

THE DATES OF GENESIS.

The Dates of Genesis.

A Comparison of the Biblical Chronology
with that of other Ancient Nations.

With an Appendix on Chronological Astronomy.

BY

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London :

THE KINGSGATE PRESS,

4, SOUTHAMPTON ROW, W.C.

1909.

PRINTED BY
THE KINGSGATE PRESS,
LONDON AND BEDFORD.

PREFACE.

THE study in Chronology which follows had its origin in the accidental reading of a work on Hindu Chronology, in two volumes, published anonymously in 1820, contending for practical identity between Hebrew and Hindu dates. The statements therein were so remarkable, and touched matters so little known generally, that I felt it incumbent upon me to enquire, first as to the authorship, and then as to the correctness of the facts alleged.

The first question was easily answered. On enquiry at the Bodleian Library, Oxford, I was at once most courteously informed that it was written by the Orientalist, Alexander Hamilton, and I was referred to the sketch of his life in the Dictionary of National Biography. From this I learned that he was certainly qualified to write upon the subject. Himself a Sanscrit scholar of acknowledged ability, he had exceptional opportunities of coming into close contact with the learned natives of India at the early period when

the East India Company, in whose employ he was, were developing that wonderful land. His own writings showed him to be well acquainted with the literature of his period and disposed to form an independent judgment on the topics upon which he wrote.

Having compared his quotations with all the translations of the Hindu classics to which I could obtain access, and also carefully read the writings of his contemporaries from whose opinions he differed, I came to the conclusion that, startling as were the facts alleged by Hamilton, he was in the main, at least, fully justified in his statements.

Further investigation led me to believe that his principal positions could be stated with greater simplicity and supported by additional evidence, and it seemed to me that they ought to be made known, although strangely out of harmony with modern ideas.

Having thus investigated the elements of the problem, I pursued it further by studying the works of the great Chronologists of the last and the preceding century. The only one who appears to have claimed anything like such an agreement between the Scripture and the Ancient

Chronology of other nations was Dr. John Jackson, who published three large quarto volumes on the subject in 1752 and dedicated them to the king. Dr. Jackson, however, adopted the Septuagint version of Genesis, and the agreement for which he contends fails at several critical points.

Having taken up the study so far, I felt compelled to pursue it, determined, however, not to yield to the besetting sin of Chronologists, to alter the records in order to make agreement where it was not fairly embodied in the facts as stated. This practice has so extensively prevailed, especially in the early centuries of our era, that one has to accept the figures handed down to us with the utmost caution.

Notwithstanding this, however, there can be little doubt that we have reliable data for the history of very early times from Chaldea, China, to some extent from Egypt, and, as shown by Hamilton, very notably from India. Though most of these come to us in a form which at first sight presents startling diversity, examination shows them to be almost identical, as far as the great eras are concerned.

The agreement which I thus discerned by the

aid of Hamilton at once surprised and perplexed me. It seemed to re-establish, broadly speaking, Bishop Ussher's Chronology as recorded in the margin of our Authorised Version. Now this of all the many systems extant is, in the present day, regarded as the least reliable. Besides this, Archæology, as interpreted by our best scholars, was clearly against it. The inscription of Nabonidus, to which full reference is made hereafter, holds the field in the modern estimate of dates, and though disputed on quite other grounds than those advanced here, has been generally held to be unanswerable. The excavations at Nippur are interpreted by its means to indicate a period of 8,000 B.C. for the earliest remains.

When, however, by careful study of this problem side by side with the figures of Berossus, I found a very simple, but to my own mind, conclusive explanation, I felt it my duty to make it known and therefore circulated a pamphlet on the subject among the scholars of Europe and America.

Further investigation revealed what seems to me to point most clearly the origin of the Septuagint and Samaritan versions of these Genesis

figures and so to leave the Hebrew version supreme. When I pushed my enquiries into the astronomical bearings of the ancient cycles by which other nations appear to have determined the form of their records, I found so much to confirm the explanation of the Nabonidus inscription, and so much to explain the perplexing problems raised by the figures of Manetho and Berossus, that I felt the whole matter was sufficiently ripe for publication.

Some of the new points raised have been dealt with by me in articles contributed to the Proceedings of the Society of Biblical Archæology (December, 1906; and March, 1908), but in this book I have endeavoured to state the case in as popular a form as the subject will allow. This method forbids as full a reference to the authorities as I should like, but I have endeavoured to facilitate enquiry by the use of notes.

Most of the references to classical writers are taken from "Cory's Ancient Fragments," or from the Latin and Greek Mai edition of the Chronicon of Eusebius.

I should like to express my indebtedness to E. W. Maunder, Esq., F.R.A.S.; A. C. D. Cromelin, Esq., B.A., F.R.A.S., of Greenwich Obser-

vatory; to Professor A. Fowler, of the Royal College of Science, South Kensington; Dr. W. L. Nash, M.R.C.S.E., F.S.A., Secretary of the Society of Biblical Archæology; and to Mr. John Duncan, M.I.Mech.E., of the West Ham Technical Institute, for valuable assistance and information given.

The Archæological facts have been gathered from the works of modern writers too numerous to enumerate and have been brought up to date.

I have not contended in the following pages for any theory of inspiration, but simply for the treatment of the Bible record as true; at least as much entitled to respect as any other ancient writing, yet at the same time to be thoroughly examined and compared with any other source of information available.

The study embodied in these pages has a direct bearing on Biblical Criticism, Prophecy, Biblical Archæology, and even on Astronomy, as well as Chronology, but at the same time should, I think, add to the interest of the general reader of the Bible in passages that some regard as of no value whatever.

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ADDENDUM.

TAKING advantage of a further issue of *The Dates of Genesis*, I wish to apologise for the *errata* which have arisen, chiefly owing to the technical nature of the subject. The list of these now supplied will, it is hoped, be found fairly complete. The slight defect in the table facing page 48 has also been remedied in this issue.

Since the first issue of this volume the general tendency has been rather to shorten the received chronology than to lengthen it. Many more scholars now doubt the conclusions based upon the Graf-Wellhausen theory—in fact, the suggestion of Anstruc, on which it was founded, is being rapidly abandoned. An even older Babylonian account of the Deluge has been discovered, which, being simpler and in closer agreement with Genesis, confirms the view taken herein as to its origin. A recent address of the President of the British Association, on the limits of the effect of the Ice Age, gives additional weight to the arguments of Sir Henry Howorth and Dr. Prestwich.

More than one reviewer has dismissed the argument of the book on the ground that it involves a creation in six solar days of twenty-four hours. The subject of creation, however, is not touched upon in it, and the only word that could be taken as the basis for such an idea is the use of the term A.M. (*anno mundi*) to express dates commencing with the creation of the first man. I do not believe in a creation in six solar days as being taught in Scripture, but understand them to be "days of God." At the same time, I find no evidence establishing the long period for the existence of man upon the earth that is commonly claimed.

F. A. JONES.

Ilford, September, 1912.

And ADAM lived 130 yrs.
 and begat a son in his own likeness, after
 his image ; and called his name SETH.
 And the days of Adam after he begat
 Seth were 800 years, and
 he begat sons and daughters. And all the
 days that Adam lived were
930 years : and he died.

And SETH lived 105 yrs.
 and begat ENOSH : and Seth lived after
 he begat Enosh 807 years, and
 he begat sons and daughters : and all the
 days of Seth were 912 years : and he died.

And ENOSH lived 90 yrs.
 and begat KENAN : and Enosh lived after
 he begat Kenan 815 years, and
 begat sons and daughters : and all the
 days of Enosh were
905 years : and he died.

And KENAN lived 70 yrs.
 and begat MAHALALEL : and Kenan lived
 after he begat Mahalalel 840 years, and
 begat sons and daughters : and all the
 days of Kenan were
910 years : and he died.

And MAHALALEL lived 65 yrs.
 and begat JARED : and Mahalalel lived
 after he begat Jared **830** years, and
 begat sons and daughters : and all the
 days of Mahalalel were
895 years : and he died.

And JARED lived 162 yrs.
 and begat ENOCH : and Jared lived after
 he begat Enoch **800** years, and
 begat sons and daughters : and all the
 days of Jared were
962 years : and he died.

And ENOCH lived 65 yrs.
 and begat METHUSELAH : and Enoch
 walked with God after that he begat
 Methuselah **300** years, and
 begat sons and daughters : and all the
 days of Enoch were
365 years : and he
 walked with God : and he was not ; for
 God took him.

And METHUSELAH lived 187 yrs.
 and begat LAMECH : and Methuselah lived
 after he begat Lamech **782** years, and
 begat sons and daughters : and all the
 days of Methuselah were
969 years : and he died.

And LAMECH lived 182 yrs.
 and begat a son : and he called his name
 NOAH, saying, the same shall comfort us
 for our work and for the toil of our
 hands, because of the ground which the
 Lord had cursed. And Lamech lived
 after he begat Noah 595 years, and
 begat sons and daughters : and all the
 days of Lamech were
777 years : and he died.

And NOAH was 500 years old : and
 Noah begat Shem, Ham, and Japheth.

Genesis vii. 6.

And NOAH was 600 yrs
 old when the flood of waters was upon
 the earth.

(This completes the first period of 1656 yrs.)

Genesis xi. 10.

These are the generations of SHEM.
 Shem was 100 years old, and begat
 ARPACHSHAD 2 yrs.
 after the flood : and Shem lived after he

begat Arpachshad	500 years, and	
begat sons and daughters. And Ar-		
pachshad lived		35 yrs.
and begat SHELAH: and Arpachshad lived		
after he begat Shelah	403 years, and	
begat sons and daughters. And Shelah		
lived		30 yrs.
and begat EBER: and Shelah lived after		
he begat Eber	403 years, and	
begat sons and daughters. And Eber		
lived		34 yrs.
and begat PELEG: and Eber lived after		
he begat Peleg	430 years, and	
begat sons and daughters. And Peleg		
lived		30 yrs.
and begat REU: and Peleg lived after he		
begat Reu	209 years, and	
begat sons and daughters. And Reu lived		32 yrs.
and begat SERUG: and Reu lived after he		
begat Serug	207 years, and	
begat sons and daughters. And Serug		
lived		30 yrs.
and begat NAHOR: and Serug lived after		
he begat Nahor	200 years, and	
begat sons and daughters. And Nahor		
lived		29 yrs.
and begat TERAH: and Nahor lived after		
he begat Terah	119 years, and	

begat sons and daughters. And Terah lived **70 yrs.**
 and begat ABRAM, NAHOR and HARAN. .
 v. 28—And Haran died before his father Terah, in the land of his nativity, in Ur of the Chaldees. . . .
 v. 32—And the days of Terah were **205** years : and Terah died in Haran.

This concludes the second list and totals
 to the birth of Abram **292 yrs.**

If, however, Terah died at the age of 205, when Abram left Haran at 75, as is implied in Acts vii. 4, Terah must have been 130 years old when Abram was born, and therefore **60 yrs.**
 must be added to the foregoing, making with one year for the flood and 1656 before the flood **1657 yrs.**

A total of **2084 yrs.**
 from the creation of Adam to Abram's leaving Haran (B.C. 1920, Ussher).

Exodus xii. 40-41, reads : "Now the sojourning of the children of Israel, who dwelt in Egypt, was **430 yrs.**
 and it came to pass at the end of the 430

years EVEN THE SELF SAME DAY it came to pass that all the hosts of the Lord went out from the land of Egypt." (1490 B.C. Ussher).

2514 yrs.

	B.C.	A.M.
Date of the Exodus, as above	1490	2514

1 Kings vi. 1.—And it came to pass in the four hundred and eightieth year after the children of Israel were come out of the land of Egypt, in the fourth year of Solomon's reign over Israel, in the month Zif, which is the second month, that he began to build the house of the Lord

480	480
-----	-----

1010	2994
------	------

There is a great difference of opinion in the computation of chronologists from the time of the Christian era to Solomon, say

1010	1010
------	------

(The destruction of Solomon's Temple took place 588–586 B.C.).

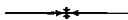
Christian era (Ussher)	0	4004
------------------------	---	------

Some chronologists make the 430 years to the Exodus begin with the entry of Jacob into Egypt. This would add 215 years to the total. Others dispute the addition of 60 years to the age of Terah at Abram's birth. If this is deducted, only 155 should be added to the total. We thus have three dates claimed for the creation of Adam on the above data, namely, 4004 B.C., 4159 B.C., 4219 B.C.

Other variations are based upon the theory that 1 Kings vi. 1 is an interpolation, or that the date given for Solomon is too early.

It will be observed that the differences of opinions refer almost entirely as to dates subsequent to those of Genesis.

THE DATES OF GENESIS.



CHAPTER I.

THE IMPORTANCE OF CHRONOLOGY.

MUCH more turns upon the question of date than is usually recognised. We cannot be said really to know much about a man so long as we are unable to associate him with some definite period of the world's history, for till we can do so, we cannot relate him to his contemporaries, nor measure the extent of his influence. Hence as long as the date is uncertain, we can only speak of the early times as pre-historic, and the pre-historic is closely associated in our minds with the mythical. While the discussion of chronological details is sure to prove tedious to all except the expert, and dates are proverbially difficult to remember, they constitute a very important part of the know-

ledge we possess. The present discussions on Biblical Criticism turn mainly upon Chronology. If the alleged late date for the origin of the books of Scripture can be established, it must of necessity affect the veracity of some of the statements made, and if the veracity of the writers is impugned, what value can the writings themselves possess as Scripture? The slighting way in which some speak to-day of questions of authorship and date, as if they were of no account whatever, is not justified by a moment's consideration. It is on points like these that the whole value of the testimony may hang. At the same time a very approximate idea of date may be amply sufficient for all ordinary purposes. We do not know for certain the year of our Lord's birth, but know it with quite sufficient nearness to justify every Scriptural statement.

The discussion in these pages will turn only on broad principles of Chronology and will not attempt to settle questions involving only a few years one way or the other. The value of mere figures in interpretation is nowhere more clearly illustrated than in the passages about which we propose to enquire. If we accept them and make them the basis of our study they yield far more

information than a mere cursory glance would suggest. On the other hand, if we reject them we are immediately plunged into absolute darkness concerning the period to which they refer. As perhaps nothing could give us a better idea of the historical, and even spiritual, value of dates we will give them a little attention before we go on to notice the objections raised to them.

The genealogies of Genesis v., taken as they stand in the Hebrew Bible, give very definite results. They show ten generations from Adam to Noah, of which, supposing the eldest survivor to have been looked upon as a ruler, there were seven such rulers before the flood, making Noah to be the eighth, as we read in 2 Peter ii. 5. "Noah the eighth."¹

Enoch and Lamech passed away before their parents and so did not come into the foremost position, while Noah, owing to the fact that Methuselah, his grand-father, survived to the very year of the flood, began his rule in the new world rather than in the old.

By the very singular expedient of recording the age of each patriarch at the birth of the next,

¹ ὄγδοον Νῶε. A.V., the eighth *person*. R.V., with seven others.

this record enables us to determine the date of the flood, as claimed by Scripture, at A.M. 1656, though those figures are not directly given. It is not, therefore, incorrect to speak of the dates of Genesis, because, beginning with the creation of Adam, it is possible by means of them to calculate a regular succession of lives up to the time of the Exodus, a period of at least 2,500 years.

These calculated dates will be found set forth fully in tables (page 48) and their study will reveal a variety of information, implied, though not directly stated. For example, we find that in the antediluvian world two lives bridge almost the entire period. Lamech, who died only 5 years before the deluge, was for 55 years contemporary with Adam, and consequently for much longer than that with all his other ancestors. Noah also, born A.M. 1056, had 83 years with Enosh, the son of Seth, and 600 years of knowledge of the old world to carry into the new. The exceptional life of Enoch occupies a central position in the period. Short as were his days on earth, he may have conversed with all the patriarchs except Noah, and his miraculous translation to heaven was only 57 years after the death

of the common father of the world, thus constituting a message of life to the entire age which must have had remarkable effect upon an era that had but just realised the fulfilment of the condemnation passed so long before on Adam: "Dust thou art and unto dust shalt thou return." Enoch was more than this to his age. We are permitted to know through the Apostle Jude that Enoch, the *seventh* from Adam, living in this remarkable relation to the rest of mankind, prophesied, saying, "Behold the Lord came with ten thousands of His holy ones, to execute judgment upon all, and to convict all the ungodly of all their works of ungodliness, which they have ungodly wrought, and of all the hard things which ungodly sinners have spoken against Him." Jude 14-15.

With the exception of the first promise given to Adam, this is the only sample we possess of the primeval revelation in the light of which the people of antediluvian times lived. It refers to a judgment not even yet fully realised; and thus Enoch, with his special message and his miraculous translation, links together the warnings and the hopes proclaimed in God's name, to both old and new worlds.

It is quite in harmony with the importance thus indicated for Enoch's career that the one thing freely admitted by the most sceptical is, that across the page of that early history, as preserved by the traditions of all lands, there stalks one great figure, dimly but unmistakably corresponding with the portrait thus drawn in mere outline in the Scripture narrative.²

The most obvious objection to these dates, whether in the Hebrew or any other version, is that arising from the extreme length of the lives of these patriarchs. This led so reverent an

² *Enoch Art. Jewish Cyclop*: "Enoch was known to the Mahomedans as Idris, that is, that he had a knowledge of the Divine mysteries. He was the first man who knew how to write, and invented sciences of astronomy and arithmetic. He had been sent as a preacher of repentance to the corrupt descendants of Cain. He invented the balance to weigh justly. He was the first scribe and the first tailor. He entered paradise while still living. Among modern critics the view prevails that Enoch corresponds to the Babylonian Enmeduranki, Gr. Evedoranchus. Enoch was famous for his knowledge of things divine—the progenitor of the priesthood."

Hamilton finds Enoch in the Hindu Parasa Rama, and says that the ancient Greeks were of opinion that he was Hermes Trismegistus. He quotes Abul Pharagius as saying, "Enoch was an observer of the pure commands of God; he did that which was good and avoided that which was evil, and continued in the worship of God to the end of his life."—*Hindu Chron. i.* 115, 118.

expositor as Elliott to take the names for periods, and so reckon 2,996 years from Shem to Terah. Mr. Urquhart's criticism on this method is surely justifiable. "The extension would be purchased at a terrible price. We should have destroyed the very foundations upon which we were building. The Scripture records would not only be thrown into utter confusion, but would also be hopelessly discredited. . . . Our task is to interpret our documents, not to alter them."

Now the difficulty here is not any inherent impossibility, but only that there is nothing in our experience to correspond with it. Moses himself is believed to have written, in the 90th Psalm, the words which so truly describe our present span of life. "The days of our years are threescore years and ten, and if by reason of strength they be fourscore years, yet is their strength labour and sorrow, for it is soon gone, and we fly away."

It is in vain to say that even Moses lived 120 years and that such exceptional length of life occurs occasionally in our own time. It is a matter of well-nigh universal experience that, for ages, the life of man has fallen as much short of 100 years, as these patriarchs are said to have fallen short of 1,000 years.

A recent writer on physiology has maintained that there is no necessity known to science why man should die at all, but neither he nor we know how to prolong life even to the limit of 120 years. It does not follow, however, that it has always been so, and Genesis by no means stands alone in the assertion that it was once different. Josephus, writing in the first century of our era, had to meet the same objection, but from his vantage ground of nearly 2,000 years nearer to the antediluvian period than ourselves, he produced a formidable array of testimony to this extended life. Let us hear what he says: "Let no one upon comparing the lives of the ancients with our lives, and with the few years which we now live, think that what we have said of them is false, or make the shortness of our lives at present an argument that neither did they attain to so long a duration of life: for those ancients were beloved of God, and (lately) made by God himself; and because their food was then fitter for the prolongation of life, might well live so great a number of years; and, besides, God afforded them a longer time of life on account of their virtue and the good use they made of it in astronomical and geometrical discoveries,

which would not have afforded the time of foretelling (the periods of the stars), unless they had lived 600 years; for the great year is completed in that interval."

"Now I have for witness to what I have said all those that have written Antiquities, both among the Greeks and barbarians. For even Manetho who wrote the Egyptian history, and Berossus who collected the Chaldean monuments, and Mochus, and Hestiaeus, and besides these Hieronymous the Egyptian, and those who composed the Phoenician history, agree to what I here say. Hesiod also, and Hecataeus, Hellanicus and Acusilaus; and besides Ephorus and Nicholas relate that the ancients lived a thousand years, but as to these matters let every one look upon them as he thinks fit."³

Whatever may be thought of the reasons given by Josephus to account for this length of life, it must be admitted that he appeals to a formidable roll of testimony in the names of learned writers which he enumerates, and before we have done with this subject we shall have to add to the list. But surely there may be something in that idea of his, "they were beloved of God." The

³ Josephus Ant., I. 3, 9.

Scriptures, if they claim anything, claim this power of life and death as under divine control, and the promises of the future are not without hint that it shall yet be again that the days of God's people shall be as the days of a tree, and that "a child shall die a hundred years old." Isaiah lxxv. 20-22.

There are much more formidable objections than this, however, advanced to-day with a singular unanimity. The more recently issued encyclopædias without exception declare these Genesis figures to be worthless—"it belongs to the domain not of history, but of mythology" is the verdict of Dr. Zimmern, of Leipzig;⁴ while Canon Driver, in his Commentary on Genesis, echoes the conclusion—"the Chronology of the Book of Genesis, in spite of the ostensible precision of its details, has no historical value."⁵

⁴ The Babylonian and the Hebrew Genesis, p. 46.

⁵ See Driver's "Genesis" in loco.

Hastings' Bible Dictionary, article "Chronology," says, "These numbers, whichever table may be regarded as the original, cannot in any case be accepted as historical, and hence, for a real chronology of the early ages of man, they are valueless."

Encyclopædia Bibliu, article "Chronology." "The numbers

Even that stalwart champion of inspiration, Rev. John Urquhart, has given up the usual understanding of these figures, and in his recent book on "How old is man?" concludes that "the years named are not the actual birth years" of the patriarchs, but only the date of the first-born in the family. This view, which was first put forth by Dr. Gardiner, in *Bibliotheca Sacra*,⁶ while it destroys all definiteness in the Bible dates, makes it possible to argue for 10,000 years of human history to the present time. In the light of the evidence we shall examine from other lands, however, it is not for a moment to be accepted.

The more general abandonment of the reliability of the ancient record is, however, closely associated with what is usually known as the "higher criticism" which, analysing the book

of the Hebrew Text, since they are not earlier than the Priestly Code, go back, at the best, only to the 5th Century B.C., and do not rest on tradition, but have been reached by the application of some artificial theory. Since they are useless, therefore, at least for chronology (if, indeed, one could ever have hoped to obtain such a thing for these earlier times), it is unnecessary to attempt to discover what the actual theory underlying them is."

⁶ *Bibliotheca Sacra*, vol. 30, p. 325.

of Genesis, attributes portions of it to extremely ancient tradition, but maintains that these figures in particular⁷ are part of a so-called "Priestly Code" which originated very late in the Jewish history, having been invented in the fifth or sixth century B.C., or as some say, deduced from mythological figures extant in Babylon at that period.⁸ We shall have to give much detailed consideration to this aspect of the case in the course of our study and will only point out now, in a sentence, the improbability that the Jews should, at that particular period of all others in their history, incorporate in any form of their sacred writings traditions so closely associated with idolatry as were these; which could only be obtained through the priests of Bel. We are asked to believe that Israel, which emerged from

⁷ This school of criticism, as represented by Graf, first picks out from Genesis all references to date, because they are such, and then attributes them to this supposed late addition. The method leads to very curious results, destroying the integrity of even this "Book of the Generations of Adam," in chap. 5, making great patchwork of the story of the flood, and sprinkling fragmentary interpolations through the rest of the book.

⁸ This is ascribed as the origin of the figures of Genesis by Dr. Oppert, of Paris, in the article on "Chronology" in the *Jewish Cyclopædia*. See Note 11, Chap. 3.

the captivity cured of its life-long tendency to follow idols, brought away with it a garbled account of the mythology of its conquerors and incorporated it with its own sacred history. Is that probable? If the stories of the flood and of antediluvian times found in Scripture are from this source, a miracle was indeed accomplished by the authors of the so-called "Priestly Code." They rendered at least rational what otherwise in the Chaldean reads as absurd—transformed the wildly improbable and idolatrous accounts of the cuneiform tablets into a simple, straightforward statement of alleged history, full of detail, and yet without contradiction. Taking up the weird stories of tradition coming down from "eras of unfathomable antiquity," they cast them into a form which, to the extent to which they are accepted, flood those early times with light and make it possible to realise some of the conditions. This is genius indeed, but then if their story is not true we are thrown back again into a darkness all the deeper for our having imagined for a while that we saw the light. For whatever light may have been thrown by the Higher Criticism on later history, it must be confessed that those who accept its conclusions are

plunged into Cimmerian night as to earth's earliest ages.

The testimony of Christ also to the social conditions of the earliest times, as where He speaks of marriage, Matt. xix. 4-8, "At the beginning it was not so," or calling Abel "righteous," Matt. xxiii. 35, or describing the world at the flood in Matt. xxiv. 37, "As in the days that were before the flood they were eating and drinking, marrying and giving in marriage," these are surely incompatible with a theory of an origin for man comparable to a savage, if not a brutal, condition, and lost in an unknown antiquity. Indeed no more striking instance of the importance of chronology could possibly be adduced than the fact that the rejection of this Genesis story is so involved in the structure of Christianity, that it can only be maintained by the invention of a theory of incarnation which limits the authority of Him on whose life and teaching Christianity itself depends. To destroy Genesis imperils the veracity of Christ, unless it can be shown that He was more ignorant than we are.

Other difficulties than this, however, have to be met.

The array of arguments produced by Dr. Driver against the Genesis figures is formidable and most of them are quite independent of higher critical theories. They are mainly theoretical and based, we believe, on a mistaken interpretation of facts. Many of them, such as those from ethnology, geology, the progress of art, and the development of language, turn upon the assumption that man has gradually evolved from a state of almost barbarism, and that the evolution requires a far longer period than these figures allow; therefore, it is alleged they cannot be true. It does not fall within the scope of our present purpose to argue along these lines from the facts at our disposal. It must be sufficient just now to point out that, if these generally adopted theories are true, we must abandon quite as much of the New Testament as we are asked to do of the Old. It is an anti-climax to observe also that it is impossible to accept the modern theories of the evolution of religion and, at the same time to regard as of the least value the account given by the Apostle Paul, in Romans i. 21, of the origin of idolatry, "*Because that when they knew God they glorified Him not as God, neither were thankful, but became vain in*

their imaginations, and their foolish heart was darkened," &c. This is degeneration, not evolution. Surely if the figures of Genesis must go on this ground, so must all these weighty arguments of the gospels and epistles, founded as they are on statements which modern theories pronounce untenable.

There is, however, one argument which ought to be at least referred to here if we are with intelligence to hold to the truth of our text. The voice of archæology is so far against the acceptance of these figures that it demands usually a longer period than they will allow (at least in the Hebrew version), for the sojourn of man upon the earth.

A walk through the galleries of the British Museum will reveal the fact that it is claimed that we know the date of the most ancient remains as far back as nearly 5,000 B.C. for both Chaldea and for Egypt, and very little reflection will show that these dates are incompatible with any ordinary understanding of Bible chronology. As far as Babylonia is concerned, it will be found that these dates are based upon a single inscription in which Nabonidus, the father of Belshazzar records that he dug up a foundation

stone laid by one Naram Sin, "which for 3,200 years no king, my predecessor, has seen."⁹ This carries the date of Naram Sin back to 3,750 B.C. and as the names of several kings before him are well known, it is easy to reckon to 4,000 or more before Christ.

The finding of this inscription has encouraged the Egyptologists to adopt a long reckoning for Egyptian chronology, and besides this they have in Manetho, the very detailed list of kings, and the years they reigned, carrying back to about 5,000 B.C. on the usual interpretation, and these appear to be confirmed in many respects by lists of kings found in Egyptian inscriptions. A very large number of these kings' names have been identified on the monuments, so that it is by no means a hasty conclusion that has been thus adopted.

The date of Naram Sin, too, has led to another conclusion. In the excavations at Nippur one building is found buried below another for 60 ft. in depth. Midway are bricks of Naram Sin. It is therefore easy to reckon that if the centre is 3,750 B.C., the lowest strata must be more

⁹ British Museum. Babylonian and Assyrian Room, No. 91,109.

than 7,000 B.C., and hence 10,000 years of human history are said to be in evidence.

Now it is useless to meet such arguments and facts as these with the easy going remark that after all chronology is of very little consequence, and though the dates are all wrong the Bible is of great spiritual worth. The facts of early history in the Bible are not placed there as stories to amuse children, but are stated in close relationship with God as the divine worker, and they are used for high moral and spiritual purposes. If our Lord Jesus Christ did use the story of the flood to urge upon all of us fear and earnest watching for His coming, then we distinctly suffer loss if we discover that there was no flood, or that it happened in such remote times that nothing we read about it in Genesis can be regarded as true; and when Peter warns us that false prophets will "contradict (*ἀρνούμενοι*) the Master who bought them," and that scoffers will wilfully forget this same flood, as the time for the fulfilment of His warning draws near, it surely should urge believers to at least as earnest and patient investigation into the facts as those show who bring this charge of unverity against the sacred Scriptures. The truth will prevail whatever the

truth is and, if the truth is on the side of the Bible, it will be possible to find it by earnest investigation, to say nothing of the power of prayer and the guidance of the Spirit of God. It is very lamentable, therefore, to find some who have a personal experience of the value of the Scriptures to give their hearts peace in relation to the eternal world, yielding the veracity of those same Scriptures in which alone they find the message which has brought them life in Christ Jesus, without the very smallest effort to defend them.

It is perfectly true that very few may have the ability, time, or opportunity for such investigation, but it is also sadly true that even these give far more attention and credence to the writers who throw doubt upon the Scriptures, than to those who seek to present the facts upon the other side, so that it is exceedingly difficult to-day to gain the Christian ear for any reasoned defence of the Old Book. Rationalistic literature is in sufficient demand to justify sixpenny editions, but the appetite for the antidote is scarcely enough to justify even the editors of our religious periodical press in publishing a reply.

Yet God is at work all the time and no one

who has observed the progress of discovery among the ruined cities of the past, can doubt for a moment that it is under the intelligent ordering of Divine providence that the old world is giving up its secrets and witnessing to the truth of Scripture.

There will probably always be, however, the opportunity for doubt for those who incline to it. There is a moral value in faith, but *irresistible* evidence lacks this supreme opportunity for reward and fails to test the most vital qualities of the spirit of man.

CHAPTER II.

THE QUESTION OF THE TEXT.

ONE of the first objections usually raised to any reliance being placed upon these dates is that we are uncertain of our text. There are three versions of them extant and they differ very greatly. The Hebrew version, of which our Bible is a translation, places the flood at A.M. 1656, but the Septuagint brings it to A.M. 2262, and the very ancient Samaritan version to A.M. 1307. How are we to decide between them? Each has strong claims to our regard. There is probably no manuscript in existence to-day as old as the Samaritan, and while the Hebrew is undoubtedly the official version, certified by the authorities of the tenth century A.D. as the true Hebrew text, the Septuagint is a Greek translation, made 200 B.C. and without doubt used by our Lord and His apostles.

The early Christian Church favoured the Septuagint. Augustine went so far as to accuse the Jews of deliberately altering the figures of the Hebrew in order to deceive their nation respecting Christ; for the early chronologists of our era adopted a theory which the Septuagint best suited, but which has, by the passing of time, proved delusive. No system of chronology based upon the Septuagint has ever prevailed for long, but it cannot be said that the Hebrew figures have been without apparent difficulties.

The Samaritan figures are evidently manipulated and may be almost left out of account, but the dispute as between the Septuagint and the Hebrew is not so easily settled.

If it were determined by the various readings the Hebrew would at once be declared victor, for there is not a single variation recorded in relation to its figures. On the other hand there are several versions of the Septuagint, especially in the post-diluvian figures. This is strongly in favour of the Hebrew, but not by any means conclusive. If we can only awaken a real interest in this question the examination of the figures will prove a fascinating one, but if we approach it with indifference, it is to be feared

the argument will be tedious. Let us try to realise, therefore, that the value of these dates is very largely dependent upon the issue. Until we have good reason for choosing one or the other, the ground beneath our feet is quite unreliable. The difference between the versions in other passages may matter very little, in fact the variations may even afford light upon the meaning, but it is quite otherwise with these figures. If they contend at all it is for the mastery and we may therefore watch the contention with interest.

A great deal has been written upon the subject, but it is strange how much more attention seems to have been given to the antediluvian dates than to those of the period after the flood. And yet they must always be considered together. An explanation that applies to one only will be inconclusive, they stand or fall as one.

To make comparison possible a table has been prepared and is submitted p. 48, which will show at a glance what the figures are, how they agree or differ from each other, and what effect they have upon the story they profess to tell. This last item is of very great consequence indeed. It serves the purpose of a cross-ex-

amination. Sometimes it convicts of error, as in the case of Methuselah's age at death, at others it suggests the motive for the variation, and in every case assists the judgment as to the true original.

If the following examination is conducted with the list in front of the reader, it will add considerably to the interest and also to the strength of the evidence.

First it will be observed that no fewer than five versions are placed side by side. The Hebrew, occupying the first place, has three additional columns, one (No. 6) which gives the length of reign for each of the early patriarchs, regarding them as kings ascending the throne on the death of their fathers; the other, the A.M. date of birth (No. 1), and of death (No. 5). The remaining columns correspond in all, except that some are derived from the text itself and some, not being in the text, are calculated from the data given. All such calculated figures which do not appear directly in the text are printed in red type.

Instead of repeating figures which agree either with the Hebrew or with the No. 1 Septuagint, the agreement is indicated by an * or a † so

that attention may be concentrated upon the *variations*.

Looking upon the columns generally, it will be seen that the Hebrew stands almost alone. Josephus follows the Septuagint with very trifling exceptions, and so does the Samaritan after the first five lives. The Hebrew, however, is supported by the Septuagint in column 4 in nearly every instance before the flood. And in three lives—those of Jared, Methuselah, and Terah—they are alike throughout. It will also be noted that the differences are mainly such as must have been intentional—100 years are added or subtracted. A glance at the part of the columns in which the variations are most complex shows that the object of the variation is evidently to affect the date, on the one hand, of the flood, and on the other, of the life of Eber; probably because the date of Peleg's birth, when as we are told, the earth was divided, was an important era—almost as notable as that of the flood in the universal history. After this date, with the exception of Nahor, the differences are in round numbers, 100 or 150 being added or subtracted.

The fact that what may be called the Sep-

tuagint scheme of figures comes down to us in four different forms, and that it to some extent supports the Hebrew figures, which are without variation, is very largely in favour of the Hebrew, but we must examine them more closely. Take the Samaritan first. The dates before the flood show no sign of derivation from the Septuagint, but those after do so unmistakably. The earlier list looks like an attempt to restore the Hebrew figures from the Septuagint by deducting the 100 we suppose to have been added in column 1 from *all* the lives, instead of from the first six only. If this supposition is correct it is plain enough why the other alterations were made. It was to avoid the absurdity of Jared, Methuselah, and Lamech surviving the deluge. The figures are therefore so manipulated as to represent them as all dying in 1307, which it makes the year of the flood. Such a result could not have been come to with the Hebrew figures accessible, and yet the omission of the second *Κεῖρα* between Arpachsad and Salah looks like an attempt to restore the Hebrew without a full knowledge of it.

The Samaritan is too obviously artificial to be accepted as the original, yet it is so much

akin to the Septuagint in the post-diluvian figures as to suggest that it is derived from it. Though it departs considerably from the Hebrew in the antediluvian A.M. dates, it brings those which follow the flood into approximate agreement. At all events Peleg's birth and death, under this scheme, fall within 49 years of that assigned in the Hebrew, and the whole is brought into very nearly the 2,262 years demanded by the Septuagint for the antediluvian lives.

We may next give attention to the figures of Josephus, for though at first glance they do not differ much from the Septuagint, the differences are significant. While he practically adopts the Septuagint throughout, he falls back upon the Hebrew for Lamech, and like it, ignores the second *Κεῖρα* altogether. This brings the antediluvian total to 2,256, but in the accompanying text he affirms it is 2,656,¹ thus confusing it with the 1,656 of the Hebrew. One might imagine this was a mere error in copying were it not that in dealing with the post-diluvian figures, although they clearly add up 983 from the flood to the birth of Abraham, he says, in the introduction to the second list, "Terah was the father of

¹ Josephus Ant. I., 3, 3.

Abraham, who accordingly was the tenth from Noah, and was born in the 292nd year after the deluge."² It is clear that though Josephus gives us the Septuagint list, he was perfectly familiar with the figures of the Hebrew version. He seems to have tried to quote both at the same time, and though the attempt is a failure from the standpoint of accuracy, it is a testimony to the existence of the Hebrew figures and their being regarded as of value in the first century of our era.

His comment on the first series is interesting, and bears witness to the existence of difficulty and *controversy* even then. "These years collected together make up the sum before set down (2656), but let no one enquire as to the deaths of these men, for they extended their lives along, together with their children and grandchildren; but let him have regard to their births only."³

The advice given by Josephus may make it easier to receive the figures put before us, but if we are to form an accurate judgment we must ignore it, and the necessity for doing so is seen in a moment when we come to compare the two principal versions of the Septuagint which have

² Josephus Ant. I., 6, 5.

³ Josephus Ant. I., 3, 4.

COMPARISON BETWEEN VARIOUS VERSIONS OF THE GENESIS FIGURES.

	HEBREW.						SEPTUAGINT. ALEXANDRIAN.					SEPTUAGINT. VATICAN.				JOSEPHUS.			SAMARITAN.						
	1	2	3	4	5	6	1	2	3	4	5	2	3	4	5	2	4	5	1	2	3	4	5		
Adam ...	A.M. 0	130	800	930	A.M. 930	R. 930	A.M. 0	230	700	*	A.M. *	†	†	*	A.M. †	†	*	A.M. †	A.M. *	*	*	*	A.M. *		
Seth ...	130	105	807	912	1042	1112	230	205	707	*	1142	†	†	*	†	†	*	†	*	*	*	*	*		
Enosh ...	235	90	815	905	1140	98	435	190	715	*	1340	†	†	*	†	†	*	†	*	*	*	*	*		
Kenan ...	325	70	840	910	1235	95	625	170	740	*	1535	†	†	*	†	†	*	†	*	*	*	*	*		
Mahalaleel ...	395	65	830	895	1290	55	795	165	730	*	1090	†	†	*	†	†	*	†	*	*	*	*	*		
Jared ...	460	162	800	962	1422	132	960	*	*	*	1922	†	†	*	†	†	*	†	*	*	*	*	*		
Enoch ...	622	65	300	365	987	—	1122	165	200	*	1487	†	†	*	†	†	*	†	522	62	785	847	1307		
Methuselah ...	687	187	782	969	1656	234	1287	*	*	*	2256	167	802	*	†	†	*	†	587	67	653	720	1307		
Lamech ...	874	182	595	777	1651	—	1474	188	565	753	2227	†	†	†	†	†	*	—	654	53	600	653	1307		
Noah ...	1056	600	—	950	2006	350	1662	*	—	—	—	†	—	—	—	*	—	—	707	—	—	—	—		
Date of Flood ...	<u>1656</u>						<u>2262</u>					<u>2242</u>				<u>2256</u>			<u>1307</u>						
After Flood ...	2						2					2				12			2						
Shem ...	1556	—	500	600	2156	150																			
Arpachshad ...	1658	35	403	438	2096	—	2264	135	430	565	2829	†	400	535	2779	†	Not given in Josephus.		1309	†	303	*	1747		
Kenan ...	—	—	—	—	—	—	2399	130	330	460	2859	†	†	†	2839	—			—	—	—	—	—	—	—
Salah ...	1693	30	403	433	2126	—	2529	130	330	460	2989	†	†	†	2969	†			—	—	1444	†	303	*	1877
Eber ...	1723	34	430	464	2187	31	2659	134	370	504	3163	†	270	404	3043	†			—	—	1574	†	†	†	2078
Peleg ...	1757	30	209	239	1996	—	2793	130	*	339	3132	†	*	†	3112	†			—	—	1708	†	109	*	1947
Reu ...	1787	32	207	239	2026	—	2923	132	*	339	3262	†	*	†	3242	†			—	—	1838	†	109	*	2077
Serug ...	1819	30	200	230	2049	—	3055	130	*	330	3385	†	*	†	3305	†			—	—	1970	†	100	*	2200
Nahor ...	1849	29	119	148	1997	—	3185	79	129	208	3393	179	125	304	3469	120			—	—	2100	79	69	*	2248
Terah ...	1878	70	135	205	2083	—	3264	*	*	*	3469	*	*	*	3549	*			—	—	2179	*	*	*	2384
Abram ...	1948	—	—	—	—	—	3334	—	—	—	—	—	—	—	—	—			—	—	2249	—	—	—	—
Flood to Abram ...	—	292	—	—	—	—	—	1072	—	—	—	1172	—	—	—	983	—	—	—	942	—	—	—		
Creation to Flood ...	—	1656	—	—	—	—	—	2262	—	—	—	2242	—	—	—	2256	—	—	—	1307	—	—	—		
Total to Abram ...	<u>1948</u>						<u>3334</u>					<u>3414</u>				<u>3239</u>			<u>2249</u>						

1. A.M. year of birth.
2. Age at son's birth.

3. Subsequent years of life.
4. Total years of life.

5. A.M. Year of death.
6. Years survived his father or eldest ancestor.

* Same as the Hebrew. † Same as Septuagint Alexandrian.

N.B.—All figures printed in red are calculated from those given in the original text.

come down to us. The Vatican MS. differs from the Alexandrian Codex in the age of Methuselah when Lamech was born. The Alexandrian here agrees with the Hebrew, but the other deducts 20 years from this figure, *without reducing the total*, with the result that he is shown to live to A.M. 2256, the figure of Josephus for the flood, which by this table is shown as occurring in 2242 A.M. In this point, at all events, then, the Septuagint No. 2 is wrong, and must be rejected, leaving the only two figures seriously competing for the date of the deluge, the Hebrew, 1656, and the Septuagint, 2262. We have not the same certainty, as between the two versions of the Septuagint, for the later figures. There the addition of 50, instead of 150, to the age of Nahor, when Terah was born, seems more in harmony with the corresponding figures for other men, but as any variation at all in these round numbers added must have been with a purpose, it is difficult to judge, until we know why one total rather than another was desired.

Is there any reason favouring either 2262 or 1656 for the year of the flood?

There are two reasons for endeavouring to secure 2262, but none of which we are aware

for the other, except as the record of a fact.

The first reason has long been known to scholars, but, owing to a mistake in a figure, it has not been exhibited in its full force. Berossus, the Chaldean, says that there were ten kings before the flood, and they reigned for 120 Sari. Now 120 Sari is explained as 432,000 years, or days; *i.e.* 3,600 years, or days, for a Saros; but there is also a *lunar* Saros known to antiquity, of 223 lunations, sometimes given as 222. There is no doubt as to the Saros intended by Berossus, but it is suggested that it was mistaken for the other, and if so 120 such Sari would be $223 \times 120 = 26,760$ lunations, and reckoning 12 to a year would yield 2,230 years, but 2,230 years of 360 days, as Berossus reckoned, would be a little more than 2,261 years of 354 days each, which are, of course, lunar years. It is not at all a correct way to calculate, but as a rough method it is possible, and it yields the result. The great difficulty is that it cannot be applied after the deluge, so that it leaves the later figures unexplained.⁴

⁴ Both the Solar Saros of 3600 days and the Lunar Saros of 223 lunations are based upon accurate astronomical facts. The first reconciles Siderial and Solar time, and the latter makes

The other explanation has not, we believe, been stated previously, but it is very remarkable, and appears to account fully for the Septuagint figures.

It is well known that the Septuagint Version of Genesis was made in Alexandria, by command of Ptolemy Philadelphus, or Ptolemy II. He appears to have had a passion for ancient history, and the period succeeding him is prolific in forgeries produced, it may be supposed, to meet the demand which he created. Still he did his best to obtain the most reliable information possible. He came to the throne 284 B.C. and Genesis was the first book translated from the Hebrew Bible. About the same time Berossus, of Chaldea, revealed the temple secrets of Babylon, and Ptolemy II. called upon Manetho to do the same for the Egyptian records. How far Manetho really understood the documents to which he had access may be doubted, but at all events he addressed himself to the task, and the letter in which he dedicated his work to his prediction of the eclipses a comparatively simple matter. The Solar Saros is 10 degrees on a circle of 360 years of 360 days each, and the Lunar Saros is 10 degrees on a circle of 8028 lunations or 669 lunar years, equal to 649 solar years and one month, within a few minutes.

patron has come down to us. It runs thus :

THE EPISTLE OF MANETHO THE SEBENNYTE
TO PTOLEMAEUS PHILADELPHUS.

“ To the great and august King Ptolemaeus Philadelphus, Manetho the High Priest and Scribe of the Sacred Adyta in Egypt being by birth a Sebennyte and a citizen of Heliopolis to his Sovereign Ptolemaeus humbly greeting :

“ It is right for us most mighty king, to pay due attention to all things which it is your pleasure we should take into consideration. In answer therefore to your enquiries concerning the things which shall come to pass in the world, I shall according to your commands lay before you what I have gathered from the sacred books written by Hermes Trismegistus, our forefather. Farewell, my Prince and Sovereign.”⁵

Such, then, is Manetho's own account of his work, produced, as it was certainly, within a few years of the Septuagint translation of Genesis, and published in the same city, Alexandria, of Egypt.

⁵ Cory's *Ancient Fragments*, 2nd Edit., p. 169. Syncel Chron. 40. Euseb. Chron. 6.

Unfortunately we possess only fragments of these three books of Manetho. Josephus has preserved some quotations from his history, and two or three Christian writers hand on to us what purports, at least, to be his list of kings, with the term of their reigns appended. These figures, however, differ greatly in the various copies we possess, and the knowledge that they were being used to prove an agreement with the theory of that time, that Christ came at the end of 6,000 years of the world's history, makes us very cautious in relying upon them. At the same time they must have been regarded with some confidence, or they would have been of no value in such an argument.

They yield to us one very remarkable fact. Taking the list handed down to us by Eusebius, Bishop of the fourth century A.D., and taken by him from the works of Africanus, an eminent Christian historian of the second century A.D., we find if we add up the figures *for ourselves*, that the total of the years in Manetho's first book is 2261 and 70 days, so close to the 2262 of the Septuagint that we may regard them as identical.⁶

⁶ Cory's *Ancient Fragments*, 2nd Edit., pp. 94-135. Syncel Chron. 59 to 75. Euseb. Chron. 15 to 17.

There seems no reason whatever for associating the end of Manetho's first book with the Deluge, but then he does not refer to the deluge at all and so it may as well come there as anywhere else. And the character of one of the kings of the Twelfth Dynasty, with which he begins the second book, is so closely akin to that of Nimrod, that it might easily have suggested the comparison.

Since the above was written Professor A. H. Sayce, D.D., calls attention to the very fact we have been speaking of, and says, "Considering the efforts made by the Septuagint translators to harmonise the Hebrew chronology with the Egyptian by altering the dates of the Hebrew text, it is impossible to believe that the coincidence can be accidental."⁷

To make the argument complete we ought to find a similar agreement in the Septuagint figures of Genesis XI. with Manetho. Professor Sayce suggests that the Septuagint 1362 years from the migration of Jacob into Egypt to the deluge was the point for which coincidence was sought. For "one of the Hyksos kings has been shown by

⁷ Proceedings of the Society of Biblical Archæology, Jan. 1908, p. 16.

Scarabs to have had the name of Jacob-el, abbreviated into Jacob." Manetho, however, fails us here, and it seems far more probable that the Exodus would be the point to which attention was directed. Now we know from Josephus that Manetho wrote of the expulsion of the shepherds in the reign of Tethmosis, the first king of the Eighteenth Dynasty, and he claims this as being the Exodus of the Children of Israel.⁸ He, however, says that Manetho made out that the Exodus was in the reign of Amenophis, and was identical with the expulsion of the lepers, of which one Osarsiph, or Moses, was the leader. Josephus is anxious to disclaim this, and is so bitter in his repudiation, that he declares Manetho *invented* the name of Amenophis, although he had himself given the name three times in the Eighteenth Dynasty, once at the beginning, once in the middle, and the other at the end.⁹ It is believed now that there were four bearing that name, but the three referred to are identified as Amen-hetep I. and II., and Amen-hetep IV., the latter being the famous Khu-en-Aten of the Tel el Amarna tablets, whose father bore the same name Amen-hetep.

⁸ Josephus c Apion I. 26, II. 2.

⁹ Josephus c Apion I. 15.

Now the opinion of scholars is more and more inclining to the time of Thothmes III., the predecessor of Amen-hetep II., as the date of the Exodus, though it is usually put in the Nineteenth Dynasty under Menepthah.¹⁰ The question for us, however, is not so much when *did* the Exodus take place? as when did Manetho say it was? The answer to this by Josephus is that it was either under Tethmosis (Aahmes I.), or under Amenophis. These kings are separated by about 100 years—exactly 100 in the figures of Josephus, omitting odd months—and it seems not unlikely that this accounts for the difference of 100 years between the two versions of the Septuagint. Unfortunately Manetho's figures in his second book have come down to us sadly distorted. The total, however, from three different sources is given as 2121, and there is sufficient agreement between three of the versions to justify deducting 204 years for the Nineteenth Dynasty. Then taking 192 years from the figures of Josephus for the Eighteenth, it brings us to the first year of Amenophis II. The result is agreement within 13 years with the Vatican Septuagint and almost

¹⁰ *The Problem of the Old Testament*, James Orr, D.D., p. 422 and seq.

equally close agreement, to the last year of Tethmosis, with the Alexandrian Septuagint. The following table will set this forth more clearly.

	Vatican.	Alexandrian.
Septuagint total of years from deluge to the birth of Abraham	1172	1072
Age of Abram at leaving Haran	75	75
Corrected by Genesis xi. 32 ...	60	60
Time of sojourn by Septuagint	430	430
	<u>1737</u>	<u>1637</u>
Exodus		
Manetho's Second Book ...	2121	2121
Deduct Nineteenth Dynasty ...	204	204
	<u>1917</u>	<u>1917</u>
Do. last eight Kings, including Amenophis, <i>Josephus</i> ...	192	
	<u>1725</u>	
Deduct again the whole of the Eighteenth Dynasty, as in <i>Josephus</i> , except the First Tethmosis		295
		<u>1622</u>
Difference ...	12	15
	<u>1737</u>	<u>1637</u>

It must be admitted that the confusion in the numbers is so great that it would be quite easy, by choosing those that suited best, to bring them into even closer agreement. But we have not done this and the fact remains that though there is a difference of 780 or 880 years between the Hebrew and the Septuagint for this period, there is not at the *very most* more than 60 years' difference between the Septuagint and any one of the versions of Manetho which has come down to us for the same period, if choice be made between the time of these two kings.

The total of Manetho's three books, when added up, is 5350, though given as 5471. Adding 330 to these numbers, for the subsequent years to the Christian era, we have 5680 B.C., or 5801 B.C., for the first year of Menes.

As we have seen p. 20 there is more than one way of understanding Exodus xi. 40. If the longer alternative is taken and 155 or 215 years added, the Septuagint figures will give the creation of Adam as 5644 or 5704 B.C. A very near approximation considering how uncertain Manetho's figures are.

We find then that the Septuagint Version of these Genesis figures corresponds with Manetho,

first, in the date of the deluge as compared with the end of his first book; second, in at least an approximate date for the Exodus; third, in the total from the beginning. Was Manetho right, or the Hebrew Scriptures?

Our opinion on this point must be determined by the character of Manetho's figures, and the probability of their being reliable. This will be fully dealt with in the Egyptian problem, but an outline is necessary here.

He unquestionably gives us some figures which he found in the Egyptian archives. We may know this because Herodotus, the father of history, as he is called, who visited Egypt about two centuries before Manetho, confirms him to some extent at least. He says, "Menes was the first king of Egypt. After him the priests read out of a book the names of 330 kings."¹¹ Manetho gives Menes as the first king of Egypt, and his first 330 kings bring us to the end of the twenty-sixth dynasty, which would be about the time of the visit of Herodotus. So far we have good reason to believe Manetho deals with the *received* Egyptian records. There are, however, other authorities besides Manetho, and these con-

¹¹ Cory's *Ancient Fragments*, 2nd Edit., p. 154.

flict with him. A comparison of his figures with those of Eratosthenes, the learned librarian of Alexandria, B.C. 275, shows that the kings he names, in many cases, were contemporaneous and this is confirmed by recent excavations.¹² Besides this the old Egyptian Chronicle gives quite a different account of the first fifteen dynasties from that given by Manetho, and further suggests that he may have found a list of contemporary kings for the period represented by the Fifteenth and Sixteenth Dynasty, and distributed them over the period of the earlier time which he failed to understand. It would not be appropriate to our present purpose to enter more fully on this matter here, as we intend doing so later. Suffice it to say that while the information we have from Manetho for the period subsequent to the commencement of the Eighteenth Dynasty is most valuable, everything before that has for centuries been a perplexity to all who have investigated this subject, and consequently the practical identity between the Septuagint and Manetho suggests that, for the period with which we are dealing, the figures in the Septuagint were altered from the Hebrew to conform to his

¹² Fully discussed in Chaps. 8 and 9.

scheme of Chronology, rather than that they embody a trustworthy record.

We shall see in the course of this study that the Hebrew figures, on the other hand, correspond with records of nations very widely separated, which unite to discredit the figures of Manetho and the Septuagint. The latter, while remarkably agreeing between themselves, as emphatically differ from all the rest.

From this examination we conclude, therefore, that the Hebrew Version is the original, that the Septuagint was a modification of it, with a view to agreement with prevailing ideas in the third century B.C., and that the Samaritan Version was an attempt to return to the Hebrew, but made with insufficient knowledge of the text.

CHAPTER III.

THE FLOOD.

THE establishment of the superior value of the Hebrew figures in Genesis does not make our task easier. The Septuagint has always been the refuge for those who on any account wish for a longer Chronology, and if it is of no value it forces us face to face with all the seeming difficulties of the problem, in an accentuated form.

It is perfectly true that we are apt to treat a period of a hundred or a thousand years as a mere trifle when it was in the distant past, ignoring altogether our own experience of the startling changes and varied events which may crowd themselves into even our short lives. Still it must be admitted that less than 5000 years for the development of the world, as we know it, is the minimum of possibility. For it will be obvious that the Bible record, by the position it

gives to the story of a universal flood, throws down an unmistakable challenge as to its truth. Notwithstanding the possible variation in the Chronology, arising from doubt as to the birth of Abraham, the period of the Egyptian bondage, the times of the Judges, and the precise date for Solomon, there is no doubt whatever that the Hebrew Scriptures allow far less than 3000 years between the new beginning for human history and the birth of Christ. If this is untrue it ought to be the easiest thing possible to demonstrate the fact. No other nation has openly committed itself to such a statement. While traditions of a great flood are found all the world over, only those of the greatest nations attempt to give any Chronology with it and all of these, except the Hebrew, adopt some device by which the chronological position of the event is obscured. Thus Berossus claims 33,091 years between the flood and the first dynasty of Babylon, as it is known to us in the cuniform tablets.¹ India almost entirely ignores the flood in its Chronology, except by incidental reference, though it is next to the Chaldean in clearness of tradition to the actual fact. China, it is true,

¹ Eusebius Chronicon. Mai Ed. Lib. i, Cap. I. (2).

seems very explicit in fixing the date, but that is because the figures come to us not in their native form, but interpreted to us by the Jesuit missionaries.² Egypt ignores the flood altogether in its history, as well as in its Chronology, except for the very significant ceremony by which the 17th day of Aythyr is celebrated, the very day indicated in the Bible as the commencement of the rain, on which the priests were wont to launch upon the sea a sacred coffer containing an image of the god Osiris till it was borne out of sight.³ The Hindoos also, on the same day, celebrate a festival of the dead, which finds its counterpart in Europe in customs observed on All Hallow's Eve.

With regard to the fact of the flood, it is well to note that not only is it most explicitly recorded in the Old Testament, but emphatically adopted also in the New Testament. The use made of it by our Lord and by the Apostle Peter goes far beyond employing it as an illustration. It is made

² *Tabula Chronologica Monarchæ Siniese in Confuains Smarum Philosophers, par Philippus Couplet.* Couplet gives the reign of Yao as five years before the flood. This was really the date of the death of his father.

³ *Astronomical Myths.* John P. Blake, p. 115.

the basis of a warning, and is very closely associated with important spiritual truth. We find, therefore, in Scripture, the very opposite tendency to that prevailing in the rest of the world on this point, and it certainly suggests enquiry, if the favoured theory of the Priestly Code be true, and all the chronological references in the Book of Genesis were added to existing manuscripts from information gained at the Babylonian captivity, how is it that the Chaldean records with which we are familiar, should have been so modified by the supposed Hebrew priests as to commit them to a position, directly opposed to the prevailing convictions the world over?

Although we have said that the Chaldean and Indian records obscure the Chronology of the flood, a careful examination shows that by adopting a perfectly reasonable interpretation they very strikingly confirm the unique Hebrew account. For example, the 33,091 years of Berossus yield as days, 90 years, which is in strict accord with the Hebrew statement (Gen. x. 20), that the earth was divided about the time that Peleg was born. The statement of Berossus that there were 86 kings in this 33,091 years is quite enough to show that literal years are not intended,

though for some reason it was always so expressed.⁴ True 86 kings in 90 years is more impossible still if they were successive, but such a position is impossible if the Hebrew record is true. That was the time of contemporaneous leadership under the heads of families, rather than of separate nationalities and empires, which seem to have commenced with Nimrod, and it is most significant that the Babylonian remains indicate just such a condition of things as that before Sargon I. Thus Professor Hilprecht says of this period, "We see how a number of petty states, sometimes consisting of nothing more than a walled city, grouped around a well known sanctuary, are constantly quarrelling with one another about the hegemony, victorious to-day, defeated to-morrow."⁵

It is a very singular fact that Genesis xi. contains a list of just about 86 names, deducting repetitions and including tribes and towns. Berossus is said to have given the names of 86

⁴ Dr. Jackson. *Chronological Antiquities*, vol. I., p. 200. "The Chaldeans, in their ancient records, called years and days by the same word *Jonim*, as the Hebrews did by the word *Janim*. These plural words signify either days or years." Cf. Exod. xiii. 10; Lev. xxv. 29; and Exod. xiii. 6; Lev. xxiii. 42.

⁵ Hilprecht. *Explorations in Bible Lands*, p. 383.

kings in his book, but they have not come down to us, so that it is impossible to judge whether the suggestion, that he misread the list, owing to the confusion of tongues having led to misunderstanding, has anything to support it.

We shall see later that China furnishes a confirmation of the date of the deluge, both in relation to the earlier and the later history, and that India fixes it as "at the close of the last Calpa," an expression which indicates the date of writing to be the third thousandth year of the world, and the deluge to have occurred toward the close of the second thousandth. It is also contended by Hamilton that the allusion in the Indian writings to the 7th day as the day on which the flood would occur, sets forth, in strict harmony with their method, a period of $7 \times 240 = 1680$ years of 360 days, or 1656 mean solar years, as the duration of the antediluvian world. It is a very striking coincidence, but not one upon which I am prepared to rely as an argument.

The question for us is, Has this very distinct challenge made by the Bible been accepted, and the Chronology it claims been proved to be false? We have already mentioned some of the objections which are most strongly urged from

the archæological side, but it would not be fair to pass over the contentions of geologists without some notice, for the deluge raises questions which peculiarly belong to this department of science.

A catastrophe so widespread as that described in Genesis must surely have left some mark upon the earth's structure, and yielded evidence, either for or against the truth of the story. With regard to the possibility of such a deluge at the spot indicated, one of the latest works on the physical structure of the earth, "The Face of the Earth," by Dr. Suess, bears witness to the accuracy of the description of Genesis to such an incursion of the waters as was likely to occur in that part of the world, the head of the Persian Gulf, but Dr. Suess does not for a moment admit such a widespread effect as that claimed for the Biblical deluge. It is, however, well to remember what is claimed. We may briefly state it in terms which, while they accord with the narrative accurately, do not push expressions to the extreme limit of their possible meaning. The deluge of Scripture was not caused by excessive rain alone, but also by a disturbance of the existing relation between land and sea, "The fountains of the great deep were broken up."

It was co-extensive with the existence of man, and resulted in his complete destruction off the face of the earth, except for the eight souls preserved in the ark. The manner of their preservation indicates that, at least, in the neighbourhood of the ark, the rise of waters was gentle, and not likely to be destructive, except to living creatures and to buildings that would not survive immersion. Finally, at this particular part of the earth, that is, within view of the narrator, the waters extended 15 cubits above the tops of the mountains.

Now the one crucial test to apply to this narrative is: Are any human remains found of certainly older origin than the dates of Genesis allow? And the affirmative answer is more emphatic on the part of the geologist than on that of the archæologist. Where the one claims thousands of years the other demands hundreds of thousands. But the archæologist bases his claim on inscriptions which can be examined, while the geologist has only estimates to go by. These estimates are not always confirmed by enquiry. Sir Charles Lyell, in 1846, made the calculation that it would take 67,000 years to form the delta of the Mississippi, and 33,500 years for

the alluvial plain above. By 1873 he had reduced the estimate to one half, but found the thickness of the deposit was twice as much as he had thought, so adhered to 100,000 years.⁶ Dr. J. F. Gardiner, however, found on reference to the maps of the United States survey, that the utmost they allowed for the growth of the deposit, on the basis of observation of the present rate, was 4400 years from 1850,⁷ and of course we never can be certain that the rate of deposit is without variation.

Whatever differences of opinion there may be as to the length of time for these deposits, it is generally agreed that the earliest remains of man are represented by implements of flint. It is quite certain that in some parts of the earth,

⁶ *The Antiquity of Man*, p. 45.

⁷ *Bibliotheca Sacra*, vol. 30, 1873. Note, p. 330. "The present rate of progress of the mouth may be obtained by a careful comparison of the progress of all the mouths of the river, as shown by the maps of Captain Telcott, U.S. Engineers, 1838, and of the U.S. Coast Survey in 1851, the only maps that admit of such a comparison. They give 262 feet for the mean yearly advance of all the passes. This mean advance of all the passes represents correctly the advance of the river. Adopting this rate of progress—262 feet per annum—4400 years have elapsed since the river began to advance into the gulf."—Based on the Report of Messrs. Humphrey & Abbot to the U.S. Government.

even now, flint implements are used, and it is usually taken to indicate an early period in the development of art. It is quite as likely, however, to express limitation of opportunity. Wanderers from a civilised centre would, unless possessed of considerable personal ability, soon degenerate into using the simple methods that are characteristic of savage tribes. It would not be fair to judge the civilisation of the 20th century by the works executed in Klondyke, or the back woods of America (if there are any left), although the workers may have come from New York or from London. So, too, the existence of these flint weapons, in outlying districts, may not be pressed so far as to prove a date as being long before more advanced civilisation in the great centres of population. There is, however, one very remarkable fact about these flint implements. They are sharply divided into two classes, called Paleolithic and Neolithic. The one never passes into the other. The Neolithic always indicates a new order of things. Something happened all over the world, to destroy the Paleolithic man and clear the way for Neolithic man. Now it is just at this point that several distinguished geologists contend there was a

great inundation, the effects of which were formerly attributed to the glacial period, but which Sir Henry Howarth,⁸ Dr. Prestwich,⁹ and others, maintain was the dividing line between the mammoth and other extinct animals, and the creatures with which we are now familiar. Here again we have no definite dates, but the mammoth, at all events, is not such an extremely ancient animal. Its remains are even to-day excavated, in some cases, as in Polar regions, with its flesh and hair intact.

Sir William Dawson, a distinguished Canadian geologist, estimates the extreme limit of origin for the delta of the Nile as 5000 years ago;¹⁰ a statement in harmony with one made by Herodotus on the authority of Egyptian priests, who said the delta did not exist before Menes. So that there is reason for doubting the extended Chronology that imagines it peopled 5000 B.C., even on geological grounds. Much of this argument, it must be confessed, is negative, but necessarily so under the circumstances, and it is, at least,

⁸ *The Glacial Nightmare and the Flood*, 1893. *The Mammoth and the Flood*, 1877, p. 252.

⁹ Paper read before The Victoria Institute, March 19th, 1894.

¹⁰ *Egypt and Syria*. R.T.S., 1885, p. 78.

noteworthy that no positive and undeniable fact can be alleged which renders the statements of Scripture on this point obviously incorrect.

The Bible is too trustworthy in other and more vital respects to justify its rejection without ample proof. There are endless suggestions of improbability in the Bible statements, for the whole trend of thought to-day is in the direction of accounting for changes by slow, imperceptible, and, it must be confessed also, indescribable variations. For example, it is maintained that a long period is essential for the development of language into the very numerous tongues of which we have trace in very early times. Scripture anticipates this difficulty by the story of the confusion of tongues, told also in almost identical terms by the Chaldean, Berossus.

What is known of the law of language so far confirms this story that it shows three very distinct types, which could hardly have grown out of one another naturally. In like manner it has been said, that the distinction of different races is found too early to allow for their gradual evolution since the Bible date for the deluge. That may well be, but if at a single birth two such different physical characteristics as

those of Esau and Jacob could come into the world, it need not have taken long at the beginning to differentiate even the negro from the white. All these objections only make it more remarkable that the record should be so definitely committed to a date which obviously raises difficulties to our limited knowledge, and was avoided in a fashion by all the other accounts we receive from kindred sources.

The Bible story of the flood, however, does not only serve the purpose of indicating a comparatively recent origin for the existing civilisation; it embodies some very interesting chronological details. It gives dates such as the 17th day of the second month (from the Autumnal Equinox), which we find observed in customs all over the world. It is associated in the Babylonian Version with the Sign Aquarius, which is also the 11th month in the Babylonian year, and corresponds to our November. It is certainly the most probable time for rain, just as the period indicated for the drying up of the waters, from the 7th month onward, is the time of greatest heat. The deluge story contains a complete calendar of very great interest, from the special period of the world's history to which it

claims to belong. Assuming the lunar year of 354 days, used by the Jews, to be the basis of the reckoning, we find Noah goes out of the ark on the twenty-seventh day of the same month on which he entered, an inclusive period of 365 days, or one complete solar year. We find, however, that the waters prevailed upon the earth a hundred and fifty days, and the termination of this period is marked, or it may be anticipated, by the resting of the ark on the Mountains of Ararat, on the 17th day of the seventh month. This would represent five months of thirty days each, but it would be for the period when neither moon nor stars appeared, and when only a dead reckoning could be maintained. We thus have the three lengths of the year represented as observed in the early ages of man. The lunar year of twelve months, alternately thirty and twenty-nine days, corresponding to twelve lunations, which is probably the oldest reckoning, and still observed by Mahommedan races; the year of twelve months of thirty days each, 360 in all, which is known to have been the basis of the ancient Egyptian calendar, and of the Babylonian till comparatively late times, and is probably antediluvian in origin; and the 365-

day solar year, which, being marked by the seasons, is bound to assert itself, and in some way or other to compel recognition, whatever calendar be adopted.

There is a very singular fact about this Biblical story of the deluge which, though it does not prove the year used to have been the lunar year, very strongly suggests that conclusion. There are ten dates definitely indicated, and of these, eight, if set off on a lunar calendar of twelve months with thirty and twenty-nine days alternately, fall upon the same day of the week in each case; and calculating astronomically, from the beginning of 1656 years, they would fall upon the first day of the week, which also would be the eighth in human life.

Now Noah was, as Peter remarks, the eighth—that is, in succession as a ruler. Though he was of the tenth generation, two of the line, Enoch and Lamech died before their fathers. He was the head of eight souls saved in the ark, and went in and came out on an eighth day, a significant fact when it is remembered that he is taken by the Apostle Peter as a type of that resurrection of our Lord which also took place on the first, or eighth, day of the week,

and by which God makes all things new in the spiritual realm.

This is one of those singular facts which, like the 23-year cycle embodied in the fifth chapter of Genesis,¹¹ will suggest to some minds artificiality, but which, even so, would be a very inadequate reason for rejecting the record; while, on the other hand, to those who have studied the very frequent occurrence of such symbolic correspondence in Scripture, it will be regarded as rather a mark of the divine hand than of its absence.

The account of the flood, as given by Berossus and found in the cuneiform tablets, is so very similar to that of the Bible in its facts that it inevitably suggests, at least a common origin. This is not in the least surprising. As long as it was imagined that writing was practically unknown in Palestine till about the seventh century B.C., it was necessary to suppose that written documents could only take form about that period, but the absolute proof in the Tel el

¹¹ To the birth of Jared, 460 years=23 by 20.
 Birth of Jared to birth of Lamech, 414 „ =23 by 18.
 Birth of Lamech to flood, 782 „ =23 by 34.
 Creation to flood, 1656 „ =23 by 72.

See also Chap. V. p 114.

Amarna tablets of letters from Palestine, written in the Babylonian characters to Amenhotep IV., about 1425 B.C., makes any such basis for belief in manuscripts being necessarily of later origin, to rest on the very precarious theory that the teaching of the prophets was absolutely new and not the reinforcement of truth from which Israel had departed. The sentiments of Isaiah respecting spiritual worship are only reproductions of the teaching of Samuel after all (1 Sam. xv. 22) and fully in harmony with the spiritual teaching of the Pentateuch. But as far as the flood is concerned, if it was known in Babylon 2000 B.C.,¹² there is no reason why Abraham should not have known it from this source, though considering the spiritual prominence of the line of Seth, it seems far more probable that the knowledge was preserved by *his* direct descendants than that it was derived by them from the Chaldeans. Noah was a righteous man and acquainted with the true God, but among his

¹² At the Congress of Orientalists in Paris, in Sept. 1897, a certain Father Schiel announced the discovery of a still more ancient fragment relating to the deluge. This bears the name of King Ammizaduga, and dates as far back as B.C. 1990, or about the time Abraham was born (2008) and Noah died, and even this venerable relic of the past purports to be only a copy of a still older tablet.

children idolatry very soon developed and most probably was a renewal of that "evil imagination of man's heart" which led to the destruction by the deluge. Tradition has it that the wife of Ham belonged to the race of Cain, and it is by no means probable that Noah's children were all of them separate from the evil of the times as he was, and as is expressed in the terms "perfect in his generations." They were saved for his sake, but the story of the earliest years after the deluge as read in the monuments shows a rapid development of idolatry and the worship of heroes, and of sun, moon and stars. It is not easy always to say whether these heroes lived before or after the flood, but the analogy between religion as developed in Chaldea, Egypt and India, strongly favours the view that they were originally antediluvian.

In the same way, there is no need to suppose that art, as it existed after the flood, had no connection with that which had gone before. Noah and his sons brought with them into the new world at least 100 years' experience of the old. For the origin, therefore, of material civilisation, we may carry our enquiry back into the "world that then was." This consideration is

often overlooked. Berossus distinctly declares that the knowledge of art possessed by men at the beginning of the Chaldean Empire, by which we shall see reason to believe that he indicates somewhere before A.M. 500, was equal to that possessed in Babylon at the time he wrote, about 280 B.C.¹³ This is a very curious contrast to modern notions, which exalt the present at the expense of the past, but, as already stated, it is to some extent supported in the remains of these early times, as far as they have survived to our era in the ancient centres of civilisation.

The very general existence of versions of the flood story in widely separated portions of the earth certainly suggests the diffusion of man from a common centre, immediately subsequent to the deluge of which these traditions speak, but we cannot quote all of them with equal weight because of the known late origin of some of these races. For example, the Mexican tradition is very similar to that of the Bible, but Mexican history, as such, begins about 600 A.D., and without knowing whence the first settlers

¹³ "From that time nothing material has been added by way of improvement to his instructions."—Cory's *Fragments*, p. 23. *Eusebius Chron.*, Chap. II.

came we never can tell that their tradition was not an echo of either the Chaldean or the Hebrew record. This objection, however, does not apply to such ancient nations as India and China, as, especially in the former, we can trace the tradition in written form to about 1500 B.C. with fair degree of probability, and in that of Chaldea to about 2000 B.C. The Indian tradition has sufficient agreement with that described in the Bible or Berossus to be accounted for by the common knowledge of a fact, but not sufficient similarity, either in detail or expression, to warrant the belief that it originated in either of the others, or either of the others in it.

The Indian version bears the stamp of tradition, whatever was its origin, for the story is localised and almost entirely emblematical. That of Chaldea is confused in ideas associated with polytheism, though it keeps to the locality admittedly associated with the earliest centres of the human race, and relates details that at least claim to be natural and within the range of ordinary experience. The Bible account is on quite a different plane to either. While including the supernatural, it is in strict harmony with common sense in its details, and is the only

existing narrative of the flood which bears internal evidence of its being related by an eye-witness. This marks it out as by far the most likely to be the original.

But there is another circumstance to be noted which points strongly in the same direction. We can trace a close correspondence in the chronology of the world's history as told in the Bible and in the mythology of India, Chaldea, China, and, as we shall see by-and-bye, of Egypt. This correspondence leads up to a point, that point a destructive flood, from which the history proceeds side by side for a very short period and then diverges absolutely. The identity ceases at the very point which the Bible story, with its clear though condensed statements, indicates as inevitable. This evidence is much simpler, and has far more to rest upon, than the vague assumptions by which the early part of Genesis is discredited. We may not have reached the point of absolute demonstration, but surely, without taking into account even the spiritual value of the book itself, and the use made of it by the Lord and His apostles, the balance of probability will lie on the side of the truth of this deluge story and the history which precedes it.

CHAPTER IV.

ARCHÆOLOGICAL EVIDENCE.

IT is very little use insisting upon the reliability of the dates of Genesis, unless we first deal with the principal archæological objections that are raised to them. Many of the other objections are based upon theories which are entirely unproved, though, it may be, widely accepted. For example, the contention that the progress of the arts or the formation of language demand long periods for their gradual development, is only based on theory, and is best met by facts. Now, the evidence is overwhelming that the early ages of human history, as far as we know them, show not an inferior stage of development; but very high attainment in art and literature.

The excavations at Nippur and other very ancient centres reveal increasing beauty in their sculpture and engraving as we go back. They used the arch and systems of drainage in their buildings, and handled masses of material that

would tax the ability of the modern engineer. The stone work of the great Pyramid of Gizeh¹ is pronounced by Professor Flinders Petrie to be equal to optician's work at the present day, for the joints in the masonry are so fine as to be scarcely visible, and its passages so truly pointed to the north as to very far exceed the accuracy of the magnetic needle. Egypt could make linen much finer than we make to-day, and the Code of Hammurabi, nearly 2000 B.C., exhibits laws as carefully compiled as any we know. If it be argued from this, as it is indeed, that this merely throws the date of crude workmanship and thought further back, the obvious answer is there is no *evidence* to support such a theory. As Max Müller says, "As far as we can trace back the footsteps of man, even to the lowest strata of history, we see that the divine gift of a sound and sober intellect belonged to him from the very first, and the idea of humanity emerging slowly from the depths of an animal brutality can never be maintained in this century."*

If such is the evidence of human remains we need hardly spend further time in contesting a

* *Selected Essays on Comparative Mythology*, p. 306.

theory which, though it may seem inherently probable, is unsupported by definite facts, and certainly opposed to existing records. It is otherwise with apparently adverse testimony based upon actual inscriptions dug out of the earth, and telling of the thoughts and knowledge of men in far ancient times and in the earliest centres. These demand very careful investigation. It is quite true that the scribes who dictated the writing, or the workmen who executed it, were liable to error, but it is a poor argument merely to allege mistake in an inscription without any explanation that may be tested by evidence, as to how such a mistake occurred. As a rule, archæologists fully recognise this, but there are still notable instances, both in Assyriology and Egyptology, of such reasons being given to reconcile discrepancies with favourite theories. It is exceedingly undesirable that this course should be followed by defenders of the dates of Genesis, and, indeed, scientific men, who sometimes tolerate it on their own side, take good care to ridicule it when used by believers for this purpose.

Now, we have found two great obstacles to belief in the Biblical scheme of chronology, arising

first from Babylonian inscriptions and secondly from Egyptian lists of kings; and, therefore, before going further, we propose to deal briefly therewith, leaving more detailed study of the chronology for later chapters.

Up to the beginning of the present year (1908), the accepted chronology derived from Babylonian sources placed Hammurabi, who was the sixth king in the First Babylonian Dynasty, at about 2200 B.C. The discovery of a number of tablets of "Chronicles concerning Early Babylonian Kings," has changed this. We are indebted to Mr. L. W. King, of the British Museum, for a work bearing the above title, in which it is clearly shown that a list of kings which had been taken as the Second Dynasty, and as following the First, was really contemporaneous with it, so that now, in the words of Mr. King, "We may conclude that the chronology of the Pentateuch with regard to the length of time separating Abraham from Moses exhibits far greater accuracy than we have hitherto had reason to believe." So far then—that is, as far back as about 2000 B.C., archæology confirms the dates of the Bible, and especially of Genesis xiv.

Mr. King, however, goes further; he expresses

the opinion that the scribes of Nabonidus made a mistake similar to that modern archæologists had made up till now, by adding lists of kings together which were really contemporaneous, and so had arrived at the date given by Nabonidus of 3200 years before him. He thinks there was probably but a very short time after all between the time of Ur Gur and Dungi, usually assigned to about 2500 B.C., and that of Naram Sin. The subject is still *sub judice*, but the evidence for 3750 B.C. as Naram Sin's date is completely shaken.

This inscription of Nabonidus is worthy of careful attention. Nabonidus was the father of Belshazzar, the last king of the Dynasty of Nebuchadnezzar, and seems to have been devoted to the study of archæology and to the repair of temples. The particular inscription which interests us just now records the repair of the temple of the Sun at Sippara, and is thus translated by Dr. Budge:

“I dug down (for) the foundation stone of (D.P.) Naram Sin, the Son of Sargon, which for three thousand two hundred years no king my predecessor had seen.”

The accepted date for Nabonidus, 550 B.C.,

added to this, carries the period of Naram Sin back to 3750 B.C., and this has been adopted as the basis of calculation for the dates of all remains of his time, and of his father, Sargon of Agade.

Now, in 1905, I published a pamphlet not only assailing the received understanding of this inscription, but showing another way by which these figures may have been arrived at in complete harmony with the story told us by Berossus, and the most recent discoveries not only do not invalidate it, but strongly support it.

Briefly stated, the argument is as follows.¹

Berossus, who was a Priest of Bel in the Third Century B.C., has left us some fragments, preserved in various ancient documents quoted by Eusebius, in which he enumerates the kings of Babylon from the time of the flood thus :

“ After the deluge Evexius held possession of the Country of the Chaldeans during a period of four Neri, and he was succeeded by his son Cosmosbelus, who held the empire four Neri and five Sossi. But from the time of Xisuthrus and the deluge to that at which

¹ I have revised the figures of my pamphlet, in harmony with subsequent investigation, which has slightly modified the first conclusions.

the Medes took possession of Babylon there were altogether 86 kings . . . the duration of the reigns of all which kings comprehends a period of 33,091 years. But when their power was thus firmly established, the Medes suddenly levied forces against Babylon to surprise it and to place upon the throne kings chosen from among themselves."

"He then gives the names of the Median Kings, eight in number, who reigned during the period of 224 years; and again eleven kings during . . . years; then 49 kings of the Chaldeans, 458 years; then nine kings of the Arabians, 245 years. After all these successive periods of years, he states that Semiramis reigned over the Assyrians, and again minutely enumerates the names of 45 kings, assigning to them a term of 526 years, after whom he says there was a king of the Chaldeans whose name was Phulus." (Cory's Fragments 2 Ed. p. 59.

We know who Phulus was now. He was the Pul of 2 Kings xv. 19, and entitled Tiglath Pileser III. He came to the throne of Assyria 745 B.C., but did not conquer Babylon till 729 B.C.

Unfortunately the blank against the 11 kings of the dynasty subsequent to the Medes spoils the value of the list. In the margin of the Armenian version of this extract the amanuensis has written 48, and 234 against 224 for the Median kings. Accepting his version this works out thus:

Tiglath Pileser III. ...	...	729 B.C.
45 Kings ...	...	526 years.
9 Arabians ...	...	245 "
49 Chaldeans...	...	458 "
11 Kings blank in MS.	...	48 "
8 Median Kings ...	...	224 or 234
<hr/>		
The Median Invasion ...	...	2230 B.C.

Now, Canon Rawlinson, in his *Herodotus*, gives various lines of argument, quite outside of Berossus, for the date of the Median invasion, and arrives at 2231 B.C.; not very different.²

An inscription of Assurbanipal, about 650 B.C., says that he recovered an image carried away by the Elamites 1635 years before—that is, 2285 B.C., but it does not follow it was the same invasion; there are plenty of such raids on record. In any case, Berossus is not much out as far as

² *Rawlinson's Herodotus*, vol. I., p. 423.

the beginning of the rational dates are concerned. But note, of the 3200 years before Nabonidus (534 B.C.) only about 1700 fall within them, and the 1500 left are part of that extraordinary 33,091 years which came between the Median invasion and the flood. If these years are purely mythical, we need not trouble further about this inscription in its contradiction of the dates of Genesis, but from the beginning of the Christian era there have been writers who contended that they were *days* and not years.³ How would this work out? The Babylonian year in early times was 360 days; 33,091 divided by 360 is a little over 91 such years. Of course, 33,000, is a round number, and it looks as if the 91 were added to give the appearance of accuracy, and at the same time reveal to the initiated the true meaning. If 1500 of the 3200 years of Nabonidus were days, then the whole was about (for 3200 is, of course, a round number) 1704 years, according to the above table. The roundness is again conspicuous, and it represents B.C. 2234, about four

³ "Africanus thought the Sarus was not more than 10 years by setting down 99 years for the reign of one of the kings, which in other copies was 10 Sari"—Dr. Jackson's *Chronology*, vol. I., p. 200. See also Note 4, Chap. II.

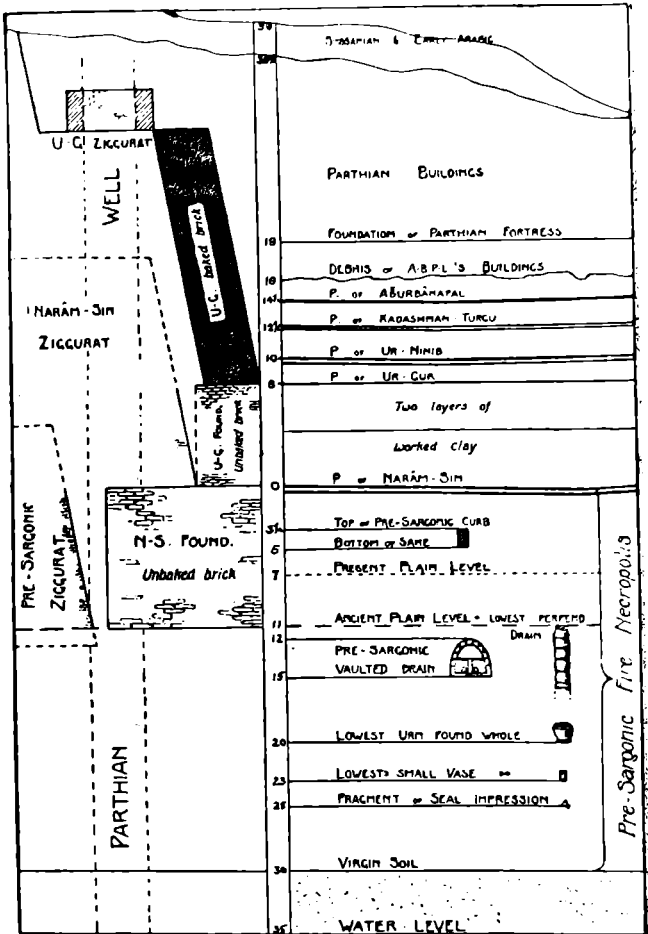
years before the Median invasion which Berossus says was B.C. 2230, or 2240. It was the opinion of the late George Smith that the chronology used by the Chaldeans in their inscriptions was the chronology of Berossus,⁴ but in any case the result is so near to the latest and best results of examination of the actual remains that it may be accepted till proved incorrect.

An interesting and crucial test of this view is afforded by the excavations at Nippur. In his deeply interesting work, "Recent Excavations in Bible Lands," Professor Hilprecht has given photographs and a diagram showing the whole of the 60 feet of strata, with pavement below pavement and three zuggurrats or stage towers one below the other.⁵

The pavement of Naram Sin comes in the very middle. Now, if the date of the middle is 3750 B.C., the virgin soil might be said to be about 7500 B.C., but if it is only 2234 B.C. the utmost would be 4500 B.C. Some 20 feet, however, of the lower 30 feet is below the *ancient* level of

⁴ Article by Geo. Smith. *Transactions*. Society of Biblical Archæology, 1874, p. 363.

⁵ *Recent Excavations in Bible Lands*. Pro. H. V. Hilprecht, p. 549.



Section of the Stage-Tower and the Adjoining Southeast Court

Restored and designed by Hilprecht, drawn by Fisher

A-B-P-L. Ashurbânupal. N-S. Nurâm-Sin. U-G. Ur-Gur. P Pavement. ■ Baked Brick. ≡ Pavement of two layers of bricks. Measurements given in feet.

From Prof. Hilprecht's *Explorations in Bible Lands*, and *Proc. Soc. Bibl. Arch.*, Dec. 1906.

the plain. Is this ancient level the antediluvian level or the post-diluvian level? For the flood must have come somewhere across that section if the dates of Genesis are to be relied upon. The excavations may not clearly answer that question, but as I have shown in my article on Pre-Sargonic times in the Proceedings of the Society of Biblical Archæology, December, 1906, the large amount of worked clay used subsequently and traced by Professor Hilprecht to a wall of crude bricks which had disintegrated, and immediately beneath which are found pre-Sargonic remains,⁶ is quite in harmony with the suggestion that about 90 years before Naram Sin the great dividing line of ancient history was drawn, and that the earliest zuggurrat of Nippur was antediluvian. The remains for the uppermost 450 years are $4\frac{1}{2}$ feet deep, and, therefore, represent one foot per century. If Naram Sin was 3750 B.C., the next $14\frac{1}{2}$ feet for 3100 years show only 5.6 inches per century, but if, as I have contended, the real date is about 2234 B.C., then the 1600 years are 10.87 inches per century; very much nearer to the average for the known period.

⁶ *Recent Excavations*, p. 493.

In view of these facts, I think we are justified at least in giving further consideration to the dates of Genesis.

Before we do so, however, we must give at least a hasty glance at the alleged 5000 B.C. history for Egypt, for in some respects this is more difficult to reconcile with Scripture than the Babylonian chronology. There is no room for a flood in Egyptian history—at all events, not until before Menes.

Babylonian bricks were made of clay often baked in the kiln, but even crude bricks would, by immersion, only be turned to a mass capable of resisting water, to some extent, at least. Egyptian bricks, on the other hand, are made of Nile mud and would be incapable of surviving the deluge in any form, unless protected.

We are not likely to find in Egypt, as at Nippur, antediluvian remains under disintegrated brick, though some might be found in Upper Egypt under special conditions.

The Egyptian tradition, as preserved in Eusebius, and "restored" by Lepsius, says there were ten kings before Menes.⁷ This is quite in line with the testimony of other nations for ante-

⁷ *History of Egypt*. Petrie. Vol. I., p. 1.

diluvian times, but a *restoration* of Eusebius by Lepsius can hardly have great authority.

Manetho's chronology, as has been said already, gives us a list of about 550 kings in 30 dynasties, from Menes to the time of the Ptolemies, and a nominal total of 5471 years, thus claiming to reach back to about 5750 B.C. Before that were 1185½ years for the gods and demi-gods; or 6656 in all. Now, comparison with other ancient systems leads us to understand by the gods the antediluvian patriarchs, and the total 1185½ is remarkably near to 1182½, which is the number of solar years equal to 1200 years, which, as we shall see presently, was the antediluvian period of Berossus. If this is so, the whole of Manetho's 500 kings, beginning with Menes, were post-diluvian.

Egyptologists very greatly differ as to their chronology, but for the most part they base it upon Manetho. There is another Egyptian authority, called the Old Chronicle,⁸ which begins the history with the Sixteenth Dynasty, and

⁸ Hales in his *Chronology* says: "The old *Egyptian Chronicle* was framed by the Persians from ancient records, B.C. 350, and used by Manetho in his *Egyptian Antiquities*."

makes all before that dynasties of the gods.⁹ This is a far more probable scheme, though plainly artificial, for it is built on a system of 25 Sothic Cycles (36,525 years), which is an astronomical impossibility.¹⁰ This Old Chronicle is usually pronounced by Egyptologists a forgery, a condemnation hardly deserved, but which, of course, conveniently gets it out of the way. The following list of dates is taken from Cook and Sons' Book of Travel in Egypt, by Dr. Budge. This list, though revealing considerable difference of opinion, is practically unanimous for the purpose for which we are examining it. If the first dynasty was 3892 B.C., the lowest estimate; as far as Genesis is concerned, it might just as well be 5867 B.C., which is the highest. Of course, there are a great many writers who contend for a very different age for the First Dynasty. For example, Mr. William Palmer, M.A., author of "Egyptian Chronicles," makes Menes 2224 B.C.; and Mr. R. S. Poole, in "Horæ Egyptiacæ," gives 2717 B.C. for the same date.

⁹ For fuller investigation of the old *Chronicle*, see Chapters 8 and 9.

¹⁰ I have discussed the problem of the Sothic Cycle, in its relation to Egyptian records, in a paper published on *Proceedings of the Society of Biblical Archæology*, vol. xxx., pp. 95-106.

These were very competent chronologists, but their systems are not just now accepted by Egyptologists.

Dates assigned to the
 EGYPTIAN DYNASTIES OF EGYPTOLOGISTS,
 From Messrs. Thomas Cook & Sons' Book of
 Travel, "The Nile,"
 By Dr. E. A. Wallis Budge.

Dynasty.	Champollion- Figeac.	Lepsius, (in 1858.)	Brugsch, (in 1877.)	Mariette.
I.	5867	3892	4400	5004
II.	5615	3639	4133	4751
III.	5318	3338	3966	4449
IV.	5121	3124	3733	4235
V.	4673	2840	3566	3951
VI.	4425	2744	3300	3703
VII.	4222	2592	3100	3500
VIII.	4147	2522	—	3500
IX.	4047	2674	—	3358
X.	3947	2565	—	3249
XI.	3762	2423	—	3064
XII.	3703	2380	2466	2851
XIII.	3417	2136	2235	—
XIV.	3004	2167	—	2398
XV.	2520	2101	—	2214
XVI.	2270	1842	—	—
XVII.	2082	1684	—	—
XVIII.	1822	1591	1700	1703
XIX.	1473	1443	1400	1462
XX.	1279	1269	1200	1288
XXI.	1101	1091	1100	1110

Dynasty.	Champollion- Figeac.	Lepsius, (in 1858.)	Brugsch, (in 1877.)	Mariette.
XXII.	971	961	966	980
XXIII.	851	787	766	810
XXIV.	762	729	733	721
XXV.	718	716	700	715
XXVI.	674	685	666	665
XXVII.	524	525	527	527
XXVIII.	404	525	—	406
XXIX.	398	399	399	399
XXX.	377	378	378	378
XXXI.	339	340	340	340

The most likely basis for a sound judgment will probably be found to be ultimately the astronomical facts recorded in the Egyptian remains, but at present these are in considerable confusion. There is a fascination about the so-called Sothic Cycle which has certainly misled a great number of enquirers. The Heliacal rising of Sirius, on which it depends, involves some very complex calculations in spherical geometry, and, modified as it is by the precession of the equinoxes, is not at all an easy matter to grasp in all its bearings. Many writers have come to conclusions which the facts do not justify.

In a paper on the ancient year and the Sothic Cycle, in the Proceedings of the Society of Biblical Archæology, March, 1908, I have tried

to show some of the facts which a careful investigation of the problem yields, and I am persuaded myself that certainly not more than one, and probably not one, complete cycle of 1460 years was ever observed, and that could not have actually commenced much earlier than 2600 B.C., and probably much later. It is impracticable to attempt to present the argument in a popular form such as is suited to the present work, but the concluding illustration of that article may be of more general interest.

The Great Pyramid, universally attributed by Egyptologists to Cheops, of the Fourth Dynasty, is dated by various authorities as under; according to Mr. Nash, in "The Pharaoh of the Exodus." Le Sueur takes the place of Champollion in the former list, with whom he very closely agrees:

Le Sueur	...	...	...	4974 B.C.
Lepsius	...	...	...	3426 "
Brusch	...	...	...	3657 "
Bunsen	...	...	...	3229 "
Poole	...	...	...	2352 "
Palmer	...	...	...	1903 "

Now, this Great Pyramid, according to Egyptologists, was a tomb, but R. A. Proctor

contends with very great force that it was built as an observatory,¹¹ and such reliable astronomers as Herschel, Piazzi Smith, Sir Robert Ball, and many others, believe that the so-called entrance passage was constructed at the peculiar angle of $26^{\circ} 18'$ in order to observe the Pole star of the period at its lower culmination. There is practically no other star of sufficient size which could have been the Pole star observed through it for 8000 years before the present time. Astronomers say that this Alpha Draconis, or Thuban, was once very much brighter than it now is, and R. A. Proctor, in his work on *The Great Pyramid*, has shown conclusively that the extraordinary accuracy with which the Great Pyramid is oriented was only possible by such an observation of this Pole star, through such a passage as is found pointing due North. The story of the discovery of this fact is very interesting as told in Mr. John Taylor's work, "*The Great Pyramid, Who built it?*" p. 203:

"On the night of Mch. 21, 1817, Captains Irby and Mangles saw through the long inclined passage of the Great Pyramid, the

¹¹ *Old and New Astronomy*, by R. A. Proctor.
The Great Pyramid, by R. A. Proctor.

Polar star at the period of its culmination. Mr. Caviglia, about the same time, made a similar observation. . . . In 1839 Col. Howard Vyse communicated these particulars to Sir John Herschel, and requested his opinion whether the direction of the passage was likely to have been determined by the polar star at the time the Pyramid was constructed. His reply is given in the following extract of a letter to Col. Howard Vyse, published by the latter in the second volume of his work 'On the Pyramids of Gizeh':

'Four thousand years ago,' says Sir John Herschel, 'the present Polar Star, *a Ursæ Minoris*, could by no possibility have been seen at any time in the twenty-four hours through the gallery in the Great Pyramid, on account of the precession of the equinoxes, which at that time would have displaced every star in the heavens from its then apparent position on the sphere by no less a quantity than $55^{\circ} 45'$ of longitude, and would have changed all the relations of the constellations to the diurnal sphere. . . . The pole of the heavens at the erection of the Pyramid must have stood very near to the star *a Draconis*,

i.e., $2^{\circ} 51' 15''$ from it to the Westward, as we should now call it. *A Draconis* was, therefore, at that time the Pole star. . . . In short, speaking as in ordinary parlance, the passage may be said to have been directly pointed at *a Draconis* at its inferior culmination.' "

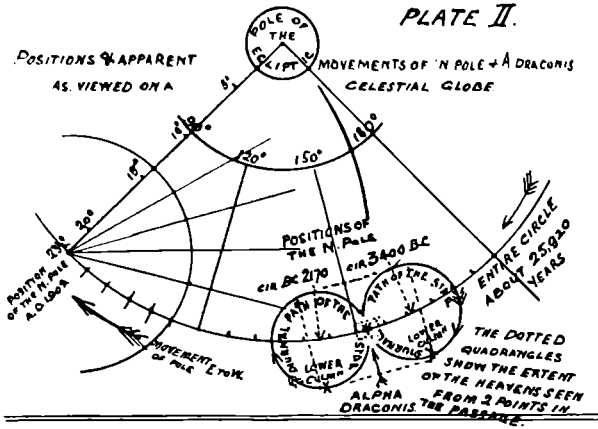
Since then corrections have been made in the measurements of the angle, which proves to be $3^{\circ} 42'$ from the pole at that latitude, and 2170 B.C. was fixed by Piazzi Smith as the most probable date for the erection of this Pyramid.

Still later, Mr. R. A. Proctor called attention to the fact that at 3400 B.C. it was equally true that the same star would be visible through the passage, and as this suited the views of Egyptologists far better than 2170 B.C., it has been very generally adopted, though there is a surprising variety of dates given, even in astronomical works, for this observation.

The accompanying diagram gives the elements of the problem, and is compiled from the best authenticated and latest data on the subject.

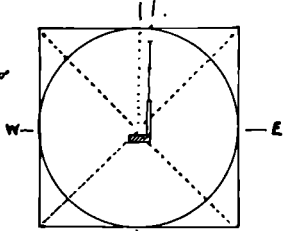
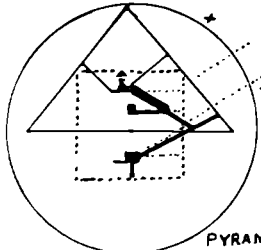
The two rectangles, one within the other, are the view of the heavens afforded by the dimensions of the entrance passage, at the junction

PLATE II.



GREAT PYRAMID, vertical section showing angle of passages. LATITUDE 30° N.

GREAT PYRAMID, in Plan. showing position of passages out of the Centre.



PYRAMID DATA

ENTRANCE PASSAGE	
Angle with horizon	26° 18'
Angle below Pole	3° 42'
Angle of view at 63ft	7° 7'
Do from lowest Point	2° 0'
Height of Passage	47.0 inches.
Width of Passage	41.5 do

S. inches.

Side of PYRAMID BASE 9120.
 Passage E of Centre 294.
 Circumf of Circle 28,651.

YIELDING AN ANGLE WITH CENTRE
 of 3° 42'.

with the ascending passage, and at the bottom near the so-called sepulchral chamber, and are calculated by Sir John Herschel at $7^{\circ} 7'$ and 2° respectively.

Now, the question is, Do we find anything in the construction of this passage to indicate which of the two, 2170 B.C., or 3400 B.C., was the date of its erection? Yes, we do! The passage is not in the centre of the North side, but 24 feet 6 inches East of it. If the central line is taken as pointing due North, as it naturally would be, then it points the true pole to the *West*, not to the East, of the star, and a line from the centre to the entrance of the passage makes the *exact angle* $3^{\circ} 42'$, which would indicate the position of the star in relation to the pole by observation. I am not aware that this has ever been pointed out before. The astounding conclusion is, not only that the relation of the passage to the central line indicates 2170 B.C. as about the date of erection of the Pyramid, but that it was specially *intended* so to indicate it, for there would be no actual difference in the *view* of the star effected by the lateral displacement of the passage; and if this was intended—and surely it must have been, for the angle is a very singu-

lar one—then the builders of this Pyramid were fully cognisant of the revolution of the pole of the earth round the pole of the ecliptic, and of the nature of the phenomenon of precession, and not only of the difference in length between the Solar and Sidereal years.

Of course, this explanation directly challenges the received Egyptian chronology, and at the same time agrees exactly with the dates of Genesis. It brings the era of Cheops about 140 years after the beginning of what we have called the "rational" figures of Berossus, and allows 178 years from the flood for Egyptian history before the Fourth Dynasty. If it stood alone, it would certainly not compel conviction, but it does not. Wilkinson—surely a good authority on Egyptian matters—considered many of these Dynasties of Manetho were contemporary. All Egyptologists admit that the chronology based on Manetho includes two dark periods in which scarcely any record of Egyptian history is forthcoming. These are from the VIIth to the XIth and the XIIIth and XIVth, described by Professor Flinders Petrie as periods of great obscurity.

Manetho gives no names of kings for Dynasties VII., VIII., IX., X., XI., XIV. and XVI.; and the

XVth and XVIIth are confused in the manuscripts. It is not till the XVIIIth Dynasty and subsequently that his list is really confirmed. None of the other lists found, such as the Turin Papyrus, and the lists of Abydos and Sakkara, are older than the XVIIIth Dynasty, if so old.

Professor Flinders Petrie, in his *History of Egypt*, Vol. 1., p. 27, after commenting on the age of these lists, says of the first three Dynasties: "How then do these actual remains accord with the State history drawn up in the lists? We are asked to believe that 27 kings reigned during a space of 779 years, and yet we cannot find more than half-a-dozen tombs that can be attributed to this long period, while ten or twenty times this number could be assigned at once to either of the succeeding Dynasties."

We shall have to return to a further and closer examination of both the Babylonian and Egyptian chronology. All we have been attempting as yet is to show that the basis of the received systems is not sufficiently secure to lead to the rejection of the dates of Genesis without further examination.

POSTSCRIPT.

It is very significant, and absolutely confirms the contention of this chapter, that a New Edition of the Catalogue of Babylonian and Assyrian Antiquities in the British Museum was issued last year, in which all dates before 2500 B.C. are withdrawn, on the ground of uncertainty pertaining to the Nabonidus inscription. There is no doubt whatever that the oldest remains of, say, Nippur and Tello, date back earlier than 2348 B.C., that is, Ussher's date for the flood; but it has yet to be proved that these are not antediluvian. In any case the earliest date now suggested for these, and the beginnings of Sumerian civilisation, is 4000 B.C., and it is admitted that the present knowledge does not warrant us to assign dates to these earliest remains. We have not to think of the world after the flood as an absolutely new beginning; knowledge of the old world and its ways, both good and bad, was possessed by the survivors, and doubtless made use of to a large degree by their posterity.

CHAPTER V.

THE ALLEGED BABYLONIAN ORIGIN OF THESE DATES.

SOME, if asked as to the origin of these dates of Genesis, would at once end all enquiry by asserting the belief that they were the subject of a divine revelation to Moses.

They nowhere claim such an origin, however, and it is better to examine all the facts at our disposal so that our judgment on this point may be, at least, an intelligent one.

The way in which they are introduced to us in the formula, "This is the book of the generations," certainly suggests to any candid mind that, whoever was the compiler, they are themselves quoted from some existing document. Such documents are very likely to have existed even in the period attributed to Moses; for the assumption of the non-existence of writing in

the earliest times is quite unproven, and we know how common it was 2000 B.C.¹

The possession of historical records by Noah is asserted in the Chaldean account of the deluge transmitted by Berossus, and though we have no actual proof of it there seems no inherent improbability in the statement. The more important question is, "Did the present list of dates which we are studying get into our Bible from Chaldean, Egyptian, or Hebrew sources?" The last is most in accord with respect for the truth of the book of Genesis as a whole, but the fact that Moses was "learned in all the wisdom of the Egyptians," suggests a possibility that he may have found in the Egyptian archives extant in his time some lists of early dates from which he compiled those of chapters v. and xi. in Genesis. So far as we have examined what we know of Egyptian records, this suggestion is absolutely contradicted. We shall see more fully by-and-by that Manetho's figures can be traced back, and confirmed by actual monuments of

¹ See Whiston's *Note on Josephus I.*, 3, 3.—"Josephus here takes notice that these ancient genealogies were first set down by those that then lived, and from them were transmitted down to posterity, which I suppose to be the true account of that matter."

about the XIXth Dynasty, which was not far from the era of Moses. So that it is clear upon comparison that the "Wisdom of the Egyptians" on the subject at that period was very different from the dates we are examining. It is, therefore, impossible to suppose they were derived from Egypt at that, or any subsequent period we know of, though we shall afterwards find some confirmation of them even there.

Modern criticism, however, asserts very confidently that they were derived from Babylonian sources about the fifth century B.C. Of course Abraham came from Ur of the Chaldees and might have handed on to his posterity information derived from this source, though, if the Bible story is true, it would seem to be far more probable that he would, as the direct representative of the line of Shem, then living, have access to far more trustworthy data, but as it is suggested that the figures handed us by Berossus as extant in Babylon in the third century B.C., were really those on which these extracts from the so-called Priestly Code were compiled, we are able to examine the theory.

Happily we have these dates of Berossus with very fair certainty, and our task in this chapter

will be to compare them with those of Genesis.

There are, too, very obvious reasons for considering this latest period the least likely of any to have witnessed such a transfer—namely the natural feelings of the Jews towards their conquerors and hatred of their idolatry, together with the evident fact that Genesis v. and xi. are quite different in expression and form from the Babylonian records as then understood, for we have seen how Nabonidus read them in the inscriptions of the sixth century B.C. We will, however, waive these objections for the present, as well as the strong assertions of Josephus as to the rigid care exercised to preserve the sacred records in their original form,² and pass on to make careful comparison between the Chaldean and Hebrew stories for the period in question.

It is worth doing, for no one can fail to be struck at once with the very close resemblance. We seem to be living in the same world when we read Genesis side by side with Berossus or the tablets. There is the deluge plainly enough, and it is the same deluge. Who can doubt it? Of course the names are different. Noah is represented by Xisuthrus, but the ark is there as a

² Josephus contra Apion I., 6-8.

ship. The flood is the work of the gods. The cattle and the wild beasts are saved in the same vessel. The dove and the raven are sent forth, and their sending is described in almost identical language:

“The dove went forth, it flew about, it returned because there was no resting place. . . . I sent forth a raven, it left and the decrease of the waters it saw, it ate, it floated, it returned not.”³

The ship rests at last upon a mountain and the gods “sniff” the sacrifice with pleasure.

This deluge story and also the creation story, which in some respects resembles Genesis i., was found inscribed on tiles in the library of Assurbanipal, representing a period of about 750 B.C., but there is good reason for tracing it to a far earlier date, perhaps even, as it is said, to 2000 B.C., long before Moses could have written Genesis.⁴

This ancient record was still treasured at Babylon 280 B.C., when Berossus gave to the world the identical story of the deluge which has since

³ The Deluge Story in 11th Tablet of the Gilgames Nimrod Epic in *The First of Empires*. W. St. Chad, Boscowen, p. 338.

⁴ See Chapter II., Note 12.

been dug up at Nineveh in comparatively recent times.⁵

This close correspondence gives to the other statements of Berossus an importance they would scarcely otherwise possess. We must not only observe them, but must do so with care. His general statement is almost startling, agreeing as it does, so closely with the Genesis narrative; for he tells of 10 kings before the deluge, the last of whom was Xisuthrus, which is the very number of the generations from Adam to Noah.

When we come, however, to the chronology, it is at first sight disappointing. He says: "The term of their reigns was 120 Sari." We are apparently indebted to the author who quotes him for the explanation, "Now a Saros is esteemed to be 3600 years, a Neros 600, and a Sossos 60." The result is a period of 432,000 years for the reign of 10 kings, from Alorus to the deluge.

A recent article in the Jewish Cyclopædia makes short work both of Berossus and of Genesis, by stating, as if it were a known fact, that the Jews took the fifth part of this number, namely

⁵ Cory's *Ancient Fragments*, 2nd Ed., pp. 27, 34. Syncel Chron. 28, 38. Euseb. Chron. 5, 8.

86,400, which represents the seconds in a day of 24 hours, and, reckoning them as weeks, obtained 72 periods of 23 years each, that is 1656 years; each 23 year period containing 1200 weeks.

This is exceedingly ingenious, but one would like to have some better reason for it than Dr. Oppert gives. Its only effect, if accepted, is to destroy at one stroke the value of both the figures of Berossus and those of Genesis. It can scarcely be called an explanation and it is rendered extremely improbable by the fact that 1200 weeks make 23 years neither in the Jewish lunar year of 354 days, nor the Chaldean year of 360 days, but require for any accuracy the Mean Solar year of modern science, 365.24224 days.⁶

There is, however, a very simple explanation which saves to us both records, establishes a substantial agreement, and, at the same time, gives the key by which other similar statements find a rational meaning.

⁶ 1200 weeks=8400 days; 23 *tropical* years=8400.6756 days; 23 years of 360 days=8280 days. The fraction is necessary to produce exactitude, but if such a scientific basis was taken for the calculation it would show that in 72 such periods there would be an error of nearly seven weeks.

It is simply to take the 432,000 as *days*, instead of years, as has already been suggested in chapter iv. From very early times indeed they have been so understood. Alexander Polyhistor (second century B.C.), according to Dr. Jackson; says that the Chaldeans reckoned a Saros to be 3600 days, a Neros 600 days, and a Sossos 60 days.⁷ They may have done so for some purposes, but there is no doubt whatever that they usually called them years, and not days; for Cicero in his *De Divinatione* remarks, "We must also condemn the Babylonians and those who, in the region of Caucasus, pretend to have observed the heavens and courses of the stars, we must condemn them, I say, of folly, or of vanity, or of impudence, who assert that they have preserved upon monuments, observations extending back during an interval of 470,000 years."⁸

In these days we should quite agree with Cicero that either 432,000 or 470,000 *years* are quite absurd claims as monumental dates, but the Babylonians could discern that as easily as we can

⁷ Jackson's *Chronological Antiquities*. Vol. I., p. 200.

⁸ *Cicero de Divinatione*, translated in Cory's *Ancient Fragments*, 2nd Ed., p. 66.

and doubtless had some hidden meaning in these imposing figures. The question for us is, Would this simple explanation of days for years make the record reasonably credible, or are we to regard the long figures as merely covering ignorance?

First, it should be noted that the period covered by them closely corresponds with that which ended, according to Genesis, with the confusion of tongues and the consequent dispersion of mankind from Babylon. The records of Berossus are just as clear for this event as for the deluge, but we need not wonder that the antecedent period should be one over which a veil of mystery was thrown. It was the period in which those lived who, in Egypt and India, as well as in Chaldea, were worshipped as gods, and this, in itself, would lead the priests to obscure the history. It is possible that the words for day and year changed places when the language was confused, and if so the change is readily accounted for; but there is a further reason which is thoroughly scientific. The Hindu cycle of 60 years seems to have begun its reckoning about A.M. 829, for 60 cycles ended 425 A.D. and so completed the great cycle of 3600

years.⁹ Many traditions point to this date as one of great advance in astronomical science and very probably as the origin of the 360-day year. When we investigate this 360-day year from the purely astronomical side we see that it most likely originated as a vague year by which to ascertain the true length of the tropical and sidereal years,¹⁰ and if so, the best way to use it would be by a total of days, from which it would be easy to reckon a date, either by the oldest lunar reckoning, the true solar reckoning, or any other approximation which might have been adopted, such as the 365-day vague year of the Egyptians, or the 360-day year of the Chaldeans, with two intercalated months in each 12 years.

⁹ Mr. Legge in *The Shu King*, vol. III., *Sacred Books of the East*, p. 20, says: "In the Shu itself, the Cycle is used to chronicle days and days only." "All scholars in China, whether they call in question the origin of the Cycle or not, now agree in saying that the use of the Cyclic characters to chronicle years was not the ancient method, and did not begin earlier than the time of the Usurper Mang, A.D. 9-22." This is testimony to the ancient usage in numbering days. The Cycle was so formed as to count groups of days or years up to 60 groups, but according to the Yüeh Ling, Book 4, p. 249, when applied to days the Cycles included three months, that is 90 days instead of 60.

¹⁰ We may imagine that they used the 360-day year in the following fashion:—Noting the position of a star at the equinox, they might count the days, or rather the nights, till 365 times

Even now, when comparisons are made between lunar and solar, or sidereal reckonings, it is necessary to reduce all periods to days, for the day is the natural unit obvious to the most cursory observer.¹¹

These considerations suggest an adequate reason for taking the 120 Sari of Berossus to mean 1200 years of 360 days each, or 1183 mean solar years nearly, but the next figure in the table, 33,091, is a strong confirmation, if not an absolute proof of the correctness of this solution.

The number has the appearance of great accuracy, but closer inspection suggests that it is really a round number 33,000, with 91 added. The reason for adding the 91 is soon apparent

360 days had passed, then in the following or 366th period of 360 days note the night on which the star is in the same position as at the commencement. It would occur on the 92nd night, while just five days before that the equinox would be indicated by the sun setting due West; 365½ years of 360 days are the same thing as 360 years of 365¼ days, so this method, by giving the difference between the 360 Sidereal years and the 360 Tropical or Solar years as five days, would indicate, with considerable accuracy, the rate of the precession of the equinoxes computed at the present time by modern methods, as five days in 359 years or 25,868 years for the entire circle.

¹¹ The difficulty of naming a date, without counting the days, will soon be proved by attempting to find a Julian date before the adoption of the Gregorian year.

when we divide 33,000 by 360. The quotient is $91\frac{2}{3}$. The 91, therefore, indicates the number of 360-day years in the round number 33,000, or 90 mean solar years. There is another reading for this number, however, 34,080; which, at first sight, seems to lose the clue altogether. It is, however, $33,000 + 1080$, that is, three years of 360 days added to the 33,000. The Hebrew Bible has this three years in exactly the same place. Arphaxad was born two years after the flood, and, if after the flood means after it had ended, the three years are complete. It is remarkable how often these three years are overlooked in modern chronological estimates. We do not know whether Berossus had already included them or not. Having dealt with the most obvious difficulty, we may now proceed to examine the chronology of Berossus as an account of the world history as a whole.

The accompanying table sets it forth exactly as we have it, side by side with several suggestions by which it is made complete, and we will deal with these suggestions in due order and explain how this wonderful agreement with the Hebrew figures is brought about.

THE CHRONOLOGY OF BEROSSUS.

Berossus as quoted from Alex. Polyhistor in the Armenian Edition of Eusebius.	Interpretations with various values for the missing figures of the 11 Kings.			Ussher.
<p>To Phulus (Pul) 729 B.C.</p> <p>45 Kings ... years 526 526</p> <p>9 Arabian Kings " 245 245</p> <p>49 Chaldean Kings " 458 458</p> <hr/> <p>11 Kings. (Note in Margin of MS. 48) ... 1958 B.C. 1958 B.C. 1958 B.C.</p> <p>8 Median Kings (234) " 224 48 79 } 300</p> <p style="text-align: center;">The Median Invasion</p> <p>86 Kings after the flood " 33,091 224 221 } 224</p> <p style="text-align: center;">(as days=91 years of 360 days each or 90 solar years).</p> <p style="text-align: center;">(Alternative reading 34,080).</p> <p>The Flood 2230 B.C. 2258 B.C. 2482 B.C.</p> <p>10 Kings before the Flood 120 Sari=432,000 90 90 90</p> <p style="text-align: center;">(as days=1200 years of 360 days or in solar years)=</p> <p style="text-align: right; margin-right: 20px;">466,546</p> <p>Cicero says 470,000 or 473,000.</p> <hr/> <p>Pliny quotes Berossus for the origin of letters 474 474 474</p> <p style="text-align: center;">(Alternative reading 480,000).</p> <p>3976 B.C. 4004 B.C. 4228 B.C.</p>				<p>1st Babylonian Dynasty.</p> <p>Median Kings.</p> <hr/> <p style="text-align: center;">Ussher. 2348 B.C.</p> <hr/> <p style="text-align: center;">1656</p> <hr/> <p style="text-align: center;">4004 B.C.</p>

First of all it may be observed, 729 is added, to bring the list up to the Christian era. This date is undisputed. Berossus carries his list of kings on to Phul or Pul. We now know that this was the title of a king of Assyria, otherwise known as Tiglath Pileser III., who became king of Assyria B.C. 745, conquered Babylon B.C. 729, and died B.C. 727. As Berossus is giving the Babylonian history, 729 B.C. is obviously the correct number of years to be added. We will next deal with the number placed last in the table, column 1., 480 years. It is generally admitted that something should precede the 120 Sari, but the evidence is not quite clear what this number is. We have taken the 480 from the statement of Pliny, 1st century A.D., which runs thus :

“ Epigenes, a writer of first rate authority, informs us that among the Babylonians were preserved observations of the stars, inscribed upon baked tiles, extending to a period of 720 years. Berossus and Critodemus, who are the most moderate in their calculations, nevertheless extend the period of the observations to 480 years. Whence may be in-

ferred the eternal use of letters among them."¹²

It is as a reference to Berossus we have to deal with this, and it must be borne in mind that Pliny was arguing respecting the *origin of letters*. He concludes that if Berossus is to be believed, there never was a time when they were ignorant of the art of writing. We must, therefore, place the 480 *before* the 120 Sari, or it would not answer to the conditions. That the origin of letters *must* belong to the period *before* the flood is certain, for Berossus records that the records of the antediluvian times were buried at Sippara by Xisuthros, and dug up by him after the flood. Epigenes seems to have thought he meant 480 deducted from the 1200 years represented by 432,000 days, for he gives 720. But Pliny did not so understand it, to him the 480 of Berossus is equivalent to *from the beginning*, that is the meaning of "the eternal use of letters" among them. There are other readings of these figures, namely, 480,000 or 490,000. We have seen that Cicero understood the Babylonians to claim observations for

¹² *Pliny*, Lib. vii. c. 56, translated in Cory's *Ancient Fragments*, 2nd Ed., p. 66.

470,000 years, so this claim is beyond that at all events.

The records of Berossus give 466,000 say, to the Median invasion, add 2258, to bring it down even to the Christian era, and we have only 468,258, still short of Cicero's number, which, however, as a round number agrees very well. As there is no instance of years being expressed in days subsequent to the Median invasion, the only support given to the reading of 480,000 instead of 480 by Cicero's quotation, is to imply a date at least *earlier* than the first of the antediluvian kings. We think, therefore, it is very reasonable to place it as we have, and there is great confirmation for this view in the fact that it makes the antediluvian total exactly the same as that of Genesis. For if these figures through Babylonia and through the Bible are independent of one another their agreement points to their being records of the same original facts.

Returning to the list of Babylonian figures, the most difficult figure to supply is that to fill the unfortunate gap against the 11 kings following the Median kings. If we took the average for the length of reigns in the rest of the time, we should supply 144; but this would, after all,

be only a guess. The Armenian MS. of Eusebius, to which we are indebted for these figures, supplies 48 in the margin, and also 234, instead of 224, for the previous figure. It is said to be in the same handwriting as that of the writer of the rest of the MS., but that, of course, does not suggest that Berossus knew anything of it.

It is only recently that we have been in a position to fill up the gap from reliable sources. The first dynastic tablet of Babylon consists of 11 kings, who reigned, according to the most reliable records, 300 years, full details of each reign being given. The Second Dynasty, also of 11 kings, for 368 years, is now known to have been contemporaneous with the first. Only one of these, therefore, is available for our purpose. The question arises, As this is called the First Dynasty of Babylon on the tablets, does it include the eight Median kings, or follow them? In the first case we may imagine three added to the eight and totalled 11 in the list of Berossus, and that this unusual method gave rise to the misunderstanding and the blank. In the table both methods are represented side by side, and it will be seen what difference is caused by the adoption of either. Ussher's date for the begin-

ning is 4004 B.C.¹³ If, however, the 430 years sojourn in Egypt began with Jacob, this would be increased to 4219. So that both may be said to receive some support.

The crucial test of accuracy is found in the date of Hammurabi. According to Genesis xiv. Abram was contemporary with Chedorlaomer, king of Elam, whose power was then in the ascendant, and may possibly have led to the Babylonian kings of his time being included as Median. Amraphel was then king of Shinar, or Babylon, and he is now generally identified with Hammurabi, the sixth king of the First Dynasty. In the later part of his reign he overthrew the Elamite power, though Babylon does not appear to have been free from its influence.

¹³ While there is nothing sacred about this date, 4004 B.C., and F. Clinton makes it 4138 B.C. from almost the same data, it is interesting to know that closely about that period the point on the elliptical orbit of the earth nearest to the sun (the perihelion) coincided with the Autumnal equinox. It is the clearly marked starting point in a circular change lasting more than 20,000 years. Herschel estimated it at 3958 B.C. La Place, who proposed to adopt it as a standard era, made it 4100 B.C. Mr. A. C. D. Crommelin, of Greenwich Observatory, has very kindly re-calculated it for me, on the most approved modern data, and gives it as 4040 B.C., which is very nearly the mean between Herschel and La Place.

Now, Ussher's date for the incident of Genesis xiv. is about 1913 B.C., while, till recently, the date for Hammurabi has been taken at 2150 B.C. The discovery that the Second Dynasty of Babylon in the list of kings was, in part, contemporary with the first, has altered the prevailing opinion and Hammurabi is now placed just about where Ussher places him.¹⁴

This revised date for Hammurabi is in harmony with an inscription of Shalmaneser I. (1320 B.C. cir.), but not in harmony with inscriptions of later date (*e.g.* Assurbanipal, 650 B.C.; Nabonidus, 550 B.C.), which certainly imply agreement rather with the view which formerly prevailed, that Hammurabi lived about 2150 B.C. Berossus, whichever method of supplying his gap for the 11 kings may be adopted, supports the earlier date for Hammurabi, making his reign end 2156, so that at present there is a distinct difference between the earlier and the later chronologies of about 200 years.¹⁵

¹⁴ See *Chronicles of the Early Babylonian Kings*, by L. W. King.

¹⁵ Neither the Assyrian nor the Hebrew Chronology is perfectly clear for the period between Solomon and Hezekiah. A possible gap of as much as 200 years exists, and other Chronologies have the same margin of error. In India and

If the modern theory of the Priestly Code is correct, the dates in the Hebrew Bible were supplied from Babylonian sources in the later period, that between Nabonidus and the publication of the list of Berossus; but as we have seen, the chronology of Genesis xiv., at all events, does not agree with the Babylonian system then extant, and the whole system of Biblical chronology is manifestly irreconcilable with the inscription of Nabonidus which places Naram Sin 3200 years before his time. At the same time the monuments now abundantly prove that Naram Sin did reign before the 11 kings of Berossus, and in the opinion of Mr. L. W. King, not a great while before.

The clearest proof that the dates of Genesis are not of Babylonian origin is to be found, however, by examination of the antediluvian figures. Berossus traces the first of the Chaldean kings to 1200 degree years before the flood, Genesis to 1680 degree years.¹⁶ Supposing the

China, however, a clear succession is claimed by the List of Kings, stretching right back to the flood, and even beyond, as will be shown.

¹⁶ By degree years is meant years of 360 days each, the number by which the circle is divided.

480 degree years mentioned by Pliny to come in the position we have assigned to them, why does Berossus begin there? The enquiry is well worth making, as it throws considerable light upon the antediluvian chronology of Berossus which has come down to us in a somewhat confused form.

We will first answer the question by simple statement, and then proceed to prove it. *The Babylonian history and chronology is traced through the line of Cain, but that of Genesis solely through the line of Seth.*

These two lines of descent are clearly established in the Genesis record, and may be placed thus, side by side:—

ADAM.			
Gen. v.	Seth.	Cain.	Gen. iv.
	Enos.		Enoch.
	Cainan.		
	Mahalaleel.		
	Jared.		Irak.
	*Enoch.		Mehujael.
	Methuselah.		Methusael.
	*Lamech.		Lamech.

NOAH.

There are two generations more on the side of Seth than are named on the side of Cain, but

two of these never came to the headship, passing away before their fathers. As kings, therefore, or heads of families, there were six on either side, and these, with Adam and Noah, make up the 14 which, as we shall see in the next chapter, is so prominent a number in the oldest literature.

Genesis does not profess to give us the history of Cain's line, though, as a matter of fact, it records far more incidents respecting his descendants than of those of Seth, with the exception of the figures of Genesis v., which are introduced as if it were an original document pertaining only to that one subject, the generations of Adam in the line of Seth.

We must turn to the Hindu records for fuller knowledge concerning the line of Cain, and will, therefore, borrow from the next chapter sufficient to explain the Chaldean figures.

They say the Children of the Sun and the Children of the Moon lived side by side, supreme power falling first to one and then to the other. They are very clear, however, that the first 400 years was an age of virtue, disturbed by the return of Atri (Cain). Speaking of the change which took place then, they attribute the stealing of the Vedas, the phrase by which they describe com-

mencement of idolatry, as taking place about 426 A.M.¹⁷ The Hebrew Scriptures only relate the departure of Cain and not his return, but Genesis iv. 25, speaking of Enos, says, "Then began men to call upon the name of the Lord." This passage is very differently rendered in the Talmud, being taken by three different writers to indicate the commencement of idolatry.¹⁸

If Cain returned between 400 and 500 A.M., and Berossus gives the succession in his line, he may well commence his list at this period, 473 A.M., though Cain did not succeed to supreme power till the death of Adam, A.M. 931.

The detailed account of the reign of the antediluvian kings in Berossus is not dated, however, from this period, but from 100 degree years before the death of Adam, i.e., 829 A.M. A

¹⁷ For explanation of the passage so rendered, see next Chapter, page 159.

¹⁸ Dr. John Gill's *Commentary on Genesis iv. 26*, gives the Targum of Onkelos, "Then in his days the children of men ceased from praying in the name of the Lord." Targum of Jonathan, "This was the age in the days of which they began to err, and they made themselves idols, and surnamed their idols by the Name of the Word of the Lord." Note of Jarchi, "Then they began to call the names of men and the names of herbs by the Name of the Blessed God." This was in the days of Enosh, who was born A.M. 235 and died A.M. 1140.

marked period in early chronology at which the 60-year cycle began, and, perhaps, the 360-day year reckoning.¹⁹

The reigns of these antediluvian kings in Berossus, according to Abydenus, a disciple of Aristotle, are as follows. The table shows also the line of Seth, for purposes of comparison.

Hebrew in Genesis.		Chaldean in Berossus.			
	Solar Years.		Sari.	360 day Years.	Solar Years.
Adam ...	<u>930</u>	Alorus ...	<u>10</u>	<u>100</u>	<u>99</u>
Seth ...	112	Alaparus	3	30	29
Enosh ...	98	Amillarus	13	130	128
Kenan ...	95	Ammenon	12	120	119
Mahalaleel	55	Megalarus	18	180	177
Jared ...	132	Daos ...	10	100	98
Enoch ...	—	Acdoreschus	—	—	—
Methuselah	233	Euedoreschus	18	180	177
Lamech	—	Amempsinus	—	—	—
Noah ...	—	Sisithrus	—	—	—
	<u>725</u>		<u>74</u>	<u>740</u>	<u>728</u>
Three years of Alaparus belong to Alorus, being part of a Saros					<u>3</u>
					725

Alorus to 829 A.M. 60 year Cycle.

+ 99 in above table.

3 part of the Saros.

931 A.M. + 725 = 1656

¹⁹ The later edition of this list, through Apollodorus of the 2nd Century, A.D., makes up the number to ten, but it is clearly not authentic, though it is the one most commonly quoted. See *Hindu Chronology*, Vol. I., p. 298, seq.

It will at once be noted that there is not the very slightest correspondence in detail between the Hebrew and the Chaldean. No one could possibly derive the figures of Genesis v. from the Babylonian account as it is recorded in Berossus, yet the latter is the official source available for this early history, and there is no reason to believe that any other existed. But, while the differences are amply sufficient to contradict the charge of the Hebrew being derived from the Chaldean, the correspondences are truly remarkable. Reckoning *back* from the deluge, the first ruler in the one line commenced within three years of the same period, the death of Adam, and the Chaldean reckoning being recorded in Sari of 10 years each, this fully accounts for the discrepancy; 74 Sari is as near as could be represented in round numbers for 725 Solar years. Berossus says there were "other kings," making 10 in all. There were certainly 10 generations in the line of Seth, though only eight were rulers, nine including Alorus are given in the Chaldean figures, but here also two have no length of reign assigned. These nine, in later versions of Berossus, are made up to 10, and years supplied to each name, but it is easy

to prove that the account of Abydenus is the most trustworthy.

We may now summarise the result of our enquiry.

1. Comparison between the early history, as given by Berossus, and that contained in Genesis yields an agreement so close that it suggests an original identity in the facts on which they are based.

2. The figures of Berossus as they stand, and as they are understood by Nabonidus, give such an extended period before the Median invasion that they could not have been the basis of those in Genesis.

3. They are, however, capable of explanation, which brings them into exceedingly close agreement, and the explanation is one based on documentary evidence, dating back before the Christian era.

4. While this close agreement in totals is thus made evident, the details, especially those given for the antediluvian kings, are entirely different; suggesting that the one deals with the line of Cain, and the other with the line of Seth.

5. The argument is, therefore, on the whole, very strong that the two sets of figures are in-

dependent, yet, at the same time, that they represent actual facts. The agreement confirms the history, and gives historical value to the figures, especially as it requires a comparison between ancient records of widely separated lands to make it evident.

6. Of the two records we have been comparing, the Hebrew is the one that requires no explanation of its figures, and is the only one recording the fact of the two lines of descent before the flood, which was required to make the agreement evident. We may, therefore, take it as proved that the Hebrew is the fuller, the older, and consequently the more reliable, though both, with the explanation given, are valuable, and confirm each other.

7. To suppose the Hebrew figures and history to have been derived from the Babylonian so late as the fifth century B.C., requires the supposition of incredible skill in freeing the Babylonian account from its idolatrous characteristics and apparently mythical form, and conflicts absolutely with the facts we have set forth.

We shall now proceed to prove that India and China support the Hebrew as against the Babylonian version as it stands.

CHAPTER VI.

HINDU CHRONOLOGY.

THE two nations with which we have been dealing have had a splendid past, but are now to all intents and purposes extinct.

Chaldea is represented to-day, not by a people, but by buried cities haunted only by wild beasts and nomad tribes. Egypt is renewing its youth to some extent, but the modern country has no living connection with the great nation which built its pyramids and its temples. When we examine the literary records of either of these lands, we are restricted to a few fragments which we receive only at second or third hand, and which bear the unmistakable marks of alteration and condensation in the process of passing them on. Were it not for the confirmations and corrections of these transmitted fragments of Manetho and Berossus, which are almost daily coming to us from the researches of the archæ-

ologist, we might hesitate to place much reliance upon them. When these, however, are taken into account, the literary records, supported by the actual ancient inscriptions, are undoubtedly of great value in our enquiry as to the early chronology of the world's history.

We now come to consider the records of nations which have maintained a continuous existence from very early times indeed, whose literature is regarded as of a sacred character, and who have a class of men devoted to their custody and elucidation. Most prominent among these is India. Our facilities for the study of the Hindu sacred books have arisen almost wholly since its conquest by Britain. At the end of the eighteenth century the secrets of these writings began to be made known. By the end of the nineteenth century they had been very carefully studied. That they are worthy of this attention may be illustrated by the assertion of the great oriental scholar, Max Müller, who remarks, "The Veda, I feel convinced, will occupy scholars for centuries to come, and will take and maintain for ever its position as the most ancient of books in the library of mankind." The claim of the Hindus themselves for an ex-

tremely ancient origin for these writings is not allowed by modern scholarship as far as the existing text is concerned, but it is admitted that parts of it at least are extremely ancient, and deal with traditions of times far preceding the date at which they were finally embodied in their present form.

As in the question of the Hebrew Scriptures, a great deal turns upon the probable time in which the writings took this definite form, and especially for the enquiry we are now conducting as to the support or contradiction they can give to the dates of Genesis. Their value in this connection is largely due to the fact that their existence can be traced back further than those of any extant writings, and with a degree of certainty that gives us confidence in appealing to them.

This may be illustrated by mentioning a case in which the very early origin is less clear, though probably as real. In the neighbouring country of Persia we have, in the Zend Avesta, traditions embodied which closely agree with those of the Hebrew Scriptures. How closely they agree may be judged by the following extract from Dr. Darmesteter's preface to the Zend Avesta in Max

Müller's edition of the Sacred Books of the East : " Judaism inspired Zoroastrianism in a different though not less powerful way. It answered certain questions of which Mazdeism had not thought. Its sacred books supplied the Mazdean doctors with its solutions of these questions. It gave them *even its historical and chronological framework*. The creation, the deluge, the genealogies, the patriarchs, the division of races, the revelation, were all told in a Zoroastrian spirit." Here it is claimed that the identity between them is so close that the Bible *must* have been the original from which the information was derived. It would be quite possible to argue to the contrary, but the uncertainty as to the date of the compilation of the Zend Avesta as we have it, which could scarcely go back further than 500 B.C. at the earliest, would leave the conclusion undetermined.

In India, on the other hand, the simple fact that Buddhism can be traced back at least to 600 B.C., and that Buddhism was based unquestionably on a pre-existent Hinduism, carries the date of the oldest of the Indian Vedas to a sufficiently early period to make it improbable that it owed anything to the Hebrew, and more likely that both

are based on a common original of tradition or record.

Added to this, the form in which the Hindu tradition reaches us is so totally different from either the Hebrew or the Chaldean, that it seems impossible to conceive that the one arose from the other except as far as they must have had a common origin in the facts, which while they became the inheritance of each of these great nations, were by them independently treated and transmitted to us in forms, the identity of which can only be traced after careful examination.

It is to us a considerable disadvantage that the Hindu form is so totally opposed to our own mode of thought. It becomes extremely difficult to follow methods so involved and associated with names so unfamiliar to western ears. A sense of weariness is soon induced which precludes that close attention which is necessary to understand the record, and the average reader often fails to catch the point, and regards as a tissue of absurdities what, to the mind grown familiar with the mode, expresses a clear and unmistakable meaning.

It is proposed, therefore, in this chapter to state the results of enquiry into the Hindu system

rather than to conduct the reader through the intricacies of interpretation and proof, referring those who desire to consult authorities at first hand to the writings of Alexander Hamilton and Sir William Jones,¹ both of whom possessed exceptional opportunities for investigation, and who agree on the facts, though differing to some extent in their understanding of them.

The Hindus divide the chronology of the world's history into four ages, which they describe under various names, the best for our purpose being Golden, Silvern, Brazen, and Earthen. The last, which is usually termed the Kali Age, is the one in which we are living. When spoken of in relation to the others, it is said to be 432,000 years long, and at the close of it they expect an incarnation of the Deity under the name of the Calsi Avatar, which they say will last 1000 years, during the first 500 of which the saints will reign, and the last 500 will be a time of judgment. As we shall be able to show that this really follows after only 6000 years of human

¹ I do not know of any more modern work dealing seriously with this subject than *Hindu Chronology*, by A. Hamilton, 1820; and the Writings of Sir William Jones in the Researches of the Royal Asiatic Society from 1788 A.D.

history, it will be seen that their extraordinary system of protracted eras is based on the same tradition, which, though not found in the pages of the Hebrew Scriptures, largely prevailed among the Jews, Greeks, and other nations, that the world was to endure a 1000 years for each of the six days of creation, and finally enter on its period of Sabbath rest for a millennium of blessedness.² The Apostle Peter, in 2 Peter iii. 8, says, "Beloved, be not ignorant of this one thing, that one day is with the Lord as a thousand years, and a thousand years as one day." This principle is very clearly the basis of the Hindu chronology, for it is stated in the Institutes of Manu, from which the figures we are about to deal with are extracted, "But know that the sum of one thousand ages of the gods makes one day of Brahma, and that his night has the same length." That a day of the gods is a year of

² Hales in his *Chronology*, p. 279, says: "The early Jewish tradition of the 6000 years, a thousand years as one day, was found in the Sybilline Oracles; Hesiod, Darius Hystaspes, the old King of the Medes; and in Hermes Trismegistus among the Egyptians, and was adopted by the early Christian Fathers, Clement, Timotheus and Theophilus, to prove that Christ came in the sixth thousand year of the world." This led them to adopt the Septuagint figures."

mortals is expressly stated in the same connection, though, like the Chaldeans, they make the term day and year interchangeable by this device.

This period of 1000 years is called by the Hindus a Calpa, and in some of the Puranas the use of this term indicates the date of their composition, if the parallel between the Hebrew and Hindu systems we are seeking to set forth holds good. For example, in the description of the deluge as given in the Pralaya, as also in the Bhagavata and the Agni Puranas, we read, "At the close of the last Calpa there was a general deluge occasioned by the sleep of Brahma. Whence his creatures in different worlds were drowned in a vast ocean." According to the Hindus, the last half of Brahma's day, that is, of the Calpa or thousand years, was his night, when he went to sleep, so that a reference to "the close of the *last* Calpa" indicates that the 1000 years in the last half of which the event described had taken place, was then past. If, as the Hebrew and Chaldean chronologies teach us, this was in the second thousandth year of human history, then the Purana claims to have been written in the third thousandth, that is, between 2000 B.C. and 1000 B.C. How much before 1000

B.C. we cannot ascertain certainly from this record, but Genesis we know is claimed to have been given to us by Moses about 1500 B.C.³ They agree, however, in recording facts which had taken place long before, and of which presumably some record or tradition existed at the time when they were thus committed to writing. The Chaldean account speaks of antediluvian records preserved by being buried at Sippara. The Hindus claim that they were in the charge of the prince who was saved in the ark. Genesis is altogether silent as to how they reached the author of that book, but the tenfold use of the expression, "this is the book of the generations of," implies that some written documents were used in its compilation.

We have seen that the history of man is by

³ In the same account, Bhagavata Purana viii. 24, 7, it is stated that Satyavatar was "the same, who, in the present Great Calpa, is the son of Viavasvat, and called Straddhadeva, and was appointed by Hari to the office of Menu." Satyavatar was the 4th Menu corresponding to Kenan of Genesis, and if the term Great Calpa also indicates the date of the Puranas, it would be between A.M. 2561 and A.M. 3000. For three Menus, at 857 years each, would have presided over the earth by 2561 A.M., or 1503 B.C., and, as stated above, it was in the 3rd Calpa or day of Brahma, otherwise the flood was not in the "last Calpa."

Extract from the Institutes of Manu, Sacred Books of the East, Vol. XXV., § 64.—Eighteen Nimeshas (twinklings of an eye) are one Kashtha, thirty Kashthas one Kala, thirty Kalas one Mahurta, and as many Mahurtas one day and night. § 65.—The sun divides days and nights, both human and divine, the night being intended for the repose of created beings and the day for exertion. § 66.—A month is a day and night of the Manes, but the division is according to fortnights. The dark (fortnight) is their day for active exertion, the bright (fortnight) their night for sleep. § 67.—A year is a day and night of the gods, the half year during which the sun progresses to the North will be the day, that during which it goes Southwards the night. . . . § 69.—They declare that the Krita age consists of 4000 years (of the gods), the twilight preceding it consists of as many hundreds, and the twilight following it of the same number. § 70.—In the other three ages, with their twilights preceding and following, the thousands and hundreds are diminished by one (in each). § 71.—These 12,000 years, which have been just mentioned as the total of four (human) ages, are called one age of the gods. § 72.—But know that the sum of 1000 ages of the gods (makes) one day of Brahman, and that his night has the same length. § 79.—The before mentioned age of the gods (or 12,000 of their years), being multiplied by 71 (constitutes what) is here named the period of a Manu (Manwantara). § 80.—The Manwantaras, the creations and destructions (of the world are) numberless; sporting as it were, Brahman repeats this again and again.

THE CHRONOLOGY OF THE HINDUS.

Tabulated from the Institutes of Manu, Chap. I., Verses indicated.

Columns 6 to 8 are explanatory, and not in the text.

	1	2	3	4	5	6	7	8
Age.	Twilight.	Years of the Gods. § 69-70.	Twilight.	Divine Ages. § 71.	§ 67. Human Years. (Col. 4 x 360).	Days. *	Actual Years.	Began B.C.
Creta	400 +	4000	+ 400 =	4800	= 1,728,000 =	2	400	4002
Treta	300 +	3000	+ 300 =	3600	= 1,296,000 =	1½	300	3602
Dwapara	200 +	2000	+ 200 =	2400	= 864,000 =	1	200	3302
Cali	100 +	1000	+ 100 =	1200	= 432,000 =	½	100	3102
	1000 +	10,000	+ 1000 =	12,000	= 4,320,000 =	5	1000	
				× 71				
				852,000	= 306,720,000 =	355	1	

The Manwantara, § 79.

* In Indian Seconds.

EXPLANATION OF THE TABLE.

The numbers in Col. 5 are Matires (tenths of a second) in the days of Col. 6. If Col. 1 represents years of 360 days, Col. 4 is months, and Col. 5 days, for (§ 66-7) 12 days of the Manus or Patriarchs are 1 day of the gods, and 1 human year. Each 1000 years is divided as above, but all time since the 3rd age has been reckoned as part of the Cali age.

THE CALPA.—The ordinary day of Brahma, or Calpa, is a thousand years, for $12,000 \times 71 \times 360 = 306,720,000$, the Matires in one year. § 79.—The great day of Brahma, or great Calpa, is 12,000 years (divine ages), including the whole Padma creation, 6000 of them being occupied in creating.

THE MANWANTARA.— $12,000 \div 14 = 857$; 5 days $\times 71 = 1$ Savan year. If 5 days (Col. 6) = 4,320,000 Matires (Col. 5), then 360 days = 311,040,000 Matires, one degree year. In one day there are 86,400 European seconds, 864,000 Indian seconds.

the Hindu writers divided into four ages. This is not peculiar to the Hindus. Though frequently met with it is best known through the Greek classics. Hesiod gives five ages, which cover 3000 years, and states their length as being in the proportion of 10, 8, 6, 4, 2, the first or golden age being under patriarchal rule, and 1000 years in length. The Hindus, on very much the same principle, divide the first thousand into four in the relation of 4, 3, 2, 1, which total 10 for one thousand, just as Hesiod's total of 30 stands for 3000.

But the Hindus confuse this simple reckoning by the assertion, first, that we are living now in the Kali age, and second, by the prodigious length which they attribute to these four ages, which, though simple enough when understood, makes the whole system appear ridiculous. We have seen already, in the early chronology of Berossus, the desire to conceal the actual facts under a cypher by representing days as years; the Hindus have improved upon this by reckoning seconds of time as years, with several other complications which disguise the facts at the same time that they record them.

In the accompanying table we have set forth

the Hindu chronological system, stated in tabular form, from the first chapter of the Institutes of Manu,⁴ to which the reader is referred if he desires to verify its accuracy. This ancient Sanskrit writing is now very easy of access in translations. Scholars, of course, dispute its date, but acknowledge that parts of it are extremely ancient. It claims to have been communicated to the sages by the first Manu, though indirectly through one of the early patriarchs, and constitutes the chief law book of the Hindus.

Before attention is called to the details in this table one very vital enquiry must be made, the answer to which will very much simplify its explanation. That enquiry is, If we are now living in the Kali or earthen age, when did that age begin? We need not trouble much about when it ends if it is to last 432,000 years, for the Hindus reckon the Kali age in ordinary solar

⁴ Practically the same text is found in several of the Puranas, and also in the *Surya Siddhanta*, an astronomical work for which the Hindus claim great antiquity (A.M. 400). Muir states, Sanskrit Texts, Vol. I. p. 34: "Belief in Kalpas and Manvantaras is not to be traced in the Vedic Hymns or Brahmanas, but only in the Puranas, and must be held to be inventions of a later age." The *Rig Veda* is written, however, in a very ancient and quite obsolete Sanskrit.

years, as we do for current time. Now, if the object of the Hindu form of early chronology is to deceive, or to conceal, we need not be surprised if there is a want of readiness to give information on this question. The current statement and belief in India to-day is that no one knows when it did begin, but 100 years ago it seemed well known, for every encyclopædia of that date gave 3102 B.C. as its commencement.⁵ A study of the investigation of scholars of that time shows that the conclusion was based upon astronomical facts which are dealt with at length in the "Researches of the Royal Asiatic Society." It is confirmed by the way in which the Hindus reckon and state dates. As for example, Sir William Jones, in 1788, was told by the Hindu authorities that the first Menu "began to reign 3,892,888 years ago." Of course, the first Menu began his reign at the beginning of the first age; therefore, the total of the first three ages being 3,888,000, the year 1788 A.D. was the

⁵ Works of Sir W. Jones, Vol. 4, p. 52. "The Hindu astronomers agree that the 1st January, 1790, was in the year 4891 of the Cali Juga, or their fourth period, at the beginning of which they say the equinoctial points were in the first degrees of Mesha and Tula."

4888th year of the Kali age, and in terms of our chronology the Kali age commenced 4888—1788, that is, 3100 B.C.⁶ Hamilton gives a very subtle proof to the same effect from a method of calculation of the length of the year in use among Hindu astronomers, which involves accuracy to the second; but the way in which this fact brings the whole system into accord with the chronology of all the most ancient nations is to the ordinary reader the strongest confirmation.⁷

Looked at in this light, we shall see that the figures given in column I, under the description of twilight, if taken as solar years, brings this table into actual agreement with the Hebrew and Chaldean chronology; for the sum of the first three ages thus reckoned is 900, and if the Kali age began 3102 B.C., then this reckoning began 3102+900, or 4002 B.C., which is within two years of Dr. Ussher's date for the creation of man according to the dates of Genesis.

If this is the case, then to keep the true

⁶ Hamilton, with the Cyclopædias of the time, says: "B.C. 3102. The difference of one or two years arises from the differences in the time of commencement and end of the ancient year."

⁷ *Hindu Chronology*, Vol. II. p. 349.

proportion 4, 3, 2, 1 for the first four ages, the Kali age was only 100 years instead of 432,000 years, and the basis of the table is the division of the first Calpa or thousand years of human history. It is quite consistent with the Hindu desire to conceal the true facts that, by this device of reckoning from the beginning of the fourth or Kali age, the cypher should be kept secret, but there is another very strong reason for so reckoning which not only accounts for its adoption but very clearly confirms the ancient character of the record on which it is based. A great astronomical cycle of 60 years is common to the Eastern nations in the South of Asia. There are variations in the names and modes of reckoning these cycles, but in India at all events they have 60 such periods of 60 years each, and so described that the name of a cycle at once indicates its position in that great period of 3600 years. The Chinese use this mode of reckoning very constantly, but so also do the Hindus, and the first 3600 years ended and a new great cycle began in A.D. 427. The first of these, therefore, began 71 years before the Kali age, if that commenced in 3102 B.C. This period of 71 years is embodied in the table and called a

Menwantara, to which reference will be made presently. Now, 3173 B.C. is A.M. 829, a period which we have seen stand for the commencement of the reign of Alorus in the Chaldean table of Berossus. Alorus is given 100 years, which would make the termination of his reign A.M. 929. The Hebrew record gives us the death of Adam in A.M. 930, and the Hindus say that the first Menu died when the third age was completely ended, that is, after more than 900 years had passed.

But the 60-year cycle points back to 829 A.M. At this time Enoch lived according to the dates of Genesis, and we have seen how widespread tradition attributes to him great discoveries in astronomy. It is, therefore, one of the most appropriate dates for the commencement of a new cycle based on the movements of the heavenly bodies, and Mr. Maunder, of Greenwich observatory, has shown that this is very near the most probable date for the origin of the Zodiac.⁸

It seems very likely that the early reckoning by lunar years gave way just then to solar reckoning, and that the employment of a period of

⁸ Maunder. *Astronomy without a Telescope*, p. 95.

360 days was adopted as a basis for the measurement of time. Enoch certainly finds his counterpart in very remarkable degree in the Hindu mythology under the name of Parasa Rama, or in the genealogies as "Maru, who is supposed to be still alive." Of him they record that he passed from earth "when a night of Brahma was completely ended." This, as we have seen, would be at the end of 1000 years, which as years of 360 days would be equal to A.M. 988; exactly corresponding to the date of Enoch's translation.

Continuing to compare the table with the chronological statements of the history, or mythology as some would prefer to call it, we find a very curious coincidence which in various ways, some simple and some complex, is wrought into this system. The Hindus say that four of their 10 Manus were born in the first age, three in the second age, and two in the third age, while they especially state that the ninth was really born in the last or Kali age, though reckoned in the third.

Now, we know that Noah was the tenth of the patriarchs of Genesis v., and that Berossus affirms that there were 10 kings before the flood. The Hindus are just as certain of there being 10

Avatars, though the tenth is yet to come, and they reckon also 10 patriarchs. These nine births, however, were apart from the first man, who is known as the Son of the Self-existing, and was not *born* but created. Consequently, in the statement just referred to, the correspondence with the Hebrew patriarchs is from Seth to Noah, nine in all, and a reference to the table on p. 48 will show that according to Genesis also the first four were born in the first 400 years, the next three before 700 A.M., Lamech in 874, and Noah in 1056, precisely as the Hindus claim.

This surely establishes the position that the first three ages lasted 900 years, though described in the apparently fanciful way of the Hindus as 3,888,000. If we are to understand this table and how it is that 3,888,000 can have any rational relationship to 900, we must endeavour to grasp the Menwantara system, on which it is compiled, and to which distinct reference is made in the text. That this is not exactly simple may be gathered by another quotation from the Institutes which runs as follows: "The Manvantaras, the creations and destructions (of the world are) numberless; sporting as it were, Brahman repeats this again and again."

The fact is that the term is used for three different periods of time at least. The quotation just given refers to *one year*, in which by the change of seasons the world is said to be created and destroyed, not an inapt representation after all of the natural fact. In this connection the length of a Menwantara is given as either 306,720,000; 308,448,000 or 311,040,000 years. These prodigious numbers cast even those attributed to the four ages into the shade, and the reader will most likely feel quite indifferent as to the comparative merits of one over the other until he discovers that they are all of them simply one year of either 355 days, 357 days, or 360 days reduced to Indian seconds or Matires, which are one tenth of the European second. This may be easily proved by the following sum:

Days. Hours. Mins. Seconds.

$$360 \times 24 \times 60 \times 60 \times 10 = 311,040,000 \text{ Indian seconds.}^9$$

⁹ The Hindu division of time is quoted on the table, § 64. It is not, however, quite complete, possibly to avoid clear explanation. A kashtha = 18 nimishas or 32 matires, and a matire is $\frac{1}{10}$ of a European second. There is an innumerable variety of division of time among the Hindus. The matire is South Indian, expressed in French. See *Hindu Chronology*, Vol. I. pp. 12-21.

The 360-day year we have met with before, and it is discussed fully in an Appendix; 357 is known as the Maha Menwantara of the Surya Siddhanta, and 355 is a lunar *Sidereal* year in which the moon returns to the same place in the heavens as at starting, and is in the same phase. This last is the basis of the system in the table, for it gives 71 as the Menwantara, and 71×5 (column 6) = 355. Its use implies very great antiquity. The term Menwantara has hitherto conveyed to us no idea probably except that of a long, unfamiliar word about which apparently absurd statements are made. Its meaning will yield us the key to some of the mysteries of the chronological table, for it is a compound word Menu Antara, the Antara of a Menu, that is to say the life-time of a Menu. According to the Institutes, there were seven of these Menus whose names are given, and seven more indicated but not named, making 14 in all. The age of the gods in the four yugas of the table is said to last 12,000 years, and the text divides this period among them, giving 857 years to each, for $857 \times 14 = 11,998$. This period of 857 years or ages is therefore also known as a Menwantara, and by the etymology of the word is the most obvious

of the three numbers associated with it.

In the following table we have placed side by side the Hebrew names of the patriarchs of Genesis and those of the Menus of the Hindus. The only explanation which need be given is that from the Hebrew list Enoch and Lamech are omitted, because they did not survive their fathers, and consequently did not rule, and that in the Hindu list the name of the first, Swayambhuva, means Son of the Self-existing.

Swayambhu is the "Self-existing," and Swayambhuva sprung from the self-existing, just as Brahm (neuter) is the Eternal and Brahma (masculine) the first male. Brahma, however, is the creator, and corresponds more nearly to the Christian conception of the Word, the Son of God.

HEBREW.		HINDU.	
Adam.		Swayambhuva.	
Seth.	Cain.	Swarochisha.	Six others
Enos.	Enoch.	Auttami.	who
Cainan.	Irada.	Tamosa.	make up
Mahalaleel.	Mehujael.	Raivata.	the seven
Jared.	Methusael.	Chacshusha.	more
Methuselah.	Lamech.	Vaivaswata.	with
Noah.		The prince saved in the ark	
14 in all.		14 in all.	

The number 857, arrived at in such a curious way, without any rational meaning attaching to it, is remarkable, because it is associated by the Hindus with *the life-time* of a Menu, and, as we see above, there is a strange coincidence between the Hebrew patriarchs and the Hindu Menus, but when it is found that the average life-time of the former, as given in Genesis, for the 10 patriarchs from Adam to Noah was 857 also, the fact cannot be dismissed as a mere accident. The Hindu figures are weird, and evidently artificial; those of Genesis are outside our present experience certainly, but they are minutely and deliberately stated in detail; their sum is 8575, and the average, therefore, is $857\frac{1}{2}$.¹⁰

We now come to the Menwantara as stated in the Hindu text, and used by them even to-day for the calculation of time. It is certainly involved, but after the explanation already given will, it is hoped, be clear to the attentive reader.

The text runs thus: "The before-mentioned age of the gods (or) twelve thousand (of their

¹⁰ The fact that the sum is 8575, and not 8570, is proof that the fanciful Menwantara is derived therefrom, and not it from the Menwantara. The Chinese also lay great stress on the *Chou*, or period of the life as contrasted with either the date or reign.

years) being multiplied by seventy-one (constitutes what) is here named the period of a *Manu* (*Manvantara*)," so that we have $12,000 \times 71 = 852,000$. When this is multiplied by 360, as the 12,000 is, to get 4,320,000, the total of column 5, it comes to 306,720,000, which, as we have seen above, is the length of a lunar year in Indian seconds.

This brings the whole table into some sort of harmony at least, and the idea of the *Menwantara* is seen to dominate it entirely, thus:

The total of column 5 $\times 71 = 306,720,000$
Indian seconds in a year.

The total of column 4 $\div 71 = 857$
The life of a *Menu*.

The multiplying number 71
One-fifth of a 355-day year.
(that is 71×5 , or the total of Column 6.)

Here, then, are the three values for a *Menwantara*, as used in Hindu practice, and the only one of them that has a *direct* relation to the etymology is 857, the average age of the Hebrew patriarchs.

The way in which the Menwantara is used in ordinary calculations of date may be illustrated by the Hindu statement to Sir William Jones as to the year known to us as A.D. 1788.¹¹ The Pundit told him that they were in "the first day of the first month of the fifty-first year of Brahma's age, and in the twenty-eighth divine age of the seventh Menwantara; of which divine age the three first human ages were past, and four thousand eight hundred and eighty-eight of the fourth." This meant A.D. 1788. We may well prefer our own notation, though the same date is given three times over in the Hindu method, based on the Maha Menwantara of 357 days to a year, and reckoned as 857 years.

A simpler statement, involving a third manner of calculating dates by this chronological table, is given by Hamilton for the year A.D. 1815. "A Hindu would say that, as we have entered into the 4917th year of the Kali age, five Calpas, eleven Menwantaras, thirty-five divine ages, three human ages, and 4916 years of the fourth age of the twelfth Menwantara have *passed*."

¹¹ *Asiatic Researches*, Vol. II. Jan., 1788.

Five Kalpas or days of Brahma ...	5000	years.
Eleven Menwantaras, or 11×71 ...	781	„
Thirty-five divine ages, so many years	35	„
	5816	
<i>i.e.</i> , 1st 3 ages = 900. Add 4916 = 5816	5816	„ ¹²

The reader need not have been troubled with these complex calculations but for the fact that they lead up to a very interesting explanation of a statement in the Hindu account of the deluge, translated by Hamilton thus: "Brahma being inclined to slumber, desiring repose; at *the close of the sixth Menwantara*¹³ the strong demon, Hayagriva came near him, and stole the Vedas which had flowed from his lips."

The writer of the Bhagavat attributes the deluge to the sin which began to prevail in the world, but the beginning of evil is always said

¹² *Hindu Chronology*, Vol. I. p. 27. It will be noted that if this is what a Hindu would say, it involves the interpretation of the table which is contended for, as it says this is the *sixth* Calpa. It may be that this was only Hamilton's way of putting it, but another example is given on p. 29, undoubtedly Hindu, which involves the same necessity. The Menwantara calculations, however, are very complicated. See *Hindu Chronology*, Vol. I. p. 273.

¹³ Usually translated into European languages "after the lapse of ages." See *Hindu Chronology*, Vol. I. p. 59.

to be by the "stealing of the Vedas." In the first four hundred years, that is, the first age, righteousness predominated; in the second age good and evil were equal, and the account given above traces the evil to its source. It took place we are told, when Brahma "was inclined to slumber," that is, toward the end of his *day*, the first half of the Calpa before his *night* began. "In the sixth Menwantara," indicates the same thing, for $6 \times 71 = 426$. If these were years of 360 days, then it was about A.M. 420, not far from the time indicated in other chronologies as that of the return of Cain.

We have thus seen that not only in this chronological table found in their sacred books, but also in the more explicit incidents of their early history as recorded therein, many points of identity with the dates of Genesis are apparent upon investigation. The reader will judge for himself the justice of the opinion expressed by Sir William Jones, the great Orientalist, when he says, "Attached to no system and as much disposed to reject the *Mosaic* history if it be proved erroneous, as to believe it if it be confirmed from indisputable evidence," it is a question "whether it is not in fact the same with our own, but

embellished and obscured by the fancy of their poets and the riddles of their astronomers."

He then deals with the post-diluvian chronology of the Hindus from the accession of Pradyota to the subversion of the genuine Indian Government. We cannot go into this in detail, but give the list of dates he furnishes from Hindu sources by which the continuity claimed will be obvious.

KINGS OF MAGADHA.

Pradyota	...	...	2100 B.C.
Cacaverna	...	...	1962 „
Nanda	...	...	1602 „
Murdered after the reign of 100 years.			

Chaudragupta	...	...	1502 B.C.
Pushpamitra	...	...	1315 „
Balm	...	...	908 „

If this can be established, it is more complete than that given by any nation on earth except the Hebrews.

* * * *

We have had to pass over an immense number of coincidences between the Hindu and the Hebrew statements for the earliest period of the world's history, and also the much fuller

account of the antediluvian story which the Hindu books contain. This, when dealt with in the light of the incidents recorded in Scripture, and the best and oldest traditions of the Jews and Arabians, makes this early period more fully described than could be imagined by those who have not looked into the subject.

We, however, have mainly to do with the dates, and it will, we trust, be quite apparent that these long figures of the Hindu record agree with and confirm those found in Genesis v. and xi. To complete the chapter, however, we will give the following condensed outline of the history referred to.

Combining the traditions of Jews, Arabians, and other nations with the story as told in the Hindu Puranas and the Sybylline Oracles, we have a history something like the following which, while it may or may not be true, does not conflict in any point with the few details given in Genesis.

Adam and Eve, when first cast out of Paradise, lived in the neighbourhood of the garden on the summit of a high mountain. In the plain below Abel was killed, and subsequently a city was built known as Casi or the Splendid. Cain, who

married the twin sister of Abel, after his murder went away to a distant part of the earth. Here his progeny became very dissolute and degraded, living almost as brutes. In the fifth century however, he returned with his eldest son and others to Casi, and the two lines lived side by side. Adam visited his degraded offspring, and taught them various arts.

Seth was a godly man, and devoted himself to the study of the heavens, being followed in this by his son, Enosh, who was well skilled both in astronomy and natural philosophy. His grandson, Kenan, was also very devout, and to him, in later times, a revelation concerning the flood was made through Enoch.

While Adam lived, although idolatry prevailed through Cain's line, violence was repressed, but upon his death Seth and his family removed to the mountain, and left the rule of the world in the hands of Cain. At this time Enoch exercised his ministry, and used his utmost endeavours to oppose idolatry and reform the world. He studied astronomy and introduced some remarkable innovations. He divided the circular arc (probably into 360 degrees), instituted the 360-day basis for the calendar year, and commenced

the 60-year cycle. When the prophecy of the flood was announced, it was said that it would be confirmed by the death of the prophet, and consequently the translation of Enoch was attended by great mourning, which is reflected in many mythological practices.

Mahaleel was a very distinguished man who married a widow in the line of Cain. His son, Jared, thus acquired a claim to the rulership of the world, and exercised it for some time with great distinction. He is said by some to be the great Sesostris of the Greeks. Mahaleel, before his death, made his sons swear, by the blood of Abel, not to dispute the rule of the world with the race of Cain. After a time, however, he being dead, Jared and a brother of his came into conflict with a claimant of Cain's line, and a terrible warfare, celebrated as the Titanic warfare, or battles of the giants, ensued, and the earth was filled with violence. The seed of Seth also descended from the mountain and mingled with the seed of Cain. Methuselah maintained the holy traditions, and for his sake the flood was postponed till his death had taken place. Noah was by distinction the righteous man. His son, Ham, married Naamah, the daughter of

Lamech in Cain's line and sister of Tubal Cain, who consequently was the only one saved in the ark other than the seed of Seth.

The nations descended from Ham very quickly turned aside to the old idolatry, and worshipped their ancestors under various names. These may be traced in Egypt, Chaldea, Phoenicia, and elsewhere. The children of Shem became kings of Magadha, but the Dynasty ended about 2100 B.C. Noah was soon deposed from his rule by his sons, and driven away from the territory occupied by them. According to one account he was last seen about 2000 B.C., and he was of a colour between white and ruddy, and bald-headed.

Such is the brief summary of the ancient world's remembrance of this eventful period.

CHAPTER VII.

FRAGMENTS FROM CHINA.

BEFORE turning to another page in the world's story, as written in the traditions of nations, it may be well to place side by side in our thought the lines of testimony we have already considered. The question, Are these lines parallel or do they converge to a point at any period of human history? is one vital to our enquiry. It is, of course, extremely difficult to date these different writings, and as far as the actual century of their committal to written form is concerned, it may be impossible to determine, but there are certain broad considerations which may help us to arrive at the balance of probability. What account do they give of themselves? It will be convenient to deal with one special feature which is common to them all. We select the deluge. Now, as far as chronology goes, the Chaldean dates of Berossus are perhaps the most definite, professing to give a continuous

history from creation, or near to it, to the third century B.C. Now that we have the additional evidence from India for interpreting the protracted numbers on rational lines, the reckoning of the 432,000 and 33,091 as days may be allowed reasonable. The Chaldeans in that case have a clear story of a deluge which they date between 2000 and 3000 B.C. The Hebrew story certainly agrees with it, and now that we have disentangled the Hindu chronology, we find it accord, except that, strangely enough, the system of the Institutes of Manu ignores the deluge.

But the statement of the Puranas becomes clear in meaning only by using that system, "At the close of the last Calpa there was a general deluge occasioned by the sleep of Brahma." As long as we only knew that a Calpa was a day of Brahma, this indicated nothing. When we see that a "Day of Brahma" may be 1000 years, and is so on the scale of years applied to modern time, the expression must not be altogether ignored.¹

¹ The expression "yet seven days," in Gen. vii. 4, is also found in the Hindu as part of the prediction of the flood. Hamilton contends at length (Vol. I. p. 72 and seq.) that the seven days represent the predicted time of the flood, *i.e.*, seven prophetic days from the beginning, or 86,400 the seconds in one day $\times 7 = 604,800$, which treated as days and $\div 360 = 1680$ degree years, 1656 solar years.

Now, we have traced the Chaldean tradition in actual cuneiform tablets back to nearly 2000 B.C., so that there is nothing absurd in accepting the statement that there was a deluge of some sort. It seems impossible to adopt the modern explanation that there were a number of local floods the memories of which gave rise to quite independent stories in different lands. That we might call the theory of parallel lines. But these lines of tradition are not parallel, they converge to a point, and that point we shall see, as we go on, to be a very narrow one indeed. Each nation that has a chronology at all complete for 3000 years B.C. indicates about 2348 B.C. for the flood. But may not one of these be the original and the rest only copied from it with variations in expressions? Undoubtedly it may be so, and this makes it a matter of interest at what date we first find the tradition accepted. The earliest we can *prove* is the Chaldean, but the versions of various nations are so different from one another, notwithstanding their general likeness, that it seems more probable that they are perversions of one event *antedating* the oldest we have, than that they are perversions of the account we think seems the oldest.

Neither must it be forgotten that the others also claim to be ancient. The Hindu, in the Purana, *claims* to be written before 1000 B.C. The Hebrew by tradition comes through Moses, 1500 B.C. Even the Jehovah-Elohist theory allows it to have been tradition long before the sixth or seventh century B.C., though not embodied in the final form till that date.

These nations, whose traditions we have been examining, are not, like our own, of comparatively recent origin. Britain before the Christian era is almost an unknown quantity. Not so with Elam, Chaldea, the Hebrews, or India. The first three are seen side by side in Gen. xiv., and the cuneiform tablets have confirmed both their existence and relationship at that date. India is later, but it comes in at a fairly early period. The Aryans must have invaded India before 1500 B.C., and when they came they would be likely to bring independent traditions. Yet their very earliest traditions harmonise with the antediluvian story as told by the others. Though it is a case of the sons of Japhet "dwelling in the tents of Shem," yet the Aryan does not differ greatly from the Semite as to the fact, though it is very differently expressed, as we might expect. If

we try to imagine one of these nations so influencing the other as to impose its mythology and chronology on the others at a late date and so account for the likeness, we are at a loss which to suggest as the paramount influence. The Chaldean, when it is closely examined certainly has nearly all that the Hebrew Bible contains: creation, patriarchs before the flood, the deluge itself, Babel and the dispersion, and then passes almost immediately into its own independent history. Did it get it from the Hebrew Bible? That is surely impossible. The date of its earliest versions is long anterior to any probable influence of the Hebrew race. When was the Hebrew religion in sufficient admiration to impose itself on the surrounding nations? Professor Darmesteter suggests that the Zend Avesta was so influenced in the fourth or fifth century B.C., but we cannot imagine India and Chaldea to have obtained it from this source then, because it was in existence with them before. The modern theory is that the Hebrews obtained it from Babylon. At what date? Did Abraham bring it from Ur of the Chaldees? That might be argued. Did Moses receive it with other Egyptian wisdom? If so, why is there so little trace of

the deluge in the Egyptian story, which is continuous enough from that period? Did it come about the time of Solomon, the date Dr. Oppert suggests for the invention of the Hebrew chronology based on the Chaldean? Here we must stop, for we are leaving India quite out of the reckoning. India had it by then as part of its religious system.²

Any of the before-mentioned suggestions seem more probable than that of the derivation from Babylon in the 5th century B.C. in the imaginary Priestly Code.

To the author of this book it is one of the most perplexing of problems that modern scholars should so easily accept Graf's theory of the Priestly Code, and place it among the "settled results of criticism." That theory attributes these dates of Genesis, together with many interpolated passages in the Hebrew Scriptures, to a priestly caste, about the fifth century B.C., desiring to establish their own power. The consequences involved in the acceptance of the theory are enormous. First of all, it implies fraud on the part of the authors of the Code. Leviticus is said

² The Menwantara system of the Puranas is based upon the much older references in the Vedas.

to be necessarily a part of it, and the most commonly repeated phrase in Leviticus is, "The Lord said unto Moses." The theory denies that there ever was such a revelation to Moses, but assumes that, for purposes of their own, the authors stated it was so. What is this but fraud? The difficulties are even greater when one considers the reception of this Code as Scripture. Part of the theory, and an essential part of the theory, is that there was no formal ritual of worship embodied in the Scripture till this latest edition was incorporated in it, and appeal is made to Jer. vii. 22, to prove that so late as that prophet nothing was known in Israel of ritual laws as given to Moses. Now, the explanation that this passage was a comparison of the relative importance of obedience and sacrifice, as in I. Sam. xv. 22, has always satisfied scholars, till the arrival of Graf's theory.³ If we are now compelled to abandon it, we are face to face with this difficulty. If Jeremiah appeals to the knowledge of his day that God had not com-

³ Dr. Angus's *Bible Hand-book*, p. 152, includes Jer. vii. 22, under the heading, "Comparison is sometimes intimated by adverbs of negation." *Keil on Jeremiah*, pp. 161-5, argues the question fully.

manded sacrifices when Israel came out of Egypt, then within 200 years of Jeremiah the Jews accepted as Scripture a flat contradiction of their latest prophet, and acknowledged to be true by incorporating with the Torah what it is alleged their fathers never handed down; and this concerning a most vital matter, the teaching of the law. Sacred books in olden times, whether in India or Judea or Chaldea or Egypt, were guarded with the most jealous care. We have abundant witness to that fact. It is a modern development, surely, for the custodians and interpreters of the books professing to be revelation to treat them with such scant reverence as the acceptance of this theory implies.

On first glance there are many things in the Indian stories which suggest Hebrew influence. Hamilton is very sure that Krishna, the son of Devaci, is Moses, and if so, of course, Hebrew did exercise a very controlling force, for Krishna is exceedingly prominent in Hindu writings. The question cannot be argued here, but one point must be named. When the antediluvian stories of the nations are compared together, the Hindu is far more full than any of the others. Using the bare statements of Genesis as a key, it

is possible, as we have seen, to reconstruct a very complete history of antediluvian times from the Hindu Puranas. It would be far easier to argue, therefore, that we have in *these* the origin of all the rest, but in that case the known facts of Chaldean story are so ancient that we must carry the Hindu back to incredible antiquity. Indeed, we must regard it as based on history, and so entirely reverse the judgment that it is mere mythology. The simplest explanation of all therefore is that the facts happened as stated in Genesis, and that each nation has rendered them in harmony with its own peculiarities, and so we have in all the story of the deluge although very differently told. The only objection to this is that it involves that Genesis is true.

The question we have just raised is a very large one indeed, and it is impossible to discuss it fully here. Whenever it is dealt with India must not be left out. Neither must we ignore China, and therefore we proceed to give an outline of the testimony of this most ancient race to the dates of Genesis and the facts related thereto.

China stands in some respects in a different relation to the rest of the world from that occu-

pied by other countries. No one will dispute its antiquity, but the most conspicuous feature is its separateness. Its origin in the Accadian peoples of Babylonia may be very clearly traced. The same general description of them as the "black headed race" is used of both, and a careful investigation of the language and of the signs in which it was expressed reveals a remarkable identity between Accadian and Chinese.⁴ The Sumero-Accadian period of Babylonia is contemporary with Sargon I., that is, within 90 years of the deluge, so that we are carried back to very great antiquity by this coincidence.

The Chinese chronology comes to us usually stated in B.C. years, owing to the fact that it was rendered into European terms by the Jesuit missionary, P. Couplet, who published a detailed account of it in Latin in A.D. 1687.⁵ In its original form it is on a similar plan to the Indian, and very much bound up with the 60-year cycle, which, according to Chinese accounts, was in-

⁴ *Assyrian Notes*, by Rev. C. J. Ball. A paper read before the Society of Biblical Archæology.

⁵ *Confucius Sinarum Philosophus*, par Philippus Couplet. Paris, 1687. Couplet confuses Fohi with Noah, and so bewilders the reader. See *Hindu Chronology*, Vol. I. p. 341.

vented by Hoam-to B.C. 2697. It has, however, one very distinct advantage over any other ancient chronology. It is so distinctly associated with astronomical facts in the very early eras that it is possible to check it by the infallible test of the precession of the equinoxes, and this, as is shown in Vol. III. of the Sacred Books of the East on the *Shu King*, abundantly confirms the period attributed to Yao, the Chinese Noah, which corresponds almost exactly with the Hebrew date for the deluge. As to that event, Sir William Jones says, "I may assure you, after full enquiry and consideration, that the Chinese, like the Hindus, believe this earth to have been wholly covered with water, which, in works of undisputed authenticity, they describe as flowing abundantly, then subsiding, and separating the higher from the lower ages of mankind."⁶

The antediluvian traditions of China are very meagre. The earliest name is variously rendered, but Fohi, the son of heaven, corresponds very generally with Adam, and was said to be the first of seven kings who preceded Yao. He had three sons. Scanty as are the details of

⁶ *Asiatic Researches*, Vol. II. p. 376.

this period, there is sufficient to trace a very close correspondence with the information of Genesis v. For example, the following summary is clear enough in comparison. Fohi, the son of heaven, had three sons, from the first and third of whom two distinguished lines descended; no notice being taken of the second, except that his name was Hey-en-tou. From the eldest son the pedigree, like that of the Chaldeans and Hindus, is only traced from the third descent, (or the return of Cain,) to the deluge; whereas the family of the third son, answering to Seth, commences with Fohi, reaches to the deluge, and is continued in the person of Yao. Whangti was the third in descent from Fohi, and the third ruler of the world. His death occurred A.M. 1140, which corresponds exactly with the year given in Genesis for the death of Enosh, the third from Adam in the line of Seth.

It is related of Fohi, just as it is of the Oannes of Berossus, that he taught some savage men who became his subjects, and the following account from Chinese sources reminds us of that from Phoenicia by Sanchoniathon,⁷ while

⁷ Cory's *Ancient Fragments*, 2nd Ed., p. 6.

it agrees very fairly with the evidence from India concerning the Children of the Moon or the race of Cain:—

“In those early times men differed little from beasts; they knew their mothers but not their fathers; they were uncivilized and rude; they never ate but when pressed with hunger, and when that was satisfied they threw away what was left; they swallowed the hair, drank the blood, and clothed themselves with the skins of animals. Fohi taught them how to make fishing nets and snares for birds, also to rear domestic animals as well for food as for sacrifice. To mitigate the natural fierceness of his new subjects, and calm wild and turbulent spirits, Fohi invented Music.”⁸

As far as chronology is concerned there is extremely little information given for the antediluvian period, but the year of the deluge, or rather the beginning of the *reign* of Yao, is very clearly stated. Hamilton says that Confucius gives it as in the 756th year of the Kali age, which, taking the first three ages, as

⁸ *Hindu Chronology*, Vol. I. p. 325.

reckoned in India, to be 900 years, brings it to A.M. 1656, exactly the same as the Hebrew. The way in which it is stated is peculiar, "At that time 3,267,000 years were passed." This in the Indian cypher would fall within the third age, being less than 3,888,000, which constitutes the total of the first three ages, but it is also part of the 4,320,000, so that the problem may be stated thus: as 3,888,000 is to 900 so is 3,267,000 to 756. As Confucius lived in the Kali age, he must disguise the time of the deluge to avoid revealing the true age of the world, for $756 + 900 = 1656$.⁹

Unfortunately Hamilton does not give us the source from which he obtained these figures, and so we are unable to discover at what period they are likely to have taken this form. It could hardly have been the original form brought by the Sumero-Accadian people from Chaldea, or we should find some trace of it in Babylonia. Its similarity to the Indian suggests that it was adopted from them, unless the whole system is antediluvian, and dates from the invention of the 60-year cycle. In that case the Hebrew would

⁹ *Hindu Chronology*, Vol. I. 332.

be an explanation, in plain numbers, of the complex cypher then adopted, while the Chaldean chronology, and, in some respects, the Egyptian, would be a simpler method than the original, but not a plain, open statement of fact, as we have in the Hebrew.

The existence of this doubt makes it the more necessary to examine Chinese dates with care. The Jesuit missionaries who have handed them down to us translated into B.C. years were, of course, already familiar with the Hebrew and Septuagint chronology, and, in the absence of the original documents, may be suspected to have been influenced by their knowledge, but there can be no doubt whatever that the Shu King is one of the most ancient compilations in the world. The contemporary writings in it go back to the 22nd century B.C. Of the times before that the chapters begin with the words, "it is related." In these Yao and Shun are referred to as gods, the term used being "the Ti," which Medhurst translates "the supreme."¹⁰ This agrees with the attribution of divine honours in India to the "Prince who was saved in the

¹⁰ *Sacred Books of the East*, Vol. III., xxiii.

ark," and to the term "demi-gods" applied in Egyptian mythology to the successors of the gods before the human kings, who begin with Menes. The many close resemblances in character and circumstance between the Greek gods and heroes, and the Indian Menus, the Egyptian gods, and the antediluvian patriarchs, point to the deification of men as taking a conspicuous part in the development of idolatry in the new world.

The evidence of this suggests a very obvious necessity for the preservation in the Hebrew Scriptures of the plain statements of fact, undistorted by the prevailing methods of the time, as a basis for the divine work of restoring to the world, through the Hebrew race, the knowledge and worship of the only true God.

It has already been stated that the correctness of the Chinese chronology is demonstrated by astronomical facts. These are contained in the earliest chapters of the Shu King. It is perfectly true that the flood, as there described, is more like the overflow of the Yellow River than the universal deluge of Genesis, but this is only what we find the world over. Before tradition passes into record it takes on the colour

of local surroundings, and in every case, except the Chaldean and the Hebrew versions, the place whence the population of the new world diverged is ascribed to some locality within the national boundaries. Who can say how far the confusion of tongues (to the origin of which Berossus bears the same testimony as Genesis) may have contributed to this end? Still it is perfectly in harmony with the nature of tradition.

China, then, gives us a continuous account of its emperors as far back as the 22nd century B.C., and a more or less fragmentary statement going back to Fohi at the very beginning. Its dates, if not so full, are more easily verified, and so they take their place, therefore, beside those of Chaldea and India in confirming the dates of Genesis.

We have only given a very condensed account of these three great lines of evidence; and any who are interested in the subject will do well to study them in the books to which we have made reference. Those who do so will see how strong is the proof there afforded of their correctness.

We have now added the testimony of China to the other converging lines of chronology, which point to about the middle of the third

millennium B.C. for the great catastrophe known to us as the deluge. It would be quite possible to add to these, but we have already examined the records of the most ancient peoples known, with the exception of those of the Egyptians, which are dealt with in the following chapters. There is no definite chronology from any land to contradict the conclusions to which we have come, for the explanation offered concerning the buried cities of Chaldea meets the difficulty arising from that source, though it may not yet fully accord with the received opinions of archæologists. If we can also show good reason for doubting the long chronology attributed to the Egyptian remains, there will be nothing left to contradict the statements of Genesis on the subject, however little they may accord with theories for which much may be said. The theories of evolution as applied to human history might be true enough in themselves, but would be greatly modified in their operation if the statements of Genesis and other Scriptures were allowed due weight. Degeneration would then be seen to be the order most prevalent in early times, and the evolution which must necessarily have gone on side by side with it would have been interrupted and not

have dominated the whole history so completely as has been assumed.

If God made man upright (not a savage), and he has fallen from his first estate, then the history of Genesis and that of the monuments are in strict accordance with the fact. Idolatry is a perversion of revealed truth. Progress in arts deteriorates as man's highest powers are subordinated to error and sin. The degeneration, as well as the evolutionary tendencies of human nature, is not continuous in its action, but was interfered with to some extent at the deluge, as it has been modified still more by the Incarnation.

The theory of evolution, applied without this modification, involves a history which is not substantiated either by that which comes down to us through tradition, or is revealed to us by the remains.

CHAPTER VIII.

THE EGYPTIAN PROBLEM.

PART I.

EGYPT is acknowledged to be the land of mystery. The records we have of its early times, apart from the monuments, are confused and often contradictory, and the monuments themselves are in very few cases so clear in their chronological import as to dispense with the necessity for using the literary aids, confused as they are.

The confusion seems to date back to comparatively early times. Manetho claims to give us what he found in the most ancient archives. The Book of Sothis and The Old Egyptian Chronicle do not appear to be certainly much older than Manetho, and the methods adopted in all these follow the lists of kings discovered at Sakkara and Abydos, and what is known as the Turin Papyrus. These last, however, do not carry us

further back than the Rammesids, and it is on periods before this that light is chiefly needed. Our enquiry respecting the dates of Genesis is solely concerned with the period *before* the XIXth Dynasty.

The long chronology which has been so much in vogue has been supported mainly upon lists of kings who in all probability were contemporary. Thus Brugsch, in his *History of Egypt*, Vol. I. p. 43, says: "The very thorough investigations to which learned experts have subjected the succession of the Pharaohs, and the chronological order of the Dynasties, have shown the absolute necessity of supposing, in the list of Manetho, contemporary and co-lateral Dynasties, and thus of diminishing considerably the total duration of the 30 Dynasties." This view of the chronology of Manetho is extending just now so rapidly, mainly through German influence, that it may be said to be very largely accepted, though no system is yet sufficiently proved to take its place.

Professor Breasted, in his recent *History of Egypt*, p. 23, sums up the situation thus: "The extremely high dates for the beginning of the Dynasties current in some histories are inherited

from an older generation of Egyptologists, and are based upon the chronology of Manetho—a late, careless, and uncritical compilation, which can be proven wrong from the contemporary monuments in the vast majority of cases where such monuments have survived. Its Dynastic totals are so absurdly high throughout that they are not worthy of a moment's credence, being often nearly or quite double the maximum drawn from contemporary monuments, and they will not stand the slightest careful criticism. Their accuracy is now maintained only by a small and constantly decreasing number of modern scholars."

It will be clear from this that if Manetho really had valuable information to convey, and desired to give it, he so misunderstood what he endeavoured to interpret as to give an entirely wrong impression of the facts. The only hope left for extracting light on the early ages from his record will be by careful comparison of it with the records of other nations for the same period, and the examination of such fragments of ancient Egyptian history or fable as may have reached us from other sources.

We see that Chaldea, India, and even China

have preserved traditions which, however confused in themselves, have yielded an orderly and harmonious sequence when the key furnished by the Hebrew Scriptures has been used to unlock them. Egypt certainly offers a more difficult task, and yet it is hardly reasonable to suppose that a civilization so ancient and organised was ignorant on points upon which its neighbours were informed. Especially is this the case when the testimony from all lands confirms the Hebrew account in ascribing a common origin to these various races. So far we have invariably found that it is in the apparent mythology agreement exists. In India only 900 years are definitely recorded in mythological terms, covering the birth of the first nine Manus. In Chaldea the whole of the antediluvian period and about 100 years of the post-diluvian is described in terms which also suggest mythology rather than history. We shall therefore do well to give our first attention to anything in the Egyptian story which belongs to this section of human thought. It is not lacking by any means. Each of the three sources of information—Manetho, The Book of Sothis, and The Old Egyptian Chronicle—gives some account of the reign of the gods and another class of

beings, sometimes termed demi-gods and at others the Auritae. It would be a very tedious task to follow the discussion as to the comparative values of these three sources of information. A comprehensive summary of the arguments may be found in the work of Mr. D. W. Nash, "The Pharaoh of the Exodus." Egyptologists have been too prone to reject the Old Chronicle and the Book of Sothis as spurious because they conflict with Manetho. Now that the impossibility of accepting Manetho's statements as they stand is so generally admitted, many of the arguments against these lose their force. The foundation on which they are based is peculiarly Egyptian; the number of the years attributed to the Dynasties appears to have been forced by their authors into conformation with admittedly artificial systems of imaginary Sothic Cycles; while at the same time we receive them at the hands of Christian chronologers who endeavoured to make them agree with their understanding of the Hebrew Scriptures in the Septuagint version. But for all that, certain broad features may give evidence of sufficiently reliable character to justify belief in the record as genuine, and this will be especially the case in instances in which

the underlying unity is only brought out by careful comparison.

The most striking difference between the chronology of Manetho and that of the Old Chronicle is in the very significant fact that though both give 30 Dynasties, the latter makes the first 15 of them Dynasties of the gods and demi-gods, beginning the human Dynasties with "15 *generations* of the Cynic Cycle, which extend to 443 years," and following this with the XVIth Dynasty.

This so-called Cynic Cycle has given rise to much discussion, but at all events it cannot be for a moment identified with Manetho's 15 earliest Dynasties, though it might possibly have given rise to the adoption of 30 human Dynasties as a method of classification for the long list of kings at Manetho's disposal, many of whom must have been contemporary.

Now we turn to the lists of the gods and demi-gods. These are cast in 16 Dynasties by Manetho before the human Dynasties headed by Menes begin, but one of them is a blank. Seven are described as gods and nine as demi-gods. The Old Chronicle gives only 14 deities, and follows them with eight demi-gods who reigned 217

years. Now, we are already quite familiar with very similar numbers to these as representing the antediluvian period. For example, there are 14 Menus in the Hindu record, and we have seen how they correspond with the six in the line of Cain and six in the line of Seth, together with Adam and Noah, that is, 14 in all, and we remember too, that there were Enoch and Lamech not included in this reckoning, which, if added, make 16, or, transferring Noah to the post-diluvian period, in which for the first time he was head of the family, there would be 15.

The correspondence is at all events sufficient to warrant further investigation; we therefore give side by side four of the different versions of this period which have come down to us.

I.—THE REIGN OF THE GODS, according to the Old Chronicle, through Eusebius and Syncellus.

To Hephaestus is assigned no time, as he is apparent both by night and day.

Helius, the son of Hephaestus, reigned three myriads of years (30,000).

Then Cronus and the other twelve divinities reigned 3984 years.

Next in order are the demi-gods, in number eight, who reigned **217** years.

(Total **34,201**.)

II.—THE REIGN OF THE GODS according to the Old Chronicle, through Castor.

Some say that the god Ifestus reigned
in Egypt **680** yrs.

After him the Sun, the Son of Ifestus **77** yrs.

After him Osmosiris **420** yrs.

After him Oros Stoliachus **28** yrs.

After him Typhon **45** yrs.

The sum of the reigns of the gods
amounts to **1550** years. (The above
are only **1250**.)

Then succeeds the kingdom of the demi-gods,
thus :—

First reigned Anubes Amusim, who composed the writings of the Egyptians, **83** years.

After him Apion Grammaticus, who reigned **77** years. In his reign commenced the Kingdom of Argos under Inachus.

III.—THE DYNASTY OF THE DEMI-GODS according to Manetho, through Eusebius and Syncellus.

1st Dynasty.—The first of the Egyptian kings was Hephaestus, who reigned **724 yrs.** and a half and 4 days.

The 2nd was Helius, the son of Hephaestus **86 yrs.**

3rd, Agathdaemon, who reigned **56 yrs.** and a half and 10 days.

4th, Chronus **40 yrs.** and a half.

5th, Osiris and Isis **35 yrs.**

6th, **yrs.**

7th, Typhon **29 yrs.**

8th, Orus, the demi-god **25 yrs.**

9th, Ares, the demi-god **23 yrs.**

10th, Anubis, the demi-god **17 yrs.**

11th, Heracles, the demi-god **15 yrs.**

12th, Apollo, the demi-god **25 yrs.**

13th, Ammon, the demi-god **30 yrs.**

14th, Tithoes, the demi-god **27 yrs.**

15th, Sosus, the demi-god **32 yrs.**

16th, Zeus, the demi-god 20 yrs.
 (Total, 1185½ years and 14 days.)

IV.—THE KINGS OF THE EGYPTIANS in the Book of Sothis, through Syncellus.

First race of 16 gods.

Dynasties I.-XVI., reigned 12,843 years.

Second race of demi-gods.

Dynasty XVII. of — kings, reigned 1335 years.

Third race of Aerites.

Dynasty XVIII. of — kings, reigned 161 years.

The lists have only been given here so far as they could by any possibility be taken to include antediluvians; the remaining Dynasties must be dealt with separately. The last list, in its Dynasties XVII. and XVIII., is evidently post-diluvian, but the numbers of the Dynasties have not the least coincidence with the same numbers in the other list. The XXXth Dynasty of the Book of Sothis ended 525 B.C., with the XXVIIth Dynasty of the Old Chronicle.

Passing by, entirely, for the present at least, the numbers given in these lists, it will be observed that there is some degree of general agreement, notwithstanding very important differences. Three of them begin with Hep-

haestus, and of these two attribute to him an average reign of over 700 years. The first list in order makes him absolutely divine, i.e., superior to Helius, or the sun, in so far that he knows no night, and it transfers to his son the distinction of an apparently long life and reign. We are reminded of the Hindu Swayambhu, "the self-existing," and Swayambhuva, the son of the self-existing, and note the possibility of confusion between them, so easy to arise from a desire to make the total number less or more owing to the difficulty concerning the last of the antediluvians, Noah, who belonged to both worlds, and is sometimes counted in the one and sometimes in the other.

This particular version of the Old Chronicle (No. 1.), is in absolute agreement with Genesis and the Hindu account, inasmuch as it gives Helius as the head, the son of an eternal being, and twelve descendants (six in each race), followed by demi-gods for 217 years, just as the long-lived men in Genesis xi. follow from Noah to the birth of Terah, 222 years after the flood.

The second list clearly omits some of the primary gods included in the first, for the total as given is 300 short, but the list of Manetho

makes seven of these (not five only) before the demi-gods begin. This corresponds with what we have seen prominent in India, Chaldea, and Genesis, namely, that the father of the race was succeeded by six reigning patriarchs up to the time of the flood, Noah being the eighth. If Manetho, as has been suggested, was wrong in including Hephaestus, then his 16 divinities become 15, and this agrees again with the 14 of India, together with one of the sons of Noah born in the old world and having his reign in the new. The son of Noah associated with Egypt would be Ham, and if the tradition be true that Ham's wife was of Cain's line, we should expect to find that line in predominance in any Egyptian list of the antediluvian world, even apart from the fact we have already gathered, that Cain and his descendants were the real rulers of the world after the death of Adam, with the exception of a brief interval in the fifth generation from Cain. It is very singular to find the blank in Manetho's list just at this period, as though there were something unexplainable in the original record for what he calls the VIth Dynasty of the gods.

Several of the names of these deities, Chronus,

Typhon, Apollo, Zeus, correspond with names in Grecian mythology, and it would be possible to trace a connection in the description of their character and life, but without an exhaustive discussion it would furnish no certain ground for identification, and we pass them by on that account.

As for the numbers, there is no sort of agreement between the different lists, either in details or in totals. It is sometimes said by those who have no experience in dealing with chronology that it is easy enough to find agreements, especially if one is able to turn the years given into those of a different length. If any reader thinks this is so, let him try his hand on these figures, and he will probably come to quite a different conclusion. They are hopelessly confused, and appear quite destitute of system of any sort. This, however, only makes the agreements we have traced in the numbers recorded by other nations the more noteworthy.

There are, however, two close coincidences in these lists, though they are not exact. The first list totals 34,201 which is very near to the 33,091 or 34,080 of Berossus for the post-diluvian date. As 30,000 of this is attributed to

the reign of one king, it is not likely to be a real agreement, besides which it includes antediluvian kings. Hamilton suggests that the 30,000 years are days and equal 83 years, which were to be taken with the 829 years before the 60-year cycle, as the reign of Adam, and that the 3,984 is the total of the *lives* of the twelve patriarchs and not their *reigns*, which occupied 744 years, and so made up 1656, but this is only an example of clever guessing and cannot be supported easily.

The other coincidence is far more probable. Manetho's total is $1185\frac{1}{2}$ and 14 days, which at 365 days to the year, is 432,711 $\frac{1}{2}$ days, nearly two years more than the 432,000 of Berossus, a round number which we have seen would stand for 1200 years of 360 days each, or 1183 Solar years. It is quite conceivable that Manetho endeavoured to make agreement with the chronology of Berossus for the antediluvian period, though he makes no mention of the flood.

We have said that the first fifteen Dynasties of Manetho seem to correspond with Dynasties of the gods in the other records, but it is not suggested for a moment that the kings whose names are thus classified were antediluvian, but

only that Manetho chose to put the gods by themselves, and then used the outline of 15 Dynasties they had occupied in the original record, in which to distribute the long list of human kings he had to dispose of.

In order to judge whether there is any reason in the suggestion, it is needful to arrange these in the antediluvian order, as we have found it in other records. The accompanying table will exhibit this, as shown on next page.

Now, in Manetho's lists, from the 1st to the VIth Dynasty, the *names* of the kings are given with the years of *each* reign and a large number of these names have been identified in the monuments, so there is practically no doubt that they existed; the only question is *when* they lived. The VIIth Dynasty is remarkable for the short period it is said to have lasted; only 70 days. It and those which follow, as far as the XIth, are without names, except one in the XIth which is admitted to belong to the XIIth. The whole of this period, VIIth to XIth is most uncertain as far as the monuments are concerned, and but for Manetho it might almost be left out altogether. It is known to Egyptologists as a mysterious blank.

MANETHO'S FIRST 18 HUMAN DYNASTIES.

				Yrs.
I. Dynasty, 8 kings, with names and reigns to each				263
Dyn.	Kings.	Yrs.	Dyn. Kings.	
II.	9 Thinite, named	302	VIII. 27 Memphite, no names	146
III.	9 Memphite, named	214	IX. 19 Heraleopolite, 1 name	409
IV.	8 Memphite, named	284	X. 19 Heraleopolite, no names	185
V.	9 Elephantine, named	218	XI. 16 Diospolite, no names	43
VI.	6 Memphite, named	197	XII. 7 Diospolite, named	160
VII.	70 Memphite, unnamed, 70 days		XIII. 60 Diospolite, no names	453
		<hr style="width: 100%;"/>		
TOTAL ...		1215	TOTAL ... 1659	
		<hr style="width: 100%;"/>		

It surely can hardly be a pure accident that, after the Ist Dynasty, the next twelve range themselves in precisely the same way as the two lines of Adam's descendants in the records of other lands which we have been considering. That is to say, one group is emphasised, and the other barely indicated. The seventh looks as if it had been ended by a catastrophe of some kind, and the only one in the second half with names and monuments to correspond is the XIIth, occupying precisely the same position as that of Jared, and Rama Chandra, which we saw through the Hindu record to belong to an exceptional period when for once the race of Seth prevailed over the race of Cain.

This XIIth Dynasty indeed has other characteristics suggestive of the antediluvian period, for the third king of this Dynasty in Manetho's list is Sesostris, with the significant note "1st after Osiris," thus certainly carrying the thought back to the so-called reign of the gods.

Sesostris is famous in Greek tradition as a king of Egypt of remote times who won astounding military victories in all parts of the world. Lempriere's Classical Dictionary concludes an account of his reign with these words: "The

age of Sesostris is so remote from every authentic record that many have supported that the actions and conquests ascribed to this monarch are uncertain and totally fabulous." Certain it is that Babylonian history, as revealed in the Monuments, leaves no place for this great conquering Egyptian king. In Egyptology he is associated with Usertesen II. from a correspondence in some particulars, but no XIIth Dynasty monarch at all fulfils the description given of Sesostris. On the other hand the Hindu account of Rama Chandra, whose chariots bore him into all quarters of the world, and who took a leading part in the great religious wars which followed the death of Raivata, fits the story exactly both in circumstance and time. It corresponds, too, with the Hebrew Jared, the father of Enoch, who nevertheless outlived him, and is often reckoned as his son, and who lived in a time when violence prevailed. As Osiris of the Egyptians has much in common with Enoch or the Hindu Parasa Rama, this would explain the note "1st after Osiris," at the same time that it was probably intended to compliment some post-diluvian Egyptian monarch by comparing him to the great hero whose fame followed him into the new world.

This association of human monarchs with deities of a bygone age is specially characteristic of Egypt, where the "Ka," or guardian deity, is frequently seated side by side with the king, and is indeed his exact counterpart. At the same time, it may be worth noting that the era of Rameses II., which gave us the existing lists of kings, from which Manetho obtained his information, was flagrantly conspicuous for this substitution of the living man for the past hero, and it is a commonplace of knowledge that Rameses II. did not hesitate to erase the names of his predecessors from many inscriptions and to substitute his own.

If there is anything in this explanation regarding Sesostris, it is quite possible that the name of "Menes," as that of the first Egyptian king, to which there is universal testimony, may also look back to the beginning of human life upon the earth, in which case Menes would be the Egyptian counterpart of Alorus of Chaldea, Swayambhuva of the Hindus, Fohi of China, and Adam of the Hebrew Scriptures.

According to Genesis, Mizraim was the first Egyptian king, and it has been contended by some that the one name is a representative of the

other. There is, however, no such testimony to the identity of Menes with Adam as is possessed in the other instances. There we have the very extended reign as a help to identification, though in the case of the Chaldean chronology it is apparently reduced to 100 years, by omission of the time before the 60-year cycle, or to 473 years before the return of Cain.

In Manetho, however, Menes only reigns 62 years, and there is nothing suggestive in any of the *years* of this Dynasty of the antediluvian period.

There is one exception in the matter of these numbers of Manetho to which it may be worth while calling attention, although the absence of agreement for either the first king or the 1st Dynasty robs it of the value it would otherwise possess. We have arranged the first 14 Dynasties in the manner of the Hindu Menus, and supposed that the right-hand column represented the race of Seth and the left-hand column the race of Cain.¹ Now, to agree with the figures of Berossus

¹ Such an arrangement would be exceptional, especially after what has been said about Dyn. XII.; but there is something in its favour. Dyn. V. is of Elephantine Kings, contrasted with Thinite and Memphite. An old figure of speech, termed the

we should look for 1200 for Cain's race and 1680 for that of Seth, but these would be years of 360 days each, the Chaldean calendar year, while Egypt adopted 365 days as a year. This would modify the numbers to 1183 and 1656. We actually have in the figures as they have come down to us 1215 and 1659.

One other circumstance which looks in the same direction for an explanation of these early Dynasties of Manetho, is the fact noted before, namely, that the Septuagint translators of Genesis have treated Manetho's first book of 11 Dynasties as *antediluvian* and altered the Hebrew figures to agree with the total, namely 2261 and 70 days. The division at this point, if the kings are post-diluvian, is absolutely artificial. The Monuments certainly show no sharp line of distinction between what is called the XIth and the XIIth Dynasties: indeed, it is agreed by every one that Ammenemes, included in Manetho's list under the XIth Dynasty, really belongs to the group known as

Sons of God or Children of the Sun, Elephants; and the Children of Men or of the Moon, Crocodiles; and the 5th ruler of the world after Adam was Jared; or Rama Chandra, according to Hindu accounts. *Hindu Chronology*, Vol. II. p. 176.

the XIIth and they are both described by Manetho as Diospolite kings.

Custom is difficult to change, but really it is only deceptive to classify the Monuments on the lines of Manetho's Dynasties until the XVIIIth is reached. The former part of the scheme evidently has a meaning of a different order, and as has been shown is not without some underlying agreements with the early part of the world's story as told in other lands.

CHAPTER IX.

THE EGYPTIAN PROBLEM.

PART II.

WE have now done with the antediluvian period, as far as the Egyptian records are concerned, and it remains to compare Egyptian history, whether as revealed in the Monuments or transmitted by classical writers, with the contemporary story as we have found it in India, China, Chaldea, and the Hebrew Scriptures.

The suggested explanation of Manetho given in the last chapter, though not without strong support from Egyptian sources, does undoubtedly involve us in considerable difficulty when we come to deal with the result of many years of patient investigation of Egyptian remains.

The numbering of the Dynasties according to Manetho has wrought itself into an enormous literature, and whatever may be the result of

future enquiries, it will probably never be found possible to refer to Egyptian kings under any other classification.

The chronological difficulty is far greater even than that. We seem to have turned nearly 200 kings out of house and home as it were, and to have nowhere to put them in the brief space heretofore occupied by two or three Dynasties at the most, for no re-arrangement can be suggested that must interfere with the XVIIIth and subsequent Dynasties standing complete. There are plenty of problems for this later period even remaining to be solved, but on the whole Manetho's list for this is well established and the information conveyed to us through him is most valuable.

The XVth, XVIth, and XVIIth Dynasties are occupied in Manetho by Shepherd Kings, and though great difference of opinion exists as to the time covered by them, their existence is too positively proved to be ignored. If, then, anything like 1600 or 1700 B.C. is taken as the beginning of the XVIIIth Dynasty, it does seem almost an absurd task to condense everything that went before into, say, 700 years. It will probably be suggested that no one would attempt to do so

who was not already deeply prejudiced in favour of the Hebrew chronology, but, on the other hand, no one would attempt to distribute them over the 4000 years of Manetho who was not also prejudiced in favour of a very extended existence for Egyptian history. Both sides start with a hypothesis, and endeavour to prove that it explains the known facts. It is the *proof* that is presented that should be judged, and not the first impression made by either hypothesis.

Now, the long chronology that places the 1st Dynasty about 5000 B.C., though not absolutely modern, has not been largely in favour until the latter part of the last century. It was not based on Manetho, but on certain conceptions of human history that found a convenient expression in Manetho's lists. It has had every test that could be applied to it, and yet the judgment of scholars as expressed, say, in the words quoted from Professor Breasted, condemn it as far too extended in the total and manifestly wrong in the detail.

How modern this view is may be proved by reference to that monumental work "L'Art de Verifier des Dates," which gives the list of Dynasties I. to XVII. as extending from 2433 to

1790 B.C. It is an impossible arrangement, probably designed to agree with the Septuagint version of the Hebrew Scriptures, and proved absolutely wrong by the actual Monuments excavated in recent times, but it shows the opinion then existing.

Professor Breasted's estimate has not shrunk into such limits as this, which was the opinion of scholars in the 18th century, but he brings Menes to 3400 B.C., thus curtailing the estimate of Champollion, who almost entirely followed Manetho, by 2467 years.

This is a tremendous drop, but the evidence we are about to examine will require a further 1200 years to be deducted before we can pretend that Egyptian history is in any reasonable harmony with the chronology we have found dominant among other ancient nations.

Before we proceed further let us examine the Manethonian Dynasties side by side with the broader results of Egyptian excavation, that we may get some idea as to what room there is, in the opinion of scholars, for these great discrepancies, and thereby may possibly get a hint to guide us in our re-arrangement.

The first three Dynasties stand in Manetho for

769 years. It is supposed that the tomb of Menes has been found, though the evidence is not at all conclusive. Many tombs belonging to the earliest period of Egyptian history, associated with Dynasties I. and III., have yielded their treasures but Professor Flinders Petrie says,¹ "We are asked to believe that 27 kings reigned during a space of 779 years and yet we cannot find more than half a dozen tombs attributed to this long period, while 10 or 20 times this number could be assigned at once to either of the succeeding Dynasties." Much has been found since this was written, but the argument is still valid. Dynasties IV. to VI. stand in Manetho for, say, 699 years, and this at least represents a well-defined period of Egyptian history as far as existing Monuments are concerned; and we shall examine it more fully presently. The Turin Papyrus totals the first six Dynasties 755 years only against Manetho's 1478. Dynasties VII. to X., standing in Manetho for 740 years, are described by Professor Petrie as "a dark age."² Dynasties XI. and XII. are perhaps the most closely defined of the whole first 17. Manetho's

¹ *History of Egypt*. W. Flinders Petrie. Vol. I. p. 27.

² *History of Egypt*. W. Flinders Petrie, Vol. I., p. 200.

numbers vary in different sources for Dynasty XII., from 160 to 245 years; the Monuments are said to support an estimate of about 183. We now come to the XIIIth and XIVth Dynasties, standing for the long period of 637 years, which from the standpoint of discovered remains Professor Flinders Petrie describes as "the second of two great periods of obscurity."³ All we have left before Dynasty XVIII. are the XVth to XVIIth; for which Manetho claims 953 years, occupied by the Hyksos or Shepherd Kings. Here again Professor Petrie remarks, "What went on during the six great Hyksos kings, and the confusion before them?"⁴ Professor Petrie has done more than any man since, perhaps, to throw light on this period, but it is still dark and mysterious. Dr. Budge says of it, "Unfortunately there are no Monuments whereby we can correct or modify these figures."⁵

Without this testimony, no one would imagine that the system which from Dynasty I. to Dynasty XVII., covers 4000 years, and has been claimed

³ *History of Egypt*. W. Flinders Petrie, Vol. I., p. 200.

⁴ *History of Egypt*. W. Flinders Petrie, Vol. I., p. 200.

⁵ *Notes for Travellers in Egypt*. Dr. Budge. p. 14.

as actual history, shows, when compared with the Monuments, *three periods of great obscurity*, and one of manifest exaggeration, standing for as much as 3100 years of this long period.

The recent course of Babylonian research has undoubtedly demonstrated the possibility of lists of kings apparently consecutive being actually and demonstrably contemporary.⁶

In this case, however, we have actual records written in the times themselves, and so free from suspicion of error due to the copying by ignorant scribes. Unfortunately, except perhaps the Palermo stone, the evidence we have from Egypt in lists of kings dates at best 200 years after the close of the period we are now interested in.

Another element of doubt arises from the fact that we have not any copy of Manetho at first hand. It is possible that if we had we should find that he never intended the construction which has been put upon him.⁷ The testimony of

⁶ *Chronicles of Babylonian Kings*. L. W. King. p. 18 ff.

⁷ If Manetho really intended to make out 4000 years of Egyptian post-diluvian history in his first 18 Dynasties, it is difficult to understand why Josephus did not point out this extravagance when dealing with Manetho (Josephus c Apion), as he certainly did not himself believe it. See next Note.

the Old Chronicle is that after the XVth Dynasty of eight demi-gods the list is as follows:—

MESTRAEAN KINGS.

Dynasty	XVI.	15 generations.
„	XVII.	Tanites, 8 generations.
„	XVIII.	Memphite, 4 generations.
„	XIX.	Memphite, 14 generations.

That is, 23 generations or successive kings follow the demi-gods before the XVIIIth Dynasty. The Book of Sothis, allowing for the different numbering of the Dynasties, gives these same Mestrian kings:—

Dynasty.		Old Chronicle.
XIX.	15 kings reigned 438 years.	Dyn. XVI.
XX.	8 kings reigned 189 „	„ XVII.
XXI.	6 Tanite kings, 245 „	„ XVIII.
XXII.	15 kings 338 „	„ XIX.

Before this we have the third race,

Dynasty XVIII. of — kings, Aerites, 161 years.

All earlier are described as gods or demi-gods. So this authority gives for the period in question three Dynasties XVIIIth to XXth, $161 + 438 + 189 = 788$ years from Menes to Amosis of Manetho's XVIIIth Dynasty, by whom the shepherd kings were expelled. Taking the beginning of XVIIIth

Dynasty at 1588 B.C. (Professor Braestead's date), we have Menes, therefore, say 2376 B.C.

Josephus was well acquainted with Manetho, but he says distinctly that from Minaeus to Solomon was a period of more than 1300 years. As we have seen, he is rather inclined to make agreement with the chronologies of other nations than to endeavour to take for granted the Hebrew figures. This calculation would yield Menes, 2300 B.C.⁸

Syncellus, who appears to have had access to a great deal of information since lost to us, says :

“ In the 5th year of Concharis, the 25th king of Egypt of the XVIth Dynasty, which is called by Manetho the Cynic Cycle, was completed in 25 reigns, a period 700 years from Mestram, the first native king of Egypt.”

In another place he says: Mestram, who is the same as Menes.” This would give Menes 2258 B.C., if the XVIIth Dynasty of shepherd kings were contemporary.⁹

⁸ *Josephus Ant.*, viii. 6.2.

⁹ Cory's *Ancient Fragments*, 2nd Ed. pp. 139, 140. On page 146 also he is quoted as saying: “The Kingdom of Egypt, after having continued 2211 years through a series of 10 dynasties and 86 kings, was subdued by Cambyses, in the reign of Amosis, the 86th king from Mestram, who is the same

All these quotations argue for a much shorter chronology than has been supposed to be indicated by the arrangement of Manetho as we have it, or is allowed by Egyptologists to-day. One of the most interesting testimonies is that of Eratosthenes, the learned librarian of Alexandria, cir. 230 B.C. He professes to give a list of the kings of Thebes taken from the Theban registers. As we receive it from Syncellus it contains 38 kings, but the original number is said to have been 91, and extended to Alexander. These first 38 kings cover 1076 years. The missing 53, if taken from the end of Manetho's list, would bring us to the beginning of the XIXth or XXth or XXIst Dynasty, authorities differ. This is somewhat confirmed by the fact that the 37th is said to have been "Phruron, which is Nilus," and Dicaerchus, of the fourth century B.C., tells us that from the reign of Nilus to the first Olympiad (776 B.C.), was 436 years.¹⁰ Nilus then lived 1212 B.C., and according to this, Menes

as Menes."—2211 + 525 for Cambyses makes Menes 2736 B.C., which, though long before the other dates given above, is very far short of the more than 4000 required if Manetho intended his dynasties to be consecutive.

¹⁰ Cory's *Ancient Fragments*, 2nd Ed. p. 161.

was $1076 + 1212 = 2288$ B.C. Of the 38 kings given by Eratosthenes very few names can be identified, but there can be no doubt about the following:—

“The 20th of the Theban kings, Apaphus Maximus, is said to have reigned 100 years with the exception of one hour.”

“The 21st of the Theban kings, Achescus Scaris, reigned one year.”

“The 22nd of the Theban kings was Nitocris instead of her husband, she is Athena Nicephorus, and reigned six years.”

Both the names and numbers given, and the fact that, as Herodotus tells us, Nitocris was the only woman whose name was included among the kings of Egypt, identifies the first with Pepi and the last with Nitocris, both included by Manetho in his VIth Dynasty and usually so reckoned. Eratosthenes, however, by making Nitocris the 22nd, brings her, on the principle already applied, to B.C. 1518, for in his list she was 306 years before Nilus, who lived, as we have seen, in 1212 B.C.

Nitocris could not have lived so late as this, which would be contemporary with the XVIIIth Dynasty. It is possible, however, that the

allusion to the 1st Olympiad is not to the period usually known by that name, but to the restoration of the Olympic games 108 years before. The interesting fact is that Nitocris, of Manetho's VIth Dynasty, is thus made contemporary with or closely following the XIIth, which is only carrying out the principle for which we have contended, namely, for a parallel arrangement of the 12 Dynasties after Menes, IInd to VIIth with VIIIth to XIIIth.

It would be a great advantage, as we have said, if we could altogether drop the numbers of these first 17 Dynasties in studying the Monuments of ancient Egypt; they are rather deceptive than helpful. We will, however, proceed to study the Monuments, bearing in mind what we have already noted as to the testimony of the ancients.

The following is the arrangement which may be said to be supported generally:—

- | | | |
|---------|-----------|---|
| Dynasty | I., II. | The most ancient remains. |
| „ | III.-VII. | Known as the ancient kingdom and Pyramid era. |
| „ | XI.-XIII. | Remains associated with XIIth Dynasty. |
| „ | XVIII. | Fairly well known and chronology established. |

Within the first three groups there are no clear divisions. If they were called the XVth, XVIth and XVIIth Dynasties the names would fairly fit the facts. Professor Braested holds that only about 200 years elapsed between the end of the XIIth or XIIIth Dynasty and the beginning of the XVIIIth. It is quite possible that it was much less. This is very strikingly confirmed by remains at Karnak, where a succession of temples, all of which were built to face the Nile, stand one behind the other as the river has shifted its position gradually to the West, and there is no abnormal space between the XIIth Dynasty temple and its next successor, that of the XVIIIth.

Egyptologists still cling to a long interval between the groups IIIrd—VIth and XIth—XIIIth, but there seems no monumental evidence for it of any substantial character. That the group IIIrd—VIth, as far at least as the IIIrd—Vth is concerned, was not a lengthy period, is proved by inscriptions which show that three lives covered the time from Snefru to Nuserre.¹¹ There does not seem anything in the nature of the Monuments attributed to Dynasty VI. to make

¹¹ Braested's *Ancient Records*, Vol. I. pp. 36, 774.

it impossible that they belong either to the short period between the XIIIth and XVIIIth, or contemporary with the XIIth Dynasty, as already suggested. Anything earlier than Dynasty III. is exceedingly vague, as far as Monuments are concerned. They indicate a distinct period, but give no hint as to the chronology.

The haunting ghost of Egyptian history is the Hyksos period. The testimony of ancient literature to the existence of these Shepherd Kings is unmistakable. Manetho attributes 511 years to their influence. They appear to have lorded it over some even of the greatest of the Pharaohs, and yet they have left no trace in the Monuments except in the one city Avaris, the remains of which have been recently discovered by Professor Flinders Petrie. The Scripture story of Joseph tells us that in his day every shepherd was an abomination to the Egyptians, and Manetho very distinctly describes their conquest and expulsion by the first king of the XVIIIth Dynasty. Tradition associates them in some way with the erection of the Great Pyramid of Gizeh, though it is always attributed to Cheops or Khufu of the IVth Dynasty. Professor Braested finds room for them only in the period of about 200 years, just

before their expulsion by Amosis, the first king of the XVIIIth Dynasty, but if we suppose that the seat of their power was outside Memphis, in the strongly fortified city of Avaris, and that they attained to great influence mainly in periods of Egyptian weakness, not usurping the position of the Pharaohs but becoming a thorn in their side, it is easy to allow them the 500 years claimed. But we have some definite astronomical evidence.

We have seen that the date of the erection of the Great Pyramid is embodied in a very remarkable way in its very construction. It is astronomically fixed at about 2170 B.C.,¹² 500 years later would fall 1670 B.C.—a not impossible date for the beginning of the XVIIIth Dynasty, though rather early. The shepherds may have come in to build the Great Pyramid, and have been expelled 511 years after by Amosis.

Astronomy again, by means of the Sothic

¹² This is the date given by Sir John Herschel, and is not intended to be exact, see page 102. Dr. E. W. Budge, in his recent work on the Kings of Egypt, vol. 1, page lvii., refers to it in a note, as if it were a calculation of my own. The 25,920-years curve for the length of the Sothic Year given in my paper, S.B.A., March 1908, has nothing whatever to do with the date of the Pyramid.

Cycle, gives us with close approximation to accuracy, about 1474 B.C. for the reign of Tethmosis III., and 1550 B.C. for that of Amenophis; 38 years before this, or 1588 B.C., would be the beginning of the XVIIIth Dynasty, so that 511 years would carry back to the IVth Dynasty—at all events, unless a great gap is assumed, for which there is no proof. The XIIth Dynasty is located by the same method, as including the 9th year of the reign of Usertesén I., B.C. 1878, for as Professor Braested well remarks, “The proposal to push back the said Sothic date by a whole Sothic Cycle, thus lengthening the above period between the XIIth and XVIIIth Dynasties by 1460 years, is hardly worthy of a serious answer. It involves that nearly 1500 years of history have been enacted in the Nile Valley without leaving a trace behind. It is like imagining that in European history we could insert at will a period equal to that from the fall of Rome to the present time.”¹³

The whole argument, so far as it turns on the understanding of the Sothic Cycle, is fully discussed in an appendix, and we must leave the Egyptian chronology at this point. Nowhere

¹³ Braested's *Ancient Records*, Vol. I. p. 36, note.

have such claims been made for a remote antiquity inconsistent with the dates of Genesis as in the Egyptian department of archæology, but little by little these claims have been abated till it only needs the frank abandonment of the very deceptive system of Manetho, as interpreted, to set Egyptologists free to discover the truth.

That the truth in Egypt will prove in complete harmony with that which may be demonstrated elsewhere, we may be quite sure. It would be saying too much to assert that Egypt fully confirms the dates of Genesis, but at least we have shown a possible and even a probable agreement, supported by ancient testimony and not actually contradicted by the monuments. That this exists notwithstanding millenniums of misunderstanding of the facts is only so much clear proof of the worth of the testimony so far as it is yet available.

Even accepting Manetho's figures for the length of reigns that can be proved, 900 years is the extreme limit of probability before 1588 B.C. But these figures are just as likely to belong to an antediluvian system with which later reigns were compared, as to be reliable for the kings whose monuments we know, and the very

equivocal position of the VIth Dynasty suggests the probability of even further reduction. With the beginning of the XIIth Dynasty fixed at about 2000 B.C., there is nothing in the rest, so far as actual monuments are concerned, to prevent the date of Menes falling, as Josephus says, about 1300 years before Solomon, or, say, 2300 B.C.

The following table exhibits the approximate periods before the XVIIIth Dynasty, as shown by the various records.

Dyn.	Manetho.	Old Chronicle.	Book of Sothis.	Genesis.
	I., II. 555	Dyn. XV. 217	Dyn. XVIII. 161	B.C. 2348
„	III.-VI. 949	„ XVI. 443	„ XIX. 438	
* „	VII.-X. 740			
„	XI.-XII. 203	„ XVII. 103	„ XX. 189	
* „	XIII.-XVII. 1590			
„	XVIII.	„ XVIII.		began B.C. 1588 cir.
	4037	763	788	760

Hyksos Kings, say 500 years.

* As no remains are found for these Dynasties in Manetho, covering 2330 years, and the rest are admittedly over-stated, it does not seem reasonable to continue to base Chronology upon these figures, especially when other Egyptian sources of information present a more likely solution of the problem.

CHAPTER X.

CHRONOLOGY AND CRITICISM.

WE have now reviewed the chronological systems of India, China, Chaldea, Egypt, and the Hebrew race. No two are alike in expression. The only one that is manifestly in a reasonable form is the last. This requires no interpretation or explanation, but used as a key it reduces all the others to common terms.

When so employed we have found additional information not included in the Hebrew record, but quite consistent with it, to be brought to light. Notably is this the case in the Hindu chronology, and also in the Chaldean. There is sufficient independence in these various versions of early history to suggest a common origin in fact, but more than sufficient diversity to dispel the idea that one is merely a late adaptation of another.

If anyone supposes that we have conducted

this enquiry with a view to prove the inspiration or even the truth of the Hebrew Scriptures as a whole, they have entirely misconceived the purpose. Strong as is the evidence for these dates, it is wholly insufficient as a basis for such a tremendous conclusion. The truth and inspiration of Scripture are demonstrated by quite other arguments, such as the appeal it makes to conscience and the effect for good that has followed its acceptance—above all, by its relation to Christ. But the truth of this record has been denied. The endeavour has been made to throw doubt on its veracity and to maintain that it is unreliable in its statements of common history. It is here that we have joined issue, and have chosen to fight the battle on ground far too hastily abandoned as untenable.

If the dates of Genesis can be supported by the widespread testimony of an impartial antiquity, and confirmed by the most recent archæology, there is something wrong about the theories which have so hastily condemned them as of no value whatever. Many other statements of Scripture for the time being, have seemed contradicted by facts as we understood them, but have afterwards proved correct. If interpreters have been

mistaken once, they may be again, and it is well to treat a book that claims to carry history back to the very earliest point known, with at least so much respect as not to ignore its testimony in the endeavour to interpret the story of the past.

The old book has triumphed so often over those who have scouted its witness that we may feel fairly confident that it will do so again if we do but patiently investigate. Especially may those trust it who have found in it a revelation of the most secret things of their own hearts and a further revelation of the divine purpose for them which surpasses the utmost thought of men. The book which speaks of Christ from the first page to the last, is not to be judged by common standards. There is much development in God's method, but He does not develop truth out of falsehood. Hence a book that claims to be the revelation of His will must be more than ordinarily free from error. It *may* not have been God's will to prevent *all* mistakes, even in writing this book, but it is impossible to believe of any part of it, that it was conceived in mere imagination, and put together in fraud, and foisted on an uncritical age as truth, when it was in fact mere fable. Leviticus and Deuteronomy

are more inherently probable than Genesis, and if the latter is strongly confirmed on a close investigation, a theory that makes the former a pious fraud is hardly likely to stand honest enquiry. What we plead for is that honest enquiry shall be given, instead of the mere acceptance of criticisms at second hand, and the virtual abandonment of any real inspiration in consequence.

On the other hand, nothing is easier than to adopt a theory of the infallibility of Scripture and to use it to stifle enquiry and as an excuse for laziness.¹ The truer the book is, the more worth

¹ What Whately says of the method of inculcating doctrine adopted in the Bible is, to a great extent, true also as to its communication of fact. Were there no room for doubt, he says: "it would have come to be regarded by most with an indolent unthinking veneration, which would have exercised little or no influence on the character. Their orthodoxy would have been, as it were, petrified, like the bodies of those animals we read of incrustated in the ice of the polar regions; firm fixed indeed, and preserved unchanged, but, cold, motionless, lifeless. It is only when our energies are roused, and our faculties exercised, and our attention kept awake by an ardent pursuit of truth and anxious watchfulness against error—when, in short, we feel ourselves to be doing something towards acquiring or retaining or improving our knowledge—it is then only that knowledge makes the requisite practical impression on the heart and on the conduct."—*Peculiarities in the Christian Religion*. Essay VI. p. 361.

while it is to take pains to prove it true. Those who hold it infallible are the very men who should most fearlessly face investigation, and with earnest diligence seek for the confirmations which are certain to be found sooner or later if it is true. What is most to be deplored is the easy yielding to rationalistic criticism on the authority of merely human opinion, without the least attempt to examine for oneself the arguments by which it claims to be supported.

It is not intended to impute the smallest blame to investigators for reporting facts apparently antagonistic to Scripture, nor for advancing theories incompatible with it. Their business is to tell us frankly just what they see, and what they think about it. Critics must be left at liberty to speculate freely as to the origins of the books of Scripture. If they think they can prove it untrue, they have a perfect right to try. What we complain of is that professed believers should accept their theories without demonstration, and too easily take refuge in views of inspiration which rob the Bible of its reputation for truth, and Christ of His full authority as a teacher. If we are really compelled to do this, we had better honestly give it up, for the world will never be

brought to believe in the sincerity of our faith if it has to make such concessions, however much we may assure them that, notwithstanding that the Bible is quite unreliable on questions of fact, it is more beautiful and believable to us than ever before.

To return, however, to our argument. The science of ancient chronology is altogether out of favour just now, criticism having given its pronouncement so absolutely against the possibility of the figures we have been considering being correct. Now that we have shown substantial reason for regarding them as trustworthy, we may glance before we close at some of the errors into which criticism has certainly been betrayed by overlooking well attested facts.

In several points we have already done so. For example, the source of these figures themselves has been declared to be the so-called Priestly Code, which, on the ground that it must have been of Babylonian origin, is confidently attributed to the close of the captivity. There are many other periods in which Babylon might have influenced Hebrew thought with far more probability than the fifth century B.C., and we have adduced evidence that this period is not

likely to have been the origin of the Genesis figures. But neither is it reasonably probable that Israel then for the first time came in contact with the Babylonian creation story, which also is attributed to the Priestly Code. We now have evidence from actual cuneiform inscriptions that even before the date of Moses there were extant records of both creation and deluge stories, with the similarity in expression that leads to the assertion that the Hebrew comes from the Babylonian.

Singularly enough, criticism asserts that the Hebrew deluge story in Genesis is derived from two or three different sources, partly at any rate from the Priestly Code, and partly from an Israelite manuscript of the seventh century B.C., and that these different statements are contradictory.

Now, it is a remarkable thing that the far more ancient Babylonian story, in the version 2000 B.C., has both these supposed independent and contradictory details side by side, just as our Hebrew text has. For example, the description of the ark covered with pitch, and of the rainbow, are said to be from the Priestly Code. The sending forth of the birds, and the smell of the

sacrifice is from the Jehovist. Yet all these are to be found in the ancient Babylonian account. Why should they have been separated?

But the reason for attributing the supposed Jehovist and Elohist documents to the seventh or eighth centuries B.C., and denying their existence in written form before that date, is still more contrary to the facts testified to from all lands. It is argued that they must have originated at that date because they are so distinctly Monotheistic, and as the theory assumes that religion has developed up from mere Animism, through polytheism to the Monotheistic teaching of the later Hebrew prophets, it is argued that it would be an anachronism to attribute them to an earlier date. Of course, this is, as we remarked in the introductory chapter, quite contrary to the whole tenor of Scripture, which from first to last maintains that man had the knowledge of the true God at the beginning, but departed therefrom, and substituted the works of his own imagination. In this the statements of Scripture are abundantly confirmed by research, and the very first principles of criticism are thereby disproved. Wherever we turn to examine the most ancient records we find the purer faith precedes

the polytheistic. If, then, the Genesis story is monotheistic, and the Babylonian is polytheistic, the obvious presumption is that Genesis is the older of the two, and is therefore not of Babylonian origin.

So much turns on this position that we shall give evidence from various quarters, though we cannot notice a tithe of that which is available.

Let us turn first to Egypt. What says the great Egyptologist, Wilkinson, on this point?

“In the early ages of mankind the existence of a sole and omnipotent deity who created all things seems to have been the universal belief. According to the ancient theology (of the Greeks), the most rational of all, there was only one eternal God from whom all the other deities were produced.”²

In Chaldea we find that, before the worship of Samas, the sun god, was instituted, the chief deity was known by the name of Anu, which means the heavens. Even the deluge story refers to Anu as “the father of the gods.” It will be remembered that when Israel came in contact with

² *The Ancient Egyptians*. Wilkinson. See also *Problem of the Old Testament*. Jas. Orr, D.D. p. 496.

Assyria, in the book of Jonah, and with Babylon, in the book of Daniel, this title was used by them for Jehovah in the form "the God of heaven," and it may well have been the thought underlying the name "the Most High God," worshipped by Melchisedek, and "the Lord of hosts," that is, the hosts of heaven, which is first given in II. Sam. vi. 2, as the title of Jehovah.

There is a close connection between the Accadian language and the Chinese. Accadian is the early so-called pre-historic tongue of Chaldea, Sargon I. being king of Accad. Now, the Accadian sign for God and for a star is the same, and in China also the same fact is observed.³ This points to a universal conception of God not as associated with either of the great luminaries, the sun or the moon, nor any individual star, but with one represented by the starry heavens as a whole. Professor Margoliouth has suggested that the Hebrew names Shaddai and Jehovah are "in reality the same Divine name expressed in two different Semitic dialects, Shaddai being the Aramaic name of the God of the Patriarchs and Jehovah the

³ See Note 4, Chap. VII. p. 175.

Hebrew Arabic translation or equivalent of the name.⁴ Both names really mean, according to the opinion advocated by him, the same thing, namely, "one who sends things down from heaven."

The bearing of this opinion on current controversies as to a Jehovist and an Elohist document will be apparent—it undermines the whole theory, but it is quoted here to show that the association of God with heaven is extremely ancient, and not necessarily idolatrous, though it afterwards degenerated into a worship of the host of heaven in place of their maker, and eventually into adoration of the sun and moon.

It is plain from the astronomical point of view that the earliest observers gave their chief attention to the starry heavens. The 360-day year is shown in the appendix to have been sidereal, though it recognised both sun and moon. It does not seem improbable that the opposing cults in later Babylon, with their temples erected to either the sun or the moon, and associated with different cities, may have originated in a conflict between a system of time reckoning

⁴ Proceedings of the Society of Biblical Archæology, 1895, p. 56-7.

based in the one case on the moon and stars as observed by night, and in the other on the observed path of the sun by day.

It is very interesting to notice that the signal judgment of God upon Egypt in the plagues; and the exodus of Israel, which, contrary to the usual theory, Hommel and other scholars now date in the reign of Thothmes III.,⁵ was followed so soon after by the endeavour of Thothmes IV. to abandon the worship of animals so conspicuously associated with the preceding reigns, and to establish in its place a monotheistic worship under the name Horus, which, though commonly regarded as the visible sun, referred rather to the God of which the sun was only emblem. All idolatry has sprung either from the deification of human forefathers and heroes, or from the substitution of the symbol for the thing signified, and is usually defended by its most intelligent advocates on precisely the same principle that the Church of Rome defends the crucifix, namely, that it is not the thing that is worshipped but only that which is symbolised.

Thothmes IV. was completely unsuccessful in

⁵ *Problems of the Old Testament*. Jas. Orr, D.D. p. 422. Article by Hommel in *Expository Times*, Feb., 1899.

his endeavour, but the fact that it was made at that juncture is very significant.

We have not touched on the chronology of Phœnicia, but its history, as given by Mr. G. Rawlinson, M.A., in "The Story of the Nations," is to the same effect.⁶ He says (p. 29):—"Originally the Phœnicians would seem to have been monotheists, and to have possessed a lofty idea of the great power which had created and ruled the world. They called him *El*, Great; *Ram* or *Rimmon*, High; *Baal*, Lord; *Melek* or *Molech*, King; *Eliun*, Supreme; *Adonai*, My Lord; *Bel*, *Samas*, Lord of Heaven; and the like. They regarded him as wholly distinct from matter, and believed him to have brought into existence all other beings and all material things. But this belief was early overlaid and corrupted. The different names for God passed by degrees into different gods. New deities were invented or imported, as, Istar from Babylon, and Thoth and Ammon from Egypt. Monotheism passed into polytheism." Now, Renan says,* "The greater number of modern critics admit it as demonstrated that the primitive abode of the

⁶ *History of the Nations (Phœnicia)*. G. Rawlinson, M.A. p. 29.

* *Histoire des Langues Semitiques*, II. 2, p. 183.

Phoenicians must be placed on the lower Euphrates, in the centre of the great commercial and maritime establishments of the Persian Gulf, conformably to the unanimous testimony of antiquity."

If this is so generally accepted, why should it be regarded as incredible that their close neighbours, the Hebrews, also Semites, who claim to come from the very same neighbourhood, could have had no clear idea of monotheism till about the seventh or eighth century B.C., and that all statements about their early origin are mere tradition and quite unreliable?

As for India, Max Müller says, "The religion of the Vedas knows no idols,"⁷ and the Vedas are their oldest books.

Perhaps there is no land in which idolatry has run such riot, so to speak, as India. Its idols are numbered by millions, and yet the evidence of the original worship having been monotheistic is clearer than that of any other land, because we possess sacred writings preserved by the Hindus from extremely early times. Brahm, the Eternal, is thus described in the Institutes of Manu as creating:—

⁷ *Chips from German Workshop*, I. 38.

“He whom alone the mind can perceive, whose essence eludes the external organs, who has no visible parts, who exists from eternity, even he, the soul of all beings, whom no being can comprehend, shone forth in person.”

“He having willed to produce various beings from his own divine substance, first with a thought created the waters, and placed in them a productive seed.”

“That egg became a seed bright as gold, blazing like the luminary with a thousand beams, and in that egg he was born himself in the form of Brahma, the great forefather of all spirits.”⁸

Concerning this, Hamilton makes the following comment:—“The waters are called Nara, or the Spirit of God, ‘and the Spirit of God moved upon the face of the waters,’ and since they were his first Ayana, or place of motion, he thence is named Narayana, or moving on the waters.”⁹

Sir William Jones, the great Oriental scholar, has written a very beautiful poem on Narayen, embodying the Indian conceptions, which after

⁸ *Institutes of Manu*, Chap. I.

⁹ *Hindu Chronology*, Vol. II. p. 5.

referring in the Hindu manner to all external things as Maya, that is, mere illusion, thus concludes :—

“Delusive pictures! unsubstantial shows!
My soul absorb'd One only being knows,
Of all perceptions one abundant source,
Whence ev'ry object, every moment flows :
Suns hence derive their force,
Hence planets learn their course ;
But suns and fading worlds I view no more :
God only I perceive ; God only I adore.”¹⁰

While undoubtedly Sir William Jones brought his own Christian conceptions to his theme, yet the quotation we have already made is enough to prove it did not do violence to the idea he presented. Not only have we in the few lines quoted from the Institutes of Manu a monotheistic conception, but we are also startled to find how easy it is to trace a trinity in that one God. Brahm the Eternal, Brahma the Creative Attribute (the Word without whom was not anything made that was made), and Narayen the Spirit on the Waters. Indeed, in the Vedas the deity is spoken of in the plural as Brahm the great Triad.

¹⁰ *Hindu Chronology*, Vol. II. p. 339.

The Gayatri, a most sacred text among the Hindus, which they believe was pronounced nearly 5000 years ago, runs thus:—

“ Let us adore the supremacy of that divine Sun the Godhead who illuminates all, who recreates all, from whom all proceed, to whom all must return, whom we invoke to direct our understanding aright in our progress to his holy seat.”

This verse is considered the baptismal oath of a Hindu.¹¹

But one of the most beautiful quotations is that made by Max Müller from the Rig Veda, the most ancient of all, and perhaps the most ancient book in existence, and the source of the Gayatri as just quoted. We will only give one or two stanzas, though the whole hymn is well worth reading:—

“ 1. In the beginning there arose the Golden Child (embryo or germ). As soon as born he alone was the Lord of all that is. He established the earth and this heaven. Who is the God to whom we should offer sacrifice?

“ 2. He who gives breath, he who gives

¹¹ *Hindu Chronology*, Vol. II. p. 23.

strength, whose command all the bright gods revere, whose shadow (worship) is immortality, whose shadow (ignorance of) is death.

“ 6. He to whom heaven and earth standing firm by his will look up trembling in their mind, he over whom the risen sun shines forth. . . .

“ 8. He who by his might looked even over the waters which held power and generated the sacrifice. He who alone is God above all Gods. . . . Lord (of creatures, Pragapati), no other than Thou embraces all these created things. May that be ours, which we desire when sacrificing to thee. May we be lords of health.”¹²

It is difficult to see how this could have originated in a solar myth, the favourite explanation of all ancient religion, for the sun is here most distinctly subordinated to the deity.

Here is a yet further quotation given by Hamilton:—¹³

“ Om! remember me, divine Spirit!
Om! remember my deeds!

¹² *Sacred Books of the East*, Vol. XXXII. The Vedic Hymns. Mandala. X. Hymn 121.

¹³ *Hindu Chronology*, II. p. 77.

Thou all-pervading Spirit, that Spirit which gives
light to the visible sun,
Let my soul return to the immortal Spirit of God.
I am in this world like a frog in a dry well.
Thou only, O Lord, art my refuge; Thou only
art my refuge."

Now, while they may very likely be interpreted to-day in a pantheistic sense entirely, the closing words are no more suggestive of a union with God as a mere Nirvana of non-consciousness, than are the same words when used by the Hebrew psalmist.

Despite all the corruptions and additions of Oriental imagination which give an endless variety of names to the same deity, we cannot fail to see in the passages quoted, one supreme eternal Spirit recognised as the origin of all things, transcendent as well as immanent.

If this testimony of ancient records and monuments is accepted, it is plain that the best word to describe the changes in religious thought between the beginning and the coming of Christ is not evolution but degeneration. The progress has been further and further away from that pure conception of God to which the early records bear witness, a conception so far higher than

that ever entertained outside of Scripture that it must surely have had a revelation for its source.

It has been granted to this age to be, as far as we know, pre-eminent in that knowledge of the physical universe which we call science, and also in the number of the population, but in other respects we look behind us for greatness. The art of to-day is modelled upon that of past ages, but is acknowledged inferior to it. The literature of Greece is still the source of both ideas and expressions, and long before Greece rose, the ancient civilizations of Egypt and Chaldea far exceeded us in their buildings, and even in the execution of their works of art.

Some of the most ancient specimens of this kind, found in the ruins of the old cities such as Telloh, are the most wonderful in existence for their workmanship, and yet men go on talking of evolution as if all the early races were savages, and we alone could be called civilised.

From the evidence adduced, we conclude that not only is there no support for the idea of man's history on the earth beginning with an undeveloped intelligence, but there is strong testimony to the contrary. Writing and drawing are

found in the earliest extant monuments, and in the earliest known traditions are attributed to the beginning. The precession of the equinoxes is the surest mark of the passing of the centuries which we possess, spanning time by definitely marked periods of over 2000 years. Its witness is to the fact that, as far back as Sargon I., Aries was the constellation which began the year. Before that there is ample evidence that Taurus was the ruling sign, but no other can be definitely pointed to; though by imagining a change of reckoning from equinox to solstice, the whole circle may, of course, be easily run through. With the explanations of the Nabonidus inscription and the long chronology of Manetho, the only difficulties of the Bible dates disappear and the world-wide testimony is borne to man's history beginning somewhere near 4000 B.C. This indeed is specially marked out in the heavens as an era well qualified for being taken as a beginning for historic time. (See page 268).

Thus do the Monuments, the stars, the traditions, and the sacred writings all unite to confirm the story of the Bible, and even these much despised dates of Genesis.

Criticism has thrown doubts upon the history

of Israel in the wilderness and on the very existence of Moses, of Abraham, Isaac, and Jacob. It has laughed to scorn the story of the antediluvian patriarchs and supposed the marvellous description of creation, so infinitely superior to anything of the kind ever written, to be mere mythology at second hand. On the other hand, archæology has found references to the conquest of Canaan by Joshua; witness to the prevalence of knowledge of writing in the age of Moses; has found ancient records of the deluge and references to the kings that made war in the days of Abraham.

It has found the very names of Abraham and Jacob used in the time and country to which they are attributed in the Bible, besides confirming the later history of Israel at a thousand points.

We have now examined the dates which at first sight seem so little likely to yield a profit for their study, and we find even these cover distinctive features. Alone among the world's chronologies they are expressed in plain figures requiring no interpretation and yet agreeing with the rest when studied in the light of the various conditions involved. The Bible dates when so

compared are not only simple, they are scientific. They embody the natural year after which the various calendars of the nations seem to have so vainly striven. The sacred year of Leviticus by which the feasts were regulated explains them and fulfils them completely, while the complex intercalations of Chaldea lead us into endless confusion, and the frequently changed reckonings of Egypt, based on such variable observations as that of the heliacal risings of Sirius, only lead us into perplexity.

Surely here we have evidence of divine oversight if not of divine revelation. It is not so much that the dates of the various lands agree that impresses us, as that, agreeing as they do, those of the Hebrew Scriptures are so incomparably superior to all others. We could never have read the riddle without using them for the key, but the accuracy with which they fit the lock is surely a testimony to their truth.

And there is one thing more to note before we close. These dates concerning the past remind us that the Scriptures also contain some dates concerning the future. These are no more to be regarded as worthless than the other. God speaks to us in both. Singularly enough the

Hindu figures are also prophetic, and their prophecy tells the same story. We cannot go into that subject here, but may just note that their weird and mysterious millions of years, when interpreted by the simple rule we have already applied to them, work out almost the identical date given by the Prophet Daniel as the close of the present age, for the coming of their Calsi Avatar to reign, as they say, for 1000 years. When Manetho set forth his figures at the command of Ptolemy Philadelphus, he states that he did so "in answer to your enquiries concerning the things which shall come to pass in the world," as if it were well known that there was some prophecy extant which required a correct chronology to elucidate it.

It is difficult for us to see the connection, but the ancient world evidently did so, and when we remember that "Enoch also, the seventh from Adam, prophesied saying, Behold the Lord cometh, with ten thousand of his saints," we may guess the origin of this expectation, and regard it as a not altogether improbable supposition, that some ancient records of a primeval revelation in antediluvian times were handed down in the custody of the learned, whose special

work it has always been to treasure and preserve such knowledge.

No theory of solar myths or imaginative folklore will solve the problems that present themselves, but a belief in the fact of revelation and the spirit of prophecy removes difficulties that are otherwise insuperable. And we conclude this brief enquiry into the dates of Genesis with the testimony of our deep conviction, after abundant and painstaking investigation, that God has specially revealed Himself and the truth in the Hebrew Scriptures, and that Christ, in handing to us the things written in Moses and the prophets and the Psalms, has bequeathed to us, with the commendation of His own approval, a Word of God that is both true and able also to make us wise unto salvation.

APPENDIX.

INTRODUCTORY NOTE.

THE purpose of this Appendix on Chronological Astronomy in relation to the Dates of Genesis is threefold.

1. To show the probability that the ancients possessed a far fuller and more correct knowledge of astronomical facts than is usually supposed. Such indications as may be found in early remains will, therefore, be worth giving careful and scientific attention to.

2. To complete the proof that the principle of a day being used to represent a year, which is common to Chaldean, Hindu, and prophetic Hebrew chronology, is based on astronomical fact, and that the 360-day period in such universal use in early times is not a mere approximation of ignorance, but has a scientific basis.

3. To set forth in the simplest way practicable, and without mathematical formulae, the essential elements of chronological astronomy; with a

view to assist investigation into those indications in the Monuments already observed, and others that may be discovered by future search.

The last point is very inadequately dealt with, but it is hoped that the outline may be useful, especially in its bearing on current misconceptions relating to the Sothic Cycle.

APPENDIX.

CHRONOLOGICAL ASTRONOMY.

(A) THE KNOWLEDGE OF THE ANCIENTS.

IN the sublime description of creation contained in the first chapter of Genesis, we are told that the sun and the moon were appointed "to divide the day from the night, and to be for signs and for seasons, and for days and years."

That their apparent movements are admirably adapted to serve that purpose is obvious to all. In fact, there is no other natural way open to us of correctly measuring time. Whether the period of man upon the earth has been long or short, these movements upon the background of the stars have been quite adequate to its measurement. The variations observable would not amount to any serious error even if continued for millions of years. The question is not whether the means for measuring time exist,

but whether man has had the intelligence to avail himself of them and how far he has done so. Some divisions of time thus indicated must have forced themselves upon his notice, others need considerable skill in observation and long periods for confirmation. It is impossible to ignore the day and the night, the changing phases of the moon, or even the recurrence of the seasons; yet all of these are subject to variations which make the determination of a mean essential. Scarcely any two days are of the same absolute length, and yet careful observation and calculation will readily yield a *mean* day which will not vary in millenniums.

It would be an almost inevitable observation to note the progress of the moon among the stars, but a far from obvious one to describe the sun's path in the same or similar terms. The psalmist in the 19th Psalm exclaims, "In them (the starry heavens) hast Thou set a tabernacle for the sun, which is as a bridegroom coming out of his chamber and rejoiceth as a strong man to run a race." We are often told that the sun was believed to pass through the underworld during the night, but it is only by the knowledge that though the sun is then invisible, its apparent

movement is still a regular and ordered one, that it can be asserted that he holds any definite position at all among the *stars* in the day time. There is no doubt whatever that the ancients did speak of the sun as being at certain times of the year in certain constellations of stars, though they never saw it there. It follows, therefore, that their conception of day and night was not essentially different, but only part of one apparent revolution of the sun in the great circle of the heavens. This evident recognition of the *circle* of the heavens is not so unlikely to have been accompanied by a knowledge of the true nature of these movements as is usually supposed. It is generally assumed that the ancients believed the sun went round the earth as millions of uneducated people do to-day, and that the earth was a plane instead of a sphere, and, indeed, there is good evidence of this belief having existed, but not necessarily in the times associated with progress in astronomical science, nor by the earliest astronomers. The dark ages of scientific knowledge need not have been the first ages. If tradition is to count for anything they were not. Hebrew, Chaldean, Phoenician, Indian and Chinese traditions all date great dis-

coveries in relation to astronomy to a period more than 3000 years before Christ. There are many evidences of a very remarkable knowledge of astronomy long before the Ptolemaic era. Isaiah, in his 40th chapter, describes Jehovah as sitting on the *circle of the earth* and seeing the inhabitants of the earth as grass-hoppers; while He spread out the heavens as a tent to dwell in. The language fits the fact with extreme beauty, but is very difficult to understand if the ignorance of the fact was as universal as is supposed.

Job, describing the relation of the earth to the heavens, says, "He spreadeth forth the North over the empty space, and hangeth the earth upon nothing." It is quite true that European astronomy had to wait for Copernicus to teach the heliocentric system of the universe as against the then prevailing geocentric ideas, but it is also believed that Pythagoras, 500 years before Christ, taught that the earth went round the sun, and is said to have gained this knowledge from the ancient Egyptians. Nothing to the contrary can be made of the world-wide expression that the sun rises, for it does so, however that effect may be produced, and rising and

setting are still the only astronomical terms in which these phenomena are described.

Our difficulty here in setting forth the testimony of astronomy to the world's chronology is not the present-day advance in knowledge, but rather the popular ignorance which makes the time-keeping of the "clock of the Universe" still a matter of small interest because it is so little understood. Let us begin by dismissing from our minds any idea of the ancients being mere fools in such matters, and be willing to learn from them whatever they can teach.

Sir Robert Ball remarks, "I think we sometimes do not give the ancient astronomers as much credit as their shrewdness really entitles them to."¹

Mr. Maunder goes further than this. Speaking of the Zodiac, he says:—"The people who mapped out these constellations were no savages, they were real astronomers. They did it by the sun, not by the moon. Arabia, Babylon, Persia, India, agree in the twelve designs. The pole marked by the folds of the dragon was furthest from the course of the sun. To determine the positions of the Ecliptic and of its

¹ *The Story of the Heavens.* Sir Robt. Ball. p. 535.

pole was a task far beyond the power of a mere savage. The pole of the equator, easy to find, was left unmarked."²

On the other hand, we must be careful not to expect the impossible. The exact measurements with which astronomers are familiar to day are of necessity the result of ages of observation and special appliances. The ancients seem to have accomplished marvels, not only in the knowledge to which they attained, but also in the means they devised to observe. As Proctor has shown, the Great Pyramid, as an astronomical observatory, is a wonder of construction, and capable of supplying most accurate knowledge in the hands of intelligent observers.³ Besides, after all, very simple means are sufficient to reveal the principal facts.

The long shaft of the obelisk, with its pointed top and its vertical position, is admirably adapted to record roughly by its shadow not only the position of the sun on the meridian when it was mid-day, but the progress to and from that point,

² *Astronomy without a Telescope*, p. 6. E. W. Maunder, F.R.A.S.

³ *Old and New Astronomy*. R. A. Proctor. *The Great Pyramid*. R. A. Proctor.

and by the varying length of the shadow the equinoxes and solstices are indicated. A tunnel, such as that which in the pyramid of Cheops pointed to the polar star, or two rigidly fixed points set at an angle appropriate to the latitude of the place and in the meridian, would mark very closely the moment of a star's return to its position. The rising or setting of stars with the sun would indicate the sun's position in the heavens, and when the sun rose due East, at least the *day* of the equinox would be easily determined. This would also be plainly indicated on a correctly oriented pyramid or square tower, by the side in shadow at sun-rising.

It is on record⁴ that an Indian astronomer in the last century succeeded in making observations without modern appliances which compare very favourably for accuracy with those of our best observatories, and the calculations of the length of the year and the obliquity of the earth's axis which come down to us from before 2000 B.C., are more accurate than those of the early Greek astronomers who are usually called the fathers of astronomy. Besides this, so great were their powers of observation that there is

⁴ *Knowledge*, November, 1899, p. 257.

some reason to believe that they were aware of the phases of Venus and even of the moons of Jupiter.⁵

The great difficulty would be accurately to subdivide the day. Here owing to the variations in the movements of the heavenly bodies, Nature to a large extent fails us, and we need the chronometer.⁶ Modern calculations are largely based, not on immediate observation, but on the supposed movements of a fictitious sun which represents a mean position instead of the real one. The clock and the sun only agree four times in a year and may differ by as much as 16 minutes.

⁵ See Dr. Pinches in Proceedings S.B.A. xxxi. p. 24.

⁶ Yet it is by no means impossible. While a star's altitude above the horizon varies, its progress in arc is nearly constant, and at night, by fixing a circle of observation with its centre at the pole, a star on the circumference would steadily indicate the passing of sidereal time, and by the difference between that and solar time would divide the year. If this simple observation were made in the times referred to, it would be inevitable to note that the pole was also describing a circle, because *A Draconis*, which, B.C. 2785, was very nearly at the pole, before and afterwards, would be seen describing a diurnal circle round it. With all these movements noted, it would not be an extraordinary thing for a highly intelligent man to discern the great probability that it was the earth that was in movement and not the stars. At the same time it might have been difficult to convince less acute observers, and so the knowledge might be lost.

Now, this difficulty is easily overcome by observations extended over a long period in which minute differences accumulate to observable quantities.

A good illustration of this is afforded by the 360-day year, which, as we know, is not at all accurate, though nearer to the true solar year than the 12 lunations of the lunar year. It is a very convenient number easily divisible. It yields 12 months of 30 days each, and was most certainly adopted as a reckoning in extremely early times. It is very unlikely, however, that it was ever regarded as a solar year, but only as the basis of a calendar to be adjusted by intercalation. The true year, as measured by the return to the same star, is now 365 days 6 hours 9 minutes 9 seconds, but as measured to the return to the equinox, it is 20 minutes 23 seconds shorter.

The ancients probably began by measuring by the moon and so obtained the 354-day⁷ year, or 12 lunations, but this would speedily

⁷ The 355-day year of India is a sidereal lunar year, in which the moon completes 12 lunations and 13 revolutions, and is found, therefore, in almost the same phase and in the same position in the heavens.

TABLE OF
COMPARATIVE LENGTHS OF THE YEAR.

NAME OF YEAR.	LENGTH IN DAYS.	USED BY.
Lunar Year, 12 Lunations ...	354'36706464	Ancients and Mahommedans
" " 13 Sidereal Months	355'18225822	Ancient Hindu
Chaldean or Prophetic.....	360	Chaldeans
Vague Year	365	Ancient Egypt
Sothic Year.....	Variable	" "
Julian Year.....	365'25	Roman World, Russia
Gregorian Year.....	365'2425	Modern Europe
Leap Year	366	Once in 4 Years
Solar or Tropical Year	365'24249916	Le Verrier
Era, 3000 B.C.		deduced
" " 600 B.C.	365'242349	ditto
* " " 1900 A.D.	365'241934	ditto
†Sidereal Year.....	365'2563538	ditto
‡Anomalistic Year	365'2596408	ditto

One hour = '0416 day.

One minute = '000694.

One Second = '000011574.

* Equinox to Equinox.

† Star to same Star.

‡ Perihelion to Perihelion.

prove itself incorrect for recording the return of the seasons and would require intercalation. The problem then became, What was the true length of the year to which it must be made up by the insertion of a month occasionally? This did not trouble the Hebrew people from the time of the exodus, for they were taught to observe the seasons by means of their feasts, and to watch for the appearance of the new moon, thus keeping the year continually corrected by both sun and moon.

The ancients, however, were astronomers. They gave great attention to the stars as well as to the sun and moon, and the difference between solar time and sidereal time was essential to them. We may imagine, therefore, that they used the 360-day year in the following fashion. Noting the position of a star at the equinox they might count the days until 365 times 360 days had elapsed, then in the following or 366th period of 360 days note the day, or rather night, on which the star is in the same position as at the commencement. It would occur on the 92nd day, but the equinox would have occurred on the 87th day, just five days before. Now, this really yields a more accurate result than might be

expected, $365\frac{1}{4}$ years of 360 days each are exactly the same as 360 years of $365\frac{1}{4}$ days each, so that in 360 years we may say the difference between the solar year and the sidereal year, being five days, is per year $5 \text{ days} \div 360$ or 1200 seconds. At the present time the difference, as ascertained by modern science, is 1223 seconds, but this is not constant, and is increasing. Any one who makes this calculation in the following form $\frac{5 \times 86400}{360} = \frac{432000}{360} = 1200$ will see at a glance

how both the Hindu and Chaldean chronologies are based on the same underlying method, and embody the same elements of time. So that what at first seems absurd appears to have a very clear purpose in it.

Another very obvious explanation afforded by it is the reason for numbering the days in order to have a basis for stating years both lunar, sidereal, and solar. It was the long lives of the antediluvians which made such methods easy. Indeed, as will be shown in another chapter, this 360-day period has other remarkable qualities which may be taken to account for the use of it in the prophetic Scriptures of Daniel and the Revelation.

The knowledge of this 5-day difference in 360 years would supply the necessary information for observing the precession of the equinoxes, which, as we have seen, was well known to the builders of the Great Pyramid more than 2000 B.C.⁸ Five days in 360 years was very nearly the true mean, but the difference now would amount to five days in about 354 years.

By means of this phenomenon of precession, Mr. E. W. Maunder, of Greenwich Observatory, has calculated that the constellations marked on the celestial globe were designed about 2800 B.C., because at that period only, the blank space in which no stars were recorded was occupied by the south pole of the heavens, and consequently never seen by observers in the North.⁹

A somewhat similar method was introduced into Egypt in early times by the adoption of the heliacal rising of Sirius, to determine the length of the year. Certain historical facts seem to indicate that the use of this method in Egypt commenced in post-diluvian times. On the other hand, astronomical considerations suggest that it was based on an antediluvian observation. If

⁸ See Chapter IV. p. 106.

⁹ *Astronomy without a Telescope*. Maunder. p. 5.

this was the case, the later astronomy which adopted it to fix the length of the calendar year was inferior to that which, as we have shown, probably used a 360-day vague year to determine the true sidereal year. It omitted altogether to take account of the precession of the equinoxes. This phenomenon of precession is commonly said to have been "discovered" by Hipparchus about 150 B.C., but as it is impossible to suppose such an accurate knowledge of the solar year as comes down to us from 2000 B.C. without at the same time the possession of a knowledge of its variation from the sidereal year; it would probably be better to speak of the work of Hipparchus as a "re-discovery," or possibly a discovery of the *cause* of a phenomenon which had long been known. The Sothic Cycle will be dealt with more fully in another chapter; it is enough here to say that as a method of observation it is marvellously delicate. The comparison of 365 days with $365\frac{1}{4}$, producing a cycle in 1460 years, reveals minute variations, due to precession, and to spherical geometry, with great precision, but as a method to determine the length of the year it is deceptive, and it had to be abandoned in practice probably before even one cycle had

been completed by regular observation.

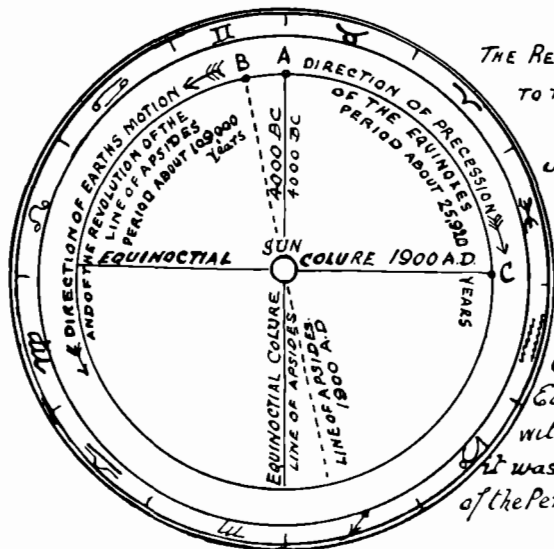
In Egypt the new moons probably entered more fully into the calculation of the year than has been generally recognised, and the fact referred to by Mr. Maunder, that the new moon of the Spring equinox is always conspicuous by its horizontal aspect—or, as is said, “lying on its back”—would serve to link solar and lunar phenomena with sidereal ones from the earliest times of careful observation.¹⁰

We have now briefly referred to four periods measured by movements really of the earth but apparently of the heavenly bodies. The day, caused by the return of the sun to the meridian; the month, measured by the phases of the moon; the year, in which the seasons recur. Each of these has its maximum—day, full moon, summer; its minimum—night, new moon, winter; its mean—dawn and sunset, first quarter and last quarter, spring and summer equinoxes; but the precession of the equinoxes stretches through a vast cycle estimated at 25,868 years, though even modern science is not prepared to determine its accuracy, and the 25,920, which the calculation we have been considering yields, is

¹⁰ *Astronomy of the Bible*, p. 158.

as likely to be the true cycle as any. If these apparent revolutions are each represented by a circle, the whole circle will represent in succession a day, a month, a year, and 25,920 years. But just as the sidereal day is shorter than the solar day, and the sidereal year, measured by the return to the same star after the annual revolution of the earth in its orbit, is longer than the tropical year, after which the sun is seen at the equinox; so this great period of 25,920 years has an element of variation associated with it which, being in the opposite direction, shortens the complete cycle so measured to about 20,900 years. The hand which moves on the dial plate, so to speak, and marks out this period of time, is the coincidence of the autumnal equinox with the point on the elliptical orbit at which the earth is nearest to the sun. Of course, we might take the coincidence of the vernal equinox or either of the solstices as the starting point with equal definiteness, but the reason for naming the autumnal equinox is that it was on this point, which is known as the sun's perihelion, just about 4000 B.C. Herschel calculated it as 3958 B.C. La Place, who proposed to adopt it as a standard era, made it 4100 B.C. Mr. A. C. D. Crommelin,

PLATE III



THE RELATION OF THE EARTH'S PERIHELION
TO THE EQUINOCTIAL COLURE 4000 B.C.
AND 1900 A.D.

The Circle represents the Orbit of the
Earth's revolution, slightly elliptical

The Earth was at the nearest point to
the Sun when at A 4000 B.C. at B. 1900 A.D

At the Autumnal Equinox 4000 B.C. the
Earth's position on the Orbit corresponded
with the Perihelion at A. In 1900 A.D
it was at C. $101^{\circ}13'5''$ from the then position
of the Perihelion Mean Annual separation 61.7

THE SIGNS OF THE ZODIAC INDICATE APPROXIMATELY THE POSITIONS OF THE CONSTELLATIONS
OF THE ECLIPTIC.

of Greenwich Observatory, has very kindly recalculated it for me, and finds that the most approved modern data give it as 4040 B.C., which is very nearly the mean between Herschel and La Place. So that this very striking phenomenon, measured from the point when the earth is at the autumnal equinox, carries us back to the very period indicated as the era of man's creation in all the chronologies we have been considering. As the sun's perihelion can only be observed by measuring the sun's diameter, or the rate of the earth's movement in its orbit, which requires very accurate instruments, it may seem improbable that it was known or used in the ancient world, but really it would not be so difficult if some kind of appliance answering to a camera with very small aperture were employed for that purpose. A lens would not be required.

The proficiency the ancients possessed, included without doubt knowledge which, though most valuable to them, is not considered at all essential to-day, when more emphasis is laid upon accuracy of individual observation, and the recognition of very minute variations. For example, Josephus tells us that, owing to the long lives of the ancient

astronomers before the flood, they were able to discover the great year of 600 years, in which the new moon and the equinox coincided accurately. By modern measurements this is so in 600 years and one day, but this day over was possibly absorbed in the very slight diminution in the lengths of year and months which exists between modern and ancient eras. Our astronomers, having the means of doing so, prefer to reckon over shorter periods by fractions of a second, where the ancients were content to note the day.

Lunar observations are extraordinarily complex; there are certainly five different kinds of months and the phenomena which embody them are the eclipses either of the sun or moon. The ancients not only observed, but to some extent at least predicted, these. Unfortunately we have not their records, and very few such observations have been discovered. When they are clearly identified with any period, they furnish the most absolute proof known of the date of the event with which they are associated. For example, the solar eclipse of June 15th, 763, B.C., fixes the date of an important revolution in Assyria, but this is the earliest known with certainty. It is thought that one of 1063 B.C. may be alluded to

in a cuneiform record, but this is at the best doubtful. The Chinese record one in 2156 B.C., but though there was certainly an eclipse of the sun that year it is said to have been invisible in China. It is, however, within the bounds of possibility that the Accadian settlers who migrated to China had not reached it by that date.

The Chaldeans were very early acquainted with an eclipse cycle known as the lunar Saros, by which, in 18 years 10 or 11 days, the eclipses are repeated in the same order, and this, in 649 years and one month, completes a larger cycle containing 36 Sari. The fact that these were known at an early period is proof that for all the elements of astronomical chronology they were well equipped, the only surprise and misfortune to us is that they did not make use of this knowledge they undoubtedly possessed in order to date the events of their time.

The knowledge of the way in which these observations were dealt with removes the impression of absurdity which at first is made by the extended figures in which the Chaldeans recorded past time, and the Hindus calculate their Menwantara to the tenth part of a second. It shows the method to have been consistent, and

it accounts easily for the prominence given everywhere to the numbers 60 and five. It accounts readily also for their extended numbers, for if the day was used as the unit for astronomical calculations to ascertain the length of the year, as suggested, there is little wonder if a less scientific age mis-read the number of days, and either by misunderstanding or with intention termed them years. The Hindus, instead of making the day the unit, appear to have taken 86,400 seconds, or ten times that number, as the basis of their notation, in which they were still making the solar day the basis of reckoning.

One would not expect any recognition of the fact that the plan of the heavens marks about 4000 B.C. as a distinct point in the great time measurement of millenniums. If this fact had been emphasised, either in Nature, or by any extant record, it might fairly be argued that the knowledge of it determined the adoption of that era in the chronologies of the world. But as it could only be known by many centuries of observation and delicate calculation, and even now cannot be determined with absolute accuracy, it would be an inversion of true reasoning to make the fact the origin of the reckoning.

So far from this being the tendency in astronomical circles, it is usually argued that early observations had no accurate division of the zodiac but merely noted the stars overhead. This, it appears to me, is disproved by many facts, but notably by the certainty that before Aries was adopted as the sign in which the sun was at the beginning of the year, Taurus is indicated as preceding it in that distinction. No record exists of anything earlier than Taurus, and even that is but faintly indicated. This is strictly in accord with the tradition we have already referred to, that the celestial arc was divided by Enoch. We may reasonably suppose that it was divided upon the starry heavens, and was not, as it has been since the time of Hipparchus, a mere abstraction wholly unconnected with the fixed stars.

The division of the heavens into equal parts would be the origin of the zodiac, and this, as already mentioned, is shown by Mr. E. W. Maunder to date back at least as far as 2800 B.C. The stars now attributed to the different forms in the zodiac certainly divide it unequally, but it is inconsistent with the accuracy of early observations which have come down to

us to believe that so irregular and valueless a division as that affords, was ever made by men pretending to astronomical knowledge. On the other hand, the universal division of the circle into 360 degrees, with 12 parts of 30 degrees each, argues for this having been the basis of astronomical, as well as of geometrical measurement.

We have referred to the singular fact that the 3600 days of Berossus, or 10 years on a circle of 360 years and 18 years 10 or 11 days on a circle of 649 years, are both known by the same name in antiquity, namely, a "Saros," and both mark off 10° on the circle; in harmony with the meaning of the word "Sar," which is 10. The one is solar and the other lunar. The lunar saros is a most remarkable period, and enables the eclipses to be predicted, complex as are the movements by which their order is determined. The solar saros is not so obvious in its usefulness, though the facts which will be dealt with in a later chapter on the 360-day year indicate possibilities which are very surprising.

It is probable we have yet to learn the testimony of the stars to the chronology of the world. If, as we have tried to show, the ancients knew

far more of the intricate facts of astronomy than has been usually supposed, this will give meaning to references which have possibly been passed by heretofore as of small account. We may also find that they embodied their knowledge in works that have survived, not in words, but in structure, in some such way as that indicated in the comments already made on the Great Pyramid.

Meanwhile, the fact remains that while all extant literature points to about 4000 B.C. as an era of beginning for human history, the heavens record the same date, as being a noteworthy one, on the dial marked out among the stars by the passing of millenniums.

APPENDIX.

CHRONOLOGICAL ASTRONOMY.

(B) THE YEAR AND THE DAY.

NOTWITHSTANDING the simplicity of the method, and the remarkable result of its application, there are many persons who do not see sufficient reason for reading the so-called years of Berossus as days, and to whom the suggestion of a year of 360 days instead of $365\frac{1}{4}$ suggests manipulation of figures not justified by facts.

Etymologically, the idea of a circle lies at the root of the word used in most languages for a year. We shall in this chapter, however, produce very remarkable evidence for the relationship between day and year in certain astronomical facts.

With regard to a 360-day year, the existence of the reckoning is beyond all question. The Egyptians very early intercalated five days upon the then existent year, to make their famous

vague year of 365 days, but there is abundant proof that the Chaldeans used a year of 12 months of 30 days each as the basis of the calendar until a very late period, intercalating months to make the time full. The difficulty, which occurs to one, however, is this, if they knew the true length of the year, and constantly intercalated months to bring the 360-day reckoning up to the correct total, why should they be assumed to have maintained an uncorrected 360-day calculation for long periods like 1200 years? The answer is very simple. In early periods different nations and different eras adopted different lengths of year. It was a time of transition from the lunar reckoning. If the unit of calculation was the day, and a round number like 360 was used to divide the total number of days by, it would be at all times easy to express the period in lunar, calendar, sidereal, tropical, or other years at will by a very simple calculation, whereas the choice of any one of these involving a lengthy fraction would be far less useful to the chronologist. Add one seventieth to the number of 360-day years, and you have very nearly the number of lunar years. Deduct one seventieth, and you have a close approxi-

mation to the number of solar or sidereal years. It has been shown already that a very practical use might have been made of a 360-day vague year in ascertaining the true length of the solar year,¹ and these considerations taken together make it extremely improbable that the common explanation of the 360-day year, as a mere approximation due to ignorance, and a stage on the way to the discovery of the true length of the year, should be the correct one. It is more reasonable to conceive of it as deliberately adopted by men of advanced knowledge with a definite scientific aim.

This conclusion is remarkably confirmed by closer investigation, and it is very singular indeed that the facts revealed by such an enquiry point invariably to a kind of relationship between the day and the year which makes the one strikingly representative of the other, when associated with this very number 360.

The writer would not have been disposed to make the enquiry had it not been for the fact that a 360-day period seemed to have recognition in Scripture. We have seen it originate in the most ancient chronology of non-biblical lands. By

¹ See page 263.

comparison with these, we find that the dates of Genesis represent true tropical years, where other nations employ days or periods of 360 days. Yet when we turn to the prophetic writings of Daniel and St. John, written at a date when the length of the year was certainly known, we have there in such expressions as 1260 days, forty-two months, or the more difficult term, "time, times, and a half," which on comparison prove identical with 1260 days, a reckoning embodying 360 days for a time, if not for a year. At first sight this may appear insufficient evidence for such a conclusion, but those who have studied these predictions carefully will know that the one easiest to test and most important to our Christian faith—the prophecy of the cutting-off of Messiah after 70 weeks—yields its *exact* fulfilment only when years of 360 days are employed. Other instances might be given, but they are less obvious because the nature of the event predicted is less certain. It will be observed that the expression "seventy weeks" is one founded on the idea of days (490), but the fulfilment is certainly in years, thus expressing most obviously the year-day principle of interpretation. It is also probable, almost to the degree of certainty,

that the 1260 days of Rev. xi. 2, parallel to the "time, times, and a half" ($360 \times 3\frac{1}{2}$) of Dan. vii. 25, indicate years rather than literal days, and this is confirmed in a very remarkable manner.

In Daniel viii. 14 an addition is made to the 1260-day period already referred to, and 2300 days are mentioned as bringing about a climax. Now, 2300 *days* do not make any even or proportional number of years of 360 days, or any other reckoning apparently, but when both these numbers are taken as *years*, the results are surprising.

In the middle of the eighteenth century M. Cheseaux, a Swiss astronomer, discovered² that the difference between them —1040 years—constitutes an extremely accurate soli-lunar cycle, thus:—

$$\begin{array}{l} \text{Solar years} \dots\dots 1040 \times 365\cdot2421961 = 379,851\cdot8839 \text{ days.} \\ \text{Lunations} \dots\dots 12863 \times 29\cdot5305887 = 379,851\cdot9624 \text{ ,,} \\ \text{an error of only 1 day in 13,260 years.} \end{array}$$

Far more recently, Dr. W. Bell Dawson, M.A., F.R.S.C., of Canada, showed in 1905³ that the

² *Approaching end of the Age*. Dr. Grattan Guinness. p. 399.

³ *Solar Lunar Cycles in the Book of Daniel*, 1905. W. Bell Dawson. Trans., R.S., of Canada. Vol. XI. sec. 3.

mean of the same numbers $\frac{1260 + 2300}{2} =$

1780 years, yields an equally remarkable cycle, though of a different form, thus:—

Lunar years ... $1780 \times 354.3670644 = 630,773.3746$ days.

Solar " ... $1727 \times 365.2421961 = 630,773.2727$ "

an error of only 1 day in 16,920.

Here, though the numbers are clearly stated as days, the phenomenon only appears when they are treated as years.

One is reminded of two passages in Scripture, not of a purely predictive character at all, but which adopt the same principle.

Numbers xiv. 34: "After the number of the days in which ye spied out the land, even forty days, for every day a year, shall ye bear your iniquities, even forty years."

And again, Ezekiel iv. 5-6: "I have appointed thee the years of their iniquity, to be unto thee a number of days, even three hundred and ninety days. . . . And thou shalt bear the iniquity of the house of Judah forty days, each day for a year have I appointed it unto thee."

While these passages, and the facts pointed out, clearly illustrate the year-day principle, they

have nothing to say respecting the period of 360 days, and its relation to a true year.

So far for the Book, we will now turn to investigate the facts of the universe.

When we read in Job xxvi. 7, "He hangeth the earth upon nothing," we to-day recognise it as a literal statement of absolute truth, for the earth is kept in its place in space by the operation of forces, and forces are not things. These forces operate at a distance by invariable laws. We know the laws, but not why they so operate. Gravitation is as yet a convenient word to cover our ignorance. It does not seem at all impossible that when we know what it *is*, as well as how it works, we shall have an explanation of the principal force which makes the earth move, as well as of the regulating force which directs its movements. We are concerned just now with the earth's movements, for it is by them chiefly that time is measured.

The earth has a movement in space, revolving round the sun in a period of time we call a year. The path in which this revolution is accomplished we call the orbit. It is not a circle, but an ellipse. The sun is not in the centre of the figure of the ellipse as usually drawn, but in one of the foci.

Hence the earth is not always at the same distance from the sun. The point at which it is nearest is called the earth's perihelion, the point at which it is farthest the earth's aphelion. But this elliptical path or orbit is not absolutely constant. It is affected by the positions of the planets, themselves also revolving in similar elliptical orbits, so that the earth is constantly being pulled out of this path, though within very narrow limits, which correct themselves, so to speak, leaving, however, two general results. First, a very slow change in the form of the ellipse, making it nearer to or further from a circle. Secondly, a shifting of the point of the perihelion about 11" of arc on the orbit in the direction in which the earth is revolving. This last variation has to be reckoned with in chronology. The change in the *form* of the orbit may be ignored. The movement by which the perihelion is shifting on the orbit takes about 108,000 years to complete, and is known as the revolution of the apsides.

The next important movement of the earth is that by which it is constantly, and with the utmost regularity, turning round upon its axis. This rotation is complete every 24 hours. If it were

possible to watch the rotation at the pole on a dial the size of an ordinary clock, it would be at half the rate of the movement of the hour hand, but if we suppose that hour hand extended to the circumference of the earth at the equator, its point would be travelling at more than 1000 miles an hour, or 17 miles a minute. This spinning movement of the earth gives it steadiness, just as a rifle ball flies steadily because it spins as it goes.

The axis on which the earth rotates is, however, not upright in relation to the orbit, but is tilted over on one side 23° , more or less. The angle varies slightly, as sun, moon and planets, by their constantly varying distance, pull, as it were, in different proportions at the earth's equator; for the earth being orange-shaped, there is an excess of matter at the equator, which gives these other bodies "hold," so to speak. These variations produce between them a fairly regular movement of the earth's axis, by which, instead of always being tilted to the same side, it tilts all round the circle in turn, the circle thus described by the earth's axis being complete in about 25,868 years, according to modern calculation. If the tilt or obliquity of the axis, as it is

called, were always the same, the rate of variation would be perfectly regular, but as it varies from $21^{\circ} 58' 36''$ to $24^{\circ} 35' 58''$, a slight allowance for this has to be made over a long term of years.

This rotation of the earth's axis in relation to the orbit is in the *opposite* direction to that of the rotation of the earth upon its axis.

We have now described four movements of the earth which have to be reckoned with:

1. A movement in space, called the orbital revolution, by which years are measured.

2. A movement on its own axis, called rotation, by which days are measured.

3. A movement of its axis about its own centre, by which the precession of the equinoxes is accomplished; and

4. A regular change in the path of the revolution round the sun, which records itself by the revolution of the apsides.

We now have to try to see what visible effects to us on the earth's surface are produced by which time can be measured.

The earth and the sun round which it revolves are surrounded by stars at such an immense distance that, except to extremely delicate observation on a few of the nearest, the revolu-

tion of the earth in its orbit does not produce the smallest apparent difference in the position of the stars. If the earth were not revolving on its axis and centre, the stars would never seem to move at all. From the same spot on the earth's surface we should always see the same stars overhead, in the same position, and, of course, should never see those below the horizon. If it would make no difference on which side of the orbit the earth was, of course the other variations connected with the orbit would also have no effect at all on the apparent position of the stars. When all the movements are combined together, however, they do produce an effect. The rotation of the earth is measured by the visibility and position of the sun, as well as of the stars. The stars seem to revolve round the earth as it turns, but as the earth is moving in relation to the sun at the same time, this gives rise to another apparent revolution of the stars, completed in a year instead of a day. It is not a separate movement, but only arises from a change in the time of the observation. The earth turns on its axis in 86,164.09966 seconds, but the same point on the earth's surface does not reach the same angle with the sun till 86,400

seconds have elapsed, because the earth meanwhile has moved to a new position in the orbit. By the time the earth has completed the entire revolution in its orbit these differences of 235·9 seconds each day have made up a total of one complete rotation—that is, 86,164·09966 seconds; in other words, in $365\cdot2563612$ days there are $369\cdot2563612$ rotations of the earth.

This constitutes the difference between sidereal time measured by the stars, and solar time, measured by the sun. The sidereal day is 86,164 mean solar seconds. The mean solar day is 86,400 such seconds. The sidereal day is, however, also divided into 86,400 *sidereal* seconds.

We now come to measure the year. There are three points on the orbit from which we may start:

1. The point intersected by a line drawn from the sun to some chosen star, and passing through the centre of the earth. Practically this does not vary in length, though the relationship of other movements has to be taken into account for long periods. It is known as the sidereal year, and is said to be $365\cdot2563612$ days in length. Note this is more than $365\frac{1}{4}$. We shall describe it as $365\cdot f$, where 'f' will stand for this long fraction.

2. The second point on the orbit from which we may measure is the point where the earth is nearest the sun, and consequently the sun looks largest, but this point is constantly moving away from the direction in which the earth is going, and the result is very much like the mean solar day and the sidereal day. If we measure these by the sun instead of by the star, we shall have one revolution and a bit, the bit being a $\frac{1}{108000}$ part of a sidereal year. This is called an anomalistic year, and its length is 365·259981 days, or four minutes 39·7 seconds longer than a year as measured to the star.

3. There is, however, a third point on the orbit to which the year may be measured, and this is the most important of all to us, because it is the point which agrees with the changes in the seasons. By the swinging of the earth's axis upon its own centre, as already described, we get to the equinox, i.e., when day and night are equal, a little before the earth has completed a revolution in relation to the star, thus making a year of the length of 365·2421961 days. This is called the tropical year, and is *less* than $365\frac{1}{4}$ days, and 20 minutes and a few seconds less than the sidereal year.

It is no use to attempt to ignore this fraction. Julius Caesar fixed the length of the year in A.D. 45 at $365\frac{1}{4}$ days, but by the time of Gregory I. the seasons and the calendar were 10 days wrong, and it compelled Europe to adopt the present method of reckoning, which, however, is not absolutely correct now. If this difference of a few seconds led to such confusion, it can easily be imagined how soon confusion would arise if 365 days were adopted as the length of the year; still more if 360 or 354 days, the time in which the moon makes 12 complete changes, should be adopted.

It is a very awkward fraction and gives rise to all sorts of difficulties, but we might as well attempt to correct it by changing the rate of the earth's motion as by changing the figures employed to record it.

There is a very slight modification in the length of the year going on, for the reasons already explained, by which the tropical year is, and has been for thousands of years, getting shorter, but this does not help us at all, for at no time imaginable would any even number of mean solar days make up a tropical year.

Looking over these various lengths of time for

a standard, there is only one that is really constant and simple to observe, namely, the rotation of the earth as measured by the return of a star to the same position. If we call that 1, then a year consists of $366\cdot f$ such periods, but there is always a fraction. A mean solar day is $1 + \frac{1}{365\cdot f}$. So that the 1 which is thus split up to make rotations into mean solar days is representative of the entire orbit—that is, of a whole year.

The difference between sidereal time and mean solar time thus gives us the difference between the movement of the earth on its axis and that movement together with its movement in the orbit in relation to the sun. We have thus observed, by means of the stars *with* the sun, what otherwise would not have been observable, namely, the motion of the earth in its orbit.

If the reader has been able to follow this condensed description of a rather intricate effect, he will have seen that the only way of *observing* the annual movement is in terms of the diurnal movement. We say, for example, that the tropical year is 20 minutes shorter than the sidereal year only because we find it is about $50''$ of arc less on the circle representing the mean solar day. This takes about $3\cdot 3$ seconds to observe,

but can be calculated, and when multiplied by the number of days in a year, gives the 20 minutes odd as above.

The year-day principle is thus one which forms a necessary part of Nature. The year and the day are two circles, one of which can only be actually measured in terms of the other.

It only remains now to show how the even and convenient measurement, 360 mean solar days, stands in relation to these complex fractions, in some respects as a solvent.

For this purpose let us make use of the accompanying diagram. (Plate IV., diagram 1).

The curved line A-B represents the arc of a circle, or, let us say, it represents the orbit of the earth at the point chosen for commencement of its measurement. Suppose that each small circle stands for a complete rotation of the earth on its axis, and the length of the arc by which they are separated for the difference between the sidereal day and the mean solar day—that is, for $86,164.099$ seconds + 235.901 seconds = 24 hours, common time. Now, suppose the revolution of the earth round the sun to have commenced at the point C, and the earth to have arrived after 360 mean solar days at D, com-

pleting the circle at C after 365·f mean solar days, and reaching E after 366·f mean solar days. We have here then made C, reached after 365·f mean solar days (or 366·f rotations, those two being equal), and have gone on to find the point E by reckoning 366·f mean solar days, the same number as of rotations in a year. The distance marked between the circles, representing 235·9 seconds, is that by which the stars every day appear to rise earlier than the sun. It is roughly said to be four minutes. If it were four minutes the circle would be complete in exactly 360 days, but it is only three minutes 55·9 seconds.¹

When 360 mean solar days are completed, therefore, there are yet 1239 seconds to be gained by the stars before the circle is complete, and 1474·9 seconds before point E is reached. But the difference between the tropical and sidereal years is 1223 seconds at the present time, and between the tropical and the anomalistic years is as nearly as possible 25 minutes. This difference, however, has been gradually increasing, and 5000 years ago it was much nearer to 1475 seconds than to 1500.

¹ The actually observed time varies with the season in which it is observed. 235·9 is the mean.

It will be obvious at a glance that this sidereal observation, involving 360 mean solar days, and the true number of mean solar days in a sidereal year, plus one, yield a very remarkable coincidence between the relation between the tropical year and the anomalistic. How close it is to the absolute mean it would be difficult to say, as a very complicated calculation is involved, but at all events it is not very far off.

As 360 instead of 365·f days is taken for the symbol of a tropical year, the true proportion between that and a sidereal year would be represented thus:—As 365·f is to 360, so is 1240 to 1222·13 which brings it very near indeed to the present value. Indeed, within a second.

Further, as the starting point is 360 days, and the terminal point of the year is 365·f days, the full distance from D to E may be calculated thus:—As 360 is to 365·f so is 1475·877 to 1498·99.

Compare these corrected differences with the differences between the lengths of the various years, as given in Young's *Astronomy*. D represents the tropical year of 365 days five hours 48 minutes 46 seconds. C the sidereal year, 365 days six hours nine minutes nine seconds. E

the anomalistic year, 365 days six hours 13 minutes 48 seconds.

Calculated as above.			Accepted by Modern Science.		
		Seconds.			Seconds.
D to C	...	1222·13	D to C	...	1223
C to E	...	276·86	C to E	...	279
D to E	...	1498·99	D to E	...	1502

Surely there must be some underlying principle which accounts for the very close correspondence, even though we may not yet have discovered it clearly.

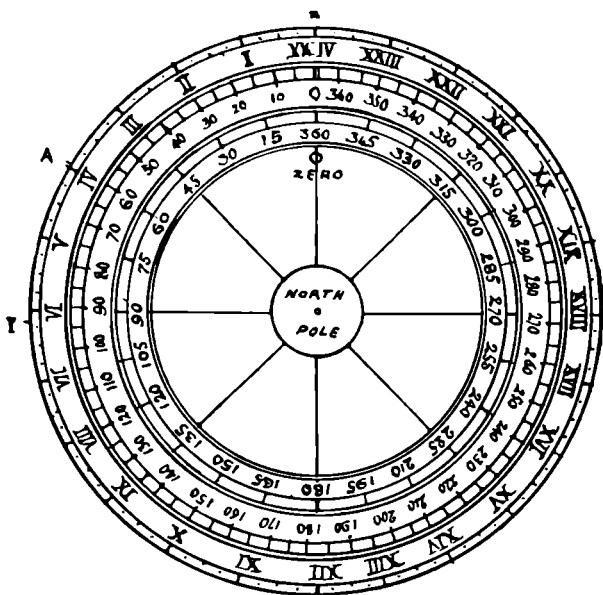
Was this fact known to the ancients, and did it form the basis of their 360-day calculation? It is quite impossible to say. It seems recognised in the prophetic Scripture to which we have referred, and may, for anything we know to the contrary, have been revealed by God in primeval times to some of those men who are said to have had such wonderful astronomical and mathematical knowledge. If so, they had an instrument in their hands by which to calculate the length of the year, not only by observation on the diurnal arc but on the annual arc. This multiplies the few seconds of difference on the diurnal arc by 365·f, and the relation of 365·f to

360 multiplies the same factor, 3'3 seconds, by the square of 365'f and *observes it* as 5'f mean solar days. But the year for the day is the very basis of the method. Not only is that the proportion which the calculation gives, but the added 1 mean solar day upon the year supplies also what Nature does not yield, except upon the year for the day principle; a method of counting years as they pass, by days as they are recorded in the apparent position of the stars of heaven.

If this knowledge was ever possessed, it was soon lost. To-day it is of little value because of the means of precision in observation which have been designed, but it still remains an astronomical fact the bearing of which may some day be better understood than it is at present, and so be available for recording in simpler terms some of these astronomical data which perplex us by their complexity.

THE STAR CLOCK.

When the foregoing figures were shown to a well-known astronomer, he replied, "You certainly have brought to light an interesting and curious arithmetical coincidence; but I quite fail



THE STAR CLOCK.

It shows Sidereal Time by the apparent movement of the star.

Also Mean Solar Time for one year, on the Second Circle, advancing one point each day. The Inner Circle is divided into 360 degrees.

Starting with Zero, the year ends after 365 Mean Solar Days, with the Star at the point Y. The Star having then gone 366.2563612 times round the Circle.

If Sidereal Noon and Mean Solar Noon coincide at Zero: after 60 Mean Solar Days, the position of the Star at A (60 on the Second Circle) will indicate Mean Noon for the day then ending.

to see how it would have been possible for the ancients to have arrived at the 360-day year by this method."

It would be certainly quite impossible to arrive at the length of the *tropical* year thus. There is no connection of a causal kind between the two things as far as is known at present. All that is suggested is that, in the way already explained, they may have used the 360-day period as a vague year, to ascertain the true length of the year, and then, having discovered it, employed the remarkable relation between sidereal time and mean solar time, in 360 days, in order to record it.

How this might be done will appear when, by means of what we have called the star clock, we have registered the relations between the day and the year on a single circle.

From very early times the sun dial has been used to mark time, notwithstanding the immense disadvantage of its irregularity. The earth's motion in orbit being variable, according to its distance from the perihelion, no two days as measured by the sun are of exactly the same length. Time by the sun dial is consequently as much as 14 minutes 21 seconds after the clock in

February; 3 minutes 51 seconds before it in May; 6 minutes 18 seconds after in July; and 16 minutes 21 seconds before in November.

Mean time is that supposed to be indicated by a *fictional* sun, which is imagined to take a path in several respects different from that of the sun as seen in the heavens.

In order to correct the sun as a time keeper, we must make use of the stars. This is done by observations at the time of transit of a chosen meridian, but is very simply indicated by the method I will describe.

The star clock, as I propose to make it, is based upon the fact that the earth rotates on its axis at an unvarying rate. Given any piece of mechanism that may be relied on to do this, and it will only be a question of the scales of division, to make it indicate any kind of time that may be desired. The opinion has gained ground of late that the rotation of the earth is growing slower. It has not yet been proved, and the rate at which it is said to be retarded, if at all, is so exceedingly minute that it may be entirely ignored for our present purpose.

If the stars in the neighbourhood of the Pole Star are observed, they will be seen to describe

a circle round the pole. The Pole Star itself does this, not being at the true pole, but the further the star observed is from it the larger the circle will be. For our star clock, therefore, we must make a selection. Suppose we take the Pointers in the Plough. They have the advantage of being very readily recognised, and the two stars always form a line, pointing very nearly indeed to the centre.

Now, to observe their motion, it is suggested to mount a circular disc, say of paper, in the centre of a sheet of glass; allowing a transparent margin of some inches. This sheet of glass must be fixed so that a line from the pole to the eye passes through the centre of the disc, and is perpendicular to the surface of the glass. An eye piece, through which the observation is made, must be fixed in the same line, at a convenient distance from the disc. Looking through the eye piece, the centre of the disc should be occupied by the pole of the heavens, and on the circumference of the disc, the two stars known as the Pointers will steadily revolve, once a day, or rather in a little less than four minutes under a day.

It only remains to divide the circumference of

the circle into 24 hours, and 1440 minutes, and the rotation of the earth will cause the star to record the passing of *sidereal* time, by its position on the circle. (Plate IV., diagram 2, and Plate VI.) A disc of 36 inches diameter, viewed at a distance of about 36 inches, will give, very nearly, the dimensions required to observe the time on a fair scale. On such a disc the star will move nearly one-twelfth of an inch per minute. As the Pointers cannot be moved the dial must be set to the mean time to begin with; zero being made to indicate XXIV. o'clock.

Now, this clock, so far arranged, will only indicate sidereal time; but as mean solar time stands in a very definite relation to it, we have only to make a solar scale, B, and it will then show solar time as well. The solar time scale for 24 hours will overlap the sidereal scale by 236 mean solar seconds, as shown in the diagram. The consequence will be that every day will carry the solar zero forward by that amount. When these intervals of 236 mean solar seconds (actually 235.9 etc.), to which the solar zero must be moved day by day, are all marked, we shall find that we have made a third division of the circle, C, the number of divisions in which will corres-

pond exactly with the number of mean solar days in a sidereal year.

The position of the star will therefore indicate not only sidereal time, and solar time, but also, by the relation between them at noon or midnight, will show the number of mean solar days which have elapsed since the two zero points coincided. It will do this until the completion of 365.2563612 mean solar days, that is, one sidereal year, which we shall, as before, refer to as $365.f$ mean solar days.

It must be borne in mind that this record of days, though recorded on the circle of rotations, does not correspond with it. The circle recording a year does not end at an even day or rotation, but more than six hours after its completion.

As a yearly circle, therefore, it is really one rotation of the earth *divided by* $365.f$. For in a sidereal year there are $365.f$ mean solar days, or $366.f$ sidereal days. We therefore make a fourth division of the circle, D, into $366.f$ portions, each of which is 236 seconds shorter than those of the C circle, or $.64408$ seconds on circle A.

When our clock has been used for one year in the way suggested, circle B being adjustable,

and moved forward one division every day, we shall find that the odd fraction of a day introduces such complications that it will be practically impossible to do anything more than count forward by days, ignoring the year, and if these days are to be grouped at all, it will be simpler to group them in 360 days than in 365 or 366 days.

To record these we make therefore a fifth circle, divided into 360, and this may be used either to record days, one for each degree, or years up to 360. The star, however, will not point out anything on this circle, except as suggested in page 118.

We have already seen that the distance from 360 days to the end of the year, on circle C, marks 1240 seconds on circle A, and from the same point to 366½ days, is 1475.91 seconds. This last was very much nearer to the correct figure of the difference between the tropical year and the anomalistic year, 3000 B.C., than it is now; for it has gradually increased by about 25 seconds, that is, half a second per century. On page 209 it has been shown what a valuable record of passing centuries this affords, though the correct way of estimating it is by angle, rather than by

time which is continually altering.

The circles of the star clock give this in three different proportions; thus, A to T on circle C = 6·f mean solar days, and is the total for 366·f mean solar *years*, on circle A it is 1475·9 seconds, (the annual difference as measured on the orbit,) while the difference between 360 on circle C and on circle D, is 3·385 seconds, or $\frac{1}{366\cdot f}$ part of that on circle A. We thus have the same relation expressed in the proportions of 1. 366·f and 366·f.²

The object of these calculations is to show, that the use of a 360-day period by the ancients, is much more likely to be a testimony to their knowledge than to their ignorance.

That they knew of the precession of the equinoxes we have seen, in the eccentricity of the passages of the Great Pyramid, at a peculiar angle corresponding with the distance of the star from the pole (page 105). That they could easily, by means of a 360-day vague year, measure the comparative lengths of the tropical and sidereal years, has been proved on page 263, and now we have shown how possible it was for them to divide the night with accuracy, and so to make

their observations, though possessing none of the mechanical appliances which we possess.

That their close study of the heavens enabled them to see as much as we do is proved, as already mentioned, by the frequent reference to Venus as a two-horned star, and even to Jupiter with its moons as a Hunter with his dogs. Indeed, Dr. Pinches suggests that the word used in Sumero Akkadian may indicate that they recognised that "the earth and the planet were of the same nature and travelled in space."¹

That the 360-day period was never regarded as a year by ancient astronomers was the opinion of Idelier, and after what has been said it will be abundantly evident that there were good reasons for totalling the number of *days* in early times, and that it was a very natural mistake of later ages to quote these days as years; even if it was not done with deliberate intention..

Before closing this description of a star clock, it ought perhaps to be mentioned that the gradual shifting of the pole westward, by the precession of the equinoxes, would make it necessary to re-adjust the centre and distance of the eye piece,

¹ See a paper by Dr. Pinches in the Proceedings of the Society of Biblical Archæology, vol. 31, p. 23 and 60.

at intervals of not more than 50 years. Also that the modern practice of measuring always from and to the moveable point known as the first point of Aries, instead of to a fixed star (a perfectly necessary proceeding), introduces some minute differences between the time here described and that of the published tables. It would have brought so much complexity into the description, that this has been ignored.

APPENDIX.

(C) THE SOTHIC CYCLE.

THE great importance of the sothic cycle in Egyptian chronology is indicated in the following facts:—

1. The Book of Sothis, ascribed in the early Christian era to Manetho, gives in all for the rule of gods and men 30 Dynasties, comprising 16,071 years—that is, 11 sothic cycles of 1461 vague years.

2. The Old Egyptian Chronicle, upon which Syncellus believes Manetho based his system, also has 30 Dynasties, but according to Syncellus they comprise 36,525 years—that is, 25 sothic cycles, or the sothic cycle multiplied by the apis or lunar cycle of 25 years.

3. Lepsius adopted a number of 3555 years, which he claimed to have arrived at independently of Manetho, but which, applied to Manetho's figures, indicated, he contended, B.C.

4242 as the "necessarily expected commencement year of the current sothic period."

4. The most recently published History of Egypt, and certainly one of the best, commences as follows:—"The calendar year of 365 days was introduced in 4241 B.C., the earliest fixed date in the history of the world as known to us." This is based on the conception of the beginning of the sothic cycle then.

It will be seen, therefore, that the sothic cycle still rules Egyptian chronology, though the use made of it in modern times is not so purely artificial as that formerly employed. We shall try to show that it is quite as unreliable.

For the understanding of the issues involved some astronomical knowledge is essential, but happily it is quite possible to follow even the complex movements by which it is determined without expressing them in the usual mathematical formulae.¹ Nothing could be more simple than the way by which the number 1460 or 1461 is arrived at. The Egyptian vague year consisted of 365 days—that is, the true number of days in a year, ignoring fractions. Now, sup-

¹ See Paper by the Author in Proceedings of the Society of Biblical Archæology, 1908, p. 95.

posing the length of the year to be known as $365\frac{1}{4}$ days instead of 365, it is plain that after four years there would be one day difference between the beginning of the vague year and the true year thus estimated. And if so, it would be $365 \times 4 + 1 = 1461$ such years before the beginnings again coincided, the accumulation of the differences being 365 days—that is, one vague year. In other words, 1461 vague years of 365 days each are equal to 1460 years of $365\frac{1}{4}$ days each. We solve the same problem now by adding one day to the calendar every four years according to the ancient Julian method, though this has been since modified by the omission of this 366th day at the even century, yielding the Gregorian year of 365.2425 days.

The Egyptians, however were not content to have a dead reckoning of this kind; they wished to base their calendar upon an actual stellar observation, and this is where the difficulty and perplexity comes in, for they adopted a method inconstant in its nature, though the variation at times is exceedingly slight, and, worst of all, one which measures correctly neither the solar year nor the sidereal year, for as has already been seen the one is very nearly as much less

than $365\frac{1}{4}$ as the other is more than that, the whole difference being in round figures 20 minutes.

Besides this, the day on which the star would first be seen with the sun varies according to latitude, and as Egypt extends over 7° of latitude it is essential to know the place of observation in order to ascertain a fixed date by this method.

As an observation, it may be thus described. The year may be reckoned, of course, from any point desired, but suppose a star chosen, a line drawn from the sun through the earth will point to that star only once a year, and every day it will point *about* one degree, four minutes of time, further off from it. Such an imaginary line will go round the heavens like the hand of a great clock, and will measure off sidereal years. But as the sun cannot be seen at the same time as the star, such a line can never be drawn by direct observation, and the position of the sun in relation to the stars must be determined by observing the latter near the horizon just before sunrise or just after sunset.

Now, whatever star be chosen, it will rise about four minutes earlier every day. When it rises after the sun it is invisible, being lost in its

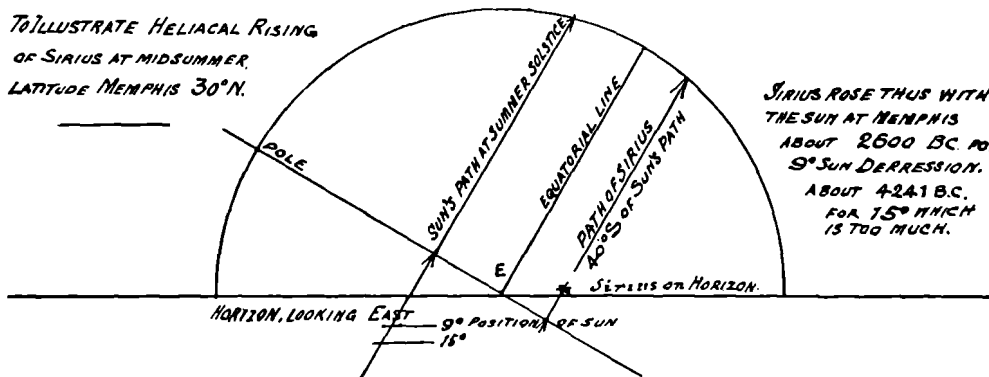
brightness, but at last a day arrives when it rises just early enough to be seen on the horizon as the day begins to dawn. The day before this it rose too late to be visible, the day after it was visible indeed, but about one degree higher in the heavens, and we may say roughly four minutes earlier than on the day when it was first visible. The day following that it would be still more in advance of the sun, until at last it would rise before even the first streak of dawn.

Now, this method of observation is only suited for a country of clear skies and dry atmosphere, but this exactly describes the climate of Egypt, and was further met by choosing a star which rose about midsummer and might be observed for a long succession of years under conditions that would not greatly vary.

It will be obvious that an important element in this observation is, How long before the sun rose could the star be first seen? It is unfortunate that we have no definite data on the subject. Mr. Maunder, of Greenwich Observatory, tells me that recent observations in Egypt show that about 10 or 12 degrees may be allowed for first magnitude stars, but the star the Egyptians adopted, namely Sirius, or the Dog Star, was nine

PLATE VI.

TO ILLUSTRATE HELIACAL RISING
OF SIRIUS AT MIDSUMMER,
LATITUDE MEMPHIS 30° N.



SIRIUS ROSE THUS WITH
THE SUN AT MEMPHIS
ABOUT 2600 B.C. FOR
 9° SUN DEPRESSION.
ABOUT 4241 B.C.
FOR 15° WHICH
IS TOO MUCH.

When the Sun is 9° below the Horizon, and the Star is on the Horizon,
the Star is visible, but fades away as the Sun rises.

The Star gains nearly one degree advance over the Sun daily.
It rises about one day earlier every four years.
i.e. every four Egyptian Vague years.

times brighter than the average of these and would be visible correspondingly earlier.

Remembering the keenness of sight of these early observers, and the eagerness with which the appearance of the star would be watched, it does not seem reasonable to suppose that its appearance above the horizon could fail to be recorded when the sun was as much as 9 degrees vertically below the horizon.

The importance of this point will be more clearly seen presently. There is, however, another factor in the observation upon which a great deal would turn. The rising of Sirius just before the sun was chosen to indicate the commencement of a year. Was Sirius chosen simply because it was the brightest known star or because it rose at a certain season of the year? As a matter of fact, it did rise so near to mid-summer, that is, to the summer solstice, that it is generally agreed that it was chosen on that account, especially as the summer solstice was the most important event in the year in Egypt, being about the time of the rising of the Nile, and this Nile rising is usually associated with the rising of Sirius.

It is here that the astronomer, as contrasted

with the simple observer, comes in. Anyone could note the day of the heliacal rising of Sirius, but was it easy to discover the day of the summer solstice?

It was comparatively easy for them to note the day on which the sun rose from the most northern point on the horizon, and cast its shadow furthest from the western position which indicated the equinox. It is also easy enough for us to calculate on what day the sun rose at the solstice in any given latitude in any past year, but the limits of accuracy in the observation by the method we have described require us to leave a margin of about 500 years either way before we can be certain that the Egyptians would observe the solstice by this method on a particular day. It turns not on the position of the day in the year, but on the much more minute change effected by the precession of the equinoxes, and leaves us in doubt to this extent, but not more than this.

There is another element which disturbs the calculation very considerably. We have seen that the sidereal year was 20 minutes longer than the tropical year. If then, Sirius, by its regaining the same relation to the sun, measured off sidereal years, as one might naturally expect it would;

about 72 years after the actual agreement of the rising of Sirius with the summer solstice there would be one day difference, and in a complete cycle of 1460 years this would amount to more than 20 days, and if, as has been assumed, the reckoning commenced 4241 B.C. and then agreed with the summer solstice, by the time of the XVIIIth Dynasty, say, 1500 B.C., the beginning of the sothic year would be as much as 38 days after that midsummer day which it was designed to indicate.

Here, however, comes in a new element, which is very remarkable. Owing to the precession of the equinoxes and other modifications the heliacal rising of Sirius does *not* measure off sidereal years. The length of the Sirius year varies from an exact agreement with the tropical year (at which period, however, it would be quite impossible to observe it because it would only just reach the horizon before it set again), to somewhere about 365·278069 days, nearly half-an-hour longer than the sidereal year, and 50 minutes longer than the tropical year. These variations take place over a period of nearly 26,000 years, and it becomes necessary to enquire what was the length of the year as indicated by

the heliacal rising of Sirius *in the period of Egyptian history?* Now, it may be said that for about 4000 years, that is, from 5000 B.C. to 1000 B.C., it was less variable than for any other time within the whole 26,000 year cycle, and that it did not vary by more than one minute from the $365\frac{1}{4}$ days which was its assumed length. It did vary as much as this right through that period, and we may fairly say that strictly measured by the rising of Sirius, as compared with the 365-day vague year, the length was such that at the beginning of the period the sothic cycle would be 1464 years, in the middle of it 1460 years, and at the end 1456 years.

By the same way of reckoning, the whole variations in the length of the sothic cycle in the 26,000-year period would be from a maximum of 1507 years to a minimum of about 1312 years.

This will demonstrate that, as based upon observation, it would be impossible to have even two complete sothic cycles of 1461 years without a variation involving at least one day, equal to four years on the cycle.

The very interesting phenomenon of the variation in the length of the sothic year by the combined effect of the precession of the equinoxes

and the spherical angle with the sun, may be studied by very simple means, and it is truly surprising how easily this complex problem may be solved with sufficient approximation to accuracy for any ordinary purpose.

Take an ordinary globe upon which the ecliptic and the equator are marked with the meridians corresponding to the solstices and equinoxes, and fitted with a horizon circle. On this globe describe a circle 40 degrees south of the ecliptic, and parallel with it. This circle will represent the *apparent* position of Sirius in *relation to the solstices* for the whole precessional cycle of, say, 25,920 years; all the stars must be considered to shift with it. Now divide this circle first into 12, and then, for a short portion of it W of the summer solstice, divide each twelfth into six—that is, the seventy-second of the whole. Each of these divisions will represent five degrees, and will stand for 360 years, or the apparent change in the position of the star in *relation to the equinox* (or solstice) in that period.

The point at which the summer solstice cuts this circle is the position of the star about 1000 A.D.

When the globe is set with the pole 30 degrees

above the horizon, it represents the heavens at Memphis, and placed with the E toward you, and revolved from E to W, will show the paths of sun and Sirius in rising from their respective positions, the one upon the ecliptic and the other on the circle drawn 40 degrees below it.

The position of the sun on the ecliptic varies from day to day by about one degree. That of the star varies only by precession, one degree in 72 years.

Now, note that when the sun is at the summer solstice and on the horizon, Sirius is also *on the horizon*, about 5×360 years before 1000 A.D., i.e., 800 B.C., but if the sun at the solstice must be depressed nine degrees vertically *below* the horizon for the star to be visible, then Sirius was *on* the horizon, and the two were rising together, about 10×360 years before 1000 A.D., or 2600 B.C.; while if Sirius was observed *at the solstice*, rising before the sun in 4241 B.C., the sun must have been about 15 degrees below the horizon when it was so observed.

In the last case, it may also be noted that if 4241 B.C. was the date at which the vague year of 365 days was introduced in order to produce the sothic cycle, as has been so confidently

claimed, Sirius rose with the sun in 1520 B.C. under the same conditions, that is, with 15 degrees depression, about 17 days *after* the solstice, and in 139 A.D. some 29 days after the solstice. Yet it is asserted that the Egyptians never learned that the sothic and the solar years were not identical.

This agrees closely with the statement of Censorinus that at that period—139 A.D.—Sirius rose regularly on July 21st (Julian), but if the reckoning commenced 4241 B.C., it would imply that for 4380 years a correct solar calendar had been kept in Egypt as well as the vague year calendar and the sothic year reckoning. While this, of course, is quite practicable as an astronomical record, it is almost inconceivable as a practical every-day regulation of time.

Besides this, it has to contend with the improbable, if not impossible, conclusion that the heliacal rising of Sirius was observed from the beginning with the sun 15 degrees below the horizon. In that case, Sirius would have been visible above the horizon, in all probability, for six days at least before it was said to rise, or, as it is described, to “emerge from the sun’s rays.”

The same classical record of Censorinus is employed to indicate when the sothic cycle actually commenced, for if Sirius rose on 1st Thoth of the vague year 139 A.D., it also did so *about* 1460 years before that, i.e., 1322 B.C., and again yet earlier, 2782 B.C. We have seen that the precession of the equinoxes varies the true length of the sothic cycle even at that period, and also the time of the summer solstice, marking the natural year, which the Egyptians must have observed for agricultural purposes.

It is well known also that long before 139 A.D., namely, in 238 B.C., the actual rising of Sirius with the sun no longer ruled the calendar, for, by the decree of Tanis of that date a fixed year was adopted, on the same principle, afterwards embodied in the Julian year, and in our leap year, of adding one day to the 365 once in four years.

It is not difficult, therefore, to account for the fixing of the rising of Sirius with the sun on a day when the sun at that rising was 15 degrees below the horizon, instead of 9 degrees. By that date the observation would gradually have slipped back to make it agree with some other fixed reckoning which was then in more accepted use.

From what period this began, however, it is not so easy to determine.

Apart from the disturbing element to which we have just referred, and assuming that the sothic year was identical with the Julian year for the whole period (which, as we have seen, it was not), a coincidence of the 1st Thoth vague, with the heliacal rising of Sirius *at the summer solstice*, as it is often assumed was the case, would make the solstice fall 34 days before the heliacal rising of Sirius by 139 A.D. At that date Censorinus tells us Sirius rose regularly on the 21st July (Julian). If so, the solstice would have fallen in 4241 B.C., about 34 days earlier. Such a discrepancy would have been fatal to the whole reckoning long before the time even of the previous cycle commencement, i.e., cir. 1322 B.C. If six of the days are accounted for in the way suggested, and one or two more by the increased length of the sothic year in later times, it would indicate the starting point of the system somewhere near the end of the third millennium B.C., at which period Sirius actually did rise at the solstice with nine degrees depression of the sun. This, however, is a calculation with too many uncertain elements in it to be

absolutely relied upon. In the accompanying diagram the heliacal rising of Sirius is illustrated, and attention called to some essential facts.

With all its variations, the sothic cycle is most valuable, in the endeavour to fix approximately some dates by means of records of risings of Sirius, alluded to in the inscriptions. It does not really matter what was the precise phenomenon with which the vague 365-day year was compared. It would give the intervals with sufficient accuracy, whether the true year were measured by the tropical phenomenon of the Nile rising or the occurrence of the equinox when the pyramid had no shadow on either W. or E. side, or whether a sidereal year determined by observation of Sirius, or any other star. In either case, the year would be *approximately* $365\frac{1}{4}$ as against 365, and the accumulated variation from the true reckoning would not in the limited period involved make any sensible difference.

Thus, it has been very reasonably calculated from inscriptions that Thothmes III., of the XVIIIth Dynasty, was on the throne about 1470 B.C. That Amenhotep I. reigned cir. 1557 B.C., the XVIIIth Dynasty commencing about 1580 B.C. Also that the 120th year of the XIIth

Dynasty fell in 1880 B.C., and consequently the Dynasty commenced 2000 B.C.

It does not, however, follow that the sothic cycle upon which these dates fell was actually observed in Egypt from 2781 B.C., at which by calculation it commenced. Some previous method, such as a 360-day vague year, which certainly preceded the vague year of 365 days, and of which there is some evidence as late as the end of the XVIIth Dynasty, may have given rise to the more regular method at any time, and there is certainly evidence of the alteration of the meaning of the hieroglyphics for the month, which indicates a change of this sort, though it is difficult to say when it occurred.

The fact that we find the solstice actually occurring with the rising of Sirius nine degrees before the sun, about 2600 B.C., suggests 2781 B.C., or thereabouts, as a very probable era to date from.

The reason for maintaining the observance of a whole sothic cycle before that seems to be that the year of 365 days is mentioned in the pyramid texts, and as these are supposed to be referred to a much earlier period than 2780 B.C., a previous cycle is assumed. The date of the

pyramids, however, is one of the points under discussion, and in Chapters ii. and ix. reason has been alleged for bringing them considerably later. It does not fall within our purpose here to enquire further on this point, and we will only give one example to show how the definite dates are arrived at by means of the sothic cycle.

Take the date recorded as that of Tethmosis III. Sirius is said to have risen then upon the 28th Epiphi. Now, from 1st Thoth, with which the year began, to the 28th Epiphi, is ten months 28 days, or 328 days in all. Each day later for the rising of the star represents four years, therefore when Sirius rose on the 28th Epiphi of the vague year, 1312 years of the cycle which we have supposed to have commenced B.C. 2781, had passed. Consequently the date indicated was $2781 - 1312 = 1469$ B.C.

The uncertain elements in the calculation are the date of commencement of the cycle, and whether they reckoned forward or backward. For example, if it was meant that the 1st Thoth of the *vague* year fell on the 28th Epiphi of the *sothic* year, it would indicate not 1470 B.C., but 148 years after the commencement of a cycle, i.e., 2633 B.C.

Sir J. Norman Lockyer argues for a different commencement for the sothic cycle, thus: 270 B.C., 1728 B.C., 3192 B.C. He then adopts the method just described, reckoning the progress of the 1st Thoth of the vague year *backwards* through the Sirius year. This yields the following result:—

Observation.		Forward from 2781 B.C.		Backward from 3192 or 1728 B.C.
Usertesen III. Pharmouthi 16	1880 B.C.			2221 B.C.
Amenhotep I. Epiphi 9	1557	„	1504	„
Thothmes III. Epiphi 28	1470	„	1580	„
Philae inscr. Epiphi 28	10	„	122	„

The difference in date may be insufficient of itself to determine but the words of the inscription of Usertesen III. seem clearly to indicate the forward movement as the only one possible, thus: “Thou must know that the rising of Sirius took place the 16th day of the month Pharmouthi.” As Sirius always rose on the 1st of Thoth in the sothic year, the 16th Pharmouthi must be a date in the vague year, and arrived at by the rising of Sirius falling one day later in that year every four years. Thus, the 1st Thoth sothic fell on the 2nd Thoth

vague in the 5th year of the cycle, and the 1st Thoth vague or any day of the vague year could only witness the rising of Sirius once in 1461 years. There seems, therefore, no reason whatever to adopt any other reckoning than the forward one, and though the exact year for the commencement of the cycle may not be indicated by 1322 B.C., it is probably correct within seven or eight years at most.

We have therefore, in the sothic cycle, a means of calculating dates very reliably, when the record is sufficiently definite as to the day on which Sirius actually rose. Unfortunately these instances are comparatively few, but it is hoped that others may yet be discovered.

THE END.

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