

AN IMPORTANT QUESTION

IN

METROLOGY,

BASED UPON

RECENT AND ORIGINAL DISCOVERIES:

A

CHALLENGE TO "THE METRIC SYSTEM,"

AND

AN EARNEST WORD WITH THE ENGLISH-SPEAKING PEOPLES
ON THEIR ANCIENT WEIGHTS AND MEASURES.

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STATES," ETC., ETC.

"Remove not the ancient landmarks which thy fathers have set."

PROVERBS xxii. 28.

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METROLOGY.

“But thou shalt have *a perfect and just* WEIGHT, a *perfect and just* MEASURE *shalt thou have*: that thy days may be lengthened in the land which the LORD thy God giveth thee.” — DEUTERONOMY XXV. 15.

Ὁ Θεὸς μάλιστα πάντων γεωμετεῖ.

“He created Wisdom, and saw her, and *numbered* her, and poured her out upon all his works.”—ECCLESIASTICUS i. 9.

“Thou hast ordered all things in *measure* and *number* and *weight*.” — WISDOM xi. 20.

PREFACE.

“ And of Joseph he said, Blessed of the LORD be his land, for the precious things of heaven, for the dew, and for the deep that coucheth beneath,

And for the precious fruits brought forth by the sun, and for the precious things put forth by the moon,

And for the chief things of the ancient mountains, and for the precious things of the lasting hills,

And for the precious things of the earth and fulness thereof, and for the good will of him that dwelt in the bush: let the blessing come upon the head of Joseph, and upon the top of the head of him that was separated from his brethren.

His glory is like the firstling of his bullock, and his horns are like the horns of unicorns: with them he shall push the people together to the ends of the earth: and they are the ten thousands of Ephraim, and they are the thousands of Manasseh.” — DEUT. xxxiii., 13-17.

THE race to whom these pages are dedicated is by blood, by letter, and by the spirit, literally “ called in Isaac’s name.” As Saxons, they are the lineal descendants of the “ Saka-i-Sunnia,” or “ Sons of Saac ;” while, by the particular branch through which they derive their lofty genealogy, they are the posterity of Joseph, “ the beloved son,” “ to whom pertained the birthright.”

The Egyptian extraction of his two sons, Ephraim and Manasseh, bequeaths to them, together with all the blessings “ of him who was separated from his brethren,” an inheritance none the less royal and significant in the mysterious land of their mother, “ Asenath, the daughter of Potiphera, Prince of On.” Though, like another and a greater Son of Jacob, it is true that they were, in early days, “ called out of Egypt,” it is none the less true, that the summons was simply given to them for the purpose of extending the possibilities of their ultimate dominion.

In these latter days, when the ends of the earth seem literally to draw nigh unto us, when every nation is so deeply impressed with the uncertainties surrounding the long-contested solution of “ the Eastern ques-

tion," when an intense and ever-increasing expectancy has settled down upon the whole human race, it may well be asked if it is not a little remarkable to see the flags of these two *brother* nations united for the first time, since their independence, in the streets of Alexandria? In 1882 the bronzed tars of England and America, of "Brothers John and Jonathan," — the only nations called "brethren" upon the face of the earth, — landed together on the shores of the delta of that ancient stream upon whose banks their fathers, also brothers, had lived as princes twice eighteen centuries before. Shall we endeavor to convince ourselves, that, in this act, there was no overruling exercise of that Will which weaves the thread of destiny? or shall we cease to doubt, and yield to the conviction that there is indeed a power that giveth the dominion unto whom it will?

In the same year, 1882, both England and America struck off commemorative medals, upon whose reverse faces the two most mysterious emblems of Egypt, the Sphinx and Pyramid, were severally displayed as central devices. In their inception these medals had not the remotest connection. The one was the Egyptian war-medal of Great Britain: the other was the centennial seal-medal of the United States. Nevertheless, a strenuous effort was made to induce the Queen to adopt the Pyramid as the central emblem for the British war-medal. It had already been used by America that very year; and it was not likely that an occasion for its simultaneous employment by the two nations would soon, if ever again, occur. But Ephraim is not Manasseh, and so the idea of the Sphinx was adhered to by our fraternal nation as for it the most appropriate. Was Providence, which counts the hairs upon a human head, also an unconcerned spectator then? And were these matters really trivial things, and, after all, of no historic moment?

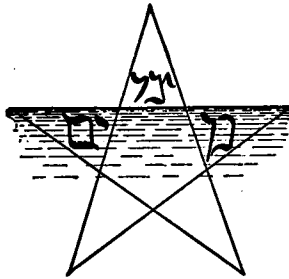
"There's a divinity that shapes our ends,
Rough-hew them how we will."

And it was no accident that the greatest commercial city of each of these two brother and Egyptian nations was at this same time graced with one of the two obelisks, that, when their father Joseph married the Princess Asenath, had stood, like Jachin and Boaz, in strength and beauty on each side the portal of her father's temple.

Who, indeed, shall say that, in youthful sports around the entrance to that noble shrine, their fathers did not choose, as children do to-day, and even name as "Ephraim" and "Manasseh," each one, the self-same pillar, which, in centuries then to come, the powers that overrule have now brought by such natural means to the more modern homes of their descendants, and have stationed at the very gates of all their greatness?

There is undoubtedly an inheritance in the land of Egypt for the Anglo-Saxon race, and the day has dawned when it shall be given unto those whose right it is.

The word צר (zr) is the Hebrew equivalent for the Egyptian hieroglyphic Ra, and this latter is one of the most significant names by which the Great Pyramid of Gizeh was known. It signifies *rock*, or *the rock*.

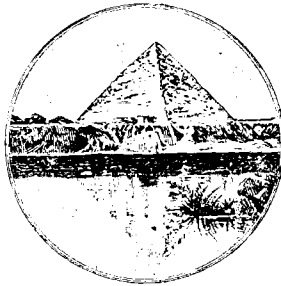


In the overflow of the Nile, this monument seems to rise out of the very water itself, and thus to be a unique symbol of the fabled land on which it has stood since long before the days of Joseph. The Hebrew word for *water* is מים (mim) ; and if we read these two words, *water* and *rock*, combined, we have מצרים (mizraim), or the word employed for Egypt itself throughout the Hebrew text. It literally signifies *the rock out of the water*. Thus, as Mr. J. Ralston Skinner shows, the very name of this land contains a symbol of its importance in a picture which may be represented by sketching a river of *water* with a *rock pyramid* rising therefrom upon its bank. The word צר being put upon the pyramid, above the water, and the one מים, so divided, being written beneath the water, a part upon either side of the pyramid. The two read, thus combined, from right to left, as in the Hebrew, give us as one word the famous name of Egypt, — the cabalistic symbol of the earth itself saved

from the greater flood, and, even at an earlier date, drawn from the maternal waters of the very womb of chaos.

In the following pages I am going to request the descendants of these two branches of Joseph's family to look with me "unto the צר whence they are hewn," and listen to some of the momentous truths with which its metrologically proportioned blocks reply, in cosmic ratios, to the grand dimensions of the earth on which they live.

That Jehovah has said, "Out of מצרים have I called my son," is a fact significant of the essential importance which this land has always had, and ever will have, in the divine economy of the Scriptures, rightly understood. From the earliest record of the dawn of time, when first "the Spirit of God moved upon the face of the waters" (מים), unto its close, as described in Revelation, when, we are told, there shall be no more sea, the whole Bible is harmonious in its employment of these



roots ; and whether it refers to the actual creation of the earth, the *macrocosm*, as in the first chapter of Genesis ; or of the Pyramid, the *mesocosm*, or intermediate type thereof, as in the thirty-eighth chapter of Job ; or to the lightening up of the darkness which covers the face of the deep submerging the unregenerated soul of man, the *microcosm*, as it does throughout its pages, — the same fundamental cabalistic play upon these mystic words occurs. Truly, this rising from the waters, this idea of *baptism*, has a meaning as far-reaching as the deep from which it springs. It is not in vain that creation and that the soul of man, covered with primeval waters, "cry out of the deep unto Him who hath formed the heavens and earth and all that therein is ;" and we may rest assured, that in the beautiful proportions of that צר, thus raised from out the

midst of the מים, at the centre and the border of this fabled land of mystery, — מצרים, — we may learn a lesson whose teachings to us, who in former days were, in Ephraim and Manasseh, thus just as truly lifted out of the Egyptian deep, will perhaps be of most momentous import.

In our treatment of this subject, we shall first examine into facts which lie near home, and see in how much, or in how little, the Anglo-Saxon race is actually in possession of the blessings promised unto Ephraim and Manasseh, as the sons of Joseph. We shall then ask our readers to accompany us through some studies of this remarkable monument, and by the way shall gather not a little from the God-designed metrology of Israel, of highly scientific import.

The hierarchy of science, so called, has long since agreed to disregard as totally unreliable every structure a single stone of whose foundation has been quarried from the eternal word of God. Any appeal to the Scriptures, no matter how modest, is so thoroughly at variance with the modern methods of philosophers, that the book of an author who has searched the Scriptures for guidance towards the eternal truth of things, is condemned unread, stamped with the seal of disapproval unopened, and burned relentlessly without a hearing, lest the people, having read it, should pronounce it true, and learn to disregard their would-be teachers.

But it is not to be expected that a book so full of stumbling-blocks, offensive to their theories of evolution, as is the Bible, should find any favor, or receive the least toleration, at the hands of modern scholars. From the dust they love to feel that all around has risen, and without a God; and into the silt of a disintegrated, dead, and formless universe, they trust at length their worn-out essences will sink into eternal sleep. Modern science, disguise it as we may, is thus at heart not merely far at sea upon the waves of doubt, but is essentially an atheistic school, that has no God, and which has long since closed its doors against the written Word.

From this school, therefore, the present volume does not expect a single meed of praise. But here I am content. Were it to be otherwise, — were recognition granted to the thoughts advanced, by our self-styled scientific teachers, — I should feel that the light in which these pages had been written was but an *ignis fatuus* from the swamp of things

that soon must pass away. I write, however, for the people, whose concern alone this matter is, and who still read the Word with simple trust ; and, though my subject is of the highest scientific nature, I doubt not they will find it clear, — as truth is ever found to be, — and not so intricate but that it will be filled with what to every mind is deeply interesting, and also find it to be well within the scope of even moderate education and capacity.

As a matter of fact, the Bible deals at great length with this very subject of Metrology. Around it the whole of the Hebrew polity harmoniously arranges itself. And very naturally too ; for a just and perfect life was all it aimed at inculcating ; and the very measure of fair dealing, of justice, and of truth, is centred in, and squared and righted at, an honest and an accurate standard, too sacred to be ever lengthened or diminished by any possibility of double dealing.

As the study of Metrology inevitably leads us to the study of the Great Pyramid of Egypt, so, too, it leads all dwellers in the land of Manasseh to look with greater interest on the arms and crest and seal chosen for the nation's blazonry by ancestors who wrought more wisely than they knew. The United States of America has been a nation marked out by special manifestations of Divine Providence from their very beginning until now.

It was in their earliest struggles that they looked towards this Western wilderness ; and, behold, the glory of the Lord appeared in the cloud, and led them to their favored habitation. By faith, like Abraham, their ancestor, when called upon to go out into a place which they should afterwards receive for an inheritance, they obeyed, and went out, not knowing whither they went, and dwelt in their land of promise as in a strange country. But the clouds of the Almighty were about their habitation, so that the sun smote them not by day, neither the moon by night. It is, therefore, in their crest they fittingly commemorate how by faith there sprang from even one, and him as good as dead, so many as the stars of the sky in multitude. It is, therefore, in their motto they repeat this reference, and intensify the idea of union by that beautiful allusion to the universal brotherhood of all mankind, who in Christ, as Saint Paul truly says, are "*many in one.*"

This was, indeed, the nation that fled into the wilderness borne upon

eagle's wings, — the Goddess of Liberty, clothed with the sun, bathed in the cloud-reflected colors of her flag, and crowned with the stars that marked the union of her States, and pointed out their lofty origin. And her eagle guardian was the Lord of hosts himself; for as an eagle stirreth up her nest, fluttereth over her young, spreadeth abroad her wings, taketh them, beareth them on her wings, so the Lord alone did lead his people towards the land of freedom, and there was no strange god with him.

Truly, then, may all the nations of the earth exclaim, "Who is like unto thee, O people saved by the Lord, who is the shield of thy help? thine enemies shall be subdued unto thee, and thou shalt tread upon their high places. In peace thou shalt be like unto thy father Joseph, a branch planted by the rivers of water that bringeth forth his fruit in his season: thy leaves also shall not wither, and behold whatsoever thou doest it shall prosper."

Then may Jeshurun, the wise people, fittingly reply, "There is, indeed, none like unto the God of Manasseh, who rideth upon the heavens in my help, and in his excellency on the sky. The eternal God is my refuge, and underneath are the everlasting arms."

Upon the reverse of our national seal, the references to our birthright as descendants of Joseph and Manasseh, and thus of Egyptian origin, are even still more pointed. The leading motto, — "ANNUIT COEPTIS," — "He has prospered our beginnings," is a direct use of an expression so often reiterated in the Bible-story of Joseph, that he has become the very type of "a prosperous man."

In the capstone we have again, not only the emblem of that Divine Providence which crowned our efforts as a struggling people, but of the Saviour of his people, in whom alone our building, fitly joined together, groweth upward into that perfect union of the human and divine. The building, — a pyramid unfinished, — an emblem of stability, of perfect measure, just weight, and of eternal truth, and harmony with nature, man, and God, is eminently the Egyptian emblem of Manasseh. The date upon its base is his year of maturity, — "MDCCLXXVI.," — and marks the dawn of another golden age, as the motto below expressly indicates: —

"NOVUS ORDO SECLORUM."

This motto is an intentionally altered quotation from Virgil's Fourth Eclogue, and was borrowed in turn by Virgil from the mystic Sibylline records. The text opens as follows:—

“Ultima Cumæi venit jam carminis ætas;
Magnus ab integro *seclorum* nascitur *ordo*.
 Jam redit et Virgo, redeunt Saturnia regna;
 Jam nova progenies cœlo demittitur alto;
 Tu modo nascenti puero, quo ferrea primum
 Desinet ac toto surget gens aurea mundo,
 Casta, fave, Lucina,” etc.

Translation.

“The last age of Cumean song now comes;¹
*Novus ordo seclorum*²—a mighty order of ages is born anew.
 Both the prophetic virgin³ and the Saturnian kingdoms⁴ now return;
 Now a new progeny⁵ is let down from the lofty heavens;⁶
 Favor, chaste Lucina, the boy⁷ soon to be born,
 In whom the iron age⁸ shall come to end,
 And the golden one⁹ arise again in the whole earth,” etc.

Words would be exhausted in any attempt to do justice to the thoughts that find birth in the contemplation of the American era. Unique with the rest of the symbolism upon the long-concealed face of our Great Seal, this motto comprehends in itself the whole of the Virgilic Sibylline fragment just translated. It is unique in its reference to the birth and genius of American institutions,—institutions that cannot pass away, and whose full development no hand can stay from reaching the goal of their most perfect realization. The new order of things has been let down from heaven, not again to be withdrawn from earth. But this motto is also most beautifully in harmony with the entire reverse of the seal itself; and it conceals a hidden reference to the Great Pyramid above,—the legacy of an *earlier* Golden Age to *ours*.

¹ The seventh, or last, or perfect, cycle. ² The sabbatic age of rest,—the age of freedom.
³ The Goddess of Liberty. ⁴ The new republic. ⁵ A progeny among nations, diverse from all predecessors—a government “of the people, by the people, and for the people!”—a nation of independent States, and yet the union of a multitude of individuals. ⁶ “The many and signal interpositions of Providence in our behalf.” ⁷ “Young America.” ⁸ Old-World ideas and bondage. ⁹ One founded upon individual liberty, freedom, and progress. “All men are born free and equal.”

In this, "the last age of Cumean song," it is our task to rebuild the monument of just weights and perfect measures. In the day of liberty, now fully dawned, the recognized equality of all, demands, as the foundation of society, perfect justice in the dealings of man with man; and it is only in the rediscovery of the secrets of true pyramidal construction that the new order of the ages can be founded in stability.

When at length, therefore, we Americans,—as the children of Manasseh,—have fully come to read our title clear to this inheritance, so grand and so far-reaching, how pointedly will the blessing of the great ancestor who *adopted* us,—for we were *half Egyptian*,—and made us equal to his own, be *named* and *numbered* on us!

"*He*" (Manasseh, said Jacob when he blessed our fathers) "*also shall be a great people.*" Thus he, whose name was changed to Israel, made us greater than his own; since from them all he took the *birthright*, and conferred it upon the two adopted sons of Joseph!—upon Ephraim and upon Manasseh, upon England and America; *that is, upon the Anglo-Saxon race.*

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METROLOGY.

INTRODUCTION.

“The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or TO THE PEOPLE.” — Art. X. Amendments to the Constitution of the United States of America.

METROLOGY is the science of round numbers, just measures, and of perfect weights. In it all other sciences find common ground. Its scope is co-extensive with the farthest reach of every special subject of investigation. There is no other subject that is worthy of sharing with it the holiest place in the temple of universal civilization. It is the very headstone in which the whole building fitly joined together shall find at last its own ideal fully realized. Upon the mount of intellect, and at the very dawn of time, its model was revealed to man; and ever since his aim has been to shape his mental architecture by it.

Metrology has been the question of the ages. It is the question of the present, and forever it will be a question of most vital import to the human race.

To a brief consideration of this pregnant subject, I invite the earnest attention of every statesman, and of every thoughtful citizen. To such of them as still revere the old traditions of our race, the review that we shall give cannot but prove both interesting and important; while to those who, willing to give up their birthright, are now so assiduously and insidiously advocating the repression of our hereditary weights and measures, and the compulsory adoption of a foreign system with

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which our practice and our history have naught in common, the gauntlet is thrown down.

We challenge them to an open and a free discussion. Let them produce their case. *It is the PEOPLE'S QUESTION, — this one of WEIGHTS AND MEASURES; and as a right inherent, and one never ceded in the CONSTITUTION, they alone can change the "times and seasons."*

Our representatives have no more right to force the metric system upon us than they have to make our babies beg for bread in foreign idioms. It will be objected by some, that §5 Sec. viii., Constitution of the United States, conveys to Congress the direct power to "fix the standard of weights and measures." This is the exact wording of the document, but it by no means implies all that the advocates of change would have us believe. A *standard* is one thing; the *unit* quite another: thus Congress has already and legitimately made the *yard* the national standard of linear measure; but as to the *unit*, that is fixed. The inch has never been disturbed, nor does the right inherent exist in Congress to disturb it. It was never contemplated that our representatives would sweep away our units, any more than that they would attack the roots of our language. Moreover, the very context of this paragraph convinces us that the province of Congress was merely to regulate and define the standard in such exact terms, that, as in the case of the value of foreign coins, etc., future legal complications as to values in the interchange of commodities might be avoided. Within the limits of the Anglo-Saxon system the power of Congress is clearly confined; and the minute it passes to *new units*, or beyond the borders of our native metrology, expressed and handed down from the remotest times in Anglo-Saxon terms, and linked to Anglo-Saxon history, — at that minute it trespasses upon rights undoubtedly reserved unto the people. If the French system of metrology is to become Anglo-Saxon, it must become so by the popular vote of those whose right alone it is to assume the inconvenience and the great responsibility.

Let those, then, who are so continuously knocking at the doors of Congress come rather to the forum; let them mount the rostrum in the market-place, and show their wares to those

who buy and sell. It is there alone the question can be settled. A law made elsewhere upon such a subject can be enacted but in vain.

In the mean time we offer to the people the following brief review of our *native* Anglo-Saxon metrology, and claim that it is the most truly earth-commensuric system now in use among men. It needs but a slight *rectification* to make it absolutely perfect.

This "rectified system" is our special theme. As an associate of the International Institute for Preserving and Perfecting (Anglo-Saxon) Weights and Measures, these pages originated in an address intended primarily for them. But from the important character of the discoveries to which our researches have led us, we are now induced to offer their results to the Institute in a more public manner, and to invite all others who are interested to an open meeting and a free discussion.

Human law is absolutely powerless to *enforce*, as the UNIT of metrology, that which is not harmonious to nature. Our venerated and beloved GARFIELD,¹ in a speech at Boston in 1878, regarding the *standard of weights and measures*, said, —

"I challenge the intelligence of any man who hears me, to think of such a thing as a *measure of length* which has no length in itself. No: by laws HIGHER *than human legislation, length, depth, and height* were created; men can only name and declare a definite length as the standard."

We believe that our ancestors have bequeathed to us a system based upon these HIGHER laws. By the attrition of full four thousand years, our Anglo-Saxon system has lost so little of its ancient truth, that we believe its present possessors — direct descendants of a mighty race — *may return to the ancient PERFECT standards without any inconvenience, and without altering a single name familiar to our children and our history.*

To a survey of these facts we therefore invite that race, which hitherto has not removed its ancient landmarks, and ask

¹ Garfield was the first elected president of this Institute. He took a deep interest in the cause. In his letter of declension, Nov. 29, 1879, he says he thinks he can serve the cause more effectually, and without indelicacy, as an independent judge, when Congress, of which he is a part, shall be memorialized in relation to measures the Institute may bring before it.

that every Anglo-Saxon give them all the consideration that they justly merit. The subject is too important, the time too critical, the interests involved are too far-reaching, and *the labors of our national adversaries are too incessant*, to admit of any loss of time. We bring this matter to the bar of the people themselves; and to that bar we bid our adversaries come, and bring this challenge with them.

In the following pages, the present Anglo-Saxon linear inch being taken as unity (1.), an "earth-commensuric," or "pyramid-linear" inch will be expressed by $1.001, \pm$ an infinitesimal correction yet to be determined by astronomers. In the text, it is sometimes referred to as a rectified inch, and at others as a *pyramid* inch. Those familiar with the pyramid literature of the present day will of course understand these distinctions without the foregoing explanation. The controversy now going on among scientific men, relative to the true import of the Great Pyramid, is waxing hotter every day, and at the same time is becoming more dignified. Even the opponents of what is opprobriously termed the "religious theory" by Mr. Proctor, are becoming more and more convinced that the mystery of this ancient mountain of the Nile is not yet solved, and that the secret of the greatest of the world's seven wonders, — the only one yet standing on the earth, — has not been watched without a purpose for so many eras by the silent Sphinx. To both sides of this controversy the following pages will have much to say. And to those without the arena, the merely interested laity, the whole topic, *developed now upon most interesting and important lines, assumes the proportions of a world-wide question*. No subject that has ever engaged the attention of the intellect has elicited the interest that now surrounds the solution of the problem of the Great Pyramid. It has held the attention of man in every age, and to-day retains it more intent than ever. If any fair-minded, candid spirit once enters upon the subject, it will never cease to be absorbing; and the grand truths of nature that are now unfolding beneath the general scrutiny focused on it, will be seen to rise pyramidally far above the loftiest subjects that have ever held the mind entranced. Nor should the moderately informed turn hopelessly aside, for fear the theme demands more erudition

than is generally possessed. The subject is as simple as the figure of the monument itself; while at the same time, in its scope, it is so mighty that the loftiest genius may find its measure far beneath its dizzy summit. Its story may be made a nursery-tale, as easily as it becomes a midnight vision in the study of the great philosopher. The only answer, then, to him who asks, "Can any good come out of Nazareth?" is that made years ago, and still as full of meaning,— "Come and see."

I.

WEIGHTS AND MEASURES.

“Just measure and a perfect weight,
Called by their ancient names.”

“The Philistines be upon thee, Samson.” — JUDGES xvi. 9, 14, 20.

Why Anglo-Saxon Metrology should not be abandoned. — The Metric System *versus* the Anglo-Saxon. — The English-speaking Nations, and the Commerce of the Earth. — The Balance-sheet of the World. — Remarkable Facts, and the Future of Anglo-Saxondom. — Our Duty certainly to preserve and perfect our own System. — Destroy not the Ancient Landmarks.

HARDLY a year passes that either openly, or in covert ways, the National Legislature at Washington is not asked to pass laws or resolutions looking towards the ultimate adoption of the metric system of France.

Fortunately, however, Congress is slow to move in such matters, and has hitherto shown a disposition to regard this subject rather as a national one, and therefore as one for “the people,” as such, to settle at the polls.

The design of bills such as that of the late Alexander H. Stephens, is to make *compulsory* the use of the new French device in place of our present system of weights and measures, regardless of our great pecuniary loss, and the lamentable evils it would necessarily entail upon our people. Thanks to the efforts of the Institute, to which this paper is more particularly addressed, such bills have hitherto come short of their contemplated ends. It is a source of regret, however, that this foreign system has received at the hands of the authorities at Washington even a *permissive* sanction. There was no need of any such act of recognition. In a free country the metric system has equal rights with any other, and should stand upon its own merits. It should certainly have received the tacit

adherence of the majority, before any such public step or act bringing it into notoriety was advisable. The advocates of this system, however, are too deeply pledged to the ends they have in view not to take advantage of the natural apathy of a people merged in business and industry of every nature; and so, without our knowledge even, we find them strenuously at work in every direction, introducing it into all our schools and colleges, and here and there, without even the show of legal right, forcing it into the very acts of the government itself.

“Every man of genuine *practical* experience realizes the absurdity and impracticability of substituting this inconvenient French metric system for our own hereditary system of weights and measures, which has been in use from time immemorial, and has woven itself into all our history.

“Now the great danger lies in the encouragement given to the persistent advocates of the metric system by those who are *indifferent, unadvised, or ignorant* of its demerits in comparison with the merits of the system to which it is opposed.”

The arguments of the metric philosophers are mostly specious ones, and will not bear a deep research into the constituted nature of things. Its decimal feature is the only one that demands serious consideration; and this is but a borrowed one, — by no means French, — and one of doubtful importance to man, who habitually quarters and halves, and in all matters of dimension and metrology seems to comprehend *common* fractional ideas more instinctively than he does those of tens. Indeed, the very continuity of the French system itself has been broken by the introduction and constant use of halves and quarters throughout its series. Such natural subdivisions have been found as absolutely necessary as the half and quarter dollar is in our own decimal system of currency.

In a country constituted like ours, the subject of so radical a change as would be involved in an entire removal of our ancient metrology is certainly one for the popular ballot only to decide, and one with which, when its true import is made manifest, even politicians (to say nothing of *statesmen*) will be found loath to identify themselves.

The time has therefore come when it is necessary that the people should be informed what this danger means. It is a

“Battle of the Standards.” It is Anglo-Saxon metrology *versus* the Metric System. The one or the other must become obsolete, and that right speedily; for we are now fully within the threshold of an age that demands the recognition of universal ideas and standards over the whole surface of the globe. The easy introduction of standard time into this country, the unanimity with which the meridian of Greenwich has been accepted as the standard meridian for geographical and commercial purposes, are significant. The next step is naturally one adoptive of an universal system of weights and measures. Some twenty nations have already recognized that of France; and in name, at least, the metric system is already international.

But it is not so in fact. It is in the Anglo-Saxon system that the actual business of the world is even now transacted. This is a startling statement, for it puts an entirely new phase upon the question in controversy. It is a novel and interesting stand-point, from which, as Anglo-Saxons, we can afford to review the whole topic before finally committing ourselves to an almost irrevocable decision.

From such a stand-point the subject can be dealt with as it were *ad hominem*; and from it we will be surprised at the overwhelming facts which go to establish beyond a doubt that the Anglo-Saxon system is, in reality, the *de facto* “International system” of the earth to-day, and that the irresistible march of events has already given it, and will continue to maintain it in, the ascendancy, until all rival systems, particularly the metric, shall have passed quietly into oblivion.

If any one is at all doubtful of the future of Anglo-Saxondom, or disposed to question the statistical FACT that already, to-day, this race stands head and shoulders above all other peoples of the earth, and is moving onwards, in every line of progress, at a constantly more accelerated rate than they, we refer them to a volume which should be in the hands of every English-speaking statesman, — “The Balance-sheet of the World,” by M. G. Mulhall, F.S.S., London.

As generic, and essentially preliminary to our subject, we propose here to briefly review some of the startling facts presented in this work. By such an examination it can and will be conclusively shown that Anglo-Saxon metrology is by no

means the incongruous failure its adversaries have endeavored to demonstrate, and to make it clear, that, if without any particular attention it has already accomplished so much, it will certainly accomplish all metrologists can wish for when once it shall have been unified and rectified.

In a paper upon "Weights and Measures," written in favor of the metric system, and delivered before the American Society of Civil Engineers, Mr. Frederick Brooks, C. E., laid great stress upon the fact, that, of the imports into the United States (which, in the year ending June 30, 1879, amounted to \$445,777,777), only twenty-eight per cent was produced in Great Britain and countries using the Anglo-Saxon weights and measures; while more than half (fifty-nine per cent) was produced in countries, that, within the last hundred years, have adopted a common international system of metrology. The remaining thirteen per cent was produced in countries which use various other systems of weights and measures. These facts were all exhibited in detail by Mr. Brooks, in an accompanying diagram; and from them, as of primary importance, it seems as though we were expected to draw the conclusion that Anglo-Saxons, at any rate those of the United States, should also unhesitatingly come into the International Congress, and speedily adopt the metric system.

At first glance this inference seems to be of some weight, but it is only so upon its surface. Indeed, the reverse consideration of the subject entirely overturns it. The argument is drawn entirely from our imports, which are sold to us, and therefore from things in which naturally the purchaser is enough concerned to look after his own interests, and learn the metric system, if needs be, to better guard them. But importing is by no means the business of this country. It certainly did not monopolize our wealth in 1879, and still less does it do so to-day.

The combined industry of the country in 1879 was represented by a money (gold) value of some two thousand million pounds sterling, or at least ten thousand million dollars, of which the import business barely represented twenty-two per cent.

Shall the seventy-eight per cent involved in other industry adopt "new times and seasons," and change its manners and

its customs simply to accommodate the business of so small a minority? Surely one must have a strange idea of American institutions, to found an argument upon such a basis, and a stranger one of American perspicuity, if it is presumed that an audience will draw such conclusions even from such data, to say nothing of those which result from a more general consideration of the whole subject.

Now, the imports into the United States are generally luxuries and high-priced articles, or only raw material. They are mostly the surplus from arts and trades of long standing in foreign countries, and from them in particular is derived the wealth of the countries whence we procure them. In times of patriotic war, our people have given ample proof of their willingness to sacrifice them all.

But there is another and far more important side of the subject, — that of our *Exports*, — with which foreign countries are now so deeply concerned.

In the very year selected by Mr. Brooks for this discussion, our exports were in value \$736,634,834, or in excess of our imports by \$290,000,000. This excess alone is more than half of the total imports for that year. Moreover, if there be any value in the implied argument of Mr. Brooks, it is, of course, turned back upon his own conclusions from this opposite stand-point. Of our exports, \$426,000,000, or about sixty-six per cent, went to the Empire of Great Britain alone (an empire using Anglo-Saxon metrology); *and this amount, let it be noticed, was practically equal to the bulk of our whole import business.*

With our exports it is not as with our imports. While we can easily get along without the latter, the world itself cannot live without the former. We hold the food-surplus of the earth; and the bulk of our exports is in breadstuffs, provisions, meat, etc.; that is, in staple articles. Our exports in food, in 1879, were thirty-two times our imports (\$10,000,000) therein.

While carefully examining this matter, it is intended that the data used shall be drawn largely from the London book already referred to. Speaking of the United States, the author remarks, "Ten years ago the balance of trade was against the country, but now the exports are thirty-one per cent over the imports." This is still more true in 1883. "The Americans

now make one-fifth the iron, and one-quarter of the steel, of the world. . . . The United States raise one-half the gold, and one-half the silver, of the world's supply. . . . Taking *in globo* all the mining-industries of the world, the United States represent thirty-six, Great Britain thirty-three, and all other nations thirty-one, per cent of the total." Thus Anglo-Saxondom represents sixty-nine per cent of the mining-industry of the earth.

"The sailing-vessels of the world now trade mostly to the United States." This being a fact, it follows, that, no matter what weights and measures they use at home, they use the Anglo-Saxon ones in our own markets. "But in comparison with commerce, the Americans use three times as much money as the English, and nearly twice as much as all Europe." Moreover, in the past ten years the United States has coined one-fourth of the gold, and one-sixth of the silver, used by all the earth. "The net income of the United States per inhabitant is double the European average."

America is a peaceful country: its ægis holds the olive-branch of tranquillity within its hand of friendship. Our military expenditure is the least of all nations, and is less than one-fourth of the general European average.

Our national debt has been reduced twenty-two per cent in ten years; in fact, the ratio of debt per inhabitant has fallen forty-two per cent, that of interest fifty-four per cent, in ten years. "Population has increased thirty-one per cent since 1870 (i.e., to 1880), being the largest number gained in any decade of the Union." The increase of births over deaths "is three times the average European increase, and double that of England or Germany." It is even superior to that of Australia, a newer country. "Every thing seems to promise, that twenty years hence, at the close of the nineteenth century, the United States will have between ninety and a hundred million inhabitants."

"Food supply is so abundant that the grain-crop is eighteen and a half per cent over consumption, and the meat thirty-six per cent in excess. The United States produced thirty per cent of the grain, and thirty per cent of the meat, of the world."

"It appears, that, in spite of the population increasing 1,250,000 yearly, the supply of grain is growing faster, and of meat as fast. So that the exportation to Europe is likely to go on

rising for many years to come." In spite of the home consumption of meat being 120 pounds per inhabitant, equal to 2,740,000 tons, a surplus of 1,076,000 tons is annually left, one-half of which is exported to the over-populated and hungry foreign nations. "The Americans are apparently the best fed of all nations." They are likewise the most comfortably clothed in cottons, woollens, and linen.

Concerning our railroads, telegraphs, and internal systems of river communication, it is needless here to speak: they have no compeers on the globe.

Now, in view of all this wealth, and the constantly increasing importance of this country as the market of the whole world, how ridiculous is any appeal to our imports as an argument in favor of changing our hereditary weights and measures, and abandoning, to our inconceivable discomfort, our own traditions for those of other nations, or for traditions which are no traditions, — as those of France are not a century old! No: rather let all other nations who buy, who are glad to buy, and who *must* buy in our markets double, ay, quadruple, what we buy abroad, *return* to their own "ancient landmarks;" and, in the mean time, let us only strive to *perfect* the heirloom we have hitherto so well preserved.

Thus far this argument has only been answered from a single stand-point, — that of our own nation, — and it should be borne in mind that the statements have been drawn from the candid pages of a foreign book. There is a grander view to take of this topic. It is from the stand-point of all Anglo-Saxondom compared with the rest of the world at large. The world has increased in population in the decade from 1870 to 1880 about $9\frac{1}{2}$ per cent. In the mean time, Great Britain increased $10\frac{1}{2}$, the United States 31, Australia $56\frac{1}{2}$, Canada $14\frac{1}{2}$, and South Africa (Anglo Saxon) $73\frac{1}{2}$ per cent. No other nation, save Belgium, has increased over 11 per cent, and France but 1.67 per cent. Even Turkey (2.01 per cent) has increased at a higher rate than the mother of the metric system. At such a rate of increase all other nations must in time be smothered out, and France among the very first, before the Anglo-Saxon race.

But, further, the tabulated statement of the port-entries of all nations for the ten years under consideration shows, that, while

the tons burden of the world were 50,000,000, the United Kingdom, British Colonies, and the United States contributed 28,000,000, or more than half.

One-half of the whole industry of the world is already in Anglo-Saxon hands. In millions sterling the increase for the ten years was, for all the earth, 1,866; while it was for Great Britain 337, United States 525, Australia 57, Canada 28, and South Africa 14; making a total of 961 millions of pounds sterling *increase*. To this increase can also fairly be added that of South American industry, 24 millions, almost all of which is represented by British capital. In 1880 the industry of the earth, expressed in millions of pounds sterling, was 2,024 for Great Britain, and 2,004 for the United States. These two nations headed the list, being followed by France at 1,325, by Germany at 1,269, and by other nations at a greater distance. By industry we mean commerce, manufactures, mining, agriculture, carrying-trade, and banking.

The increased consumption of cotton, wool, flax, jute, etc., in the decade has been £1,666,000,000, of which £922,000,000 — much more than half — has been in Anglo-Saxondom. The increase for the world in manufacturing has been £558,000,000, of which £324,000,000 has been among those using pints, and pounds, and inches. That for all Europe (non-Anglo-Saxon) was but £212,000,000.

Out of 118,000,000 tons increase in production of coal, Anglo-Saxon weights have measured 78,000,000. Out of 7,233 increase in thousand tons of iron, they have measured 5,250; and of steel, out of 3,068, they have measured 2,255; i.e., in every case far more than half of all the earth. Anglo-Saxondom produces and measures out by the pound and yard more than fifty per cent of all the wool, and the United States alone seventy-five per cent of all the cotton, raised upon the earth; and other nations are glad to purchase all these things in pounds and yards. In general terms, the study of the commerce of the world for the past twenty years (1861 to 1880) shows, that, out of £40,000,000,000 (giving the value of the exports and imports in round numbers), Anglo-Saxon metrology has measured and *re-measured* far more than half.

The value of the shipping of the earth has increased

£40,000,000 in the decade, £26,000,000 of which was in Anglo-Saxon bottoms; that of all the metric nations put together was only £13,000,000, the remaining £1,000,000 being scattering. *Thus two-thirds of the carrying-trade is already Anglo-Saxon, and but one-third "metric."* Which, therefore, it may well be asked, is the *de facto* international system? Does it not rather appear that France, leading the Opposition in "the Napoleonic day," when all her interests are known to have clashed with those of England, strove for the mastery in commerce by this politic though vain attempt at banding subjected Europe in a new metrology? And does not the irresistible march of industry prove that her dying system is international only in its self-assumed, high-sounding name?

Again: in 1879 the "tonnage" on sea of the earth was 18,000,000, 10,000,000 of which was Anglo-Saxon; the "carrying power" on sea was 34,000,000, 21,500,000 of which was Anglo-Saxon. For the United States alone the carrying-power at home and on sea was 9,000,000 tons, and the tonnage 4,500,000.

There were 882,000,000 passengers carried upon Anglo-Saxon railways in 1879, against 1,497,000,000 for the whole world, and against 603,000,000 for the whole of Europe, — "the Continent," — only partly "metric" after all, since the great Russian Empire still remains without the metric union.

There were in 1879 in England 26,000 miles of active telegraph-wire, in the United States 119,000, and in the British colonies 59,000; that is, for all Anglo-Saxondom 203,000, against 250,000 for the partly metric Continent, and against but 303,000 for all the rest of the world. But upon these wires, as an element going to show the magnitude of their thrift, business, and enterprise, the Anglo-Saxons sent twice as many messages per inhabitant as the Continental nations. England sent 77, the United States 62, and the Continent but 30 messages, per hundred inhabitants.

Since 1870 (and to 1880) the mines of the earth have produced £360,000,000, of which £215,800,000 were from Anglo-Saxon mines. And Anglo-Saxon mints have coined in the same decade £224,420,000, out of £526,781,000 coined over all the earth. Furthermore, out of £905,000,000 in coined specie

current in the decade ending 1880, £524,000,000 were used in Anglo-Saxon import business, against £367,000,000 on the European Continent, and £514,000,000 in export business, against £339,000,000 upon the Continent.

In accumulated wealth in 1880, Great Britain and the United States led all the earth, followed next by France and Germany, and far behind by all other nations taken individually.

The accumulated wealth of the whole European Continent was £28,000,000,000, that of the Anglo-Saxon nations £18,000,000,000, while that of the world was only £47,000,000,000. Considered from another stand-point, the world had £113 per inhabitant; Europe, including Great Britain, £111; Great Britain alone, £260 (more than any other nation except Holland (£283), and more than double that of the world); the United States, £158; Australia, £172; and Canada, £148. Thus the Anglo-Saxons, as individuals, are worth per inhabitant some £184; the world average being £113, and that of the whole continent of Europe being but £91.

But a consideration of the public debt of nations is even more significant. In the decade 1870 to 1880 the debt of all Europe increased £52,000,000, and that of the world £44,000,000. But three nations of the earth effected any reduction of their national debts. These were the United States, by £86,000,000; Great Britain, by £24,000,000; and Denmark (a former "resting-place" of the Anglo-Saxon), by £3,000,000. The public debt of the world in 1880 was £5,207,000,000, that of the continent of Europe alone being £4,513,000,000; while that of all Anglo-Saxondom together was but £1,276,000,000. Now, it is also noticeable in this connection, that, while the debt of Anglo-Saxondom is almost entirely held in native hands, that of the rest of the world is in foreign hands, and that far more than one-half of it is actually held by Anglo-Saxons. This race, in fact, has bonds and mortgages on all the world.

In earnings the United States lead all other nations, their earnings for 1880 being £1,406,000,000. They were followed by Great Britain and her colonies at £1,381,000,000, and far behind by France at £927,000,000, by Germany £851,000,000, and by other nations at continually lower figures. The earnings of the Continent were £3,797,000,000; of the world,

£6,773,000,000 ; those of Anglo-Saxondom being £2,787,000,000, or more than two-thirds that of the Continental nations, and far more than one-third of all the earth.

Furthermore, taxation has declined in Anglo-Saxondom alone. In Great Britain it has declined in its ratio to income, while in the United States it has done so, not only notably in this relation, but also in the absolute. In every other nation taxation has increased both positively and relatively.

As to the food-supply of all nations, Europe in 1880 had a deficit of 380,000,000 bushels of grain, while the United States alone had a surplus of 370,000,000 bushels. In tons of meat, Europe had a deficit of 853,000, while Australia alone had a surplus of 838,000, the United States of 1,076,000, and Canada of 170,000. Of the grain-surplus of the world (22,000,000 bushels), in 1880 17,000,000 were held by Anglo-Saxons ; and of the 2,144,000 tons of meat, then surplus, 1,931,000 were also owned by Americans, Australians, and Canadians. The balance was held in South America and Algeria, and almost entirely controlled, as in fact is almost all South-American industry, by English capital.¹

But to what purpose shall we here continue this interesting review of man's affairs? The world is already Anglo-Saxon ; and, in the face of such figures as we have just reviewed, the claims of those who continue to urge us to adopt the metric system are merely vain words, and uttered to no purpose.

The figures we have quoted are *facts*, — hard facts, — and from their very nature they are international facts. They show that the metric system is only international in name, and that *the truly international system of metrology is, in fact, our own Anglo-Saxon one*. To abandon it to-day, when all the world is really using it in buying food and raiment at our ports, would be to introduce more confusion into human affairs than the earth has seen since the days of Nimrod. In changing Anglo-Saxon weights and measures for the metric system, we would

¹ For further sources whence to draw even more significant deductions as to the signs of the present and the future of the Anglo-Saxon race, the reader is referred to *The Balance-sheet of the World*, *The Progress of the World*, *The English in South America*, *Hand-book of the River Plate*, *Hand-book to Brazil*, etc., all by Mitchel G. Mulhall, F.S.S., London, 1881.

not only disastrously and to no purpose disturb our own affairs, but inconvenience those of all mankind. What the English-speaking races, therefore, need to do is, not to adopt an alien system, but to *perfect* their own.

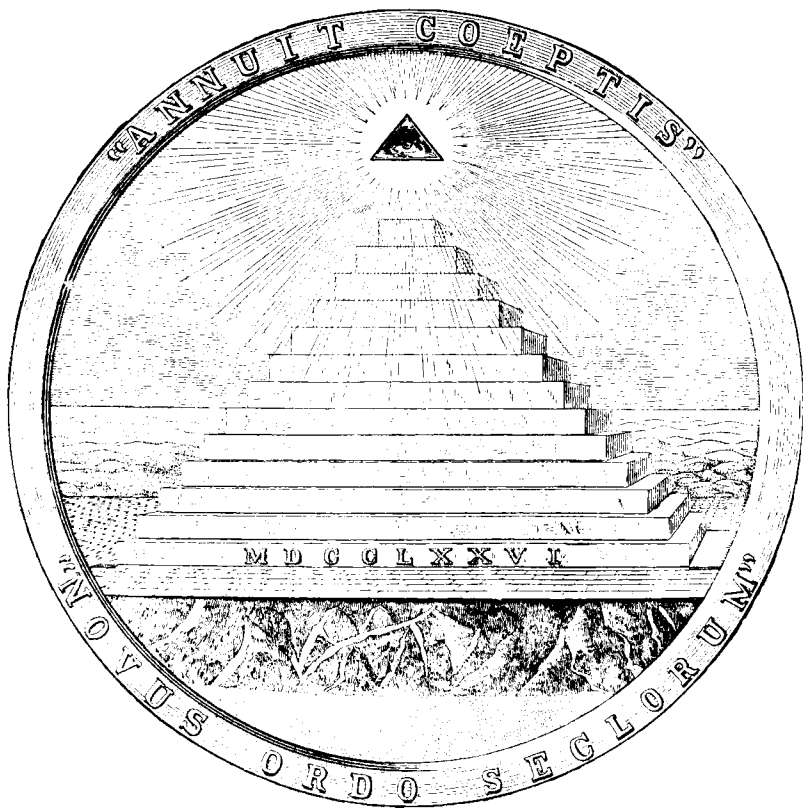
“DESTROY NOT THE ANCIENT LANDMARKS.”

Rather let us strive to unify the system, and to rectify it back to its original and grandly earth-commensuric proportions; then may we transmit it proudly to posterity, an heirloom still more valuable than when it was intrusted by our sires to us. Let us, therefore, continue our investigation of this *de facto* international system of metrology, — that of the Anglo-Saxon world, — and determine how far it is from being perfect, — from being actually earth-commensuric, — and thus in how much it must be improved and unified and rectified, in order to make it more than ever, and for all future time, a blessing to ourselves and to our fellow-men.

PYRAMID CAPACITY MEASURE COMPARED WITH RECTIFIED ANGLO-SAXON MEASURE.

Names of successive portions.	Intermediate subdivisions.	Capacity in pyramid cubic inches.	Equivalent capacity in standard pyramid lbs. (of water, 7.8735 at mean temperature, pressure, etc., per lb.) of 10 "unit" ounces.	Equivalent capacity in avoirdupois pounds, or U. S. liquid pints, or 8.5 pyramid cubic inches per pint, or pounds of 16 "unit" ounces.	Troy and apothecaries' pounds of 21.75 pyramid cubic inches per pound of 12 "unit" ounces.	Equivalent capacity in U. S. dry-measure pints of 33.964375 pyramid cubic inches per pint of 18.75 "unit" ounces.	Equivalent capacity in British imperial measures of 35.675 pyramid cubic inches per pint of 20 "unit" ounces.
Ark	1	7,125,000,000	40,000,000	250,000,000	333,333,333.33	21,333,333.33	200,000,000
Section	4	1,781,250,000	10,000,000	62,500,000	83,333,333.33	5,333,333.33	50,000,000
District	10	712,500,000	4,000,000	25,000,000	33,333,333.33	2,133,333.33	20,000,000
Wharf	25	285,000,000	1,000,000	10,000,000	13,333,333.33	833,333.33	5,000,000
Elevator	100	178,125,000	400,000	625,000	833,333.33	53,333.33	2,000,000
Ship-load	400	71,250,000	100,000	250,000	333,333.33	21,333.33	500,000
Barge	1000	17,812,500	40,000	62,500	83,333.33	5,333.33	200,000
Lighter	4000	7,125,000	10,000	25,000	33,333.33	2,133.33	50,000
Car-load	10000	1,781,250	400,000	625,000	83,333.33	5,333.33	20,000
Bin	40000	178,125	40,000	625,000	83,333.33	5,333.33	5,000
Coffer	100000	71,250	4,000	250,000	33,333.33	2,133.33	2,000
Quarter	400000	17,812.5	1,000	62,500	8,333.33	533.33	500
Coomb	1000000	7,125	400	25,000	3,333.33	213.33	200
Bushel	4000000	1,781.25	100	6,250	833.33	53.33	50
Sack	10000000	712.5	40	250	333.33	21.33	20
Fottle	40000000	178.125	10	62.5	83.33	5.33	5
Quart	100000000	71.25	4	25	33.33	2.13	2
Pound	400000000	17.8125	1	6.25	8.33	.53	.5
Gill	1000000000	7.125	.4	2.5	3.33	.21	.2
Ounce	4000000000	1.78125	.1	.625	.833	.053	.05
Tablespoon	10000000000	.7125	.04	.25	.33	.021	.02
Minim	40000000000	.178125	.01	.0625	.083	.0053	.005
Dose	100000000000	.07125	.004	.025	.033	.0021	.002
Decimim	400000000000	.0178125	.001	.00625	.0083	.00053	.0005
Drop	1000000000000	.007125	.0004	.0025	.0033	.00021	.0002
Centimim	4000000000000	.00178125	.0001	.000625	.00083	.000053	.00005
Atom	10000000000000	.0007125	.00004	.00025	.00033	.000021	.00002
Millimim	40000000000000	.000178125	.00001	.0000625	.000083	.0000053	.000005

THE REVERSE
TO THE
GREAT SEAL OF THE UNITED STATES
OF AMERICA.



“ And the rain descended, and the floods came, and the winds blew, and beat upon that house; and it fell not: for it was founded upon a rock.” — MATT. vii. 25.

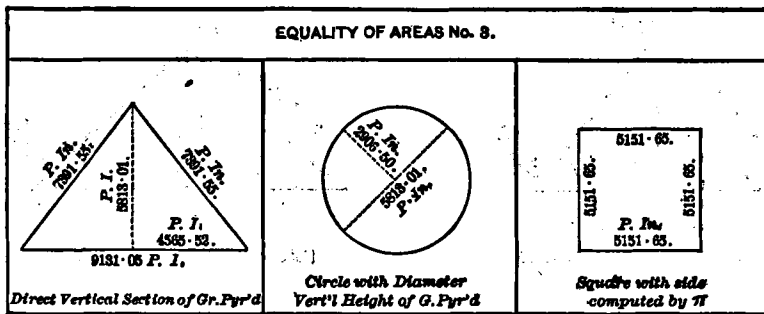
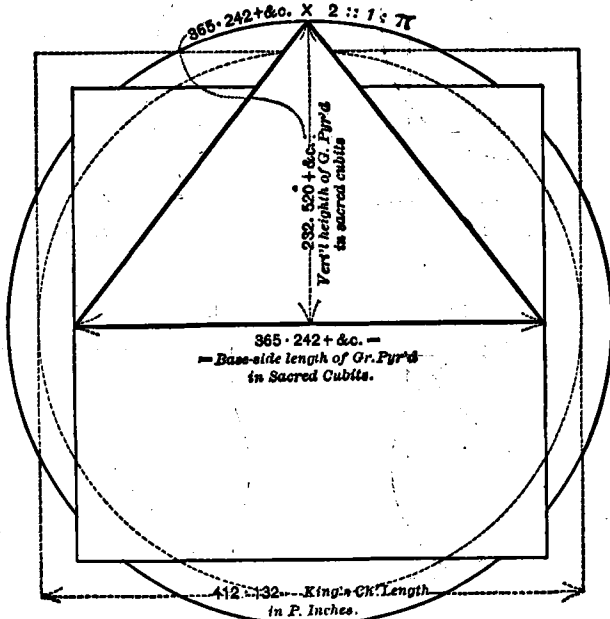


Fig. 7.

Fig. 8.

Fig. 9.

11626.02 = Ante-chamber length x 100 = Sun's distance from the earth
in terms of the "breadth of the Earth" from Pole to Pole.



EQUATION OF BOUNDARIES AND AREAS,

CIRCLES AND SQUARES, INCHES INSIDE AND SACRED CUBITS

OUTSIDE GREAT PYRAMID.

Fig. 10.

THE PYRAMID DIAGRAM. (WORKMAN'S METHOD.) FIG. 12

