# ADDENDUM TO ANNOTATIONS (C) AND (D) TO TABLE XV.

## THE YEAR DATINGS ON THE RHIND MATHEMATICAL PAPYRUS.

The Hyksos Mathematical Papyrus claims to be copied exactly from a Papyrus written under Amenemhat III. If this is correct, then the data given represents the mathematical rules and formulae in use for practical everyday problems during the XII$^{th}$ Dynasty. But the abridged and practical nature of the rules and formulae given clearly indicate that the XII$^{th}$ Dynasty papyrus was dealing with data that had been evolved long before the XII$^{th}$ Dynasty began. This is a conclusion already necessitated by the high mathematical attainments evidenced by the metrology and astronomy of the earlier Dynasties, dealt with in Chapters I and II of this work. It is evident therefore that the Papyrus written under Amenemhat III was itself compiled from earlier sources. This conclusion throws some light upon the conditions attaching to the copying out of the Hyksos Mathematical Papyrus. The scribe copying under the Hyksos king clearly accepted the text of the Amenemhat III Papyrus, merely inserting the month and year of the Hyksos king, and his own name as scribe making the copy. Omitting these from the Hyksos copy, we should have the text of the Amenemhat III copy, with the month and year of the latter, however, omitted.

Now the Hyksos copy states that it was made in month IV, Season of Inundation, in year 33 of the Hyksos king, Ra-aa-user (Apepa I), from a similar roll in antique writing made under Amenemhat III (Dynasty XII). It is generally assumed that this refers to Amenemhat III, preceding the times of Ra-aa-user by so many centuries that the writing of the time of Amenemhat III was already deemed to be " antique." From what has been said above, however, it seems to be clear that the scribe of the Hyksos king merely copied what was stated on the roll dated by a scribe of Amenemhat III, *i.e.* that the roll was written under Amenemhat III "in the likeness of an ancient writing." An alternative Egyptological opinion, however, is that all the data on the existing copy (The Rhind Mathematical Papyrus) was copied at a considerably later date from the Hyksos copy made from the copy of Amenemhat III.

On a blank space on the Hyksos Mathematical Papyrus there is what appears to be a diary of events and calendric notes. On the same blank space there is a statement of accounts. Peet remarks that Moller suggests both entries as " possibly emanating from the same hand," and that Griffith attributes the former to the scribe who wrote the mathematical sections. The general opinion is that the entry relating to the calendar was made not long after the mathematical sections had been written. A possibility that does not seem to have been suggested is that the calendric notes and statement of accounts were entered on a blank sheet of papyrus before any portion of the mathematical sections were written. This conclusion would not be invalidated even if the opinion is accepted that the Rhind Papyrus is a later copy of all the data on a Hyksos papyrus. The calendric notes are dealt with on Annotations (C), Col. (1), and in ¶ 61 and 62. In Annotations (C) it is shown that the calendric data agree with the commencement of 2095 A.K. *(i.e.* 1905 B.C.). The note, however, is dated in the " 11$^{th}$ year " of a king or of an epoch. As the note deals with calendric data, it is not improbable that an epoch is implied by the dating. This suggestion, however, would not amount to much did we not know from a record of Ramesus III that there was a recognised Hyksos Epoch, and that records in the Delta were dated from this epoch as late as his own reign. The use of such a well-recognised epoch would account for the date being given merely as the " 11$^{th}$ year," and for the fact that no king is mentioned in relation. From Annotations (D) we see that such an epoch is fixed at 2083½ A.K. and was observed both by Semites and Egyptians. On page 290 it is shown that Senusert III observed the completion of the cycle, fixing the epoch, by celebrating a festival of the heliacal rising of Sirius at 2083¾ A.K. The first calendar year of the new epoch would be the calendar year beginning 2084 A.K. and ending 2085 A.K., and, in consequence, the 11$^{th}$ year would be that beginning 2094 A.K. and ending 2095 A.K. At the latter date, the last five days of the 11$^{th}$ year of the 365 days' calendar year would coincide with the 1st five days of the 12$^{th}$ year of the 360 days' calendar year, as is explained in Annotations (C) , and in ¶¶ 61 and 62. Now, since the note dated in the " 11$^{th}$ year " mentions this precise coincidence, that dating confirms that 2084 A.K. began the reckoning of a new epoch.

How does this agree with the dating of the Hyksos Epoch on the Ramessu III record? This record, found at Tanis, formerly a Hyksos town, states that it was inscribed in the reign of Ramessu II and in the 400$^{th}$ year of the Hyksos god " Set-aa-pehti Nubti," *i.e.* Nubti Set, the powerful. With 2084 A.K. beginning the 1$^{st}$ year of the Hyksos Epoch, the 400$^{th}$ year began at 2483 A.K. and ended at 2484 A.K., thus coinciding with the 42$^{nd}$ or 43$^{rd}$ year of Ramessu II (Table XIV). That the latter date, 2484 A.K., is a Semitic and Pyramid prophetic Epoch (ending 2520 unintercalated calendar years of 360 days = 7 x 360 calendar years, or a week of Great Calendar years) gives significance to the dating of " the Stele of 400 years." It is a date appearing in the Babylonian chronological scheme of Berosus (Annotations A to Tables XVII-XIX, Col. 3, and notes to Col. 2). It is the Pyramid dating for the Floor junction of the Entrance and 1$^{st}$ Ascending Passage (¶¶ 344 and 345). It is the date given by the Talmud for an attempted Exodus of 80,000 men of the tribe of Ephraim 30 years before the actual Exodus. This Talmud account gives the actual Exodus as 5 years after the death of the Pharaoh of the Oppression. As the latter Pharaoh was Ramessu II, who, by Table XIV, died at 2508½ A.K., the date of the Exodus is 2513½ A.K., at the end of the 5$^{th}$ year of Menephtah. This agrees with the 5$^{th}$ year Israelitish Exodus Inscription of Menephtah (Table XXIII) and with the Hebrew date of the Exodus (Annotations A to Table XXVIII) and gives 2483½ A.K. for the abortive exodus of the men of Ephraim.

In "Historical Studies" (1911), in the inserted sheet between pages 20 and 21, Sir Flinders Petrie gives his note on "A Seasonal Date of the Hyksos Period." This refers to the calendric notes on the Hyksos Mathematical Papyrus, and in quoting Dr. Griffith's translation of the Hyksos notes there is a misprint in which the number of the year appears as the Roman numeral II in place of the Arabic numeral 11. On pages 49 and 50 of the first edition of the present work, the dating was adopted as given in the misprint. Attention was drawn to the mistake when Professor T. Eric Feet's recent work, " The Rhind Mathematical Papyrus," was received. The year clearly appears as "year 11 " in Plate 7, No. 87, and in the translation on page 129 in that work.