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THE INTERNATIONAL STANDARD



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A MAGAZINE DEVOTED to the PRESERVATION & PERFECTION of the ANGLO-SAXON WEIGHTS & MEASURES and the DISCUSSION and DISSEMINATION of the WISDOM CONTAINED IN THE GREAT PYRAMID of JEEZEH in EGYPT.

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THE INTERNATIONAL INSTITUTE,

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THE INTERNATIONAL STANDARD

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THE WORLD'S CHRONOLOGY.

ASAHEL ABBOT.

Until lately it has been held that we can have no exact chronology from the first years of man; but the late Prof. Mahan of New York city has shown how such a chronology can be established; though he failed to demonstrate the Judge period to Samuel, and then the duration of Samuel's administration. His assumption of each has recently proved correct. He failed to carry it down beyond the Hegira, A. D. 622; but this omission is now supplied, so that we now possess a reliable chronology down to A. D. 1882. But, more wonderful still, in following out his plan he discovered several remarkable symmetries of time groups, that have been for the most, entirely unsuspected in modern times. In extending his system down to the present time, other symmetries have been discovered of a most remarkable kind. The general frame work of the system is as follows:

Beginning with the undated Paradise state we find the human development measured by sevens in 1000 year periods; then these may be di vided into three of 2000 each and one of 1000, upon which we have just entered. This division we have from the Jews. The thousands here mentioned are not exact. At the close of the first Enoch is translated; 1000 years more bring us near Abraham; 1000 years later Solomon is at hand; 1000 years later Christ; 1000 years later the Crusades; then 1000 more brings us near the fall of the Gentile powers and the opening of the Millenium of peace; and 1000 later the probation of men and angels comes to a close. At the end of 6000 years the rebel angels are restrained, the Dragon is bound to be let loose once more at the end of another 1000 years. In the house of Elijah the Tishbite we have it put thus:

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1. 2000 years void—without the law—from Adam to Abraham;
2. 2000 years under the law to Messiah;
3. 2000 years continuance of "the war" (Dan. 9., 26) under Messiah manifested;
4. 1000 years peace.

In each of these 2000 year periods we find another of 1656 years; each containing a 600 year period of (Noah) comfort; each of these containing also 6 finials,* whose world-years divide by 6; and near the end of this we have 120 years of suspended judgment. Here we have then:

I. The antediluvian period to the flood, 1656 years. The 600 years of Noah contain: 1, End of Adam's day, at the birth of Noah, AM. 6×176; (2,) the death of Enos, AM. 6×5×38; (3,) the death of Mahalàleel, AM. 6×5×43; (4,) the death of Jared, AM. 6×3×79; (5,) the end of the world come before God, (Gen. 6., 13) AM. 6×8×8×4; here commence the 120 years of suspended judgment upon the antediluvians; (6,) the end of the antediluvian world.

II. The Levitical period from the Exodus to Titus, 1656 years. The 600 years from the decree of Cyrus to the commencement of the Jewish war contain: (1,) the end of the captivity at the decree of Cyrus, AM. 6×598; (2,) end of prophecy in Malachi, A. M. 6×619; (3,) end of the Asmonean civil wars under Julius Caesar, A. M. 6×679; (4,) end of the Asmonean dynasty by Herod's marriage with Mariamne, A. M, 6×681; (5,) end of Christ's humiliation at his resurrection, A. M. 6×692; (6,) end of peace with Rome; the Turkish war begins, A. M. 6 × 698. The 120 years of suspended judgment upon the Jews begin with the accession of Julius Caesar, B. C. 50, and close with the destruction of the temple, A. D. 70.

III. The Barbarian period from the ploughing over of the temple area by the Romans to the deposition of the Bourbons; or from A. D. 136 to 1792. The 600 years from the Treaty of the Holy Sepulchre to 1792 contain: (1,) the end of the Crusades in the east, A. M. 6×886; (2,) end of The Thirty Years War, A. M. 6×962; (3,) end of the English Republic, A. M. 6×964; (4,) end of the war of Louis XIV on Holland, and the glory of the Bourbons, A. M. 6×966; (5,) End of the United British Empire in the American Revolution, A. M. 6×983; (6,) end of the Bourbon dynasty and the Feudal System in Europe in the deposition of Louis XVI, A. M. 6×986. The 120 years of suspended judgment upon the Popish Alliance centering in France commence with the retreat of Louis XIV from Holland, A. D. 1672, A. M. 9×644, or 6×966. Corresponding to these three periods of 120 years we have also 120 years from the rejection of the Theocracy under Samuel to the schism of Jeroboam, and 120 jubilees of suspended judgment upon the rebel angels before the millenium of peace.

Each of these 1656 year periods is a measure of 9, 8, and 6. Three remarkable periods are measures of 7. Of these the first in order is the measure of the 7 ages of man previous to the millennium of peace; the

*In the Table these are set in circles for distinction.

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second is the measure of 4 Empires; and the third is the measure of the Jewish Captivity among the Gentiles, while, for the most, Palestine lies waste under the despotism of the Ishmaelite succession, the Saracens and Turks.

The first must be treated somewhat at length. The second commences B. C. 654 and runs on down to A. D. 1866, dividing into two equal parts A. D. 606. Each section numbers 1260 years; the first as a whole is best characterized as a succession of heathen military usurpations, the second as a mixed Christian military and ecclesiastical despotism; the Bishop of Rome acting as a chief spy and head of secret police to the empire, when not engaged in undermining its authority for its own aggrandisement, and using its military force for the enforcement of its own requisitions. The first ends with the usurpation of regicide Phocas, and his decree constituting the chief pastor in Rome Universal Bishop; the second with the close of the Pope's official connection with the empire after Sadowa in 1866. The third commences with the Jewish Captivity B. C. 606, and runs down to A. D. 1914; by which time Turkey will have been swallowed up by England and Russia, and Palestine will lie open once more to settlement by any that may choose their residence there, whether Jews or Gentiles, as in ancient times.

The 7 ages of man previous to the Millenium of peace are these:

1. The Paradise state undated, closing with the expulsion of men and angels that have sinned. This also affords the first of 7 grand judgments in the Messianic line, each period closing with a grand solemn judgment. 2nd. The antediluvian period closing with the watery deluge. 3rd. The first national period after the deluge closing with the burning of Sodom. 4th. The period of Egyptian oppression, closing with the destruction of Pharaoh's army in the Red Sea. 5th. The period of Theocracy and its rejection, closing with the Captivity and involving the burning of Solomon's Temple by the Babylonians. 6th. The period of restoration to the Jews under the power of the empires of Cyrus, Alexander, and the Caesars, closing with the destruction of Jerusalem and the temple in the Roman Siege, and the dispersion of the Jews from Palestine. 7th. The Barbarian period commencing with the close of the Apostolic age, and closing in the horrors of the great Revolution, that opens in 1672 and runs down to 1866, 1870 and 1882, 210 years in all. In this period every throne in Europe has been shaken, and several have been utterly subverted. With the failure of Louis XIV in Holland the power of the Bourbons rapidly declined to extinction. Austria has been forced to free itself from Popery; France will not endure a king; Italy is once more united at Rome; Prussia stands at the head in a German unity heretofore scarcely deemed possible. The Pope is no longer at the head of a state. In America, every state except the mixed brood in Canada under English law, has shaken off the government to whose authority it was once subject; and in the North American states the slave interest has been destroyed.

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Many other periods and symmetries may here be mentioned. Thus between the Exodus and Titus there are 14 well-marked forties; whereof the first runs on till the death of Moses, and the last begins with the stoning of Stephen and closes with the destruction of the Temple by the Romans. The remaining twelve occur between the death of Joshua and the burning of the temple by the Babylonians. These run in 4 threes. Thus there are three of provocation, in the days of Eli, Samuel and Jeremiah; 3 of foreign oppression, in the reigns of Saul and Joash, and before Samson; 3 of deliverance, under Othniel, Barah, and Gideon; and three of extended rule; in the reigns of David, Solomon and Jeroboam II. There are 3 thousands; the first from the birth of Isaac to Solomon; the second from the Exodus to the burning of the temple; and the third from the dedication of the temple to the Incarnation. There are two periods of 430 years; one from the birth of Isaac to the giving of the law; and the other from David to Jeremiah.* There are 3 periods of 450 years; first from Arphaxad to Isaac; second from the Exodus to Samuel; then from David at Hebron to the Captivity. There are 5 periods of 490 years; from Arphaxad to Jacob and Esau; from the Exodus to the Kings; from Saul to the Captivity; from the dedication to the restoration of the temple; and from the decree of Artaxerxes to the conversion of Cornelius. In the past Apostolic period we have 490 years from the insurrection of Barcosbi to Mohammed at the Hegira; and there are others less clearly determined by leading events.

Of long cycles we have several based in 430, 450, or 65 years. Thus, from the birth of Shem to the Rebellion of Barcosbi we have 6×450 years; from the birth of Isaac to the fall of Barcosbi we have 5×430 years; from the birth of Abram to the stoning of Stephen are 33×65 years; from the call of Abram to the Captivity are 16×65 years; and from the birth of Terah to the stoning of Stephen are 35×65 years. Thus 430, 450 and 65 are measures to the longer periods of the Hebrew circle to the final dispersion under Hadrian, as each is to shorter and earlier periods.

Then as there are three overlapping thousands, so there are three seventies; of which one has an additional 7. Thus, from the Captivity to Cyrus are 70 years; from the destruction to the rebuilding of the temple are 70 years; and from the decree of Cyrus to that of Artaxerxes are $70+7$ years; the factors of the 490 that follow. We have spoken of 1260 (42×30) as occurring twice between B. C. 654 (48 years before the Jewish Captivity;) and there are others. From the accession of Justinian in A. D. 527 to 1787, when the Emperor of Germany abolished persecution

*As 430 is 390 [30×13] + 40, so we have 390 from Isaac to the repudiation of Moses by his own people, 40 years before the Exodus; and also from the accession of David to the 30th year of Manasseh's bloody tyranny. Another 390 runs from the Schism of Jeroboam I. to the burning of the Temple by the Babylonians. It always makes a period of defection. [See Thirteen below.]

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against the remonstrances of the Roman Curia, are 1260 years.* Then from 533, when he offered the supreme pontificate to the chief pastor at Rome, (that he refused). 1260 years brings us to the horrors of 1793; and from 538, when he renewed the offer and again found it refused, (after he had driven the Goths from Rome); 1260 brings us to 1798, when Berthier, at the head of an army, took possession of Rome, abolished the Temporal Powers and sent his Holiness a prisoner to France. Another 1260 year period runs from the Hegira down to the English occupation of Egypt in 1882. Such are our leading periods in Chronology, but are we sure that our dates are right? This we are next to show.

First, add the birth years of the 19 patriarchs before Abram; Seth, A. M. 130; Enos, A. M. 235, etc., as given in the text, and we shall have Terah born A. M. 1878. The first man has three sons named; the ninth from him has 3; and Terah, the ninth from him, has 3. In each case the 3 all seem contemporaneous, and Terah's sons are set apparently against his 70th year. But St. Stephen affirms that upon Terah's death, (Act. vii. 4,) when he was himself 75 (Gen. xii., 4.) Abram came into Canaan; and his father died at the age of 205, (Gen. xi. 32.). When we come to treat of numbers used artificially (or rather cosmically) we can account for these varied statements; but for the present we will put Abram's birth A. M. 1878+130=2008.

At 100 Abram names his son Isaac; and at 60 years Isaac has 2 sons, Jacob and Esau. At 130 Jacob goes down into Egypt where, 17 years later, he dies. This is A. M. 2315. From this on till David we have only the 40 years in the desert and the 40 of Eli upon which we can rely; all the rest is blank; for the period of the twelve Judges is made up of memoirs that may have been in part of contemporaries; and then we come first to Eli, whose period is unknown, though the length of his administration is given and we have here a second 40-year interval like an oasis in a desert, with a wide space upon either hand, for as to Samuel there is neither date nor duration assigned, and the same is true of Saul. The administration of Joshua and the elders is also without date or bound. But if we are wise we shall find in this, as in the case of Abram that help is to arise in a distant quarter. God (says Socrates) teaches by signs, and He hides that we may find. He will have us to learn that His Word is perfect, but this is not asserted, it is shown. By such examples as we are here considering we are warned that there is no defect in the Scriptures, that what is wanting in one place is to be found in another.

Thus as to what follows the death of Jacob we shall find in St. Paul (Gal. iii. 17.) that the law was given 430 years after the covenant, What

*It is said that Justinian, at his accession, issued a decree authorising the chief pastor in Rome military aid in enforcing ecclesiastical decrees, but it is rarely noticed in our standard authors. He is also credited with offering unusual honors to Mary as the Mother of God.

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covenant? The covenant sealed by the blood of circumcision; the covenant that was confirmed before (the law) of God in Messiah—in the miraculous birth of Isaac—of him that smiles upon a smiling mother (Virg. Ecl. iv. 60—64; Isa. lxvi. 7.) and gives joy to the universe that God is now revealed—"seen by angels"—(1 Tim. iii. 16; Virg. Ecl. iv. 16.) by coming to sojourn with men. No wonder then that such emphasis is laid upon the birth of Isaac. "My covenant I will establish upon Isaac." "At the time appointed;" "at this set time;" a time for which all ages have been waiting. So in Moses, "That self same (substantial) day;" "a night much to be remembered," at the end of 430 years, (Ex. xii. 40, 41, 42.) Here then we have 430 years from A. M. 2108. At A. M. 2538 Israel goes through the sea and receives the law at Sinai.

Then, once more, to the Pisidian Jews St. Paul says "After that (he divided the land unto them by lot) he gave them judges, as it were, for the space of 450 years; until Samuel the prophet." Here then for this set interval of time we have 450 years; but from what point are we to reckon? To answer this no small amount of skill is required. There are three considerations that will aid us in determining whence to reckon. And first, the indefinite past denotes continued action; and so we may read "he continued to give them judges." In Homer we read "so was fulfilled the counsel of Jove;" i. e. "so continued fulfilling." The contention of the chiefs and its calamitous consequences form part of a scheme that has regard to age upon age. Secondly, this conclusion is strengthened by the fact that the whole time from the Exodus to the Kings was a period of judges; of whom Moses was the first; but for special reasons these judges are divided into three classes—1st., two (Moses and Joshua) by themselves; 2nd, twelve (really thirteen, Jud. v. 6.) after Joshua to Samson; 3rd, two more (Eli and Samuel); making in all 16 (17) (see under Numbers). But thirdly, it was customary with the Hebrews to put either a part for the whole, or a whole for a part. Thus it is said "they shall afflict them 400 years, i. e. till the end of 400; putting this for 430, for the meaning of a number, for 400 may represent 50×8, the jubilee and the resurrection; while 430 is $13\times30+40$, trial (40) and failure (13) 430 being the real time from the covenant to the Exodus (see above). So again "the sojourning of the children of Israel in Egypt was 430 years, i. e. it closed with the termination of the 430 year period above mentioned. In another place it is said "Your children shall wander in the wilderness forty years," i. e. till the end of forty years; they really wandered 38 years, as they had been already two years in the desert (Num. xiv. 33; Deut. ii. 14). So in the Apocalypse, (xii. 6, 14.) the sun-clad woman flees twice into the wilderness to remain 1260 days, or a time, times, and a half, i. e. each time a portion of the 1260-day (or 42 month) period that makes so conspicuous a figure in that part of the Apocalypse, (Ch. xi. 2, 3, 13, 5, and here. So also the Two Witnesses are left unburied for three days and a half; another form of the same accursed cycle of times under the intrusion of the Man of sin.

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On the whole then we are safe in concluding that Paul is to be understood as affirming that, after the partition of the land under Joshua the second Judge, God still continued to give them judges till the end of the 450 years between the Exodus and Samuel. When we come to sum the Hebrew Chronology to the Captivity and down to at least the Hegira we shall find that there are in that time four terms of 490 years. 1st, that of the Judges; 2nd, that of the Kings to the Captivity; 3rd, that of waiting till the gospel should be "preached to the Gentiles" in the house of Cornelius; 4th, that of the first heresies till Mohammed. These periods (at least the first three) were in the mind of St. Paul, if not in that of his auditory, and drops 40 from the Judge period in order to cut it short at Samuel who was a reformer, little if at all inferior to Moses. By adding this 450 to the 2538 (A. M.) of the Exodus at the Red Sea and Sinai, we shall have A. M. 2988 for the first year of Samuel. So far all is sufficiently clear ; but from this period to David all is a blank; but in the same speech to the Pisidians St. Paul informs us that Saul reigned 40 years. Here, then, after clearing up the times of Jehoshophat and Jehoram his son, we shall, for the first time, know how long was the administration of Samuel. From David to the close of Jehoshaphat's reign all is clear, but he reigned jointly with his son (2 K. viii. 16.), while his son's reign is put at eight years 2 Chr. xxi. 20.). How long was the joint reign? Here we must reckon forward to the Captivity and then from the first year of Nebuchadnezzar back to David, taking account by the way of several reigns in the house of Ahab. The first thing to be settled here is the captivity.

In Daniel (i. 1.) we are told that in the 3rd year of Jehoiakim, Nebuchadnezzar carried away from Jerusulem certain "children" of the royal house, which "children" after three years training, (Dan. i. 5.) stood before the King in the second year of Nebuchadnezzar (Dan. ii. 1, 14.). The fourth of Jehoiakim was the first of Nebuchadnezzar (Jer. xxv. 1). The Jews reckoned from March; the Babylonians from January. Jehoiakim's 4th year, beginning in March, would be 10 months before the beginning of Nebuchadnezzar's 1st year. His third year would begin 22 months before Nebuchadnezzar's 1st; 34 months before his second, and 46 months before the end of his second. As Jerusalem was probably taken in the summer of Johoiakim's third year, there would be ample time for the training of the captive "children", and Jehoiakim's fourth would partly synchronise with the first of Nebuchadnezzar.

It is proved from profane Chronology that Nebuchadnezzar's first year coincides with the year 604 before the Vulgar Era; then the captivity of Jerusalem will be 606 B. V. E. in the 3rd year (i. e. after 2 full years) of Jehoiakim. Jehoiakim (being restored) reigns 11 years in all, and his son Coniah, after three months, is taken in the eighth year (7 complete) of Nebuchadnezzar's reign (2 K. xxiii. 36; xxiv. 8, 12.). Subtract 11 from 608, the first of Jehoiakim, and 7 from 604, the first of Nebuchadnezzar, and we have 597 B. V. E.

So, once more, Zedekiah, after Coniah, reigns 11 years. Jerusalem is

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destroyed in the 19th year (18 complete) of Nebuchadnezzar (2 K. xxiv.,18; xxv., 8.). Subtract 11 from 597, or 18 from 604, and we have 586 B. V. E. for the destruction of the temple. It is said in one place however (2 K. xxv. 2.) that this event happened in the 11th year (after 10 years complete) of Zedekiah. But this can be easily accounted for. Coniah's three months closed with the year, (2 Chr. xxxvi., 10.) and so in a tabulated account, Coniah would be credited with a full year. Thus Zedekiah's term, including that of Coniah, would be reckoned 11 years, otherwise 10. But would this be justified by any known custom among the Hebrews of those days? Most certainly. Names were used by them for their meanings, without regard to their place in history. Thus Jeremiah is put for Zechariah by St. Matthew (xxvii., 9.) because he would have his readers reflect that the humiliation, betrayal, and crucifixion of Jesus were for a purpose, and he was soon to be exalted once more to his own proper place, above all principality and power, while Zechariah would signify only that he would be remembered. Coniah (Jeconias) is put by St. Matthew (i., 11.) for the last of the Jewish Kings, instead of Zedekiah (Jehovah is just) because he would suggest that the Messiah line was still safely established. notwithstanding the Captivity; and he repeats it afterwards (v 12) to suggest that the royal line is once more established in the appointed place where Messiah should be born (Chr. ii., 5.) while by using this name twice in making out his 3×14 *generations*, he affords us a key to the treatment of repeated names in Hebrew catalogues at large when used either for their sense or for the making up of an appropriate number. But have we an instance of a transfer of the time of one king to that of another in the very same time, either for the meaning of the names, or for some other reason? Most certainly. We have here a use of Zedekiah for Coniah, (or Jeconiah) because God was about to perform an act of (Zadek) justice upon Judah and Jerusalem, instead of establishing them in their present corruption. In the case of Ahaz we have him tabulated in one place (2K. xvi. 2.) as reigning 16 years, while he reigned wickedly, like the kings in schismatic Israel; but in another place an event is recorded as occurring in the 20th year of Jotham, who reigned only 16 years; thus indicating that the just reign of Jotham was regarded as running at least three years into the period of Ahaz, as if to indicate that the first years of his reign were upright, like those of Jotham. Thus there are good reasons for giving the three months of Coniah to Zedekiah. *It is time for Jehovah not to establish but to execute justice.*

After placing the Captivity thus in the third year of Jehoiakim we find the reigns of the Jewish kings from the accession of David sum 453 years. But two reigns overlap each other; how much must we deduct on that account? We (I say) reckon the years here as tabulated, while those of the schismatic Kings are to be treated as current years, a liberty always allowed when years are not tabulated, as these evidently are not in the Jewish accounts that have come to us.

Commencing then with the first year of Rehoboam, (or 80 years from

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the first of David) A. M. 3148, we add 17 for Rehoboam, 3 for Abia, and 41 for Asa, and so come to the first of Jehoshaphat, A. M. 3209. So far the two, checking each other in several points, synchonise sufficiently by counting the years of Israel as current and remembering that Jeroboam's line probably dated from the eighth month (1 K. xii., 32, 33.), while the other reckoned from the first month (March). But Jehoshaphat began to reign in the 4th of Ahab; and Ahab, reigning 22 years, was succeeded by Ahaziah in Jehoshaphat's 17th year. How can this be? Only in one way. Ahab began to reign in Asa's 38th year, four years before the first of Jehoshaphat, if we reckon by tabulated years, but he may have begun late that year, so that the time he actually reigned may have been less than four years. The same may be true of Jehoshaphat's 17th year. The phrase may denote merely the time that had elapsed since Jehoshaphat came to the throne, and not the time that would be credited to him in a chronological table, where a fixed day is assumed as the starting point in each reign; so that although a reign may actually commence in the last month of a year all the preceding months are counted in with it. The actual length of a reign then may be nearly a whole year less than its tabulated length. All who are familiar with Jewish modes of reckoning time will understand. Thus, a child is circumcised at the age of 8 days, and yet a child born just before the close of a day may be circumcised in the opening hour of the eight day, though he is but little above six days old. So Jesus was to remain in the grave not only three days, but "3 days and 3 nights" (Matt. xii., 40.); and yet he was in the grave little more than one day; the parts of two days being put for whole days, according to the national custom in such cases. Thus, supposing that March was the starting point of the regal year; suppose further that Jehoshaphat in February A. M. 3209, the month thus preceding the starting point would count as the 1st year of his reign. Before his first actual year was expired he would have reached nearly the end of his second tabulated year. In the same way his 17th actual year would extend 11 months into what would be tabulated as his 18th year.

Now, there is no reason to suppose that the schismatical reigns were ever put in a tabulated form. This being granted we shall find no difficulty in reconciling dates in the case before us. Ahab began to reign in the 38th year of Asa, 3205 A. M., which years (as we take them for years current or complete) will bring us to either 3226 or 3227. In the other line Jehoshaphat began to reign in 3209 A. M., in his 17th year, which (we have seen) may mean either 17 or 16 when put in a tabulated form. Ahab died, and Ahaziah succeeded. This brings us to A. M. 3225 at the lowest, or 3226 at the highest reckoning. Thus three dates (3225, 3226, and 3227) are furnished, from which we select the middle term, as it synchronises the two lines. Again, Ahaziah reigned two years—years current as the context shows— and in the 18th year of Jehoshaphat—the 19th tabulated year, or 18th year complete—Joram came to the throne of Israel. This yields us A. M. 3227. In the 5th year of this Joram (3231) Jehoram began

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to reign over Judah, *Jehoshaphat, his father being still alive*, and reigned 8 years, or down to A. M. 3239. But this last date is the 12th year of Joram, King of Israel (2 K viii., 25.), who began to reign (as above) in 3227. If we take this for the 12th actual year, and equivalent to 12 years tabulated, the synchronism is made exact, and we are brought (as before) to A. M. 3229, the end of Jehoram's reign in Judah.

Thus by making the sums of reigns in the Jewish line in years complete, we solve the whole difficulty, and show that the reign of Jehoram overlapped that of his father by 3 years, and thus we have from David to the Captivity just 450 years. The same result will be reached by counting backward from the Captivity. Assuming this, as above, to have accurred B. V. E. 606 we add two years for Jehoiakim, and 277 for the other reigns up to the accession of Ahaziah the son of Jehoram, and at the death of Jehoram we have B. V. E. 885. But this was the 12th of Joram, king of Israel. The date of this Joram must then have been either B. V. E. 897, or 896. But he was preceded, one year before, by Ahasiah, king of Israel, in the 18th year of Jehoshaphat, king of Judah. This gives us 898 or 897 B. V. E. Ahaziah was preceded by Ahab, 22 years before, in the 38th of Asa. This gives us, at the most, 920, or at least 918 B. V. E. The parallel line of Judah determines it as 919 B. V. E.

[*To be continued.*]

IDENTIFICATION OF LOST ISRAEL.

EDWARD HINE.

Evidence No. 19. Israel must have a Monarchy.

We have now to speak upon behalf of the Ten Tribed House of Israel, who, upon the clearest evidence of Scripture, have not only to be a Nation before God, but also to have king David's sceptre ruling over them, which of course is the same as a demand from God that they should abide unalterably under David's permanent Monarchy.

God declared unto David "of the fruit of thy body will I set upon thy throne," Ps. cxxx, 2. "I will establish the throne of his kingdom forever" 2 Saml, vii, 13. "I will establish the throne of thy kingdom upon Israel for ever, as I promised to David, thy father, 1 Kings, ix. 5. "I will establish the throne of his kingdom over Israel forever," 1 Chronicles xxii, 10; "My mercy shall not depart away from him (David) as I took it from Saul, whom I put away before thee; and thine house and thy kingdom shall be established forever," 2 Samuel, vii. 15, 16; "I have made

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a Covenant with my Chosen. I have sworn unto David, my servant; thy seed will I establish for ever, and build up thy throne to all generations, Selah," Psalm lxxxix. 3, 4. We know there are scriptures referring in like manner to David's throne, to which conditions of obedience are attached, but these matter not, they do not in any wise cancel God's oath to David, as we shall prove. They are all given, invariably so, before the division of Israel into two Houses took place, and undoubtedly by the arrangement of this division, whereby two separate kingdoms were created, God's oath has been preserved. The ten Tribed Kingdom was the first to vex God; they had not David's sceptre and were decreed for exile. God's declaring "I will no more have mercy upon the House of Israel, but I will utterly take them away; but I will have mercy upon the House of Judah, and will save them by the Lord their God," Hosea i. 6, 7. This decree was made B. C. 785, and in B. C. 721. The house of Israel went "utterly" into captivity, not one being left behind, 2 Kings, vii. 26, 27. Judah remained under God's favor with David's sceptre in her midst, and continued in the land for one hundred and thirty-four years after Israel had been in exile. During this time Judah also vexed God, sinned worse than Israel had done. Jer. iii. 11: Ezek. xvi. 51; xxiii. 11; when God was very angry with Judah and ordered that her Crown, her Sceptre from David, her Throne from David, should be removed from her. The decree was given B. C. 593, or 192 years after God had said he would have mercy upon her through Hosea, "thus saith the Lord God, remove the Diadem and take off the Crown (David's); exalt him [Israel] that is low [in exile] and abase him [Judah] that is high," Ezek. xxi. 26. Thus David's Sceptre was to be taken away from Judah and transferred over to Israel; God about the same time testifying through Israel "Behold, my servants [Israel] shall eat, but ye [Judah] shall be hungry; behold, my servants [Israel] shall drink, but ye [the Jews] shall be thirsty; behold, my servants [Israel] shall rejoice, but ye [Judah] shall be ashamed," Isai. lxv. 13; many more of these distinctions are given, but surely these are enough to give us clear evidence that David's Sceptre was to be taken away from Judah and transferred over to Israel as distinguished and separate from Judah, and this very arrangement brought God's oath by the Covenant of Salt, into actual and literal fulfillment, for "ought ye not to know that the Lord God of Israel gave the kingdom OVER ISRAEL to David *for ever*, to him, and to his sons, by a Covenant of Salt?" 2 Chron. xiii. 5; xxi. 7. This is evidence that David's Sceptre must now be swaying over Israel; therefore Israel must now be under a Monarchy, and as we have already seen, so long as we have the sun, the moon, the stars, the sea and the roaring of the waves Israel must be "a nation" before God, Jer. xxxi. 35, 36. Therefore David's Royal Sceptre must be in ruling power over this "Nation" for "the Lord has sworn in truth unto David; he will not turn from it; of the fruit of thy body will I set upon thy throne," Ps. cxxxii. 11. Thus it is important to see what God said to Israel through Hosea i. 6, or B. C. 785, was cancelled when God took away the crown from Judah and gave it to

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Israel; this is proved by God saying 195 years after what he had said through Hosea, "Thus saith the Lord: If my Covenant be NOT with day and night, and if I have NOT appointed the ordinances of heaven and earth, then I will cast away the seed of Jacob, and David my servant, so that I will not take any of his seed (David's) to be rulers over the seed of Abraham, Isaac and Jacob (Israel), for I will cause their captivity to return, and have mercy on them," Isai. xxxiii. 25, 26. "Thus saith the Lord, if you can break my Covenant of the day, and my Covenant of the night, and that there should not be day and night in their season, then may also my Covenant be broken with David my Servant, that he should not have a son to reign upon his throne" Jer. xxxiii. 20, 21.

We fully recognise the fact that our Lord Jesus Christ, when He comes to reign will be the King ot Kings, that he was born without the conception of David's seed, and that though putting on humanity to serve His purpose, He was the Son of God, and not the Son of David, though of Jessie's stem; that He came to suffer and not to reign, and He will come again, and that to reign, when He will put all enemies under His footstool, destroying all the wicked. That from the fact that now the bulk of mankind are against Him, therefore His enemies, proves that He is not yet reigning, therefore the Sceptre is only in trust with David's seed until He comes whose right it is to reign, when it will be delivered up to Christ, who will come with His Kingdom, therefore I heartily pray "Let Thy Kingdom come" which I would not be so blasphemous to do if I thought this Kingdom had already come.

THE GREAT PYRAMID IN, BUT NOT OF, EGYPT. (*Continued.*)

A. B. GRIMALDI, M. A.

The Pyramid resting on the rock, was then proceeded with, and in its erection and completion another twenty years were consumed. The men employed numbered 100,000, engaged for three months, when another relay of a like number took their place; so that throughout the year the enormous number of 400,000 workers were engaged as hewers, quarryers, cutters, sculptors, drawers, drivers, overseers. This large number is partly accounted for by the plan of using manual instead of horse labor in Egypt, to transport the enormous stones and sculptures, as we see depicted in the tomb paintings.

The date of the Great Pyramid is B. C. 2170 but as it took thirty years n erection, if finished by that time must have commenced B. C. 2200, or some 200 years after the Deluge. The date B. C. 2170 agrees with the period during which Shofo reigned, and has been obtained astronomically. The

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star nearest the North Pole at that period forms one in the constellation of the Dragon; and, standing at the bottom of the *Subterranean Adit*, this pole star would be seen, as through an observing tube, shining into it, being then on the meridian, north of the zenith, below the Pole, in the latitude of the Great Pyramid.

Similarly, when the *Gallery* was finished, and before the superior portions were placed, looking from between its seven overlapping walls, the observer would see the seven stars forming the Pleiades on the meridian below the equator. It was at this period that Melchisedec, King of Salem (or Jerusalem), lived; and Abraham, having been born B. C. 2000, or 170 years later than the Great Pyramid, when these two great princes met, the priest of Jehovah would be far advanced in years.

Herodotus informs us that the Egyptians held the name and fame of Shofo in such abhorrence that they abstained from even mentioning him. He adds that there was at the time a shepherd named Philitis in charge of his flocks near Jeezeh, and that the Great Pyramid was therefore designated after him. From a full consideration of the circumstances, Prof. Smyth draws the inference that Philitis was the real architect of the building, that he was a shepherd prince of Palestine, and a devout worshipper in the Patriarchal Church. Having visited Egypt with a band of followers, he obtained sufficient moral influence over Shofo to engage him in this great work.

The actual workmen were idolatrous Egyptians, who would not work willingly, not understanding nor appreciating the object and purpose, and they hated the power that coerced them. When the work was finished the architect closed up the *Adits*, fastened up the exits and entrances with secret stone doors, and thus sealed it up to the latter days. The Egyptians thought it merely a gigantic monument of pride and power to commemorate the tyrant who erected it, and containing an unfinished sepulchral chamber beneath it.

Like other public monuments it came under the charge of the priests. The single entrance, closed by a tight-fitting revolving stone, was known to the priests. This opened into the *Descending Adit*, which terminates in an unfinished *subterranean chamber*. This was all they knew of its interior, all the other adits and chambers, the whole system of its interior upper construction remained a profound secret. The priests entered this Descending Adit, showed it to favored travelers like Herodotus, and they came away with the conviction that they had seen all the Great Pyramid contained. Its really important parts,—gallery, chambers, adits,—remained silent, empty, and perfect as when the architect retired therefrom

To Joseph B. C. 1712, when living near, at On or Heliopolis, it would be a familiar object, and probably he and Ephraim [our two great ancestors] would penetrate the interior as far as it was then known. Moses, 1500 B. C. learned in all the wisdom of Egypt, would know and understand still more of the subject, having been brought up at Memphis.

The Hebrews, when living at Goshen, B. C. 1276 to B. C. 1421, would be

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familiar with the towering mass, resplendent as a burning pyre under the blazing sun of Egypt. The later Egyptians, ignorant of all but the underground chamber, and considering it only as a huge mausoleum, copied the external form, the *Subteranean Chamber* and the *Descending Adit*, in their smaller tomb pyramids.

Egypt fell subsequently under the Greek dynasties, but no more progress was made in understanding the object, or exploring the interior. They were succeeded by the Roman power, B. C. 70, when Roman visitors were shown by the priests the same parts, some of whom inscribed the walls of the *Subterranean Chamber* with writing as memorials of their visits. When Mary and Joseph carried the infant Saviour into Egypt, they rested according to tradition at On, which Isaiah (see the LXX.) says was built by the Hebrews. Here they would be in the vicinity of the Great Pyramid.

The Romans, however, left the mystery of the Pyramid as insoluble as they found it, and about A. D. 500 were succeeded by the Saracens. During this period the country suffered from continual changes, disturbances and convulsions of all kinds. One consequence was that the national monuments were either destroyed or neglected. The Great Pyramid being too vast and solid for the former fate, suffered the latter, and was so totally disregarded that the secret of the entrance became lost, and the little before known of the interior was now forgotten. The keeping and knowledge of the building and its mode of entering having been in the hands of the idol priests of Egypt, when they and their religion were swept away by the introduction of the followers of the False Prophet, the Great Pyramid secret died with them.

The Saracenic dominion in Egypt was succeeded, A. D. 750, by that of the Turks, ruling from Bagdad. The religion remained the same, while the race changed. The country became more settled, order was restored, political and social institutions assumed stability. The Caliph of Bagdad, A. D. 820 [time of King Alfred], was Al Mamoun, the son of Haroun al Raschid, so often mentioned in *The Thousand and One Nights*. He was a man of superior ability, learning, and enlightenment, and a friend to science and the learned. He paid an official visit to Egypt, inquiring diligently as to all its wonders and curiosities, and learned that its greatest was the Great Pyramid, of which marvellous stories and traditions were told him as to its meaning and object, and specially of the vast treasure it contained. He therefore determined to enter its mysterious chamber, and penetrate to its secret cells. Tradition saying the entrance was on the north side, he then commenced excavating in the center.

But as the architect had placed the entrance 300 inches to the east of the central plane he just missed it. After, however, incredible labor and a workmen's strike, the laborers heard [when again on the point of relinquishing the attempt in despair] a stone evidently falling in a hollow space. Thus encouraged they redoubled their efforts in that direction, and soon broke into the *Descending Adit*. Sliding down this steep incline

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to the Subterranean Chamber, they found all empty. Returning, they perceived that the stone which had fallen from the roof had concealed the entrance of the Ascending Adit.

The adit thus disclosed was blocked by three huge granite plugs, exactly fitting, which, finding too hard for their implements, they left them where they still are. The architect had filled the commencement of the adit with granite blocks, but those above, up to the Gallery were of limestone. The Turkish excavators, therefore destroyed the limestone blocks, one after the other, as they descended by their own weight, until the whole of the Ascending Adit was clear up to the Gallery entrance. Creeping and crawling up the steep incline, eager to grasp the fancied treasures, they reach the magnificent lofty Gallery, and now are able to rush on between the ramps up to the high step at the south end, along the short Adit, under the granite Bar, through the Bar Chamber, and lastly into the Coffer Chamber itself. Their hopes were doomed to disappointment, for they found nothing but an empty lidless Coffer amid the primeval silence and empty solitude which had lasted for 3,000 years, and was for the first time disturbed, since Philitis sealed up his wondrous work, by this motley crew of Mahommedan unbelievers.

Finding, as it is believed, the covering of the perpendicular adit broken up, they in some way appear to have discovered the false floor covering the entrance to the horizontal Adit leading to the Cubit Chamber. Thus was the whole Great Pyramid for the first time thrown open to the world, all its interior construction, contrivances, and arrangements revealed, and so it has remained ever since, one consequence being that it lost a good deal of the mystery and glamour that had hitherto surrounded its impenetrable mass. Thus it remained neglected till A. D. 908. when a severe earthquake shook even this massive pile, and made some fissures in the rocky foundation and pavement, and shifted some of the Coffer Chamber blocks, as may still be observed by their displacement. At a later period the Turks stripped off the great outer-casing stones for their buildings in Cairo, some of which were used in the Grand Mosque and to line the great Joseph's Well.

As Egypt became more settled, and intercourse with Europe revived, travelers brought back word of the Great Pyramid among other wonders. But the first scientific traveler who has the honor of throwing the light of his learning on it was Professor Greave, of Oxford, who, after a careful and accurate survey, endeavored to draw European attention to the marvel by publishing his *Pyramidographia*, 1638. European travelers now visited it in increasing numbers, among whom was Moncony; who, in 1647, measured the base. Thevenot performed the same important labor in 1657; as did also Melton in 1667, and Chazelles again in 1702.

We now come to what was in some respects the most scientific, elaborate, costly, and complete survey of the monuments ever yet made. Napoleon, being in Egypt in 1799, enabled the Savans who accompanied the the French expedition to examine, measure, and explore the Great Pyra-

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mid in every possible manner, and under such advantagous circumstances as have occurred but this once. Their highly valuable and deeply interesting results were set forth in their magnificent and costly work *Description de l'Egypte.* Amongst other successes they have the credit of first discovering the Corner Sockets and the surrounding pavement.

In 1837, Colonel Howard Vyse spent a long time and some £10,000 in thoroughly and, as far as he could, exhaustively studying, exploring, and even excavating into the building. He discovered some of the structural hollows above the Coffer Chamber ceiling; the ventilating Channels in the same, and, more important still, some of the casing stones in situ, as well as three others loose, which he presented to the British Museum, where they may now be seen, in the lobby at the end of the Egyptian Gallery.

In 1820, Caviglia cleared out the Descending Adit, and discovered Roman uncial letters in the Subterranean Chamber. The next step in Great Pyramid discovery was in some respects the most important of all, though it was arrived at entirely by theory, unaided by practical examination. John Taylor, of London a journalist and author, studied the whole subject from every available source, and arrived at the conclusion that it was not a tomb; but was intended to conserve an earth commensurable set of measures for all time, and that it was a *pi* pyramid, built mathematically and geometrically, according to the principles of the highest science, setting forth the relation of a square to a circle.

He further entered upon its connection with the Hebrew measures, the founding by Shemites, and not idolatrous Hamites, and its connection with the Hebrew Sacred Scriptures. Great attention was called to the subject under a totally new aspect by his work, *The Great Pyramid, and who built it,* and an attention and interest aroused among thinking and intelligent persons that has never since ceased.

Among those who were most impressed with the theoretical discoveries of John Taylor was Professor C. Piazzi Smyth, Astronomer Royal for Scotland. Taking up the study with the same ardour, and bringing to its elucidation all the scientific skill and trained intelligence of a first-class mathematician and astronomer, he was enabled to verify Taylor's conclusions and carry on the research into higher and deeper results, and produce more accurate deductions. The result of this prolonged study he gave to the world in *Our Inheritance in the Great Pyramid.*

Finding that no conclusive result could be obtained as to certain important measurements, details, and numerous constructive peculiarities which were very imperfectly set forth or else omitted by all previous writers, he proceeded to Egypt. In 1864 he obtained a firman from the Khedive, and, living for four months in the East Tombs, close to the building, he there examined, in masterly and exhaustive manner, the whole structure, within and without, according to the highest scientific methods.

He used for this purpose the latest invented and most perfect scientific instruments for every species of admeasurement, examination and

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survey. The result of this most laborious performance was published in his large work, *Life and Work at the Great Pyramid*, 1867, 3 vols., with numerous plates. This exhaustive work at once took its rank as the ablest fullest and most reliable account of the Great Pyramid, in fact the standard work, and so it has continued to this day. The greatest interest was manifested in this record, and while some cavilled, and others tried in vain to discover error, all read. It settled the whole subject on a permanent basis, which has not yet been overthrown. Numerous other students and writers now appeared, and contributed more or less to the elucidation of special points or particular parts.

Among these may be mentioned Mr. William Petrie, who showed that the Pyrmid's altitude gave the correct distance of the sun; Mr. Waynman Dixon, who discovered the Ventilating Channels in the Cubit Chamber; Mr. Charles Casey, who suggested the meaning of the perpendicular lines near the entrance; Mr. Mackensie, who applied the Chronologic inch theory to the Adits and Gallery; Commander Tracey, who obtained the single inch measure from the Boss on the granite Bar, &c., &c. Abroad, as well as at home, has great interest been manifested in the elucidations. The learned Abbe Moigno, in France, produced a valuable work on the subject. In America numerous students and writers have appeared, and a learned magazine is devoted to its study, which still continues to be prosecuted with equal if not greater ardour than ever.

CUBITS OF THE SCRIPTURES.

E. BEDELL BENJAMIN.

While seeking information on Scripture cubits, it occurred to me to examine carefully every repetition of the word in the Bible. I find four different words translated cubit, three Hebrew and one Greek. In 202 words the Hebrew *Ammah* is translated cubit and cubits.

In one instance, Judges iii. 16. The Hebrew is *Gomed*, translated by Dr. Young, (Concordance) *span*. In our version *"cubit."* In the New Testament, the Greek is *Pechus*, which Dr. Young gives as *fore-arm*. The references are Matt. vi. 27; Luke xii. 25; John xxi. 8; Rev. xxi. 17.

The third Hebrew word, *Ammin*, is used only in Ezra and Daniel. Ezra vi. 3; Daniel iii. 1.

In examining the word *Ammah*, it is used five times in Genesis, in the description of the Ark. In Exodus, forty-nine times, in the directions for the Tabernacle. In Numbers, five times; in Deut., twice; Josh. once. In I Samuel, xvii. 4, we find the height of Goliath as "six cubits and a span."

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The word "span" not being included in the word *Ammah*, but being the translation of the Hebrew *Zereth*, which seems to indicate that it was a separate measure, for in 1 Chron. xi. 23, where the measure of a *man* is given, the word *Ammah* is used as in measures of land. &c. (He was rather a tall Egyptian, "five cubits high," not quite up to Goliath, but ten feet five inches was tall enough.)

In 1 Kings we find *Ammah* used forty times; in 2 Kings, twice; in 1 Chron., once; In 2 Chron., twenty-one times: in Neh., once; Esther, twice; Jer., three times; Ezekiel, sixty-six times; and in Zech., twice. The measure "cubit and a half" is often used, but the word "half" is the translation of *chetsi* or *chatsi*.

In Ezekiel xliii. 13. we read "the cubit is a cubit and an hand-breadth." The word "hand-breadth" translates the word *tophach*, and is used in Ez. xxv. 25; xxxvii. 12, and in Ezekiel xl. 5; xliii., and xliii. 13. In 1 Kings, vii. 26; 2 Chron. iv. 5; and Ps. xxxix. 5, we have *tephach* translated *handbreadth*.

In 2 Chron. iii. 3, we have the expression "after the first measure." In Ezr. lxi. 8, "a full reed of six great cubits;" in xl. 5, "a measuring reed of six cubits long, by the cubit and the hand-breadth." In Deut. iii. 11, "after the cubit of a man." In Rev. xxi. 17, "according to the measure of a man, that is, of the angel."

Dr. Edersheim states that in the chamber over the Shushan gate of Herod's Temple "two standard measures were kept, avowedly for the use of the workmen in the Temple."

THE "REVIEWER" REVIEWED.

SAMUEL BESWICK.

The article in May STANDARD by Rev. H. G. Wood, containing a critical review of my essay on "The Ancient Cubit," has attracted my attention, and calls for an immediate reply, on account of the number of assumptions which are set forth as facts. The following are the most important.

NOTE I.—"Mr. Beswick has certainly given a wrong measure for Ezekiel's cubit. He says, in the March number of the STANDARD, that the reed of Ezekiel was six cubits and a hand-breadth, whereas the facts show that the reed was six cubits, each "cubit" being a "cubit and a hand-breadth," thus making the reed equal to six cubits of 24 digits each and six handbreadths of 4 digits each."

Now, let us understand each other at the outset. Mr. Wood claims that a cubit in length is a cubit and a handbreadth=7 palms. Mr.

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Beswick contends that a cubit is a cubit only, and the cubit rod or rule had an extra handbreadth as a handle to hold the cubit measure with—the 7th palm was a handle.

Then again, Mr Wood contends that a reed is six cubits and six handbreadths. Mr. Beswick contends that a reed is 6 cubits only, the extra handbreadth being only a handle by which to handle the reed, and that it is illogical to say that a cubit is a cubit and something else besides; or that a cubit is more than a cubit—that a cubit of 6 handbreadths is a cubit of 7 handbreadths; or that a reed of 6 cubits is a reed of 7 cubits=6 cubits and six handbreadths. Such statements cannot be logically true. We contend that all ancient measuring rods of whatever name had an extra handbreadth to be used as a handle, but formed no part of the measure of length, and that this is the meaning of the two passages referring to the cubit-rule or rod, and to the reed as a measuring rod.

"A cubit (rule) is a cubit and a handbreadth."—Ezek. Lxiii. 13.

"In his hand a measuring reed, six cubits by the cubit, and a handbreadth."—Ezek. Lx. 5.

The reed was a reed of Palestine, and every full grown reed was very uniform in the length of its joints. It was the practice to select that portion of a long reed whose length of joints were equal. And one was usually selected whose joints were at a distance of one cubit, as measured by the cubit rule. Here is a specimen.



"A full reed six cubits to a (atzzelah) joint."—Ezek. xLi. 8. It was 6 cubits to the joint—not beyond the joint—the handbreadth was only a handle and not a part of the six cubits forming the reed measure. [Mr. Beswick must remember that there were two kinds of cubits—one cubit of one length and another a handbreadth greater. Ed.] So again, Mr. Wood refers to the watch-towers measured by Ezekiel—let us follow Ezekiel.

> "Each watchtower was *one reed* in length and *one reed* in width."—Ezek. xL. 7.
>
> "Each watchtower was *six cubits* on this side and *six cubits* on that side."—Ezek. xL. 12.

Now, as the watchtowers were *one reed* by *one reed* (verse 7), and also *six cubits* by *six cubits* (verse 12), it follows logically that *one reed* equals *six cubits*. There is nothing said here about 6 additional handbreadths to make a full reed=7 cubits instead of 6 cubits, as stated by Mr. Wood, or to give it in his own words, "the facts show that the reed was equal to six cubits of 24 digits each, and 6 handbreadths of 4 digits each." Putting Mr. Wood's statement into figures it would be—a reed of six cubits equals 7 cubits.

$$6 \text{ cubits} \times 24 \text{ digits} = 144 \text{ digits}.$$

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6 handb's × 4 digits = 24 digits.
Total, 7 cubits × 24 digits = 168 digits.

There is no way of getting out of this absurdity but by considering the extra handbreadth as no part of the measure of a reed, nor any part of the measure of a cubit, as a measure of length, but simply a handle to the reed and to the cubit rule. When either the reed or the cubit is applied and measurements made, the handbreadth is never named as part of the cubit, or of the reed, which it would be if it formed a part of the cubit or of the reed as measures of length.

NOTE II. Mr. Wood quotes Dr. Robinson in relation to the length of the Siloam Tunnel being 1750 feet, and says: "We do not go to the middle of the pool, as Mr. Beswick does to get the length of the conduit. The mouth of the pool was at the northwest angles, and from thence was the measure 1200 cubits = 1750 feet. Robinson's measure of the Siloam Conduit is 1750, or 17.5 inches × 1200, which reduced to feet is 1750 feet."

Unfortunately every one of these points is erroneous. The *conduit* from the mouth is 1708 feet long, and not 1750 feet as stated by Mr. Wood. The most perfect measurements of this conduit were made recently for the English Palestine Exploration Society, by Captain Warren in 1867 and Captain Conder in 1881, officers of the British Ordnance Survey, selected for the purpose. Let us look at their testimony as it refers to Robinson's measurement, cited by Mr. Wood.

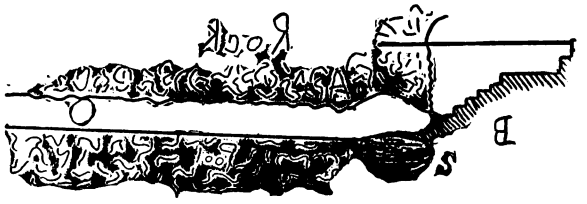
Captain Warren says: "At 1,658 feet we came upon our friend the passage leading to the Ophel shaft, and, after a further 50 feet (1708) we came to the Virgin's Fount. I find a difference of 42 feet between my measurements and those of Dr. Robinson, but if he took the length of the Virgin's Fount into account we shall very nearly agree (or 1708+42=1750)." —*Recovery of Jerusalem, p.* 189.

Captain Conder says: "The measurement with a chain gives a total length of 1706.8 between the Siloam end of tunnel and the place *where it enters* the cross passage tothe Virgin's Pool (or Mr. Wood's mouth of conduit). Col. Warren's total was 1708 feet, proving that Robinson's measurement includes in his total of 1750 feet the whole space from the Siloam Conduit to the back end of the Virgin's Pool, and which measures 50.8 feet by the chain."—Quarterly *Statement*, April, 1882, page 122.

Mr. Wood's figures are therefore incorrect, for his 1750 feet *includes* not only the length of the conduit, but also the whole length of the reservoir of the Virgin's Pool, whilst the Spring is some feet distant beyond the Pool. The Spring is not in the Pool, but runs into the pool as a sort of tank or reservoir, which is some feet distant from the Spring.

Then again, the walls of the Virgin's Pool, and even the pool itself as a cistern or tank, are modern; as Dr. Porter says, "The Masonry is modern."

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AC = length of Virgin's Pool.
S = spring or fountain.
B = steps, entrance to Pool.
C = mouth of Conduit.

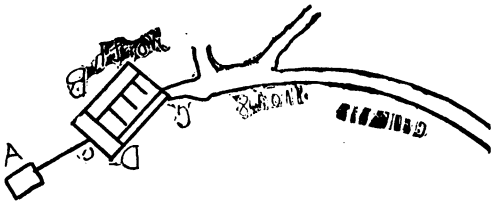
The tank or pool did not exist when the original conduit was first made, and when the master mason cut the inscription on the rock. The original beginning of the conduit has since been cut away to make room for the pool or cistern AC, for it originally reached as far as the spring at S, and the stone cutter says so in his inscription—not from the *mouth* of the conduit at C, as Mr. Wood claims, but from the Spring at S, as the stonecutter plainly declares. His words on the inscription are:

> "And there flowed the waters from the SPRING (Virgin's Fount) to the Pool for a thousand two hundred cubits."

Therefore, Mr. Wood is mistaken, and the measurement must be made from the Spring to the Siloam Pool, where the inscription has been cut in the rock—1200 cubits in length of 17.6798 inches per cubit, or six handbreadths of a standard cubit rod which was 20.62648 inches in full length. The inscription, as we gave it on pages 29-30, shows that the measurement of 1200 cubits must be taken from the Spring. Hence, the formula of our International Society is clearly consistant with ancient usage.

Again, the mouth of the Conduit is at C, the northwest angle of the Pool, and the conduit is 1706.8 feet long and not 1758 feet as stated by Mr. Wood. I write with an Ordnance Survey map before me, and the Exploration Maps and reports of their surveyors by my side.

Here is a diagram of the Conduit at the northwest angle.



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A = Old Pool—southeast.
B = New Pool—north side.
C = Mouth of Conduit.
O = The spring.

From Siloam Pool to C, mouth of Conduit at the northwest corner is 1706.8 feet; from C to the back of the Virgin's Pool at D is 50.8 feet, and from the back wall at D to the spring at O is another 10 feet; making a total of 1768 feet = 1200 cubits of 17.6798 inches to a cubit. If, now, we take the cubit rule or rod to be 20.62648 inches in length = 7 handbreadths or palms, then a cubit of 6 handbreadths without the handle of a handbreadth would be = 17.6798 inches, and 1200 cubits would equal 1767.98 feet, the exact length of this conduit from Virgin's Spring to the Siloam Pool, as found by actual measurement. Thus proving that the working cubit of the excavator was 6 palms in length, neither less nor more at the date of Hezekiah, King of Judah.

NOTE III. Mr. Wood repeats a statement we cannot allow to pass unquestioned, as the others have repeated it on his authority.

"Mr. Beswick entirely overlooks the fact that the four left hand digits are on a larger scale than the digits at the right hand of the double mark or 24 digits."—page 115.

We foresee that this claim is about to be pushed forward as a *fact* and made the standard of future estimates of the value of a cubit. And, therefore we deem it a duty we owe to our society, that we should call it in question; but more especially because we are personally called upon to acknowledge and recognise it as a *fact*, and admit it as a controlling standard for a cubit.

Mr. Wood has been led astray about this Turin cubit and its four wider digits at one end. I have made the matter of the ancient cubit a special subject of research. I studied it in New York under Prof. G. Seyffarth in the year 1857, when both of us had free access to Dr. Abbot's Egyptian Museum, 659 Broadway, New York, He uniformly asserted that the digits were all equal, and the lowest fraction was the sixteenth of an inch. When Mr. Wood first made a formal announcement that the Turin cubit had the four last digits larger than the rest, (page 199), and again more formally in July 1885, (page 271), I wrote to Prof. Seyffarth and asked his opinion on the statement. He replied emphatically that it was a mistake, all the digits were equal in width, and measured 28 digit division marks, all equal. In a letter dated July 14, 1881, Prof. Seyffarth says: "By the microscopic tests of Bidone and Plana the Turin cubit is 0.523524* of the metre; according to our papyrus it equals 0.529+†.....m; difference = +0.006 m. The aforesaid papyri have not yet been published, and in case you want to see for yourself and examine it, come to New York, No. 1263 Fourth Av., Yorkville." Another letter was written about a month before

*Or 20.6104 inches.—[Ed.
†Or 20.827 inches.—[Ed.

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his death, on the same subject, but he was too feeble to reply and he answered by proxy, "you know all that is known about the Turin cubit." I have no hesitation in saying, as the result of 30 years experience and research, since I first began to study under Prof. Seyffarth in 1857, that there is not a man living or dead who has measured the Turin cubit and found the last four digits at one end larger than the rest; nor is there a man living or dead who has ever measured the Turin cubit and found its total length 20.62648 inches. And both of these measures are assumed to be true by Mr. Wood.

Even granting the Turin cubit stick has at one end four digits wider than the rest, it would only prove it to be a modern cubit, probably of the Ptolemaic era. For it is well known to experts that the first of the Ptolemies, Ptolemy Lagus, king of Egypt, 323 B. C., re-formed and changed the Egyptian weights and measures.

NOTE IV. After Mr. Wood has complied with our request, to give us some authority for his assertion, that the Turin cubit has four digits larger than the rest, and that the total length of the cubit rod is 20.62648 inches, we will take up the remaining portion of his review in relation to the symbolism of the cubit of 28.25 digits, and notice his remark, "Beswick's method obliterates the true symbolism of the cubit." The ancient cubit of 6 handbreadths doubtless symbolized the six day's labor of those 6 hands forming the working cubit. The 7th hand was never allowed to be used as part of a working cubit, for that was held sacred and never used for working purposes, because it indicated rest from work —creative work is never attached to the number seven. The Jews, as a matter of fact, *dared not* to use a working cubit of seven handbreadths, whose significance was half of "$\frac{56.5}{\text{HVH}}$=Jehovah," as stated by Mr. Wood, any more than they would have *dared to utter* that sacred name in every day use at work when using the cubit measure. No Jewish workman could have been induced to use a cubit measure whose significance was HVH = Jehovah.

I have very good reasons for believing that no man living or dead has ever measured the Turin Cubit, and found four end digits larger than the rest. Had this matter come before us as an inference from sovereign data, and presented as an *opinion* merely, we should not have given it more than a passing notice, but now that it is presented as a *fact*, and assumed as a standard for deciding that we are wrong, it is nothing but proper that we should ask for the proof that it is a *fact*, and not an inference. We ask for the name of the party who made the measurements and found the results as stated by Mr. Wood? We foresee considerable trouble will arise if this statement is admitted as a fact, and a host of other assumptions will follow in its train.

I now propose to briefly criticise the last and most elaborate exposition of Mr. Wood's theory of the cubit and its kabalistic reference to the Aloahistic and Jehovahistic structure. I notice he again repeats his state-

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ment that the 4 left hand digits are larger than the rest, (see page 151), which I do not admit and ask for authority.

He is so much in error in relation to the structure of the Turin cubit rod, and of the general structure of Egyptian and Jewish cubit rods, especially Egyptian, that I deem it best to challenge the truth of the two main statements in his recent letters on the subject. I will state them formally, to admit of distinct discussion. He says:

1. "That the left hand division of the cubit rod, consisting of 4 digits not of standard length, each of the 4 digits are increased by 1-16th of a standard digit"—pp. 115, 116, 151.

2. "That the digits of the middle section of 9 digits are divided into 16ths,"—p. 155.

I doubt the accuracy of both these statements, and all the statements, arguments and calculations based thereon. I challenge their accuracy as questions of known facts, and fix the objection upon the following statement: "The digits of the middle 9 digit-section are divided into 16ths, hence the 9 digits contain 144 sixteenths." This is a plain statement and cannot be misunderstood, for it says distinctly that each of the 9 digits is divided into 16ths, and that "the whole 9 digits contain 144 sixteenths." This statement proves conclusively that Mr. Wood does not understand correctly the structure of the Egyptian cubit rod. We say distinctly and emphatically that there is not a single one in the whole 9 digits that is divided into sixteenths—*not one.*

Nay more. We say distinctly that neither the nine digit-section nor the four digit-section has a division involving the sixteenth of a digit. Nay more than even that, we say emphatically, that neither the nine digit-section, nor the four digit-section, nor the fifteen digit-section have their digits divided into sixteenths. We go even beyond that statement and say, that there is but *one digit* in the whole length of the cubit rod that it divided into 16ths. That the first digit on the right hand side—the first of the 15 digits is the *only one* in the whole length of 28 digits that is divided into 16ths—the only digit in the whole length of the cubit rod. So that Mr. Wood is radically mistaken in his conception of the markings of an Egyptian cubit rod. Let me explain it a second time. The right hand section of 15 digits is the only one that has divisional marks with fractional parts. The first digit to the right hand side is divided into sixteen parts; the second digit is divided into fifteen parts; the third digit is divided into fourteen parts, and so on to the fifteenth digit. Hence the fractional divisions are as follow for the 15 digits: 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2. So that the 15th digit is really divided into half digits. There are no more fractional parts of digits than what appears on the 15 digit-section to the right of the cubit rod. Beyond these 15 digits the divisions are whole digits, with no fractions. The statement of Mr. Wood from page 155, "that the 9 digits of the middle section is divided into 144 sixteenths" is misleading

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and a mistake—there are no fractional parts of digits in these 9 digits. Hence the argument based on it is worthless.

LIGHT FROM ANCIENT WISDOM. (*Continued.*)

E. BEDELL BENJAMIN.

The subject of language has received too much consideration by the wise men of our times to need more than a reference in an article so limited as this. In seeking for the primitive language, there is one safe rule. The language of which we find remnants in all others must have the strongest claim on being the original Divinely given. So far, research has given this position to the Hebrew. Of this language Parkhurst says, 'The Hebrew is the most simple and determinate, the most easy and natural of any language spoken in this world; and what wonder since it was framed by Him who formed not only the heart, and ear, and tongue, but the heavens, the earth, and all that is therein."

The similarity of Welsh, Irish, and Scotch words with Hebrew, Phenician, and Persic, is well known. Some few instances may be new and interesting. For example, the Irish words, "Palas," sheep grounds, and "Palache," a shepherd, take us to "Pali," shepherds, from which Palestine, the land of the Shepherd kings has its name. In the Irish "Seal," sheep-grounds or flock, we trace the Arabic "Seleh" a flock, and find in Scotland the shepherds' huts called "Sealans." In all priesthoods we find the idea of pastor, shepherd and flock, and trace the figure from the early occupation of those migrating hordes among whom the honors of chief-shepherd and king were united.

The Pali were not shepherds only; they found time for literature. The Indians give to them the invention of the sacred Paisachi writing.

This is probably the Prakrit, a dialect of Sanscrit, used in the Buddhist scriptures. Vallency, in "Oriental Collections," gives several astronomical words which seem to be derived from the same roots as those of Eastern nations. Speaking of the sacred stones of the Irish Druids, he says they "were named Gollan-cloiche, Dallan-choiche, Clocha-tuinidhe, and Cart-hadin, words translated by Irish lexiconists, rude pillars of stone inscribed with Ogham or sacred characters, which none could read but the Druids. In these words we discover several Oriental words for a cycle. The Chaldean *doul*, the Arabic *dawlon* and *dawlet*, a period, a cycle, form the Irish Dollan. From the Chaldean *gola*, a cycle, whence *gal*, galino, the seven spheres of the planets. Gil-gal (this word is in Hebrew 'a

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circle or a rolling away,' used to mark the twelve stones set up by Joshua), an orb or sphere, is derived from the Irish goll, gull or gollan. From the Chaldee *Cart*, a stone, Arabic *Khaureh*, a stone, and *teduin*, inscribing in public records, we have the Irish *Cart-hadin*. The Irish *Cloch* is the Chaldee Kla, a stone, pointing to the use of cycle stones, as common with the Druids." "I found," continues Vallency,' that the Irish astronomical terms corresponded neither with Greek or Latin, but with the Chaldean. For example, the word Nag, a star, whence Maiddin Nag, the morning star, is Chaldaic and Syriac."

In regard to symbolic characters of the Deity we find among the Druids a constant repetition of the circle or of volutes of circles with which we are familiar among the sacred emblems of eastern nations. In the temple of Jupiter Ammon stood a stone on which was drawn a spiral line, as a symbol of the Deity. The Phenicians represented Zeus as a circle. The Brahmins say God is a sphere, without beginning or end; He is symbolized by a figure having his great toe in his mouth!—thus forming a circle. The earliest temples were circles of stones, open at the top. On an Asiatic cylinder one of the figures is a symbolic representation of the Triune God; a circle, the wings of motion and the serpents of wisdom; according to Dr. Lundy, "expressed by the Persians Zarvana, the circle, God eternal; Mithra, the wings, the mediator, in the two natures of Ormuzd and Ahriman; the serpents being the dualistic emanation of good and evil." The Egyptian symbol is nearly the same in form. In another article I have given it a more purely astronomical meaning, but so nearly were religion and astronomy connected, that both are possible. The Druids permitted no image of the Deity; they believed that as He filled all space a representation was impossible. The circular symbol we find constantly repeated, not only in the forms of their temples, but on their sacred stones. In an ancient Irish astronomical manuscript, written before the adoption of the Latin q (proved by Aquarius being spelled Acarius), there is a curious inscription. It is quoted as very remarkable by Dr. Parsons; "Gloir do Dhia, do toisach gan tosach," which means glory to God, the beginning without a beginning. He says the MS. is written in the pure Mogogian tongue, and that in one of the schemes the earth is put in the center and the three elements around it; aca (for aqua), aer and ignis. He does not doubt this system was the received belief, and joined to their own ancient astronomical doctrines, was taught in their universities. One of the Druidical names for the Deity was 'Ti mor, the great circle, (Vallency). The Irish Cnaimb, the great winged one, reminds us of the Egyptian Cneph, of whom Plutarch says, "he was all good, without beginning or end." These traditions, which might be multiplied indefinitely, take us back to the thrice-great Seth, one of whose sayings was that "God is a circle, whose center is everywhere, and whose circumference is nowhere to be found."

In County Meath (Ireland), near Drogheda, a curious structure still exists. It is generally considered Druidical, and is called sepulcher, tabernacle or pyramid, according to the fancy of each visitor. It is of stone,

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and was once surrounded by a complete circle of upright stones. The pyramidal part is now about 70 feet high; perhaps originally it was 100. As the structure has served for many years as a stone quarry, the descriptions vary with the date at which it was seen. At the time of this description, a stone gallery 61 feet 4 inches long, leads to the central room, of which the diameters are 19 feet 2 inches and 21 feet. The entrance to the gallery is only 2 feet high, and decreasing gradually in size, it is at last only possible to go through by lying down and pushing by one foot. Before reaching the tabernacle this gallery increases to 9 feet in height. The tabernacle, 20 feet high contains three niches. Those on the right and left sides contain stone basins. The central niche is empty. A very particular account of this strange building can be found in Higgin's "Celtic Druids," and also Vallency's reading of the several inscriptions.

No. 1 consists of a spiral line, and represents the Supreme Being or Active Principle.

No. 2 appears to be the same spiral line three times repeated. Vallency, however, says this is the ancient Ogham or Croabh writing, and signifies in its threefold repitition the Great Eternal Spirit, and would read "To Him who is the Universal Spirit."

"No. 3 is found on the front of the covering stone of the East tabernacle" (he must mean niche), "and is written in symbolic characters signifying the House of God." He says the ancient altars of Ireland were called Botal or Bothal, having the same meaning as the Hebrew Beth El, God's House. The characters on this stone are the same spiral line, with something like a flattened horse-shoe.

No. 4, also in East niche, inscribed in Ogham characters, which mean, To the great Mother Nature. These characters are indescribable.

No. 5, the front stone of the northern niche, has entirely different inscriptions. They are formed of straight lines placed transversely, forming cross bars and squares. These are said to represent "chance, fate or providence."

No. 6 contains another style of writing, which Vallency says is the Ogham Bobeloth and Ogham Croab, and means, The Sepulcher of the Hero.

No. 7, also in Ogham, specifies the victims probably offered, such as men, oxen, swine, etc.

The common name for this structure has been the sepulcher of the Heroes. Vallency says that in the Chronicum Scotorum it and the grove are known as Fiodh Aongusa, which he translates as the Grove of the Sepulcher of the Heroes, though, as he states, some think there was a chief of the name of Aongus interred there. He makes one curious statement, particularly interesting to members of the Anglo-Israel Society, that the tumulus was erected not long before the art of writing became universal in the island, as all the different species are contained in the inscriptions, *if it was not erected by the founder of the convention of Taragh* (Tara) himself as a temple and sepulcher. He calls it a Mithraic Cave,

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and this brings us to the worship of Mithra, which alone is an identification of the Oriental priesthood with the Druids. The peculiarity of his worship—the mediatorship—appears in all the traditions. The forms always include a period of darkness—usually rites performed in a cavern, always a sacrifice, always expiatory blood, always safety through the work or blood of the sacrifice.

The introduction of mediatorship, if it can be considered apart from revelation, seems a necessity to reconcile the perfectly undeniable existence of good and evil. Where both were believed to emanate from a Divine source, "a daysman" was a needed hope between the two gods. It is impossible to decide how far this is actually a natural necessity, as all nations have a remnant of the primeval religion, and no one has ever suggested a trial like that of the first language. What would be the first cry of the untaught soul cannot be told; but in its struggle between the forces of good and evil surely a helper would be sought, a *mediator* between the two, in whom the tossed spirit could find rest. The darker the mysteries, the more terrible the sacrifices, the greater became the power of the priesthood, and the more abject the faith of their followers. We call it superstition—it was the soul's cry for help. However it may have been disseminated, it was universal; and Mithra the preserver between Oromades and Arimanius, was propitiated and trusted by the faithful in all climes.

In Persia the Spirit is in some way connected with Mithra, and a dove is his emblem; but generally, under whatever names or in whatever forms, this idea of the *mediator* is the one the most clearly defined. In the worship of Samhan among the Irish Druids as the lord of life and death, we find a "merciful judge not deciding by his caprice, but holding his power from the God supreme, of whom he is the image" (Schilling).

Samhan was said to be the image of the Sun, and in this answers to Mithra. Here it may be said that the worship of the Sun as mediator is always confusing. The idea seems to be that as the light and heat are conveyed by the Sun to the earth, so by the Deity so imaged are like benefits bestowed upon the worshiper. But all the work of the Sun became incorporated into religion; there was light of glory and fire of wrath; there were appearances and disappearances, both in day and night, and in the seasons. These were confounded with death and with resurrection The revivication of the earth symbolized the new birth of the soul, and mysteries increased until the "lords many and gods many" were so bewildering we cannot wonder that there were but few who worshiped any but an "unknown god."

The worship of Samhan is in Irish Samhan-Draoic, the *magic* of Samhan. Draoith means a magician. The Irish called the Druids magicians, using the word Seanoir, which means an old magician. Pliny says, "Britain at this day celebrates the magic rites with so many similar ceremonies, you might suppose them to have been given to them by the Persians." Higgins says that many of the Irish deities are precisely those of Hindos-

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tan

"Saman is Samanant. Bud, is Bood. Can is Chandra.

Omh (he who is) is Om or Aum.

Chrceshna, the Indian Apollo, is an old Irish word for the sun."

"It is impossible," he says, "to doubt the intimate relationship that has subsisted in some way between the natives of Britain and the Asiatic nations in former times."

Layard states that the one god of the Persians was formed of three, —Ormuzd, Mithra and Zarvana,—and agreed with the Assyrians and Phenicians. The symbol was a circle, or eternity, abstractly representing the highest god, called "Time without bounds." The two subordinate deities were represented by symbols within the circle. A dog was sacred to Mithra, and is sometimes represented as slaying the serpent. The serpent constantly appearing as both good and evil, it is, however, necessary to note that two kinds of serpents are represented, one poisonous and the other harmless; but this subject is too extensive to be here introduced. Mithra is often represented as slaying a bull; and here we come to the Tauric festival (well known among the Druids), and are at once mixed with zodiacal signs. There is no suitable word but "mixed;" for so many elements come into the idolatries, they are like the ingredients of the broth of the witches' caldron. If one is writing their history, they must have the eyes of a peacock's tail and the hands of a Briareus to see and record the influence of primeval revelation, antediluvian and Arkite traditions, Sabianism, the spread and particularly the adaptation of religions to different climates and countries, and the reflex influence upon them in the new locality where their votaries meet, bringing their superstitions from their wide-spread homes.

The one subject of Mithraic worship, in its Tauric division, clearly connects the Druidical and Oriental priesthoods, and in a very remarkable way. We have its remnants among us in the festival of May-day. On this subject I will give some extracts from my own article in this magazine, Vol. 3, No. 4.

"THE SUN IN TAURUS."

"In all ages of the world the nations have hailed with delight the return of spring, and the revivification of nature under the warmth and heat of the sun. His winter absence gave rise to fearful rites of darkness and mystery, but his return was ever a time of joy and gladness. This universal festival we know as May day. This day, the wise and never dying astronomer tells us, commemorates the entrance of the sun into the constellation Taurus, at the vernal equinox, 4000 B. C. This gives us about the era popularly known as the Creation, and a double reason for an observance so wide-spread that I have called it universal. It is still observed in all parts of Great Britain, among us, and in India and Persia. In Persia it is the 'Salutation of Mithras;' forty days were set apart for thanksgiving and sacrifice. Before the rising of the sun the procession was

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formed. First the High Priest, then a long train of the Magi, in white robes, carrying the sacred fire in censers and chanting hymns. They were followed by three hundred and sixty-five youths dressed in scarlet. The Chariot of the Sun, decorated with flowers, and drawn by white horses, caparisoned in gold, came next. Then a white horse of exceeding beauty and size, with ornaments of gorgeous gems on his head, in honor of Mithras. The king in an ivory chariot inlaid with gold was the next gorgeous spectacle, and following him, his kindred and nobles riding on richly caparisoned camels. This procession ascended Mt. Orontes; the high-priest was crowned with a tiara of myrtle and hailed the first rays of the sun with incense and prayers. The magi sang hymns to Ormuzd the source of blessing, who sent the glorious Mithras to gladden the earth and preserve life. A chorus and prostration closed the ceremonies. The rites of the Druids on this occasion are thus described by Davies (Myth., p. 369): 'In the festival of May they celebrated the praise of the holy ones, in the presence of the purifying fire, which was made to ascend on high. On the Tuesday they wore their dark garments, on the Wednesday they purified their fair attire, on the Thursday they truly performed their due rites, on the Friday the victims were conducted around the circle, on the Saturday their united exertion was displayed without the circular dance, on the Sunday the men with red blades were conducted around the circle, on the Monday was seen the deluge of gore up to the belt.'

"The first day of May was known among them as Baltein or Bel-tane. A town in Perthshire still has the name of Tillie-Beltane, the hill of the fire of Baal. The remains of a Druidical temple are near, marked by eight upright stones; not far off is a well, still held to be magical, and a procession of the superstitious on Beltane morning walk nine times around it. In some places the boys meet on the moors, where they cut a trench in the sod of sufficient size for them all to stand within it. They build a fire and make a sort of custard, which is eaten; they then make a cake of oatmeal, which is toasted and divided among them in equal portions. They blacken one piece with charcoal, then put all in a bonnet, from which they draw them, being blind-folded; whoever draws the black piece is the one devoted to Baal. Once he was undoubtedly sacrificed to the sun-god, but now he is only required to leap three times through the flames. Baal is then propitiated, and trusted with the fertility of the coming year. Another of the ceremonies still continued is dancing around a May-pole, and all of them tell of the ancient sacrifices and planetary dances."

The old English "Morris dance" is a remnant of these festivities, in which the very sacrifices were accompanied with joy and gladness, greatly puzzling perhaps to the worshippers, who saw only the typical dying victim and not the glorious work of the antitype. In the chorus of the Greek dramas we have the planetary dances. Plutarch tells us that in the strophe the dance from right to left was to indicate the apparent

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motion of the heavens from east to west, and in the antistrophe the dance from left to right was shown the planetary motion from west to east, while the slow motion before the alter represented the stability of the earth. Among the Hindoos the astronomical dance is called "the dance of the circle" or Raas faltra.

These planetary dances were not confined only to the Tauric festival, although it may be possible to trace their origin to this commemoration of one of the earliest astronomical observations. We may judge of how deeply seated the tradition was by the length of time it has been preserved. Even now there is a yearly procession and festival observed in New Jersey to greet the rising of the sun. I will quote again from the same source:

"If these wide-spread observances do not mark the era of creation, there is still sufficient reason for the commemoration of the time of which Virgil speaks 'when the bull with his horns opened the vernal year,' because in all the heavens there is no more magnificent group of stars than Taurus and the surrounding constellations. Nor are any more significant names than those in Taurus found in any other sign. They tell of the glory and might of the conqueror, to us the Saviour; to heathen nations, Baal, Mithra, Apollo, Hercules, and all the others that personate the lord of the sky, as well as the heavens above. Let us for a moment consider the names of the stars that have come down to us from the earliest ages (the exact meanings I take from Mazzaroth). In Hebrew, Arabic, Syriac and Coptic the word for bull means coming or who cometh. The grand group of the seven stars or Pleiades (congregation of the judge) contains a star supposed to be the central sun, and named Al Cyone,—the center,—a fact probably unknown to Maedler when he directed his telescope to it. Another star of the same group means 'center of revolving.' The great Al Debaran, one of the royal stars, means 'the leader.' There are four of these, according to the Persians, which marked the four colures: Al Debaran in Taurus, Regulus in Leo, Antares in Scorpio, Fom al Haut in the Southern Fish.

"Closely following Taurus comes Orion, the grandest constellation of the heavens, and the one that bears the strongest resemblance to a figure. In Hebrew the name means *coming forth* as light. Of the stars in the constellation four signify, *the mighty, the Prince*; five say, *he cometh*; three say, *bruised and wounded*, and Rigol, the foot, in the ancient zodiacs, is treading on a serpent. The three orbs of light in his belt point directly to the brightest star in our heavens, well named Sirius—*the Prince*. The apparent entrance of the sun, at the spring equinox, into the leading constellation of this group might well be celebrated by the very stars that sang together at the creation whether or not they marked that event. Maurice says: 'I have little doubt that May-day, or at least the day on which the sun entered Taurus, has been immemorially kept as a sacred festival from the creation of the earth and man, and was originally intended as a memorial of that auspicious period and momentous event.'

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"Although the festival of May-day is still observed, it has long been in memory of a *past* truth, for in the revolution of years the sun retrograded in his time of crossing the equator, and came earlier every year to the stars in Taurus, until at last, at the spring equinox, he entered the constellation Aries. It is said that April Fool's Day marks that change. If so, I will hazard the conjecture that the event was a surprise to the early astronomers, and the custom of sending on fools' errands told how often they had watched in vain for the coming of the sun among the stars that seemed his fitting court of glory."

Probably the change of the sacrifice from a bull to a ram took place when the sun was clearly proved to have left the constellation Taurus for that of Aries. At all events, I have seen no better solution of the two sacrificial feasts of Taurobilium and Criobilium.

"The first of April is celebrated in India and Persia as the beginning of the year, and the festival is called the Naurutz.

"Higgins, in his 'Celtic Druids,' p. 152, says: "When Sir Thomas Roe was embassador at Delhi, the festival was celebrated with astonishing magnificence. When in Persia some of his suite were deputed to congratulate the Shah on the first day of the new year. They found him at the palace of Ispahan, having his astrologer near him, who rose up ever and anon, taking his astrolabe to observe the sun. At the very moment of the sun's reaching the equator, he published aloud the new year, the commencement of which was celebrated by the firing of guns from the castle and city walls, and by the sound of all kinds of instruments.'

"The first of April was celebrated in Britain with the same rites as those of May-day, but all have passed from tradition except the custom of making April fools.

"At what date the early astronomers fathomed the mystery of the precession of the equinoxes we cannot tell, but that they accomplished his is certain. They divided the zodiac into 360 degrees and calculated the great cycle of the universe 25,920 years, during which the equinoxes will pass through all the signs, thus numbering the hours marked on heaven's gigantic dial-plate.

"Stonehenge tells us that the Druids knew all this, and how they marked with great stones the cycles, which in their festivals they represented by dances and slow circular movements. Our 'ballet' can hardly be recognized as a descendant of a planetary dance, although there is less difference between it and its original than between our white-robed priesthood and the Druidical. The Druids celebrated the *birth* of Mithra as well as his return from the winter of death. They agreed with the Persians and other eastern nations in the date being the night of December 24. In Ireland the 25th was called Nolagh; in Gael, Nollig; in Cornish the name is Nadelig; in Armorican, Nadelek; in France it is Noel; all these probably derived from the Hebrew or Chaldaic Nule (Higgins). A hundred years before the Christian era this festival was celebrated by the

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Druids of Gaul. In England the mistletoe bears so important a part in the Christmas festivities, that we go back unhesitatingly to the priesthood, among whom this plant bore the significant name of All-Healer. This was the symbol of the *Mediator* whose birth was to be the precursor of peace, as was his mission its diffusion. The Druidical knowledge of this was among their mysteries, although its earliest revelation may have been lost to their memory."

Epihanius tells us that the Egyptians knew the prophecy "Ecce Virgo concipiet et pariet filium;" and the rites among the Druids connected with the celebration of the Nativity prove that they too were thoroughly familiar with it. At Oxford a Mithraic monument of a mother and child has been discovered, which Dr. Stukely considers a memorial of what was called the birth of Mithra.

If these Druids, these wise priests of ancient Britain, were, as I have before this endeavored to prove, the idolatrous priests of Israel, there is no mystery in the source of their light. Their religion would necessarily combine Jehovah worship with Phenician idolatries, and with a memory of their captivity in Media and Persia. This is a fact of the Druidical system, while it is equally a fact that many forms, ceremonies and shades of belief among ourselves can be traced back to this early priesthood. The subject is full of interest, but in an article of prescribed length only a few points can be referred to.

Perhaps some may be induced to look, Janus-like, backward as well as forward, and to trace in all religions one line of light, "the same yesterday, to-day and forever."

MR. BESWICK'S CRITICISM OF THE "WANDERING OF THE EARTH'S AXIS OF ROTATION."

FRANK H. BIGELOW.

In an article published July 1887, Mr. Beswick seeks to invalidate the argument which appeared in March 1887, with the intention of supplanting it by another theory on the Orientation of the Pyramid. But his criticism fails in some essential points which we take the liberty of indicating.

1. His argument by reductio ad absurdum proceeded on the assumption of progressive changes in azimuth, proportional to the time elapsed, as drawn from the differences of azimuth measured at the several planes. Special pains were taken to base my argument on the geological *per saltum*

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hanges since no one presumes that the variations are continuous.

2. The azimuth 5′ 40″ ± 10″ is the mean of four of the most perfectly constructed planes found in the Pyramids, viz: the core and passage of the great pyramid, the casing and passage of the second pyramid, the probable error 10″ being deduced from this consideration. One fails to see why inferior workmanship should not be a consideration in assigning weights to probable results or even in rejecting certain bad data. Especially one is not prepared to believe that the casing alone of the great pyramid should be given more weight than the four planes just mentioned. Is it more likely that four planes originally indicated true north, or one plane as assumed by our critic? It may be fortunate that the casing is truly oriented in 1887, but the conclusion is dangerous, since Geology and Astronomy demand this change whether the Pyramid allows it or not.

3. Referring to Mr. Beswick's figure, p. 166, he gives the data, 9131.055 for side A; 9139.871 for side E, and angle opposite side A equal to 45°. I fail to see by what trigonometrical process he can obtain the solution for the angle AHE, as 5′ 12.″52. The usual formula for sines will give 3′ 19″, a result which is fatal to the remainder of his paper. A simple proportion omitting the sine-function can hardly be allowed. The object assigned for the supposed deviation of 5′ 12.″52 is the indication of the ratio between the true tropical year of 365,2422 days and the "vague solar year of the Egyptians" containing 360 days. Unless this can be sustained upon some other reasoning than the above it cannot be true, and one would doubt the inspiration in thus perpetuating that bothersome popular problem of reconciling $30 \times 12 = 360$ with the year of the planet's motion.

I am perfectly well aware that this problem of the "wandering of the earth's axis" has not yet reached a firm solution. The demand is there and exact measurements will be made from this date onward. If they seem to conform to the apparent historical changes at the Pyramids, as seems very probable, as soon as this is confirmed we may step backwards several thousand years to this starting point. Meanwhile we should be desirous to let the theory stand without discredit from any faulty speculations such as we have indicated above.

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LENGTH OF EQUATORIAL DIAMETER.

The sum, in sacred cubits of diagonals of base of Pyramid
Is to
The earth's axis
As
The distance traveled by a spot on the equator in one hour of the anomalistic year
Is to
Equatorial diameter. m

Term 1st is known. Term 2d I make 7899.29. Term 3rd. We must first enquire what is the distance travelled? To find which you find the equatorial diameter. This seems to be to argue in a circle. Not so, I say. The term here is one of time or angle in reality, and two radii from the earth's centre must be drawn to—where? It is now generally acknowledged that the equatorial diameter varies, in fact, it has a major and a minor diameter, so to speak; therefore the length of the radius (and consequently of the equator) must vary. Then take a mean, which must be allowed to be fair. Now in one government-school class-book I see the diameter at the equator is stated to be 7925½, and the circumference 24,899. Simply impossible. It ought to be 24.888.6, etc, As there must be some reason for this palpable error, I suppose the major equatorial diameter has been used to obtain—I take a mean of 24.894.

Then what is 1-24 of this? After deducting 15.8 for the greater length of anomalistic year, there remain 24,878.2; this ÷ 24 = 1036.6. Now we have the three terms in figures, 1033.06 : 7899.29 :: 1036.6 : 7926.3.

In working out this problem, when writing to the Astronomer Royal of Scotland I made the decimals of the difference travelled too high. I think the figures now adopted about as fair as can be given, considering the actual length has not yet been found.

Height of doorway in the King's Chamber shows the difference between the anomalistic and tropical year at time of building the Great Pyramid.

Height of doorway - - - - - 42′
Is to

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Length of diagonals of base (in s. c.) - 1033.06
As
One minute of time - - - - - - 60″
Is to
difference between two years in seconds of time - 1475.8.

I have *assumed* that the difference increases every 100 years by 6-10 of a second. I have only taken 4000 years, it is really 4057 years; but that cannot make much difference.

The breadth of the Entrance doorway into the Antechamber gives the difference at the present day between the Anomalistic and the tropical year.

I have taken the breadth to be 41.333 instead of 41.4, because Prof. Piazzi Smyth positively states he could not measure very accurately.

Breadth of Doorway	:	Diagonals of base in S. C.	::	one minute of time	:	is to present difference of years in seconds.
41.333	:	1033.06	::	60″	:	1499.″6.

Difference between the tropical year and sidereal year shown by height of doorway leading into Ante-chamber from Grand Gallery.

Height of doorway multiplied by present difference between tropical and anomalistic year and the result divided by ten equals difference between tropical and sidereal year now.

$$\frac{43.615 \times 279.7}{10} = 1219.9$$

The sidereal year, text books on astronomy tell us, is almost invariable, the difference being 1-100 of a second in 2000 years. For present purposes we may disregard the very slight difference.

What I would especially like to call attention to is that the doorway in the King's Chamber gives the difference oetween the years at the building of the Pyramid, and the door of the Ante-chamber gives their present difference, or rather the difference between the tropical and sidereal year, and the tropical and anomalistic year.

Further, assuming that man was created 4000 B. C., then to building of Pyramid was 1830 years; and now the differences of the years are given for a date approaching very near to 1830 A. D. But this requires to be worked by a professional mathematical Astronomer.

I must say I am not quite satisfied with the terms in which the last problem is put. True I have got the difference between the anomalistic and tropical year now and 4000 years ago, and as the anomalistic year is invariable, I can calculate the rate of difference.

The annual amount of the Progression of the Perthelion is 0° 0′ 11.″8 of arc = 4 m. 39.7 s. of time, or 279.7 s. Such a number must be shown somewhere in the Pyramid, on account of its importance, not left to be discovered by calculation.

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Proportion borne by the Equatorial Diameter to the Axis of Rotation.

Draw a line from centre of Granite Leaf on N. side, in the axis of Ante-chamber and passage to K. C., up to the middle of King's Chamber. One line.

For second line, place coffer's western side on joining of Ist and 2nd stones from W. wall of the Chamber; then draw a line from end of and perpendicular to the first till it comes on to Coffer. We have the first line.

In Ante-chamber - - - - - -	95.26
In Passage - - - - - - -	100.20
In King's Chamber - - - - - -	103.066
	298.526

Second.—Deduct for 412.132.

Distance of Coffer from W. wall. - -	55.
Breadth of Coffer - - - - - -	38.61
Half-breadth of Doorway - - - -	20.7
	114.31
	297.822

Then, mean equatorial diameter, $7925.5 \div 298.526 = 26.55$.

Axis of Rotation; $7899.29 \div 297.822 = 26.52$

A near approach, and especially when one remembers that the 7925.5 is a mean.

I conclude with a guess. Measure off 103.633 from N. side of Granite Leaf into Grand Gallery. Will the portion in the Grand Gallery represent (taking S. C. for days) the difference between the summer and winter Solstice at time of building the Great Pyramid, or 2170 B. C.?

I make it too short by half an inch; but mine are rough and ready calculations, not with any pretence as to exactness; and I have never seen the difference between the Solstices at 2170 B. C. mentioned, so have no guide.

F.

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MEASUREMENTS OF THE GREAT PYRAMID

W. M. FLINDERS PETRIE.

As Mr. Beswick has made some hard accusations against the correctness of my measurements, in your journal, I trust that you will allow me to state the truth of the case. He says (p. 127-8) "Petrie has in fact made a mistake," that "all his distances from the center are necessarily wrong," and that "he has made a radical mistake in this fundamental measurement." I do not know whether such accusations have been made before, as this is the first number of your journal that I have chanced to have sent to me.

But I must say that these statements are wholly untrue. 1st, my measurement of the pyramid entrance had nothing whatever to do with any sine or tangent of any angle named by Mr. Beswick. 2nd, they had nothing to do with any theory about the azimuth trenches. 3rd, they were entirely derived from the absolute triangulation which I should recommend Mr. Beswick to master on pp. 34-36 of my account.

Anyone may of course erect any theories they like on the absolute facts, which are all that I am responsible for stating; but I must request theorists to avoid confusing their imagination with the real figures, and then accusing my results of being in error if they do not tally with their suppositions. Mr. Beswick says in effect: "So much the worse for the facts if they do not fit my theory." I think it is so much the worse for the theory.

It would be also as well to quote my figures correctly if they are to be used; and not to mix them up with theoretical quantities, and call it my working. 13° 56′ 34″ should be 13° 57′ 34″ if a quotation from p. 186 is intended.

BESWICK'S REPLY.

I must say Petrie's statements are both misleading and untrue.

1st. My letter does not say that Petrie's measurements of the eastern displacement of the Entrance Passage had anything whatever to do with sine or tangent of any angle named by me. But my letter does say

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that Beswick's measurement of this displacement has something to do with them.

2d. My letter does not say that Petrie's measurement of this displacement had something to do with a theory of the azimuth trenches. But my letter does say that Beswick's measurement has everything to do with that theory.

3rd. My letter does not say that Petrie's measurement of this displacement was derived from any source whatever. But it does say that Beswick's measurement is derived from this angle.

4. In conclusion I would recommend Mr. Petrie with all due respect to master the contents of my letter, especially page 127, that he may know the grounds of my statements about his measurements, and see where his fundamental mistake has been made, and that he may revise them in the next edition. I must also request him to avoid confusing his imaginations with the real statements of an opponent, taking fancies for facts, and then accusing my results of being "untrue," if they do not tally with his suppositions.

My article claims that the azimuthal angle referred to by Petrie, and illustrated in my article, page 127, as applied to the eastern displacement of the Entrance Passage, was *unknown* to Mr. Petrie, and is a discovery of my own, and had never before been published. How then could I assume in my article that Petrie derived his measurement of this displacement from the angle which I claim to have discovered, and had never before been known or published? Petrie's accusation is therefore untrue, and is as absurd as it is untrue. I made this claim openly in the letter referred to by Petrie which he must have read, and in plain and simple language so that everyone could understand. My words were: "Its true relation to $\frac{1}{287}$ is as follows: $\frac{1.031324}{295.979658} = \frac{1.000,000.}{286.98997}$ The fact is, these two numbers stand related to each other as *sine* and *tangent* in relation to the *eastward displacement* of the Entrance Passage, which has NEVER BEFORE BEEN DISCOVERED."

This is plain enough. It was not Petrie but Beswick that says the measurement of the displacement has this relation to the azimuthal angle of the E. N. E. Trench and its axis, in relation to the vertical axis of the Pyramid. Beswick then concludes as follows: "Petrie has in fact made a mistake. He has taken (or adopted the measurement of 287 ins.) what is the *sine* of a certain angle, when he ought to have taken what should have been the *tangent* of that angle." Beswick does not say that Petrie took the "sine" of that angle, but that he "took the measurement which is the sine of that angle." Petrie knew nothing about the relation of this sine to the measurement he had adopted, and therefore Beswick did not charge him with deriving his measurement from that sine. He knew of the angle and its value, and refers to it two or three times, but he had no idea of its relation to the eastern displacement of the Entrance Passage.

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Mr. Petrie complains of not quoting him correctly. The figures used by me in the calculation are expressly stated as being my own and not Petrie's. But I compare my result with Petrie's and say: "Petrie makes the angle 13° 56′ 34″, page 186." It should have been 13° 57′ 34″, which is a typographical error I had no means of correcting. But the printer's error did not amount to anything because the figures were not used in any calculation, and were quoted only by way of comparison. But lest Mr. Petrie should suppose the correction would make a difference I will give the angle and distances used by him exclusively.

Petrie's Displacement.		Real Displacement.	
1190.7912 - -	3.07583	1190.7912 - -	3.07583
sine 13° 57′ 34″ -	9.38244	tangent 13° 57′ 34″ -	9.39546
287.260 - - -	2.45827	295.979658 -	2.47129

Now what I said before I now say again—that Petrie's measurement, 287±.8 inches, is the *sine* of this angle, and that "he has taken what is the *sine* of a certain angle, when he ought to have taken what should have been the *tangent* of that angle."

And this error has led Mr. Petrie to displace the true position of the central vertical axis, which must affect and displace all his other measurements in relation to that central axis; for he places the central line 287±.8 inches from the Entrance Passage, pages 55 and 95, whereas it is 295.9796 inches. And this agrees with the measurements of both Colonel Vyse and Prof. Smyth. Vyse gives the whole number 296 inches without fraction.

This angle determines the actual value of the eastern displacement of the Entrance Passage, and fixes the true place of the central axis of the Pyramid. It is a fundamental measurement and a check upon all others. Petrie in the above letter advises me to "master" the co-ordinates of marked stations on pages 35 and 36 of his work. I have done this ever since 1883, when his work was first published; and with what was found there and what is known besides, I again give it as my deliberate opinion, that Mr. Petrie has made a mistake in his fundamental measurement of the eastern displacement of the Entrance Passage, and that the distance should be 295.979658 inches, and not 287±.8 as given by Mr. Petrie. It is important that the position of the central vertical axis should be determined beyond peradventure, for its displacement must be the displacement of every measurement which stands related to the centre.

The importance of this leading measurement may be inferred from Petrie's own statement. He says, p. 24, "For connecting together the inside and outside measurements of the Great Pyramid, a station of the external triangulation was fixed on the end of the Entrance Passage floor, thus fixing the position of the passage on the side of the Pyramid. From this station the azimuth down the passage was observed, thus fixing the direction of the passage. And levelling was also carried up from the pavement and casing stones of the N. face to this station; thus fixing the

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level of the passage, and hence that of all the interior of the Pyramid." It may readily be seen from this statement, that any displacement of the central vertical axis by miscalculation will effect all the interior measures of the Pyramid. And that Petrie himself, in fixing the position of this entrance passage on the side of the Pyramid, connected all the inside and outside measurements with this position. This is the reason why I speak of it as a fundamental measurement, and that any error or mistake in its distance from the central axis of the whole Pyramid will vitiate every other measurement in relation to the central plane. I regard Petrie's measurement of the eastern displacement at 287±.8 as being an error of this kind, since the true distance should be 295.9796 inches.

RECENT DISCOVERY OF EGYPTIAN OIL WELLS.

M. A. QUIRK.

The petroleum wells on the west coast of the Red Sea, concerning which high expectations are entertained at Cairo, lie at the extremity of the Gulf, and within about one hundred and forty miles of the port of Suez. The oil mountain Jebel-heit lies in Lat. 27° 50′ N.; but the petroleum district, as marked on our Admiralty charts, really extends for several miles to the north and south at this point. The whole territory shows more or less indications of surface oil, and is besides rich in Hydro-Carbon, sulphur, lime, etc., offering an interesting field for geological research.

Gypsum of the purest quality has been discovered in advance some miles to the north of Jebel-heit; and already measures are in contemplation to work these gypsum fields. The promontory of Gimsah lies about twelve miles south of Jebel-heit, and here another little city of Eden has sprung into existence. About two miles north, north east of the spacious natural harbor formed by this promontory and the adjacent coral reefs, are found the so-called petroleum pools, consisting of a black bitumen-like substance which emits an unmistakable odor, and "scents the desert air" for miles around.

Mr Tweedle, the American expert, to whom the work of exploration is temporarily confided, has finally pitched his tent and seems sanguine of ultimate success, if the Egyptian government will persevere. His contract expires in a few weeks, and is not likely to be renewed. But this need not impede the work of exploration. A complete staff of skilled American and European workmen has been collected, who, if willing to remain, are fully equal to the task alloted them under any ordinary sur-

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veyor. The appliances and organization leave nothing to be desired, so there need be no fear of the undertaking being abandoned until all reasonable hopes of success have been finally exhausted.

EXTRACTS FROM LETTERS RECEIVED.

J. H. Weldon, Ash Hill Towers, Kilmallock, Ireland. "I have for a long time been anxious to further acknowledge your kindness, to which I am indebted for the loan of Dr. Mahan's book on The Mystic Numbers of Scripture. The examples he gives of remarkable coincidences of numbers, and the depth and the length of his calculations, extending in many instances over whole chapters of the Bible, make Dr. Mahan's work most interesting, and establish beyond a doubt the correctness of the theory which he has so well succeeded in reducing to a regular system.

The few extracts from his work which I had the good fortune to light upon, had given me a sufficient clue to the *modus operandi* of the system, to enable me to arrive at a similar belief in the soundness of this particular branch of the Jewish Cabbala as a science, the study of which continues to produce the most remarkable results. For a long time I felt inclined to publish some of what I deemed most striking, but I was continually under the apprehension that my discoveries might, after all, turn out to be mere repetitions of Dr. Mahan's. But now I see that the Bible presents so vast a field for such investigation or exploration, that there will be; as long as the Book of God stands, an unfailing spring wherefrom to draw more and more proofs of the divine character and inspiration of that wonderful book. And why should it not be so, if the study of that system be the real explanation of that otherwise unintelligible verse in the Book of Wisdom, which states that God has "ordered all things in measure and *number* and weight"?

Now, in order to avoid too much of repetition by referring back to papers of mine that appeared in the INTERNATIONAL STANDARD, I shall briefly observe that 153 is the characteristic number of the House of Israel; and the appearance of that number is of such frequent occurrence in connection with passages referring to Israel, that there is more than enough to establish the system before us by the number of 'facts and figures' that can be produced.

Dr. Mahan lays it down that the number 17 is indicative of God's people. That being so, it is to be observed that 17 is, as it were, the root or foundation of 153, as its multiplication by 3 times 3 produces the latter number, we must also observe that the sum of the first 17 consecutive

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numbers is exactly equal to the number of the fishes, "one hundred and fifty and three."

Dr. Mahan has shown us that the Hebrew words, *Beni ha Elohim*, meaning the "sons of God," are equal in numerical value to 153. So also "Rebecca" in the Greek, and the Hebrew *Ishah*, "woman"—each makes 153. 'The house of Israel, my people' is value for 1530, or 153 multiplied by 10 the number of the tribes of the house of Israel, as distinguished throughout the Bible from the tribes of the house of Judah, commonly called Jews. The net in which the fishes were caught, makes 8 times 153. And the letters of the word "fishes" add up also to 8 times 153. So does the name *Abram*, and so do the two words *Shibboleth* and *Sibboleth*, all in the Hebrew, make 8 times 153. "The seed of Jacob" (Heb.) makes 3 times 153.

The number 107 is also expressive of Israel, as I have before now pointed out. "Ye are my witnesses" is equal to 1926 which is 18 times 107. And the following in the Hebrew: "And he called his name Israel," numbers 1605 which is 15 times 107. I need not multiply examples. Let these suffice. And I have shown that the number 1071 is peculiar to the American or Manassite portion of the tribes of Israel, and 1071 is equal to 153× 7. Now if we take Ps. CXLVIII, 14, "He also exalteth the horn of his people, the praise of all his saints, even of the children of Israel;" we find the Hebrew letters to sum up 3213 which is 3 times 1071.

But the most remarkable calculation in illustration of the presence of the two numbers, 1071 and 153 comes out in the following manner. Let us take the Hebrew of the words, "And he called his name Israel," (Gen. XXXV. 10.) Thus:

3 1 2 3 1 6 4 3 4 1 1 2 1 1 6

writing under each letter the *initial* figure representing its value (that is, writing 3 for 30 and 2 for 200, etc.) As there are here 15 letters, so we have 15 figures, which, as the Hebrew is read from right to left, we must therefore reverse and place thus, dividing by 3 and by 7:

3)611,211,434,613,213
7)203,737,144,871,1071
29,105,306,410,153

This is one of the most wonderful coincidences of number I have ever met, and it is rendered still more remarkable by the fact that the Greek word for 'wonderful,' as you will see below, sums up the same number, 1071.

9 1 400 40 1 200 300 70 50
1071

The Hebrew characters representing the numerical values have been omitted.

J. LEYLAND FEILDEN, Roppynden Burwash, Sussex, Eng. "In regard to the U. S. A. being E. or M.—I say he is Ephraim; and you think Manasseh. I think this will probably be a point of difference, until Israel gen-

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erally can entertain the view I have set forth of there being *four* Folds of Israel. That Great Britain comprises a chosen remnant of individual members of *all* the four Folds (Judah included) re-united into one flock under one Earthly head, namely, Queen Victoria, etc., etc.

The two sticks of Ezekiel being now re-united (Israel and Judah forming the Kingdom of Israel. From this Kingdom, Ephraim as a tribe has gone forth, and is with "Her companions," members of *all the Tribes* Judah included, settled under the "thirteen stripes."

I regard Canada as Manasseh, similarly situated, that is, with members of all the Tribes of the four Folds around her. I fear this is only a restatement of what I have long urged on the attention of the many inquirers into these subjects, who seem as hard to convince of there being other descendants of Jacob, beyond those who left Egypt under the leadership of Moses and Aaron.

If our friends would consult the classical dictionaries re Cecrops, Jupiter, etc., I think they would scarcely fail to see it; remembering at the same time that the Bible almost ceases to speak of "Lo-Ammi" or "Cut-off" Israel, and confines its attention mainly to those *within* the Fold It is too generally forgotten how little the Bible tells us of the history of Israel during the 400 years in Egypt, during the greater part of which time they were all or nearly all "Lo-Ammi" "Cut-off" from God. Their Biblical history is only again taken up upon their being RE-DEEMED, which happens when Mosès has such as join him circumcised. and brought back into God's covenant. See Song of Moses, "Thy people whom Thou hast redeemed." To be redeemed proves they must have been "Cut-off," or they would not require redemption.

It is not much of an argument, but at the same time it is curious when taken in connection with the enquiry "Who are Ephraim?" to remember that Penn and most of the Pilgrim fathers were Quakers wearing broad-brimmed hats, and that in England they were generally designated as "Brother Ephraim," as a bye name.

Again, I would ask if, as some say, Britain is Ephraim and U. S. A. Manasseh, who do they say Canadians are? Does not my statement seem most calculated to hold water; and that Upper and Lower Canada are representing the two half Tribes of Manasseh?

The lands of both "Uncle Sam" and "The Dominion," i. e. the Canadas, have become "too strait" (the Bible term) and Joseph as a vine overlapping a wall, seeks "fresh ground and pastures new." They find it in Australia and New Zealand, etc. "Joseph is the fruitful branch." We now see and recognise it, in this year of Israel's Jubilees, (not our Queen's only,) for $50 \times 50 = 2500 + 20 = 2520$ years from the mean of Israel's Captivity, say *about* 640 B. C., which with a slight apparent discrepancy brings us to the present date $\frac{1887?}{1883.}$

You will please to remember I endeavor to date our chronology from

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the *Fall* of our Adam, when a Redeemer was promised, and not from his creation, when he lived in holiness in Eden, which was during a portion of the sixth day of the world. Since the Fall we are in the seventh day, a day of 7200 years, as per "The Word—The World—The Branch."

A few words viva voce I think would have been of service to both, and I could have heard your objections, if any, to what I have advanced. Besides, all this time I had my little mite ready for you, thinking the money would be of use in this country and you could replace it on your return, and thus save commission, exchange, etc.

But better late than never and I now enclose P. O. O. for £5, and shall be glad to receive Vol. 4 bound in due time as usual.

P. S. I have not forgotten that this day is the anniversary of "Ephraim's grand and glorious independence. Let me add my small congratulations and all good wishes for prosperity, peace and union. May the day arrive when not Ephraim only, but Manasseh, and all the Tribes of the four Folds shall be united under one federal head, that of the Great Shepherd with Jesus alone, the Lord of all at our head. Have you seen Major Scott Phillip's pamphlet, "The re-settlement of All Israel, &c? Price 6d.

THE CENTRE OF ALL THE DRY LAND.

W. J. COCKBURN-MUIR, Melrose, Scotland. In reply to your inquiry of June 17th, I have to say at once that I never questioned the accuracy of the computation by which Prof. Piazzi Smyth demonstrated that the Great Pyramid is at the centre of the whole Dry Land of the world. It is not open to question by any who understand the method by which the result is established. The ingenious Equal-Surface Projection of the sphere invented and constructed by Professor Smyth, leaves no place for error. The projection is geometrically true, and the summation of the areas into which it may be divided and subdivided is a mere mechanical process that anybody of ordinary intelligence and carefulness can perform.

The remarks I made upon this projection were printed so long ago that I cannot now lay my hand on the article in which they appeared. But distinctly the statement was only that I devoted much labor to find a modification of it,—not at all for the specific purpose of finding the centre of all dry land, but which might be more convenient for general popular purposes of measuring the areas of detached countries or territories. I found, however, that by any of the several *hemispherical* projections which I tried that the distortions in the exterior areas were too gross to be tolerated. I concluded, therefore, that Professor Smyth had hit on the projection which is best for all purposes.

The construction of the Equal Surface Projection, with the detail of the summation of the areas for determining the centre of all the Dry

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Land, are open to the world in Professor Smyth's admirable little book on the subject.

Constantly in print and in lectures (as, for example, in the summary of the evidence for the measures, &c. of the Great Pyramid appended to *Origin of Free Masonry*; and in the Berwick Lectures) I have appealed to the demonstration that the Pyramid is the centre of all the Dry Land, as the specific ground on which it is fitted—as in its design it was obviously intended—to be the First Meridian, the zero of Common Longitude for all nations of men. This is the crown and climax of its pure Kosmic standards of *perfect and just measure* of surface, of volume, and of weight; the only standards fitted for the uses of all purposes of all men of all nations; the standards from which our common Anglo-Saxon measures in all denominations differ only infinitessimally; the standards which your Institute makes its business to publish to all men.

If any man can prove that the Pyramid is *not* the centre of all Dry Land, he discrowns the whole scheme and structure of the measures, and renders one chief part of the work of your Institute null and void. When I am told that Black's Atlas makes the centre near London, and somebody else near Valencia, I can only say for my part, that, *knowing the proof* that the Pyramid is the centre, I am not going to waste time and strength upon these manifestly crude and uninstructed vagaries. Life is too short. That there can be an error of about thirty degrees of longitude and twenty of latitude in the result given by the rigidly scientific method of the Equal-Surface Projection is nothing short of preposterous. Weary years of controversy have taught me to take no account of the fretful industry which busies itself with assailing established truth. I have not a doubt that, when Euclid first propounded his theorem of the squares about a right-angled triangle, there were ingenious gentlemen who undertook to show that it could not be.

P. S. The fact that the Pyramid is at the centre of all Dry Land is one of a category; the other two of which reinforce and accentuate its immense significance. On the meridian through that centre is the greatest length of Dry Land in longitude, and on the latitude of that centre is the greatest length of Dry Land in latitude.

DEAR SIR.—I lately sent you some problems relating to the Great Pyramid and I now repeat them, adding some more. Professor C. Piazzi Smyth informed me that Professors Stockwell and Bigelow, each enjoying a high reputation as mathematical astronomers, were anxious to receive Pyramid problems, in order to solve them. Perhaps one of these gentlemen would undertake to look over mine. If they would do so, I should feel greatly obliged.

There is one matter I should like to see settled by competent men viz.: What are the exact measures to be employed? I have seen great latitude taken in this matter—one measure given to solve one problem,

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and then a totally different measure of the same part given to solve another problem. Both cannot be right; and it seems to me that all we can do now is to get problems solved truly and thoroughly, to prepare the way for some future genius (like another Sir Isaac Newton) who will point out some general law applicable to all the measures taken by his predecessors in the study, and show why they must necessarily have been so solved. I need hardly say I should cheerfully withdraw any problem I may have put forward, if found to be wrong by competent enquirers. I will not even make such a reserve as that made by the casuist, that he was open to conviction on every point, except he were proved to be utterly and hopelessly wrong, and *that* human nature could not stand.

No. 1.

The sum, in sacred cubits, of the diagonals of Pyramids base
Is to
The Earth's axis
As
The distance traveled by a spot on the equator in one hour of an anomalistic year
Is to
The Earth's equatorial diameter (or major diameter, if so it can be called.)

1033.06 : 7899.29 :: 1036.6 : 7926.3

No. 2.

Difference between tropical and anomalistic year at the time of building the Pyramid—2170 B. C. (Height of Entrance Doorway to King's chamber.)
Is to
Diagonals of base (as above)
As
One minute of time (60 seconds)
Is to
Difference as stated above.

42′ : 1033.06 :: 60″ :: 1475″.8

No. 3.

Difference between the aboved named years in this century, viz: in or after 1834.
(Breadth of doorway leading into Antechamber)
Is to
Sum of diagonals above mentioned
As
One minute of time (60 seconds)
Is to
Difference of years sometime in this century,
Or

41.333 : 1033.06 :: 60″ : 1499″.6

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In "Our Inheritance" breadth of doorway is given as 41.4, but it is expressly stated that very accurate measures could not be taken on account of roughness of walls.

No. 4.

Difference between the tropical and sidereal year. The sidereal year is all but invariable; so we ought not to find its difference from the tropical at time of the building of the Pyramid, unless it is taken as shown in No. 3, allowance being made for difference between sidereal and anomalistic year.

Multiply height of entrance doorway into Antechamber from Grand Gallery by rate of Progression of Perihelion, and divide by 10, and it shows you the difference between the tropical and sidereal year.

$$\frac{43.615 \times 279.7}{10} = 1299.9$$

For reasons for taking 43.615 instead of 43.7, see my remarks in No. 3.

No. 5.

Proportion of Earth's Axis to extreme Equatorial diameter shown by two lines at right angles to each other, as are Axis and Equator.

1° In King's Chamber, measure from centre of Eastern Wall towards Coffer. Deduct from total length of Chamber half the breadth of doorway, + distance of Coffer from W. wall, placing Coffer with its western side on joining of 1st and 2nd stones from W wall, + breadth of Coffer. Or length of Chamber, 412.132

Deduct for doorway (half) - -	20.7	
" " distance of Coffer from W wall	55.0	
" " breadth of Coffer - -	38.61	114.31
Remaining - - - - - -		297.822

Divide Axis by this: $\frac{7899.29}{297.822} = 26.52$

2° Measure from centre of Granite Leaf (N. side) to centre of King's Chamber = 298.8. Divide equatorial diameter by this or

$$\frac{7926.3}{298.8} = 26.52$$

Height of Antechamber 149.3 } at right
Length " " 116.26 } angles.
Total 265.56

Divide by 10, or shift decimal point, = 26.556 or .036 too much.

No. 6.

Height of W. wainscoting (granite) shown by length of Entrance passage from Grand Gallery and distance between granite leaf and N. wall Square this. Why? Because we are dealing with tens of thousands and the squaring of the numbers is the most natural, direct simply way to get

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of Antechamber (or it may be half breadth of passage) and breadth of Coffer.

Length of Passage	(*a*)	52.50
Between granite leaf and N. wall	(*b*)	20.70
Breadth of Coffer		38.61
	Total	111.81

But what does it mean? Does it mean anything?

No. 7.

Is the difference between Summer and Winter Solstices at the time of building the Great Pyramid shown in the eastern wainscoting of Antechamber?. Take (*a*) and (*b*) of problem No 6; next, what was the difference between the Solstices at time stated above? Take a day to equal a sacred cubit and parts of a day in like proportions. Then by my rough and elementary calculations. I find the length of half the difference (i. e. the amount deducted from one and added to the other) to be between (in Pyramid inches) 29.69 and 29.91. Suppose it is really 2980.

Then lengths given above - -	73.20
Add the difference as above - -	29.80
Total	103.00

N. B. In the above; note that same passage is used for this problem and the anomalistic year problems.

No .8.

Progression of Perihelion Point—rate of—	
Height or east wainscoting	103.033
" " west "	111.803
Breadth of Antechamber at top	65.2
Total	280.036
or .436 too much	0.436
	279.6

But at pp. 208-9 of "Our Inheritance," breadth of A. C. between wainscotings is given as 48.067, and depth of wainscoting 8.5 to 11.7 (the latter evidently excavations in walls). Take the former; then 48.067+17+103.033+11.803=279.9, or only 0.2 too much.

No. 9.

What number of years elapses between one coincidence of the Vernal Equinox and the perihelion point, and the next Coincidence?

Take height of entrance doorway into the King's Chamber. Why? Because it has already been shown to refer to the anomalistic year. Then take height of East wainscoting. Why? Because it has been shown to be a magistral number, and in No. 8 it is supposed to be connected with the Solstices, governed by the movement of these two; we then get 145.033, high nnmbers. The answer is 21,034.57, etc. Now all astronomical books tell us that these two points meet after (about) 21,000 years from their

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last coincidence. Who are the men who have given the most thought to this matter, and what do they say?

In regard to Problem 5, I would call attention to the fact that it is generally said that the diameter of the Earth is about 26½ miles (or 26.5 longer than the Axis. The length of both is here shown to be divisible by 26.5 .

NOTE.—Supposing Adam to have been created in 4004 B. C.; then the building of the Pyramid began 1834 A. D. or somewhere close to that year. Sir. John Herschel settled the question of the entrance passage pointing to the lower culmination of A Draconis about 2170 B. C.; the first step in solving the mystery of the Pyramid, and a very important one, because it fixed the angle of inclination. Then from 1834 inches in the Grand Gallery, counting from its northern commencement, measure 100 inches, and you are brought to the entrance of Antechamber. Now if I am correct, in giving 24 seconds as the difference between what the difference between the anomalistic and tropical year was then and is now, in 1834 another second of difference was begun; and note that 6-10 of a second is the rate of differing per 100 years; at least to say the astronomical text books; and you have to pass through the passage which was one of the factors in solving that problem.

No. 10.

Light travels at *about* 186,000 miles per second; in one minute therefore, it travels 11,160,000. Is this the exact rate? Because the west wainscoting with its 111,803 heights puts one in mind of it; only it has to be multiplied 100,000 times.

LETTER FROM MR. A. A. ANDERSON, AUTHOR OF "TERRA," TO PROFESSOR C. P. SMYTH.

MY DEAR SIR:—I am very much obliged for your letter of the 14th which would have been answered earlier, had I been at home instead of London. I am very glad to find you agree with me in many parts of my book.

In your letter you made a mistake in the equatorial axis, you stated it passed through 34° W. L. and 146° E. L.; it should be 56° E. L. and 124° W. L. You have also misunderstood the law I state is in force. There is no "terrific friction" whatever to overcome between the crust and the molten matter, as they both revolve on this 2nd axis together, once in 21,600,000 yrs.; in the same way as the world turns on its daily revolution, consequently there is no resisting power in operation to cause friction.

My theory is this, that when the world first received the motive power of revolving on its polar axis once in 24 hours, it received at the same time a second revolving power on what I term its equatorial axis, once in 21,600,000 years. This second power has only one duty to perform, viz.: to keep in perpetual motion the changing position or the polar axis in one direction and has nothing to do in changing the form of the Globe, only so far as by the alteration of the axis; it brings the World around, that

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every part shall come under the tropics, and a great part under the Arctic and Antarctic regions; but this is regulated by the revolution of the earth on its ever-changing polar-axis, and thus changing the shape of the world, making it *expand* more as those parts are brought under the equator or approaching it; and *contracting* those parts that are brought under the poles, and are coming 'round to them. In each case the greatest extent would be 13¼ miles, which I have stated in my book; and at page 18 I state, is the fly-wheel for regulating this law that produces these changes we see are going on on the outer surface of its crust.

When the world received its power of revolving on its polar axis, and also its second power of revolving on its equatorial axis, it was then in a gaseous state, not as gases are understood now, but as being more dense than any molten matter we have any conception of, and of intense heat, and in this state it continued for many hundred million of years, when in course of time a thin crust began to form on it, and continued to increase in thickness until it became sufficiently cool, and possessed an atmosphere and water capable of sustainting animal and vegetable life. I may not have expressed it so clearly in my book, but that is my meaning. Therefore this second revolution of the world has in no way to encounter any resisting force as expressed in your letter.

I will take your questions as you have put them.

1st. Observed facts.

2nd. Law of phenomena deduced therefrom.

3rd. Law of causation.

My early attention was called to the frequent upheavals and submergences over various portions of the world, which determined me to investigate them, in such parts as I visited; first in Europe and Asia, also collected information from scientific works, and lastly from the Challenger's expedition. This has taken a long time to accomplish, for no accurate calculations or measurements can be obtained unless spread over many years.

The result has been that I found certain parts of the globe, both sea and dry land were rising, and other parts sinking or lowering; I then divided the area of such changes, and found all Asia to the east of the Caspian sea, and north Pacific islands, and ocean, were sinking, and to a greater extent on the line of 146° E. L., taking careful measurements over observations, and that Europe, Western Asia, North America, Northern Africa, and islands in the North Atlantic with the ocean, were rising, and to a greater extent on the line of 34° W. L., from 76 measurements, which agreed, in many cases with observed facts made by others. And at the same time endeavored to find out the speed of these changes, and taking my own and others, I found the rising was at the rate of about 13 ft. in 1000 years, or 780 feet in 60,000; and the same when sinking.

There are many parts of the world where the crust is rising or sinking apparently at a greater rate, which I have explained many times in my work.

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In nearly all cases the rising and sinking diminished when farther removed from 34° W. L., or 146° E. L., that is, going east or west from these longitudes.

Arriving at these facts, I went south for observations in the islands of the south Pacific, and found nearly all of them and the ocean were rising, particularly along the line of 146° E. L. from 56 measurements. Then I took the south Atlantic and islands, South America, South Africa with the ocean, were sinking, and to a greater extent on the line of 34° W. L. down to the South Pole; comparing my 47 measurements with the Challenger's and others, which agreed in many instances.

With such facts before me I clearly saw the earth's figure was changing; one half of it was rising or expanding, and the other half becoming more compressed, as under one quarter of the globe to the north of the equator between 56° E. L. and 124° W. L. to the north pole was expanding, and the other quarter north of the equator, from 56° E. L. to 234° E. L. up to the North Pole was sinking, when I say sinking I mean drawn inwards in all cases. The 3rd quarter south of the line from 56° E. L. to 124° W. L. to the South Pole, was sinking, and the 4th quarter from 50° E. L. to 234° E. L. to the South Pole was expanding. And these changes could only take place by bringing those parts that were expanding nearer the tropics, and those parts that were sinking nearer the poles. This at once told me in as plain language as nature can speak, that the world had another revolving motion, and that motion was at right angles to its daily revolution, or, as I have expressed it, from north to south, as it now revolves from west to east.

So far my observations have been satisfactory; I then wanted to discover the rate at which these changes took place, because it was evident there must be a law to bring these changes about, viz.: the shifting of the poles; and if I could discover this, and the direction the earth was revolving, I should find the speed at which the polar axis was being changed, because I knew no part of the earth could expand, or be drawn in to conform to the changing figure more than 13¼ miles; and if I could discover how long it would take to bring the world round from the pole to the equator, because the rise or fall of 13¼ miles must occur between those two points or 90 degrees—it would give the speed upon which the world turned on this second axial rotation.

Taking the greatest rises which I found at 34° W. L. and the greatest depression on the line of 146° E. L.; and if these expansions and compressions were the same, I could then without much difficulty, come to some conclusion as to the speed and direction; and from long observations extending over 30 years, found the general rise on the line 34° W. L. was not more than 4¾ inches in 31 years, which would be at the rate 3 ft. 3 in. in 250 years, or 60,000 years for the expansion or contraction of the globe to change to the extent of 780 feet, or 5,400,000 years to attain height of 13¼ miles in 90°, or 21,600,000 years to make one revolution; and as the greatest changes occur, as far as I have discovered them, are on the line

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of 34° W. L. and 146° E. L.; the polar axis is being changed on the 146° E. L. line, and the world is coming round as stated in my book, thus showing, by the above figures, the speed is at the rate of one mile in every 1000 years, or 4′ *in* 4000 *years.*

There are many parts of the world where the globe is expanding, and other parts contracting, to conform to the altering shape which is daily being changed to the altering position of the polar axis, which appears to be rising or sinking at a much greater rate, which I have endeavored so frequently to explain in my book.

These have oeen my principal observations for arriving at the phenomena we see taking place daily all over the world. The above explanation, I think, disposes of your 2nd and 3rd questions you have asked in your letter.

I have gone more fully into this matter to you, knowing how interested you are on such subjects, and that you are justified in putting these questions to me, and that it is my duty to answer them. In fact, they should have appeared in the work, and if a second edition should ever be called for, I will greatly add to it, and put in my observations &c., &c., that enabled me to write "Terra."

Yours very truly,

Andrew A. Anderson.

P. S. I have received many letters all speaking favorably of my theory; some from scientists; one has doubts about the fluidity of the interior. How, with such evidence that is daily being brought to light of the movements of the crust over all parts of the world, how, I say, can common sense believe the world a solid? The movement in its crust would be impossible; it would be a fixture like the outside of a cricket ball that rests upon the material of which the ball is composed.

Sir Wm. Thomson's theory, the earth and sun are both solid, the latter a "raging furnace" in the centre, consuming everything; where does he get the gases or atmosphere to keep up the fire? Because, without it, the material would be a black mass, like charcoal, excluded from air when burnt, no combustion.

In Cassel's recent publication, "Our Earth and its Story," by Dr. Robert Brown, F. R. G. S. &c., in part I, chapter 1st, page 23, he speaks of the globe as one-third part being composed of hard or rocky masses, in contradistinction to the gaseous, atmospheric or liquid portion, sometimes known as the hydrosphere. This hard portion is suspended internally, wholly or in part, a *fiery mass*, the covering of which we term the crust of the earth.

Now, as I have just stated in my P. S., how can a fiery mass be sustained in the centre of the world, cut off as it is from all atmospheric communication.

We know it is a body intensely hot, far beyond what we can comprehend by heat; and as black as black can be, no combustion whatever,

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therefore no destruction of matter. A "fiery body," the notion is absurd. Like Sir Wm. Thomson's "raging furnace in the centre of the sun," consuming all its central part, and kept supplied by the falling masses above it; until the sun is burnt up and only a few ashes remain at the end of 10,000,000 years. Such theories must be supported by stronger arguments than are brought forward in support of them, before they can be entertained seriously by individuals who take an interest in such subjects.

I shall be very pleased if you will let me know your opinion after reading my letter, and if through your great influence you can get a few copies sold, I shall be greatly obliged.

And as I have before stated, if the work should reach a second edition, I can immensely inprove and increase the book, and add facts, now omitted, that would greatly be in favor of my theory, and at the same time make it much more inviting to non-scientific readers; although I am daily receiving letters from them, stating how much they are interested in the book, and gives them information not obtainable elsewhere.

A. A. A.

ANOTHER LETTER FROM A. A. ANDERSON TO PROF. C. P. SMYTH.

MY DEAR SIR:—I was pleased to receive your letter of the 21st, telling me of an objection from India to my earth-motion theory, and I enclose a short statement, from my long study of this question, viz.: how rounded stones have been formed, in answer to your correspoedents doubts respecting my theory of their being formed on a sea shore, because he traced them up to the parent bed 6 or 7,000 feet above the sea, and holds that they were angular fragments rounded in the process of rolling down.

Anyone who has studied this subject deeply, would at once say, that lowering a stone from a mountain top from time to time on dry land the distance of 7,000 or 70,000 feet would never make it round like a ball or any other rounded form with such a smooth and beautiful polish, for it is not the rolling on dry land that wears away the surface; it must be with water combined, *continually* revolving it backwards and forwards in its rolling motion by every wave, which action alone can only produce these rounded stones of every shape. There is no other force in nature that can accomplish it.

An angular stone is moved very slowly, as it is gradually lowered *only* in one direction—downwards from a mountain top, and then only a few inches or more at a time by storms washing the lighter soils from it; not a regular rolling movement, and there it remains until some rain-fall propels it on a little lower down the side of the hill. Such a slow movement would have no effect upon the surface whatever. Stones must be in bulk, that when they are moved about, not in one continuous direction, but rolled about, they grind one another with the help of water, such as waves can only accomplish on a sea shore.

In "Terra" I explain rounded stones in deep layers are found on

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mountain tops as far as I have seen them, 18,000 feet above sea level, not in one isolated case, but on many I have explored nearly as lofty, that retain a portion of the gravel that once covered their summits when beneath the ocean, and under the influence of the waves.

One of the most beautiful illustrations proving the correctness of my views is to be found in South Devon, where I have been visiting the last few weeks. On my first drive through the country lanes, I fonnd heaps of rounded stones placed on the road-side for repairing them, and I asked my friend from whence they were brought; he told me all the farmers had to repair the roads, and they brought them out from their ploughed fields to be broken up. All these roads and land rise from the sea to an elevation of about 500 feet and extend from the ocean in land; as far as I examined, over ten miles, the whole surface is covered with them, and where pits have been dug they were as plentiful, mixed up with layers of sand. Beyond this cultivated land is Woodbury common, an open country which rises to an altitude of some 700 ft., the topmost point has the remains of a splendid British camp, with double banks 50 feet high. The soil is composed of exactly the same rounded stones of every size and form (all rounded) mixed up with sand, and lower down, sandstone in horizontal layers of different colors. This camp stands on the highest peak of all the hills round about, so the stones have not rolled down from any higher elevation. Now, all these stones are precisely of the same form as those now on the sea coast at Budleigh Saulterton, the whole beach for many miles is formed of them, some rounded, others flat. In watching the waves as they advance, these stones are rolled over, and as the wave recedes they go rolling down with it, grinding one another by their weight, which with the water produces these rounded forms. I collected several specimens that contained fine specimens of sea-weed, many of them transparent. The only difference between the stones on the land, and those on the seashore, the former was of a hard sand-stone of a brown color, the latter were light grey and white, an entirely fresh formation from the former ones.

It is most clear and evident that these stones we find so largely distributed over that part of Devon, are the remains of an ancient sea beach, that have been scattered and mixed up with other soils when under the influence of the sea, forming new lands, and from the lay of the country, not in still, but turbulent water.

I hope you will forgive me for sending this long letter, not that you require any explanation on this subject, but some of your friends may, whe may not have gone deeply into all the subjects "Terra" explains, consequently erroneous opinions may be formed on the natural laws that rule this globe.

Your correspondent does not state if the parent bed he traced the rounded stones from at an altitude of 7000 feet, were rounded or not.

I ascertained, when in Devon, the sea is receding from the land, that is, it does not rise as high as it did 500 years ago; which shows, as I have

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explained in "Terra," the earth's crust is rising at a greater rate than the ocean. I might quote many hundred cases in addition to those given in my book, to prove the accuracy of my theory.

I was in great hopes some of the Reviewers would have noticed my work and questioned my theory. I think they are afraid to attack it, from their insufficient knowledge, particularly practical knowlede of the subjects dealt with.

I shall be glad to hear the American opinion.

Yours very truly,

A. A. Anderson.

P. S. Some of my travels will be out next month; there are some interesting lists, relating to atmospheric influences on clouds and rain &c., &c.

MRS ANGIE DAMON, South Hanson. In my letter to you I made the assertion that there was a race of preadamites and that they were black. I drew my conclusion from the book of Enoch, and from legendary information; of the latter, in a work entitled "Preadamites, by Alexander Winchell, LL. D.," page 158, he says: "Reputable authorities have contended that Adam was not a white man; Eusebius de Salles represented him as *red*: Prichard believed him *black*. There is indeed a legend in existence which has obtained widespread currency, according to which the first man was of dark, or black complexion."

"If, as I am about to argue, some Black race first represented humanity upon the earth, there *is reason* for saying the first man was black."

"There is even said to be a tablet in the British Museum, brought by the late George Smith' on which is an inscription which lends strange countenance to the legend of the black Adam."

Now, Adam must have been red in color, (as the word Adam signifies) and if the first man was black, he must have been a Pre-Adamite.

As to the book of Enoch, I know it is called a spurious work. I think it has been so called because it is highly figurative, (even as we see at this day in some illustrated papers, as for instance, "Puck" published in New York; there will be in one picture, the whole political situation of the day; this we read and understand, because all the parts are present with us.) So it is with Enoch, it has been rejected because the pictures were drawn for the last days, and could not be read until they were demonstrated at least partially.

In Enoch, chapter LXXXVI, Enoch relates a vision which he had, and he says: "There came forth from heaven, as it were, the likeness of four white men;" and in chapter LXXXVIII, "Then one of these four went to the *white cows* and taught *them* a mystery;" (there were *two* white cows, *Noah* and *Shem* at this time) "while the cow was trembling it was born, and became a man, and fabricated for himself a large ship: in this he dwelt, and three cows dwelt with him in that ship, * * * then the white cow which became a man, went out of the ship, and the three cows with him; one of

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the three cows was white, resembling that cow; one of them was red as blood, and one of them was *black.—And the white cow left them.*" I want you to notice this, it stands by itself in the book. This white cow is clearly identified as Shem; he and his father Noah had a mystery revealed to them. Noah built the Ark, which had (I have no doubt) the *plan* and *purpose* of God built into its construction. After they came out of the Ark, "the white cow left them"; Shem then took his westward journey to the other side of the globe, and built the Great Pyramid, which had the *plan* and *purpose* of God built into its construction; (but he did not go as soon as he came out of the Ark, for he left a posterity behind him, for of him came Abraham.) Then Enoch goes on to say "then *began* wild beasts and birds to bring forth" and he enumerates the different kinds, "then a white cow was born in the midst of them, (which was Abraham) then "the white cow which was born in the midst of them, brought forth a wild ass and a white cow at the same time, (meaning Ishmael ond Isaac) and after that many wild asses, (meaning the sons of Keturah) then the white cow which was born, brought forth a black wild sow and a white sheep, (mean- Esau and Jacob) and the sheep brought forth *twelve* sheep, (meaning the twelve sons of Jacob. Jesus said "I am not sent but to the *lost sheep* of the house of Israel)."

It seems by this account that one of the sons of Noah was black, and it is conceded by nearly all writers that that son was Ham; (I gave you the Bible references as to my idea of how that came about) and Noah prophetically announced which of Ham's sons should receive and hold the racial curse which was pronounced on Satan who tempted Eve in the garden of Eden, on Satan, "Upon thy belly shalt thou go, and dust shalt thou eat all the days of thy life"; that is, low down shalt thou be, even in the very dust—on Canaan, "A servant of servants shall he be"; that is, low down shall he be, even in the very dust.

I have secured a copy of Bryant's Mythology, and will read it with careful attention; but let me say, that to me the Bible is the book of all books; whatever agrees with God's word I will accept joyfully; for like a good master builder, He has prepared His ground, laid the foundations, and has told all the process of the construction of His house; and if we understand his word, we can trace the whole world's history.

The God of Israel, the Great Architect of the Universe, had a plan and purpose in making this earth; He caused His will to be written, it was signed. He says, Isa. XLVI. 9-11, "Remember the former things of old, for I am God, and there is none else; I am God, and there is none like me; declaring the end from the beginning and from ancient times the things that are not yet done, saying, My counsel shall stand, and I will do all my pleasure, calling a ravenous bird from the east" (Abraham from America) "the man that executeth my counsel from a far country; yea, I have spoken it, I will also bring it to pass; I have purposed it, I will also do it." His will was witnessed; Noah's Ark and the Great Pyramid are witnesses, Israel and Judah are witnesses, Enoch and Elijah are witnesses. His will

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is confirmed by an oath. Gen. xxii. 16, „By myself have I sworn, saith the Lord, for because thou hast done this thing, and hast not withheld thy son, thine only son; that in blessing I will bless thee, and in multipiying I will multiply thy seed as the stars of the heaven, and as the sand which is upon the sea shore; and thy seed shall possess the gate of his enemies." And God says He will do nothing but he will tell it to His servants, the prophets; hence we may expect to find whatever is transpiring among nations, and especially in Israel told in some of the prophets. Jesus says, "In the mouth of two or three witnesses every word may be established," and when we read and understand, we find some telling the story with some of the circumstances, and others telling the same story with other of the circumstances, just enough to show they are not copied from one another.

My idea of Noah's Ark is this, that God's plan and purpose were built into the ark the same as they were in the Great Pyramid, of course it was not square like the Pyramid, but the 4 sides, I think, sloped all the same. Notice how it reads, Gen. vi. 16; "With *lower*, second and third stories shalt thou make it," (why not say *first*, second and third stories? I think because the lower story was below the surface of the water, as the subterranean chamber is below the surface of the rock in the Great Pyramid) "and a door shalt thou set in the side thereof," (same as the door to the Great Pyramid is set in the side thereof) "a window shalt thou make to the ark, and in a cubit shalt thou finish it above." (I think the upper cubit of the whole ark was window, same as though the upper cubit of a hipped-roof house that was six times as long as wide, should be window and with compartments in it which could be opened.) The light is to come from above. There was nothing about its construction to carry it to any great distance, and there is nothing that I can find in the Bible to support that idea, but in Gen. vii. 17, we read, "And the waters increased, and bare up the ark, and it was lift up above the earth;" and in Gen. viii. 4, "And the ark rested upon the mountain of Ararat;"(Ararat was a division of land, as we might say the mountains of Colorado) not on *Mount* Ararat. See Jer. li. 27, "Call together against her the *Kingdoms* of *Ararat*, Minni and Ashchenar."

It is written in Rev. xi. 19, "And the temple of God was opened in heaven, and there was seen in his temple the ark of his testament." Now the ark which contained the two tables of the law, is not called the ark of the testament, but the ark of the covenant, or the ark of the testimony; testimony means evidence, proof; testament is the will itself; this is why I think God's plan and purpose; his *will* was built into the ark; now, where is it? The word is, it "was seen in his temple."

About a year ago I was able to identify the wings and the feathers of II Esdras, xi. and xii., which I will send you in a few days (if the Lord will) and I think it will give a clue as to where is the temple.

As to the Nile answering the description of the Euphrates and its three great braches, W. A. Wright, librarian of Trinity College, Cambridge,

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Eng., after recounting the eminent writers of ancient times, besides many modern writers and comparing what each has said, comes to this conclusion, "It would be difficult, in the whole history of opinion, to find any subject which has so invited, and at the same time so completely baffled conjecture, as the Garden of Eden. The three continents of the old world have been subjected to the most rigorous search; from China to the Canary isles, from the Mountains of the Moon to the coasts of the Baltic; no locality which in the slightest degree corresponded to the description of the first abode of the human race has been left unexamined. The great rivers of Europe, Asia and Africa, have in turn done surface as the Pison and Gihon of Scripture." Then he goes on to say he accepts the history of Genesis as true, and "in so doing I thereby set aside all theories which find here the Ganges, the Indus, or the Nile.

PROCEEDINGS OF MEETINGS.

JUNE 29. The subject of arrangements for lectures on Pyramid topics at the Chautauqua Assembly grounds this season was discussed. Mr. Lewis Miller, president, has promised to have the old model of the Pyramid removed, and a new one built from plans furnished by the International Institute. It will be so arranged that the interior can be used as a small lecture room,

Letters on this subject were read from Rev. H. G. Wood, who has made the plans; Samuel Beswick, C. E.; Jacob M. Clark, C. E.; Hon. Lewis Miller, and Mr. W. A. Duncan, secretary of Chautauqua Assembly.

A letter was read from Prof. Piazzi Smyth, with reference to the poetess, Mrs. E. S. E. Charles, who sent through him her annual subscription of £1 to the International Institute. A selection from Mrs. Charles' poem "The Morn that Cometh" was then read.

Two papers received from Geo. H. O'Donel, Jubbulpore, India, "A Chronological Investigation connected with the Roman Empire," were acknowledged and brief extracts given.

A discussion took place on the subject of Mr. Weldon's letter, in which Judge McMath, Dr Redfield, Mr. Bond and Mr. Latimer were engaged.

JULY 13. Rev. C. B. Wakefield, Greenville, Pa., was elected a member.

Gen. Fendall, of Southsea, England, sent a paper on the "Mean Diameter of the Moon's Orbit." His method is to square the breadth of the Antechamber at top, (its greatest breadth) and multiply the product by height of wainscoting; half of this, or 287.638, gives the moon's mean distance from the earth.

A letter was read from Mr. Wm. Flinders Petrie, of Bromley, Eng.,

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who stated that Mr. Samuel Beswick had, in the INTERNATIONAL STANDARD, misquoted his figures and made some hard accusations against him which were incorrect.

Mr. Beswick's reply. in which he very ably defended himself, was also read.

A letter was read from Mr. John T. Crosthwait, of Dublin, Ireland, who has sent to the International Institute some pamphlets of the Anglo-Israel theory. These have been received with much favor in Great Britain. Mr. Crosthwait is well known as a writer by Pyramid students.

JULY 27. James Smith and J. F. Oviatt, of Cleveland, were elected members. Mr. J. Leyland Fielden, of Roppynden, Sussex, England, wrote with regard to the Anglo-Israel theory, and sent the Institute a donation of £5. Rev. James Billington, secretary of the Metropolitan Anglo-Israel Association of London, England, wrote that he intended to visit the United States in October and November, and lecture on the subject of the "Identity." A letter from Mr. A. A. Anderson, author of "Terra," a recently published work, advancing the theory that there is a second axial rotation of the earth, was in reply to the objections of a reviewer with regard to his theory of rounded stones. A letter was also read from Professor Frank H. Bigelow, replying to Mr. Beswick's criticisms on his article, "The Wandering of the Earth's Axis of Rotation."

It was stated that the materials for the model of the Pyramid had been shipped to Chautauqua. The structure will be of wood, covered with Portland cement and dressed so as to resemble white marble. The Base will be 38 feet square, height over 24 feet. As the parts are all ready to be put together, it will be erected in a few days, and lectures will be held there on Pyramid topics.

Mr. N. B. Wood gave an instructive paper on "Spectrum Analysis."

AUGUST 10. Mr. A. M. Searles, vice president, took the chair in the absence of the president. The members elected were: Dr. J. S. Giltner, Portland, Ore.; Dr. B. O. Kinnear, Bar Harbor, Me.; Mason Evans, Youngstown; W. F. Horn, Idaho Springs, Col.; W. J. Orem, Emporia, Kas.

A letter from a member in Norway stated that the French Metric system is established in Norway and Sweden, but not yet in Denmark. It is unsatisfactory to many, but some of the people do not object. He said that Dr. Ingvald Hansen, a well-known physician, is strongly opposed to the metric system, and at his leisure gives lectures on the pyramid.

Letters were read from Lieutenant W. L. Buck of Fort Wingate, N. M., and from Rev. Alex. Mackay, Ventnor, Isle of Wight, expressing their appreciation of the last number of the "INTERNATIONAL STANDARD" magazine.

Mr Samuel Beswick, of the "Tyrone Herald" wrote with regard to the expedition to Egypt and the pyramid model now being erected at Chautauqua. He thinks that one of the main objects of the Egyptian expedition should be to excavate and explore among the graves around the pyramid to discover some evidence of the existence of the third dynasty and

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times. Lepsius, the great German Egyptian geologist, says that the builders of the pyramids were the beginners of history—of the world. The connection of the third and fourth dynasties would be one of the most important discoveries of the times, for not a tomb, pyramid or monument has been discovered that was built by those who lived in any of the first three dynasties.

After some discussion on Mr. Beswick's paper, Dr. J. W. Redfield read a paper entitled "Pharoah, the Oppressor, and His Daughter in the Light of Their Monuments." Having shown that "Pharaoh, the oppressor," and the foster mother of Moses were not Ramesis II. and his wife Nefarari, Dr. Redfield proceeded to show who they were, together with the Pharaohs before and after them: First, by the chronology of the Septuagint, and second, by the connection of these royal Egyptians and their monuments with Joseph, Moses, Aaron and the Children of Israel. The chronology points to the fourth dynasty, and the Pharaohs of the time of the Israelites in Egypt, from Joseph to the Exodus, are shown by evidences from Herodotus and Manetho and from monumental inscriptions, or the authority of Wilkinson and Bruzsch Bey, to have been Cheops, Cephren, Mycerinus and Asyches. The monuments are chiefly the three great pyramids of Jezeh.

RECEIPTS FROM MEMBERS AND SUBSCRIBERS.

JUNE FROM 20th. Col. A. T. Fraser, $2.13; Miss Alice Emerson, $2.00; Mrs. E. S. E. Charles, $4.87. Total, $9.00.

JULY. Dr. W. P. Horton, $8.00; Jno. T. Crosthwait, $2.44; C. L., $57.05; J. N. Shourds, $2.00; Gen. Fendall, $2.03; W. T. Alan, $2.00; E. Collopy, $4. Gustav Lindenthal, $2.00; J. Leyland Feilden, $24.35; Mrs. D. White, $2.00; Chas. Wood, $2.00. Total, $107.87

AUGUST to 13th. Dr. J. S. Giltner, $2.00; Oliver Watson. $2.00; Dr. B. O. Kinnear, $3.00; Geo. V. Watson, $2.00; Gustav Vogelsang, $2.00; Lieut. W. Buck, $5.00: Wm. Ritchie, $2.00; Rev. Alex. Mackey, $6.00; Col. T. W. Sanderson, $3.00; Mason Evans, $2.00; O. W. Kyle, $2.00; Ohio State Library, $2.00. Total, $33.00.

EDITORIAL NOTES.

A number of valuable papers and letters have been crowded out of this issue. Among these is a solution of the Cubit question by Rev. H. G. Wood, in answer to the editorial on that subject in the July number.

The charts and MSS. of our late member, John Patterson Johnstone, who died in Verona on the 17th of June, have been left by his relatives in our hands. He devoted the latter years of his life to Pyramid investigation, and his work will receive our careful attention.

We beg to call the attention of our readers to the notice in our pro-

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ceedings of meetings of the work begun on the model of the pyramid at Chautauqua.

Our member, W. T. Alan, sends us a report of the attack of General Francis A. Walker on the modern method of teaching arithmetic in the public schools. Among other things General Walker condemns the using the children of Boston as an agency for promoting the adoption of the metric system, which not one in three hundred will ever use.

BOOK NOTES.

We thank our member, Sandford Fleming, C. E., for "Documents in Reference to the General Adoption of the Twenty-four-hour Notation on the Railways of America."

Mr. Henry E. Waite, West Newton, Mass., sends us a pamphlet on Kosmic Time, containing extracts from a work soon to be published on "Kosmic Time in History." A part of it is devoted to the consideration of Kosmic science in the great pyramid, the "mystery" of Egypt.

"Abraham, Joseph and Moses in Egypt." By Rev. Alfred H. Kellogg D. D.; New York, Anson D. F. Randolph & Co., 1887. In an elegant monograph of 160 pages, the author presents one of the most striking arguments for the identity of the Exodus with the close of the XIXth dynasty, based on recent discoveries, that has thus far appeared.

"The Silver Dollar," published twice a month by E. J. Farmer, editor and proprietor; 211 Superior St., Cleveland, O. $1.00 a year.

"The Parkdale News," published weekly at Parkdale, Ont. Terms $1. per annum. It is an advocate of the Anglo-Israel question. Each week it publishes a sermon of Dr. Joseph Wild.

"The Restitution." Issued weekly by the Christian Publishing Association, Plymouth, Ind. Terms $2.00 per year, payable in advance.

We commend to the attention of our readers, the article by Prof. C. Piazzi Smyth in "The Banner of Israel", "The Jubilee of 1887 and the silent Revolution."

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