have. The quantity, in fact, is there—with or without the meaning I have fancied for it, and which is sadly in want of a reason annexed for conjoining two diverse measures of gravity in the same straight vertical line. If the Pyramid's centre of gravity were at 976.65 above the base (which is not likely), and the component masonry below and above that point were adjusted to two different but related means (related also simply to the moon's mean density), some such arrangement would go to strengthen, if it did not altogether justify, the idea put forward.

Colonel Herschel assumes ellipticity (I suppose, for all meridians,) at 1:290. I had thought that, of late, the mean was believed to be more nearly 1:300. Perhaps you will forgive allusion to an old idea I propounded (January, 1873,) as to ratio of Pyramid height to earth's diameter being the square of earth's meridional ellipticity, as thus :

Height (say) 5813 P. ins. : 500,000,000 P. ins. as 1 is to the square of 293.28, which I supposed might be the ellipticity of the meridian passing through the Pyramid itself. An idea, this, which arose from a simple geometric proposition, as in diagram below, where



$AB \times AD = AH^2$  (a property of the circle). If  $AB = 5813'$  and  $AD = 500,000,000'$ , then  $AH = 1,704,846' = 26,7448$  English miles. That is the distance which could be seen from the top of the Pyramid, 5813 high, over the surface of a sphere coincident with the

plane of its base, and is at the same time the polar compression applicable to or arising from or giving rise to an ellipticity of meridian of 1:293.28 (as above)—a curious coincidence. I must apologize, however, for this reference. That there seems no limit to what the Great Pyramid may have to tell us about the deep things of time and space both in earth and heaven, seems suggested by the wonderful discovery by Professor Pliny E. Chase, to which you draw attention at the end of your telling reply to Rev. Dr. Barnard's attacks on Great Pyramid metrology.

I would close by a reference to another matter which I fear you may consider an extravagant fancy. Such as it is, let it speak for itself. I was struck lately with the statement that sound travels at the same rate, whatever be the pitch. Hence it would seem that the velocity of sound per second, divided by the vibrations per second of any musical pitch, gives the wave-length of that pitch. A rough trial of the case of treble C sharp gave wave-length somewhere about 26.7 inches, suggesting at once coffer's interior breadth and the question: Is there music in the coffer? Pitch, however, is a moveable thing, varying with age, country and fashion, and seems to have risen in England, since A. D. 1699, from 489 vibrations per second for treble C, to 528, the number presently in favor, though many preferred 512 when the matter was discussed. Then sound travels quicker in increased temperature by nearly one foot per second per degree Fah., and also if its intensity is increased. Hence, the fixing of wave-lengths must be subjected to "conditions," and vary with these very sensibly.

Now, 528 vibrations per second for a velocity of 1134.485 feet per second, which is somewhat conformable to a temperature of 68° Fah., gives a wave-length for the *middle C* (between treble and bass clefs)=51.516 P. inches. This line (of powerful coffer, king's chamber and Pyramid significance) seemed decidedly the best connecting link, especially as 51.516, etc., is recognized as a "modulus" governing nearly all the measurements of the coffer—lineal, superficial and cubical. We have, therefore, at once:

	Wave-length.
Middle C	264 vib., 51.516.
C <sub>1</sub>	132 " 103.033.
C <sub>2</sub>	66 " 206.066.
Lowest C in pianoforte	C <sub>3</sub> 33 " 412.132.

All familiar numbers and lengths. If, again, we take the octave between C and C<sub>1</sub> we have:

- (1) G  $\frac{3}{4} \times 51.516 = 34.344$
- (2) F  $\frac{2}{3} \times 51.516 = 38.637$
- (3) E  $\frac{3}{2} \times 51.516 = 41.213$
- (4) D  $\frac{4}{3} \times 51.516 = 45.792$
- (5) A  $\frac{3}{2} \times 51.516 = 30.910$
- (6) B  $\frac{4}{3} \times 51.516 = 27.475$
- (7) C<sup>1</sup>  $\frac{1}{2} \times 51.516 = 25.758$

(1)=depth of coffer; (2) breadth of coffer; (3) height of coffer; (4) half length of coffer approximately, or perhaps diameter of circle having area = area of outer end of coffer; (5) side of square equal in area to inner end (this is theoretically exact, if depth 34.344 and angle of diagonal 51° 51' 14"); also 30.91 × 3 = 92.73; (6) this is too long for inner breadth, as (7) is too short. Hence it has to be admitted that the analogy is not perfect throughout. It must be remembered, however, that the temperature of a keyed instrument modifies the pitch of most of the notes, and this gives room for theory. Again: harmony depends upon the frequency of coincidence of the waves of sound, *i. e.*, upon the simplicity of the ratio between the vibrations per unit of time of the two notes, as 2:3, 3:4, 3:5, 5:8, etc. Yet the musical scales as used in vocal and instrumental music do not employ all the possible simple and therefore harmonious intervals, but only



some of them. For example, the ratios 4 : 7, 2 : 7, 1 : 7, are not in use, yet they produce fine harmony ; and the same may be said of others not employed by man.

You will perceive that in this rambling letter I have only indicated what might, in good hands, prove a profitable field for investigation. The enclosed diagram may aid you in understanding my rather insufficient explanations.

Alternatively coffer breadth might be taken at 116.260 ÷ 3, as in column 2, and from thence Bb above bass cleff = 58.13 ; lower octave, 116.260.

The longest and shortest dimensions shown in king's chamber are (100:1) —

Cubic diagonal.....515.164, and

Extra wall depth (cir) .... 5.151,

and waves of such lengths respectively are near the lower and upper limits of man's music. With thanks, I remain,

Yours very truly,

JAS. SIMPSON.

Professor Piazza Smyth, 15 Royal Terrace, Edinburgh.

TRANSACTIONS OF THE OHIO AUXILIARY SOCIETY OF THE INTERNATIONAL INSTITUTE.

November 5, 1844.

Mr. A. M. Searles, Vice-President of the Ohio Auxiliary, occupied the chair.

Communications referring to the charter were read from Jacob M. Clark and Colonel Stephen M. Chester. A letter was read from Mr. J. Leyland Feilden in favor of the meridian of Jerusalem for the prime. A paper of Mr. George C. Davies, addressed to the metrologists of the Institute, was read by the Secretary.

The fifth annual convention was held at 2 P. M., November 11th.

Mr. A. M. Searles was appointed chairman of the meeting. The minutes of the fourth annual convention, the address of the President, the reports of the Treasurer and Secretary were read and approved, the constitution and the charter were discussed. A committee was appointed to prepare an amended constitution. It consisted of Rev. H. G. Wood, chairman ; A. M. Searles, J. H. Dow, Charles Latimer and Dr. J. W. Redfield.

At the evening session papers were read by Rev. H. G. Wood and Dr. J. W. Redfield. A paper of Coleman Sellers on "The Metric System" was also read. The convention then adjourned to meet at the call of the President.

November 19.

Rev. Alex. Mackay, M. A., LL. D., Ventnor, I. W. ; George Chipman, Idaho Springs, Col. ; James P. Trott, Niagara Falls ; Samuel Murphy, Nashville, Tenn. ; Richard Pomeroy, Georgetown, Col. ; E. H. Stimson, C. E., Denver, Col. ; were elected members. Mr. A. M. Searles gave his report of the work accomplished at the annual meeting with reference to the charter. Letters were read from Rev. Alex. Mackay, J. E. Hilgard, Professor I. Vail and C. B. Whyte, and papers from Colonel Stephen M. Chester and J. K. Hornish. The adjourned annual meeting was appointed for Wednesday, December 3.

December 3.

Rev. E. Craven was elected an honorary member.

The report of the Committee on Constitution was read. After discussion it was decided that the present headquarters of the Society should be in Cleveland, as THE INTERNATIONAL STANDARD, the organ of the Society, is there published. It was shown

that the Society was free from debt, and that no officer of the Society had the right to contract any debt for which the Society could be held responsible.

A committee on nominations of officers and committees was appointed; it consisted of Roland D. Noble, chairman; Dr. J. W. Redfield and James S. Lawrence. The officers elected were: President, Charles Latimer; Vice-President, Lucian I. Bisbee; Secretary, Mary B. Sanford; Treasurer, A. M. Searles; Trustees, Rev. H. G. Wood, General C. B. Norton, A. M. Searles, Clark Fisher, Charles Latimer.

Committee on Weights and Measures—Rev. H. G. Wood, chairman; Professor Piazzi Smyth, Lieutenant Totten, Jacob M. Clark, C. E.; W. H. Searles, C. E.; S. F. Gates, M. E.; Charles Latimer, C. E.; J. E. Hilgard, Chief United States Coast Survey; J. Ralston Skinner, Samuel Beswick, C. E.; Professor N. B. Wood, Professor Alfred Taylor.

Committee on Weights and Measures of different States—James S. Lawrence, chairman; H. M. Addison, George C. Davies.

Rev. H. G. Wood then read and illustrated on the blackboard a paper on "Metrology," which appears in this number of the STANDARD. After discussion, the convention adjourned to meet at the call of the President.

December 17.

Mr. James S. Lawrence presented his report of statistics, obtained from the Governors of different States and Territories, relating to the weights and measures in use. Mr. W. H. Searles was added to this committee. J. K. Hornish was added to the Committee on International Weights and Measures.

The President then read the report of the committee.

The President then read the ninth report of the Metric Committee on Weights and Measures. It is signed Charles H. Swan, Fred Brooks and Clemens Herschel. The determination of the metric advocates to accomplish their ends is plainly shown by this circular. On the other hand, the International Institute will take an energetic action to sustain its hereditary units.

Papers were read from James P. Trott, of Niagara Falls, and from J. K. Hornish, of Denver, Col. Letters from Rev. Alex. Mackay, Mrs. E. Bedell Benjamin, Rev. E. P. Ingersoll, James M. Durkee and W. Leconte Stevens, were read.

December 31.

In the absence of the President, Mr. A. M. Searles, Vice-President of the O. A., occupied the chair.

George Ingersoll, of San Francisco, Cal., was elected a member. The creed of the Institute, formulated by Rev. H. G. Wood, with comments by J. H. Dow and Dr. Redfield, was read. A letter was read from Mrs. E. Bedell Benjamin which contained a request that such a creed should be written. The writer was not aware of the action of Mr. Wood with regard to it. Professor N. B. Wood exhibited the half yard steel bar prepared for the Society by Professor W. A. Rogers, of Harvard College. An article from the *Evangelical Churchman*, Toronto, was read. It ridiculed the work of the Institute, and termed its adherents followers of the "Pyramid religion." The paper was discussed and its statements controverted.

JANUARY 14, 1885.

Mrs. James Le Boutillier, of Cincinnati, and Mr. James H. Osborn, of this city, were elected to membership. A letter was read from Archdeacon Stock, of Wellington, New Zealand, a distinguished Pyramid student, who gave some new theories of extra passages and chambers in the northern part of the Pyramid. A letter was also read from Mr. F. A. R. Winter, of Demarara, Guiana, on the religious symbolism of the Pyramid. A letter which had been sent to the Astronomer Royal of Scotland, Piazzi Smyth, from Mr. James Simpson, of Edinburgh, Scotland, upon the relations of the pendulum to the Pyramid, also the diatonic scale of music relating to weights and measures, and especially to the

coffer of the king's chamber, was read. This was illustrated by Mr. W. H. Searles upon the blackboard.

The idea of music having anything to do with weights and measures was a very novel one, and especially that there was any such relation in the measures of the coffer of the king's chamber. Rev. H. G. Wood also presented the same idea two weeks previous to the receipt of the Simpson letter. No sooner had the paper been read and explained by Mr. Searles than Dr. Redfield brought out a paper from *Mechanics* for January, 1885, a journal of engineering and mechanical progress. The paper read was entitled, "Chinese Music, Weights and Measures," giving a curious account of the origin of the Chinese weights and measures and musical notes, from a paper read before the German Asiatic Society, by Dr. Wagener, it shows that Lyng-lun invented a system of weights and measures by fixing the length of the reeds which gave certain keynotes, and from these notes, obtained by the length and width of reeds, weights and measures are also regulated, also coinage, and from this Dr. Wagener says positively: "It appears from this account that in China weights, measures, coinage and the tuning of musical instruments have been derived quite consistently from a constant unit supplied by Nature herself, and that the essentials of this system are over 4,600 years old."

A paper was also read, sent to the Society, by Mr. J. L. Dampier, London, Canada, and from Mr. Cox, of London, upon the "Mystery of Numbers."

Rev. H. G. Wood, of Sharon, Pa., sent a memorandum of discoveries in the coffer measures, showing the precise relations to all of the Hebrew measures and their relation to circular measure, and showing the connection between the coffer measures and the measures of the king's chamber.

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## MONTHLY RECEIPTS FROM SUBSCRIBERS TO THE INTERNATIONAL STANDARD FROM NOVEMBER 1ST TO JANUARY 21ST.

NOVEMBER—Charles B. Whyte, \$3; Samuel Murphy, \$12; Edward C. Frisbee, \$10; S. H. Reeve, \$2; Rev. Alex. Mackay, \$6.33; James P. Trott, \$2; Miss Bertie Oviatt, \$2; Miss Quirk, \$2; James S. Lawrence, \$4; F. A. R. Winter, \$10; Hon. Nathaniel Safford, \$2. Total, \$55.33.

DECEMBER—Mrs. Mary S. Bradford, \$12; Dr. P. W. Taylor, \$2; Boston Public Library, \$2; J. L. Dampier, \$4; W. K. McAllister, 40 cents; J. U. Drew, \$2; T. H. Pease, 25 cents; Mrs. E. Bedell Benjamin, \$3.50; Jesse Opperman, C. E., \$3; Rev. E. P. Ingersoll, \$5.05; Prof. I. N. Vail, 25 cents; W. H. Searles, \$2. Total, \$36.45.

JANUARY—Boston Public Library for bound volume, \$3; Mrs. James Le Boutillier, \$4; Rev. M. Murphy, \$2; W. H. Barnett, \$2; J. H. Dow, \$4; Dr. John Forrest, \$2; Cleveland Public Library, \$2; P. Collopy, \$2; W. J. Gilbert, \$1.70; T. H. Pease, 50 cents; Mrs. Jane Copeland, \$2; Colonel S. M. Chester, \$2; Mrs. J. R. Smith, \$2; Richard Bull, \$2; P. H. Stewart, \$2; Gustav Vogelsang, \$2; Dr. J. V. Reynolds, \$2; Clark & Carruth, for Boston Public Library, \$2. Total, \$39.20.

EXTRACTS FROM PROCEEDINGS OF A MEETING OF THE NEW YORK AND NEW JERSEY BRANCH OF THE INTERNATIONAL INSTITUTE.

Rev. A. D. Barber responded to the call of the president and mentioned that a just system of weights and measures was one of the most important and practical subjects that we are ever called to consider. It was important because it involved the doing of right or wrong in a large part of our intercourse with our fellow men. It was practical, because it was the subject of Divine command. A just and practical standard would be one adapted to the nature of things, to the physical organization, and to the moral improvement of man. The units of such a system would be simple, always at hand, ready and easy to use. Such a system we have, in part, in our Anglo-Saxon system. Some of the leading units of the Anglo-Saxon system are taken from the members of the human body, and are the first that are named in history. Mr. Barber did not propose to treat generally the subject, but to quote authority against the French metric and in favor of the Anglo-Saxon system, viz: that of John Quincy Adams. Mr. Adams began his investigation of the subject of weights and measures in 1810, when he was Minister to Russia. He pursued it with his usual industry and persistence for more than ten years, studying the Hebrew, Greek, Roman and French systems, in order to come to the best conclusions, considering also the philosophical and moral principles involved in the subject. In 1821, he made a report on the subject to the Congress of the United States, a report which his biographer well calls a "solid and magnificent monument of research and reflection which has not been superseded by any other treatise." Mr. Adams' own estimation of his works is given in his diary, where he speaks of two most remarkable transactions of his life: First, was the exchange of papers respecting the Spanish treaty; second, his report to Congress on weights and measures. He further says: "I have no reason to expect that I shall ever accomplish any literary labor more important to the best ends of human exertion and public utility, or upon which the remembrance of my children may dwell with more satisfaction." Of the metric system, Mr. Adams says: "I approve and disapprove the French system. I admire its design and the spirit and perseverance with which it has been pursued. I think it erroneous in some of its principles and impracticable in many." He advises Congress not to meddle with the system, but consider if, in adopting the metric, they would not cause many more evils than they would cure. He also maintains that the present diversity and difficulties in respect to weights and measures have resulted from impractical legislation and from the theories of impractical theorists. Mr. Barber also quoted Sir John Herschel as essentially agreeing with Mr. Adams against the metric system.

Mr. O. P. Hatfield, treasurer of the American Institute of Architects, in response to the call of the president, explained that he was present simply as a listener, and for the purpose of understanding the objects of the Institute, but without desiring to advance at this time any special views; that from the notice he had received, he had not understood that he had been invited to attend except in place of the secretary of the architects. He thought the architects of this country desired a decimal system, but were not generally in favor of the French system on account of the inconvenient length of the French metre, and its want of adaptation to any recognized measure. At present the architects were using the foot, and would prefer a decimal subdivision rather than the duodecimal as a matter of convenience; that since listening this evening he was favorably impressed with the plan proposed by Mr. Clark and Mr. Tottem, based upon acre, and, correlatively, the inch. The architects are using the foot without prejudice against any decimal system which may prove to be better than one based on that as a unit.

Mr. Hatfield's address was eminently conservative in tone, and exceedingly instructive.

TREASURER'S REPORT.

TWELVE MONTHS ENDING NOVEMBER 8, 1884.

RECEIPTS.		
Balance last statement.....		\$ 42 76
MEMBERS—Annual Dues.....	\$ 861 30	
" —Sustaining Fund International Standard...	408 44	
	<u>1,269 74</u>	
CHARLES LATIMER—Witch Hazel Mining Company..	\$1,351 21	
" —Private Account.....	354 65	
	<u>1,705 86</u>	
		\$3,018 36
SUMMARY.		
Receipts.....		\$3,018 36
Disbursements.....		2,991 08
Balance.....		<u>27 28</u>

COMPARATIVE STATEMENT.

CASH ACCOUNT—NOVEMBER 8, 1879 TO NOVEMBER 8, 1884.

1879—1880.		
Receipts (Estimated).....		\$1,000 00
Disbursements (Estimated).....		1,000 00
Balance on hand November 8, 1880..		<u>\$0,000 00</u>
1880—1881.		
Cash on hand—Balance last statement.....	\$ 0,000 00	
Receipts.....	3,287 76	
	<u>3,287 76</u>	
Disbursements.....		2,326 39
Balance on hand November 8, 1881.....		<u>\$961 37</u>
1881—1882.		
Cash on hand—Balance last statement.....	\$ 961 37	
Receipts.....	761 34	
	<u>1,722 71</u>	
Disbursements.....		1,636 84
Balance on hand November 8, 1882.....		<u>\$85 87</u>
1882—1883.		
Cash on hand—Balance last statement.....	\$ 85 87	
Receipts.....	2,298 79	
	<u>2,384 66</u>	
Disbursements.....		2,341 90
Balance on hand November 8, 1883.....		<u>\$42 76</u>

1883—1884.		
Cash on hand—Balance last statement.....	\$ 42 76	
Receipts .....	2,975 60	
	<hr/>	3,018 36
Disbursements .....		2,991 08
		<hr/>
Balance on hand November 8, 1884.....		\$27 28
SUMMARY.		
Receipts—Five years ending November 8, 1884.....	\$10,323 49	
Disbursements—Five years ending November 8, 1884.....	10,296 21	
	<hr/>	
Balance on hand November 8, 1884.....		27 28

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### EDITORIAL NOTES.

The article upon "The Identity of the Anglo-Saxons with the Lost Ten Tribes of Israel" has aroused more universal interest than any previous paper in our Magazine. Many have expressed surprise that they had not heard of this subject before, and are now earnestly investigating it. There is a great truth in it, and it is worthy of the careful research of all students.

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We have received from Mr. F. Hess, of Fort Dodge, Iowa, a copy of *The Daily Chronicle* of that place, containing an admirable review of THE INTERNATIONAL STANDARD for November. Other members have likewise had notices of the Magazine published in the newspapers of their respective towns. May we ask that each member will endeavor to do this, and thus increase our subscription list? If the Magazine ever becomes a paying institution, the proceeds will be religiously devoted to the work of the Institute.

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We have received "The Ninth Report of the Committee on the Metric System of Weights and Measures." A few years ago, at a meeting of the "Boston Society of Civil Engineers," only eleven members were present. Seven of these favored the metric system, and advised Congress to make its use compulsory.

This report is an outcome of that action. A committee of three civil engineers gives advice to the medical fraternity of the country, though many members of that fraternity have declared against the metric system, though the surgeon-general of the army has said that its introduction would cause thankless and unnecessary labor, would waste much precious time, and might endanger life.

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The International Institute has received from Prof. W. A. Rogers, astronomer, Cambridge, Mass., a standard 18-inch bar of tempered steel having a highly polished surface. At one end there are four thousand lines in four-tenths of an inch. The remainder of the bar is graduated to tenths, one hundredths and one thousandths of an inch. These graduations can be plainly seen under the microscope accompanying the bar. The work has been done with machinery which Prof. Rogers has perfected. The bar has been placed in the care of Prof. N. B. Wood, who has charge of the Society's balances.

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## REVIEWS.

FACTS AND DATES, OR, THE LEADING EVENTS IN SACRED AND PROFANE HISTORY, AND THE PRINCIPAL FACTS IN THE VARIOUS PHYSICAL SCIENCES, the memory being aided throughout by a simple and natural method, by the Rev. Alex. Mackay, LL. D. F. R. C. S.

This work is not mainly a system of mnemonics. It is a compilation of scientific and historical facts, admirably classified, and is invaluable as a book of reference. We cannot give a better idea of the book than by quoting from the History of Ancient Egypt, a section devoted to the Great Pyramid of Jeezeh:

GENERAL CONSTRUCTION AND FORM OF THE MONUMENT.

*Art. 1.—Its materials:*

A. The coffer is of hardest and toughest granite, and not intended for a dead body, as in other pyramids.

B. Internal passages and the so-called queen's chamber, of

white mokattam limestone, carefully selected for parts exposed to wear; joints wonderfully close; king's or coffer chamber of red granite.

C. Internal mass, not of rubbish like many other massive structures, but of well-cut blocks, cemented; these and the foundation rock are of nummulitic limestone, completely pervaded with fossil tokens of organic life.

D. Externally of white mokattam limestone, of remarkable finish originally; it probably surpasses any building material since selected by man. Any exposed surface of it generates spontaneously, by the action of the weather, an efficient protecting coat of a buff tint.

E. The cement of the fine joints is of astonishing tenacity.  
*Art. 2.—The correctness and discretion shown in its workmanship:*

There is abundant precision wherever it is important for scientific data, etc., but a utilitarian economy of such workmanship, in proportion as it can be dispensed with, having regard to the meaning of the parts, and the securing of durability; while parts not to be metrically reckoned are made ostentatiously rough.

*Art. 3.—Its metric standard:*

A. For parts cosmically and symbolically significant, is the sacred cubit 25.025 British inches, exactly one ten-millionth of earth's polar radius—the only natural standard of both unique and extreme precision; a standard of divine origination, primeval, and preserved in the least disturbed line of Abraham's family, the Arabs, to the present day.

B. Other parts of the structure, not significant, are made in terms of quite another unit, of different origin—the earliest Gentile cubit, 20.700 British inches, called the cubit of Memphis, popularly confused with the above named.

C. National standards in general have originated in one or other of these by various divisions. Organic objects, as foot, arm, cane, reed, approximating in length, were the usual origin of the national names of the later derived standards, but not of the dimensions of those later standards.

*Art. 8.—The courses of masonry:*

A. Level throughout, like horizontal strata, not dipping in-



wards, square, with external face in the more proper way for security; a special reason is perceptible: As it is built, every external stone of its now ruined surface shows the original slope, and therefore height or radius of construction and the  $\pi$  ratio of base—the roots, in short, of the structure's references and meanings.

B. Partly for the same important reason the blocks of the core of the structure were set off, accurately in the long run, to the same slope as the batter of the finished casing was to be.

C. There are indications that the horizontal joints of some important courses divided the direct slope or measurement up the face, in terms of the sacred cubit as a unit.

*Art. 9.—Their numbers:*

The twenty-fifth course is the level of the so-called queen's chamber; the fiftieth course, that of the king's chamber; the two hundred and ninth course completed the Pyramid, and shows the number of pyramid degrees subtended by all the courses, from the axis at the level where the entrance passage intersects the east and west vertical mid-section plane.

*Art. 10.—The vertical axis is unintercepted:*

All the chambers, passages, etc., are made so as to manifest that they were to avoid interrupting the axis.

*Art. 11.—The dominant number throughout the Pyramid is five:*

Subordinately, five is associated with ten.

Less specially, three in connection with seven; and nine with ten.

Each have symbolic meanings determining their occurrence and domination.

I will give further extracts from this book in subsequent numbers. The Mnemonic system is as follows: The consonants of the English alphabet are employed to express numbers; the five vowels are disregarded, and the half vowels, W, Y, are used to denote the cipher O and the letter X. BC = 1, DF = 2, CH = 3, JK S = 4, L = 5, MN = 6, PG Z = 7, R = 8, TV = 9. To remember any fact in science, or event in history, a short sentence is formed bearing on the fact or event, in such a way that the first consonants of the several

words shall express the figures or numerals in the number we desire to remember.

Example—Babylon founded by Nimrod, 2534.

Mnemonic sentence—*A famous lawless hunter established it.*  
Thus *F* stands for 2, *L* for 5, *H* for 3, and *S* for 4 = 2534.

Example 2—Suphis (Cheops,) aided by Philites, a shepherd prince, builds the Great Pyramid at Jeezeh, 2170.

Mnemonic sentence—*Its founder characterized by profound wisdom.*

Example 3—Battle of Bunker's Hill, 1775.

Sentence—*Colonial patriots purchase their laurels.*

We heartily commend this book to the attention of our readers. It has received the highest encomiums from reviewers and principals of schools. It is published by William Blackwood & Sons, Edinburgh and Scotland.

THE ATONEMENT FOR SIN AND SICKNESS. By Captain R. Kelso Carter, of the Pennsylvania Military Academy.

This book presents a clear Scriptural argument, fortified by hundreds of texts from Genesis to Revelation, to show that Jesus Christ is the same wonderful Healer to-day that He was eighteen hundred years ago; and that He heals bodies, as well as souls, by virtue of His perfect sacrifice on Calvary.

All the objections to faith-healing that have appeared in modern times are duly considered in the light of Scripture. Every case in the Bible is fully discussed, as, for example: Trophimus, Timothy, Hezekiah, Paul, etc., and each shown to be in perfect accord with the work of the Great Physician. And every difficulty in the way of those seeking healing through faith is thoroughly treated.

'THE WORD, THE WORLD, THE BRANCH.' BY J. LEYLAND FEILDEN, ESQ., Author of 'Links in the Chain of Evidence Connecting Israel and England'; 'The Gentiles and the Times of the Gentiles'; 'Israel's Jubilee, or 1882'; 'Israel Ubiquitous'; Etc., Etc.

This work opens up a new field in the consideration of chronology, and an entirely novel method of treating it.

Our world (7,200 years) is divided into 7 days. Each day contains 1,028 years, 205 days, 8 hours and *nearly* 7 minutes. It is also divided into 12 cycles of 600 years each. It is further divided into 7 parts of 1,000 years each, and a remaining part of 200 years after the millenium.

But the author alleges that our world, or the creation of Adam, began with the 43,196th year of the world. Just at the very close of the sixth day we arrive at the creation of the second Adam, the progenitor of those races now living. The year 43,200 *Anno mundi* immediately precedes *Anno Lucis*, or year of light, 1, when Adam's eyes were opened, and with the first promise of a Saviour; 43,200 A. M. dates from the fall, not the creation of our Adam. Our era commences from 43,201.

Our author claims that the whole dispensation to the fiery deluge contains 84 cycles of 600, or 50,400 years.

He claims that there were pre-Adamite races which were destroyed—in this, of course, he does not claim to be original. We have no difficulty in agreeing with him upon the first part of this. In fact, it is difficult to see how it can be possible that the races now existing, which have *no mythology, no history, no Bible, no knowledge of the great flood*, can have anything to do with, or be descended from the Noachian family. That all were and are to be blessed through the advent of the son of Isis or Eve there can be no doubt.

Our author divides the period of air and fire, the first day, into 12 cycles of 600=7,200 years.

The period of water, or second day, into 12 cycles of 600 years, or 7,200 years, which brings us to 14,400 years.

The period of earth, or third day, into 12 cycles of 600 years=7,200, which brings us to the year 21,600.

The period of transition of mineral to vegetable formation, or fourth day, 12 cycles of 600, or 7,200 years, which brings us to the year 28,800.

The period of reptile, fowl, and fish formed from water, the fifth day, 12 cycles of 600 years, or 7,200 years, which brings us to the year 36,000.

The period of man, sixth day, living creatures and men and

women created—Gen. i, 24, 31, 12 cycles of 600 years= 7,200 years. Glacial period, Eden prepared, Adam and Eve created. Fall.

Which brings us to 43,000 years from the beginning.

Concerning the creation of the second Adam, our author remarks that the second chapter of Genesis contains the history of the creation of this Adam, who is placed in Eden, specially prepared out of an otherwise cold, ice-covered and uninhabitable globe. The birds of the creation are formed out of earth, and *subsequent* to the creation of Adam himself. The previous men and women, as we have seen, were created after birds, and the birds of that era were created from water—.

“It is worthy of note that man is mentioned in Genesis ii, 5, and though there had been the previous watery creation, it never *rained*, and there was not a man to till the ground.”

The author, from his work, will be known as a full believer in the theory that the Anglo-Saxon people are the direct descendants of the lost tribes of Israel. He claims to be of the tribe of Reuben himself, avows that the day of inspiration is not past, and that God reveals himself to the humble seeker after truth and opens the eyes of his mind. He believes that in like manner as the Son of Man ascended into the clouds of heaven, so will he again come to reign upon a redeemed earth.

Mr. Feilden is now a member of our Institute, devoted to its objects heart and soul. We ask our members to give all of his works a hearing, and although they may not agree with all the theories presented, yet they will find golden thought, rich facts, and many deeply valuable and interesting things.

His books are published by Robert Banks, Racquet Court, Fleet Street, London.

## NOTES AND QUERIES.

Apropos of the recent discussion on the relation between measures of length and musical tones, I would like to have it examined whether the eight feet organ-pipe, for C major, may not be taken at Pyramid cubits = 100 Pyramid inches, to give the natural tone—the “concert pitch” being recognized as slightly high?

J. M. C.

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Please state to me, as near as known, how much too great the semi-diameter of the earth is, to accord with Pyramid requirements. I have long maintained that the great monument of Gizeh was a prediluvian one, and, if so, its basic measurements must accord with a diameter less than that now obtaining by about 900 feet. I am prepared to prove that the present diameter of the earth is from 70 to 80 fathoms longer, or greater than it was before the deluge, and if the Pyramid requires that much it becomes overwhelming proof of the truth of the “Annular Theory” from a source I had not expected.

I. N. V.

## CIRCULAR TO THE COMMITTEE ON WEIGHTS AND MEASURES.

*Dear Sir:*—The following gentlemen constitute the Committee of the International Institute on Weights and Measures for the current year :

PROF. C. PIAZZI SMYTH, ASTRONOMER ROYAL.....	Time Metrology.
J. R. SKINNER, C. E.....	Hebrew Metrology, Practical and Prophetic.
J. E. HILGARD, U. S. COAST SURVEY.....	The Measure of Gravity, or Weight Metrology.
PROF. N. B. WOOD .....	The Metrology of Chemistry, including Crystalizations.
PROF. ALFRED TAYLOR.....	The History of Metrology.
SAMUEL BESWICK, C. E.....	The Metrology of Coins or Values.
CHARLES LATIMER, C. E.....	Spherical Metrology, including Navigation.
JACOB. M. CLARK, C. E.....	Linear Metrology, including Itineraries.
LIEUT. C. A. L. TOTTEN.....	Cubic Metrology, including the Measure of Liquids and Solids.
W. H. SEARLES, C. E.....	Surface Metrology.
S. F. GATES.....	Metrology in Mechanical Industries.
J. K. HORNISH.....	The Symbolism of Metrology.
PROF. STOCKWELL.....	Circular Metrology.
PROF. ROGERS.....	The Metrology of Heat, Light and Sound.
COL. CHESTER.....	The Metrology of Electricity and Magnetism.

The object of the committee is an investigation of these several departments of metrology, with a view to determine the simplest, most practicable, accurate and harmonious system of weights and measures. As each department may or may not have a *unit* of measure peculiar to itself, you are requested to make the following points a matter of special inquiry :

- 1st. The best unit of weight or measure for the department assigned you, including a complete and accurate definition.
- 2d. Its best divisions or multiples for use.
- 3d. Its relation to ancient and modern systems of metrology.
- 4th. The facility with which a practical test of its correctness may be made and its correlation with Anglo-Saxon metrology may be established.

While these suggestions are made to indicate the scope of the committee's work, it is not desirable that any member of the committee should feel restricted to these four points. The papers of the committee are to be published in *THE INTERNATIONAL STANDARD*, and the hope is entertained that they will add greatly to the value and interest of the current volume. The committee on publication desire that each paper may not exceed five pages of the *STANDARD*.

H. G. WOOD, *Chairman.*

INTERNATIONAL INSTITUTE OF  
ANGLO-SAXON METROLOGY.

*Cleveland, O., January 17, 1885.*

ERRATA.

INTERNATIONAL STANDARD, NOVEMBER, 1884.

ARTICLE SPHINX.

Page 483—Line 4 from below, *read* “and to be a monument.”

Page 484—Line 18 from top, *read* “plain at the base.”

Page 488—Line 10 from top, *read* “Hor-em Khou.”

Page 490—Line 13 from top, *read* “Hor-em Khou.”

Page 491—Line 2 from top, *read* “Hor-em Khou.”

Page 490—Line 6 from below, *read* “be represented.”

Page 491—Line 16 from below, *read* “of Esnè.”

Page 491—Line 13 from below, *read* “species with.”

Page 492—Line 2 from top, *read* “See Mazzaroth.”

Page 492—Line 13 from top, *read* “Grattan.”

Page 492—Line 12 from below, *read* “by the stars Al Debaran.”

Page 492—Line 11 from below, *read* “Fom-al-haut.”

Page 492—Line 6 from below, *read* “called Criobilium.”

Page 493—Line 21 from below, *read* “Aquarius is pouring from a vase two,” etc.

Page 493—Line 9 from below, *read* “Sun of righteousness.”

Page 494—Line 2 from top, *read* “decans.”

Page 494—Line 4 from top, *read* “Ara.”

Page 494—Line 4 from top, *read* “Eagle.”

ARTICLE “UNVEILING OF ISIS”—NOVEMBER, 1884.

A quotation from the work of Rev. Jesse H. Jones, “The Kingdom of Heaven, what it is, where it is and the duty of American Christians concerning it,” begins on page 541, 7th line from top, and concludes the article on page 542. By the omission of the quotation marks at the close, the grand language of Mr. Jones is thus apparently credited to Charles Latimer.

## "UNVEILING OF ISIS"—JANUARY, 1885.

The opening sentence, "The United States of America is the Kingdom of Heaven which Jesus Christ came to Establish upon the Earth," should be credited to Rev. Jesse H. Jones.

Page 569—Line 2 from below, for Rodgers *read* Rogers.

Page 575—Line 9 from below, for slandered *read* abandoned country.

Page 577—Line 11 from top, for Galeani *read* Galiani.

Page 577—Line 13 from below, for Cerisiet *read* Cerisier.

Page 578—Line 13 from top, for Michigan *read* Nicaragua.

## SEPTEMBER, 1884.

## NOTICE OF ROBERT MENZIES.

Page 437—For "Leeds" *read* Leith.

## NOVEMBER, 1884.

## CHARLES CASEY'S SOLUTION OF THE MEANING OF THE "UNINTERPRETED SIGN."

Page 550—7th line from top, for "Arid" *read* Avid.

Page 551—3d line from below, for "Muir" *read* Menzies.

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NOTE.—The illustration intended for the frontispiece of the Magazine did not arrive in time to appear in this number. [EDITOR.]