Various Eras and Calendars used in the Countries of Islam

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In the following pages an attempt is made to give as comprehensive a list as possible, and to discuss some important features of the eras and calendars which have been or are still being used in the Muhammadan East since the early years of Islam up to the present day, as well as of those occurring in the books of the Muslim authors. This is, however, not claimed to be complete and can by no means be considered as an exhaustive survey of all the different calendars used here and there in the Near East in Islamic times, though sometimes only for a short period or in a limited area. Many a great and famous ruler had the ambition to found an era in his own name or to reform the calendar in general use in his time. I will content myself with a simple mention of the name, or a very brief description of the eras or calendars which are sufficiently well known in all details, as well as of those concerning which we have very little information, but will try to discuss those which, in spite of the existence of ample materials relating to them, are comparatively little known or about which difference of opinions exists. In doing so I hope to contribute to the elucidation of some obscure and so far unexplained points, but again without claiming to have afforded the final and definite solution of all the difficult questions involved. The list of the eras and calendars discussed or briefly described in this article is as follows:

The Religious or National Eras

1. The Hijra era with the well-known Arabian lunar year and months.
2. The Hijra era with the Persian solar (vague) year and months (Kharâji).
3. The Hijra era with the Egyptian (Coptic) year and months (Kharâji).
4. The Hijra era with the Julian year and Syrian months' names (Turkish Mâliyya year).
5. The Hijra era with the tropic year and Persian month names and a calendar reform (the present calendar of Iran).

VOL. IX. PART 4.
6. The *Yazdegerdī* era with the Persian vague year and Persian months.

7. The *Magian* era with the Persian vague year and Persian months (*Tārīkh al Majūs* or *era Magorum* or the so-called *Tabarī* era).

8. The *Jalālī* era with the tropic year and Persian months (also called *Malikī*).

9. The *Khānī* era of Chingiz *Khān*.

10. The *Khānī* era of Ghāzān with the Jalālān calendar (and later sometimes with Turkish months).

11. The *Ilāhī* era of Akbar, the Moghul emperor of India, with the tropic year and the Persian month names and with a calendar reform relating to the length of the months.

**THE FOREIGN ERAS USED BY MUSLIMS OR MENTIONED IN THE BOOKS OF THE MUḤAMMADAN WRITERS**

12. The Christian era with the Gregorian calendar and Syrian month names (used now in Turkey).

13. The Jewish Mundane era of the creation.

14. The era of the Deluge.

15. The Seleucidian era (or the era of Alexander).

16. The Spanish era (*Tārīkh as-sufr*).

17. The Diocletian era or the era of martyrs (*Tārīkh asḥ-Shuhadā* or *Tārīkh al-aqbāt*).

**THE PARTICULAR CALENDARS**

18. The *Muʿtaḍidī* calendar.

19. The calendar of Khalaf ibn Aḥmad.

20. The financial calendar of Persia with the solar year, the Turkish duodenary animal cycle, and the months with the names of Zodiacal signs.

We are now going to discuss these different systems of time-reckoning according to the order given above:—

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*The Hijra* era with the lunar year.—This era is too well known to need any description. We may only say that this era with the lunar year and months and without any intercalation was established only about seventeen years after the *Hijrat* or the Flight of the Prophet from Mekka to Medina in September, A.D. 622 (in the month of Rabīʿ al-awwal). The beginning of the era, however, is not the date of the actual
flight but rather the beginning of the Arabian year in which the flight occurred, i.e. the first day of the month Muharram (16th or 15th July, 622). The old calendars of the Arabs were quite different from this Muhammadan calendar. The old calendar of South Arabia is to some extent known from the inscriptions and it had its own month names. In Northern Arabia the present month names as well as some other series of names were used, but their year was most probably a kind of luni-solar year with a peculiar system of intercalation possibly inspired by the Jewish system. These pre-Muhammadan calendars of Arabia are not, however, included in the subject of this article.

2 AND 3

The Hijra era with the solar year.—This era was called the Kharājī era. The Kharājī or taxational year was of two sorts which correspond to Nos. 2 and 3 of the above list. The Kharājī year in Persia and Iraq was the same as the well-known old Iranian (Zoroastrian) vague year of 365 days without an additional fraction and in Egypt it was the same as the late Egyptian (Alexandrian) year (of 365 1/4 days), but in both cases it was used with the Hijra era. However, as the solar and lunar years did not correspond to each other, the Kharājī year being solar and hence longer than the Arabian lunar year (the difference being about 11 days or strictly 10 days 15 hours 12 minutes), was bound to advance in the latter, or in other words the dates of the solar years gradually fell behind those of the lunar years. For instance, the 100th lunar Hijra year would roughly correspond to the 97th solar (Kharājī) Hijra year. The difference in dates between the religious and financial year, if not adjusted, would have certainly caused great inconvenience and perplexity; for, once in each period of about 34 years, as a result of the apparent difference of dates, the taxpayer who had already paid the taxes due for the current solar year could be held by some dishonest and tricky financial agents of the State as being in arrear and the taxes just paid by him as that due for the "preceding" year, on account of the date of the solar year. The agent might then claim a second payment for the "current" year now according to the date of the lunar year, though both years (the lunar with the more advanced date and the solar with the lesser) were in fact identical in spite of their different dates. The divergence of the dates happened,

1 The payment of taxes, being dependent on the gathering of the crops in the harvest, was naturally effected according to the solar year.
as a matter of fact, three times in about a century, or each time that
in one of the Arabic lunar years no Persian New Year (or in Egypt no
Egyptian New Year) fell and the Naurūz has, so to speak, jumped from
one lunar Hijra year to the lunar Hijra year after the following one.
If the Naurūz, i.e. the Persian or the Egyptian New Year’s Day,¹
happened to be towards the end of a given Arabian year, say on the
24th Dhu ‘l-Hijja (the 12th month), the next Arabian year would
have no Naurūz, but the next Naurūz would fall on the 5th Muḥarram,
or the first month of the second year after the said Arabian year.
The Naurūz being for the State the date of “opening of the taxation”
= افتتاح الخراج, the ignorant or the unjust agents of the government
would sometimes say “how can one year (i.e. the usual Arabian year)
be left without its own tax collection and the people exempted from
taxes”?, though they had just “opened” the taxation only a few days
before the beginning of that lunar year and would do the same in the
early days of the next one. This complication arising from the parallel
usage of two different systems not only could lead to the simple-
minded masses being deceived by dishonest agents but was also causing
confusion in dating. The taxes collected in a given (Arabian) year
bearing a lunar Hijra date were often nominally for the Kharājī
year bearing a previous date, because the same lunar year did in fact
correspond to that solar year and both were really one and the same.
To remove this difficulty one had either to date the financial years
according to another era different from that of the Hijra, to which
remedy some of the reformers resorted, or keep dating both years (the
financial and religious) from the Hijra, but periodically readjusting
the apparent difference of years, so as to bring both dates into harmony
with each other. In the first centuries of Islam it was the latter course
which was adopted. The method chosen consisted of the nominal
increasing the numbers of the years relating to the Kharājī dates by
one in each 33 or 34 lunar years. In other words the year coming after
the 32nd Kharājī year was by convention called not the 33rd but the
34th, and the same operation was repeated at the end of the next 33
lunar years as well as at the end of each cycle of the same length.
Thus the Kharājī dates would have no 33rd, 66th, 99th, and 132nd
years and so forth.

We have no precise information as to when this method of
harmonization of the two years (solar and lunar) of the Hijra era was

¹ The Egyptian Naurūz (Nairūz) is always on the 29th (or 30th) August (Julian)
but the Persian Naurūz was receding each seven years one day in the Julian year.
introduced nor as to when the use of the *Kharājī* year itself for financial purposes was established. It is, of course, very probable that the taxes were always collected according to the solar year in use in the country. However, in some of the Persian books of later centuries some dates for the introduction of the *Kharājī* year are given which are hardly reliable. According to the astronomical tables entitled *Zīj i Ashrafī* (Paris, supplement Persan 488) composed in A.H. 702 (A.D. 1302–3) the *Kharājī* year, which was in the time of the author in general use in the governmental departments in Fārs, was instituted 3,714 years after the Deluge and in the reign of Khosrau II (Parvīz).1 Sharaf ad-din 'Ali Yazdī in the introduction to his *Zafar-nāmeh* states that the *Kharājī* era was introduced in the reign of Qobād (Kavādsh I) the Sassanian King (A.D. 488–531). These dates seem, however, too early for the invention of the *Kh.* year, as there was no lunar year in use in the Sassanian administrative departments to make the adoption of such a double system (lunar and solar) necessary. On the other hand, the year A.H. 366 in which, according to some modern authors, the institution of the *Kh.* year must have taken place, is certainly too late because we have evidence of earlier use of the *Kh.* year. Ginzel, in his *Handbuch der mathematischen und technischen Chronologie I*, 264–5, ascribes the said institution in Egypt to al-'Aziz the Fāṭimid Caliph of Egypt (A.H. 365–86) and also apparently to at-Ṭā'ī bi 'Ilāh (A.H. 363–381) in Iraq and Persia when he speaks (ibid., p. 266) of the Turkish *Māliyya* year. The same is repeated in ERE (calendar). Gāzī Aḥmad Mukhtār Pāshā in his book on the calendar reform, of which the French translation was published in 1898,2 also ascribes the institution of the *Kh.* year to the same Abbasid Caliph (at-Ṭā'i). Ginzel states also that this sort of time-reckoning was adopted officially in Egypt on the first day of the year A.H. 366 and that it was abolished in 501. The source of these statements is not given by Ginzel or by Mukhtār Pāshā. The *Kh.* year is, however, mentioned in a financial document of the time of the Abbasid Caliph al-Muqtadir bi 'llāh (A.H. 295–320) which we find textually given in *Tārikh i Qum* (Teheran edition, p. 149).3 Thus this solar year with this name must have been in use in the early centuries of Islam and perhaps since the establishment of the Arabian rule in Iraq and Persia. It is, however, not known

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1 The era of the Deluge will be discussed in this article (*vid. infra* No. 13).
2 La réforme du calendrier, Leyd.
3 The work is a Persian translation of the Arabic original composed by Hasan ibn Muhammad ibn Hasan Qummi in about A.H. 378.
how it was kept in harmony with the lunar year in those early times, as we have no record, relating to the first two centuries, of an operation of the sort above mentioned, i.e. the omission of the number of one year by leaping past it to the next number, though this was indispensable if both lunar and solar Hijra years were used side by side. The oldest report of this operation, which is called in Arabic izdīlaq (اردلأ ق), i.e. the sliding, relates, so far as is known to me, to the one effected in the reign of the Abbasid Caliph al-Mutawakkil 'ala 'allāh (A.H. 232-247) in the year A.H. 242. Maqrīzi in his Kitāb al-mawā'īz (ed. Wiet, vol. 4, p. 272) informs us on the authority of older writers that since the beginning of the solar or Kh. year was advancing gradually in the lunar year and it had thus arrived near the end of the latter, the Kh. year 241 was called 242. As a matter of fact the Persian Naurūz began in the year 242 A.H. on the 22nd Dhu 'l-Hijja, i.e. only 8 days before the end of the Arabian lunar year, and hence the divergence between the two years (lunar and solar) was at its greatest point, and the next Naurūz was on the 3rd Muḥarram of the year A.H. 244. Therefore, it is possible that the above report is not strictly accurate in what concerns the date and that there was a slight error of one, or one may say two years; for there is reason to believe that the omitted numbers of the Kh. era were, as a rule, always those corresponding to those dates of the lunar years in which no Naurūz occurred. In the above-mentioned case since the lunar year A.H. 243 has contained no Naurūz it must be the Kh. year 243 which was omitted (not counted) and a leap from 242 Kh. to 244 Kh. has taken place, so that the first month of both the lunar (Hīlālī = هلالی) and Kharājī year 244 were roughly running parallel.

If the above conjecture should prove to be right then it would not be unreasonable to think that the other reform ascribed to the same Caliph, namely, the intercalation of about two months in the

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1 The reading of this word is izdīlāf in Subh al-a’shā of Qalqashandi (vol. 2, p. 388) as well as in Shīfā’ al-‘a‘il of Khaṭājī (Egyptian ed. 1282, pp. 28 and 116), on the authority of Nuwairī in Nihāyat al-arab. Khaṭājī in explaining the word as meaning the intermixing of the years (تَمَاخِلِ السَّنَيْن) adds that in his time the scribes called this operation tahwīl. However, the spelling in the book of Ku‘aini (vide infra) where several times the word is clearly written izdīlaq and the Turkish translation sivışh (pronounced sivish) make me hesitate to decide in favour of the “f” ending which was adopted by Wiet, Fagnan, and Kremer.

2 The Turkish translation of the same word (sivısh) was used later for the same operation in the Turkish equivalent of the Kh. year, namely, māliyya year. Both words mean “sliding”.

Persian year and the transferring or the postponement of Naurūz from the 21st April, where it happened to fall at that time, to the 17th June, may have taken place in the same year in which the above-mentioned "sliding" (or shifting of the dates) was carried out. Bīrūnī, in his, al-Āthār al-bāqiya, pp. 31–2, reports this reform fully, on the authority of Šūlī and Ḥamza of Iṣfahān, and states that the orders for giving effect to it were issued in the beginning of the year A.H. 243. Ṭabarī, on the other hand, records (iii, 1448) "the Naurūz of Mutawakkil, who favoured the taxpayers by postponing it", in the year A.H. 245 and as falling "on Saturday, the 11th Rabī‘ al-awwal, the 17th June, and the 28th Ardiwihisht". The correspondence of the Arabian and Julian dates confirms it decisively as the same year (245). The fact that Ibrāhīm ibn al-‘Abbās aṣ-Ṣūlī, who, according to Bīrūnī, was charged by the Caliph with the task of studying the question of the intended reform, working out the project, and preparing the necessary decree, died in 243, makes it difficult to accept the date given by Ṭabarī as that of the original introduction of this reform. It has been already said that according to Bīrūnī the decree of the reform was promulgated by circular letters from the Caliph to the provinces, issued in the first month of 243. But since the latter year contained no Naurūz the new decree could be applied only to the Persian New Year which fell in A.H. 244. We must therefore presume either that the first Naurūz of Mutawakkil was in 244 (1st Eabi‘ I) and that Ṭabarī who says nothing about the institution of the new Naurūz has simply mentioned its place in the year 245 as the next Naurūz after the reform, or that owing to some circumstances the advisers of the Caliph decided to carry out in 244 only the operation of "sliding" of the Kẖ. year from 242 to 244 and to defer the introduction of the new Naurūz or the actual application of Šūlī’s scheme to the next year (245). The chief reason for this decision may have been the absence of the Caliph from his residence in the early part of the year 244 and his being engaged in Damascus with the plan for moving the capital of the empire to that city, as well as also the idea of avoiding the confusion which the combination of the two different reforms, or in fact the carrying out of both simultaneously in one and the same year, might create in the public mind, a consideration very important from the popular and

2 According to Ibn al-Jawzī (ibid., fol. 84b), Mutawakkil entered Damascus in the month of Ṣafar 244, i.e. a few weeks after Naurūz.
practical point of view. According to this last conjecture, which seems to me more reasonable, the intercalation of 57 days in the Persian solar year and the moving of Naurūz to 17th June took place in 245 and this agrees with Ţabarî's record. Thus the decision for both reforms may have been taken in 242 and the necessary orders issued in the beginning of the year 243, but instead of carrying them out simultaneously the authorities gave effect to that decision in the case of the sliding in 244 and in the case of shifting the Naurūz from 21st April to 17th June in the succeeding year.¹

The operation of "sliding" in the Kharājī era in the reign of Mutawakkil was of course at the end of the regular cycle of 33 years. Maqrlzi states that the beginning of the cycle was in A.H. 208 in the reign of al-Ma'mūn, but he does not speak of an actual "sliding" having taken place at that date. The next "sliding" after that of Mutawakkil was, according to him, due in A.H. 275, but it was neglected until the Caliph al-Mu'tadīd bi 'llāh repaired this neglect by effecting a "sliding" from 277 to 279 Kh. year.² Then Maqrlzi gives the text of the decree (sijill) which was to be issued relating to the next "sliding" in 308, though again he does not report the actual effecting of the operation at that time.³ The next "sliding" was carried out in

¹ The question of choosing the 17th June for the new and stable Naurūz and its reason is again not simple. In the first place, there is another version of the story of this reform, attributed to the famous al-Baladhuri, who is said to have been present in the audience-hall of Mutawakkil when Šūlī read the draft of the circular letters relating to the postponement of the taxation (or of Naurūz) before the Caliph. According to this version, which we find in Irshād al-arib of Yāqūt (6MS., vi, p. 128), and in Khīfat of Maqrlzi (Cairo ed., vol. i, p. 274), the Naurūz was to be moved to the 5th June (and not to the 17th). Šafādī in al-Wafi bi 'l-wafayāi (see JA., 1911, p. 282) has also the same version of the story but with the date of new Naurūz as 27th June instead of 17th. Moreover, leaving aside this version and accepting Ţabarî's and Birūnī's reports, we still have difficulty in discovering the reason why the 17th June was chosen instead of 16th. The principle must have been certainly the idea of bringing back the Naurūz to the same Julian day on which it had fallen on the accession year of Yazdegerd III, the last Sassanian King, i.e. to the beginning of the Yazdegerdian era. But the advisers of the Caliph, instead of ascertaining the said position by dividing 225 or 226, the number of the years elapsed since, by 4 and by considering the whole number of the quotient, i.e. 56 as representing the number of days Naurūz had receded in the interval between the two dates (that of the accession of Yazdegerd and that of the reform), have apparently taken the next whole number, i.e. 57, by completing the mixed number of the quotient to a higher integer. Counting then 57 days forward from the 21st April on which Naurūz fell in their time, they reached the 17th June with one day of error.

² The year 279 was, however, the right time for the operation as it was the year 278 in which no Naurūz fell and therefore no neglect can be attributed to the predecessor of Mu'tadīd.

³ The right times for "sliding" were, however, A.H. 210 and 313 and not 208 and 308.
351 in the reign of the Caliph al-Muti’i Ilāh by the wāzīr Ḥasan ibn Muḥammad al Muhallabī, who ordered the Kh. year 350 to be called the year 351. This is reported also by Maqrizi¹ as well as by Miskīyeh, in his Tajārib al-umam (GMS., vii, 6, p. 250), by Dhahabi in Tārīkh al-Islām (Brit. Mus. Or. 48, fol. 1b) and by Ibn Taghrībardī in his an-Nujūm az-zāhira. After this operation we have no definite news, so far as is known to me, of any other similar operation in the Abbasid empire. It appears that the cycles for this periodical reform, being too long to admit of remembering and carrying out the necessary “sliding” regularly and punctually at the end of each one of them, the reform was often neglected. We may, however, infer from the difference of dates in Kharājī and Hilālī eras (both counted from the Hijra) in later times that two more “slidings” have taken place in Baghdād of which only one was followed in the Persian provinces and the other remained limited to that Metropolis, and that the first one was effected before A.H. 471. This inference is based on the following facts:—

(a) According to the author of the above mentioned Zīj i Ashrafī (p. 10) the dates of the Kh. era can be reduced to those of the Jalālī era by subtracting 468 from the dates of the years of the former era. This means that the Kh. year 468 ended on 8th Ramaḍān of the lunar year 471, i.e. the day preceding the epoch of the Jalālī era (which was the 9th Ramaḍān of the same year) and that a difference of about two years and seven months² had already grown between the two Hijrā eras since Muhallabī’s operation. The difference would have been bigger if no “sliding” had taken place after A.H. 351; for the accumulated shortages of the lunar year against the solar year in 120 lunar years would amount to about 3 years and 7 months. It follows that in the period between 351 and 471 only two of the three “slidings” due at the end of the cycles were neglected and one was carried out. Moreover the rule given in the said Zīj can be correct only if no more “sliding” was effected after 471.

(b) In a horoscope appended, probably by an owner of the book, to the fol. 77. of the manuscript of the Zīj al mufrad (sic), Persian

¹ The statements of Maqrizi on all the points relating to the “sliding” are based on older sources; for instance, in the matter of “sliding” by order of Mutawakkil he quotes an author of the sixth century A.H. who in his turn quotes a man no less than the chief tax-collector for the said Caliph himself. For fuller details the reader must be referred to Maqrizi and Qalqashandi, whose statements are very similar. The “sliding” of only one year in 351 proves that the “sliding” due at the end of the previous cycle (313) had actually taken place.

² The Persian New Year in A.H. 351 was on 15th Šaftar.
astronomical tables apparently composed toward the end of the fifth century A.H. = A.D. eleventh century (Cambridge O, 1, 10), the date of the birth given is Jumādā al-akhirā A.H. 604 (lunar) with the corresponding Ḵẖ. date as the 2nd Bahman of the Jalālīan calendar of the year 597 of the Ḵẖ. era. This correspondence of the dates again implies one “sliding” having taken place between 604 and 351.

(c) Wāsāf, the famous historian of the Mongolian Ilkhāns, expressly states in his book (Bombay edition, A.H. 1269, vol. 4, p. 435) that the beginning of the first year of the Ḵẖānī era (the era founded by Ghāzān on the 12th Rajab, A.H. 701, v. infra, No. 10) corresponded to the first day of the year 692 of Ḵẖ. era. Now if the Ḵẖ. year spoken of by Wāsāf belonged to the well-known Ḵẖ. era used in Persia in that time the correspondence of dates given by him would mean that in 701 the difference between the two Hijrā eras (lunar and solar) had grown to 9 years 7 months and a few days. Here again the difference ought to have been about 10 years and 6 months if no “sliding” had been effected after 351. This rate of divergence in the beginning of the eighth century A.H. is also confirmed by another double date given in Zīy i Ashrafi (p. 13), where Wednesday the 23rd Rajab, A.H. 702, has as its corresponding date the first day of the Ḵẖ. year 693 in Fārs.

(d) Muhammad ibn Ībrahīm in his history of the Seljūqian rulers of Kirmān, composed in Persian in the first half of the seventeenth century (Histoire des Seljucides du Kermān, ed. Houtsma, Leyden, 1886), gives a good many of the dates with the Ḵẖ. era and some of them (six cases) in pages 34, 48, 92, 150, 167, and 192, together with corresponding Hilālī (lunar) dates. Most of these dates are, unfortunately, erroneous and also they are not consistent with each other. In some cases the difference between the two eras implies one “sliding” after 351 and in some others does not imply any “sliding” at all, whereas in two cases the difference cannot be correct unless even the “sliding” of 351 had been neglected. However, a more reliable datum may be found in the record of a total eclipse of the sun in page 35. In this passage the eclipse is reported to have happened in the zodiacal sign of Taurus, in the month of Ardibilisht (certainly the Jalālīan month) and in the Ḵẖ. year 557. This eclipse cannot be other than that which took place on 21st April, 1167 = 28th Jumādā al-akhirā, A.H. 562 (lunar). Here again the difference between the two eras, being five years and about four months, confirms the result already obtained from the other data supplied by the authors mentioned above (a, c,
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and d), namely, that one "sliding" had taken place after 351 in Persia.

If the assertions of Ginzel and Mukhtār Pāshā as to the institution of the Kh. year in the reign of at-Tāi' should prove to be based on an old and authentic tradition, then we may assume that the last "sliding" had been carried out about A.H. 381, the last year of the reign of that Caliph, when the beginning of the Arabian and that of the Persian years almost corresponded to each other (only with one day's difference). In this case, as no more "sliding" has been effected since, the date of this last one could be easily supposed by later authors to be the epoch of the Kh. solar year.

As to the second "sliding" after 351 which was apparently effected in Baghdād but not in Persia, our authority is Waṣṣāf who states in his above mentioned book (vol. 4, p. 402) that in all Persian provinces there was nine years' difference between the Kh. and Hilālī eras but that in Baghdād by a "Nazzāmian jump" they (the authorities) have leaped over one year of the Kh. years so that "now" (i.e. in the time of the author) the Kh. year 693 "corresponds" [there] to the [lunar] year 701, whereas according to the well-known rule it ought to correspond to 702. As a matter of fact the Kh. year 692 in Persia did correspond, as we have seen, to the lunar year 701 (in fact to the last part of it) and therefore the Kh. year 693 began certainly in 702 (23rd Rajab) and ended in 703 (4th Sha'bān). Now, if the beginning of the Kh. year 693 in Baghdād fell really in 701 this can only be explained by presuming two "slidings" there between A.H. 351 and 701. Hammer Purgstall in his Geschichte der Ilchane (Darmstadt, 1842-4, Appendix vii) interprets the words of Waṣṣāf by supposing that this difference of one year between the computation of Baghdād and that of the Persian provinces was the consequence of Muhallabī's "sliding" in 351. However, this interpretation, though it is apparently possible owing to the very ambiguous text of Waṣṣāf's statement, is hardly in accordance with the facts and the calculations as explained above. Moreover Hammer in his notes (pp. 175-6) tries to explain the question by tracing back the Kh. year to the reform of Mu'taṣjid and rather confuses the whole matter by assuming imaginary reforms.

1 The Muhammadan theologians and philosophers attribute to Naẓzām, the famous Mu'tazilite theologian and dialectician of the early part of the third century A.H., the hardly imaginable theory of the possibility of the transfer of a moving body from one point to another distant (not immediate) point without crossing the interval. This action is called, in the Arabian philosophic technology, _jafra_ (meaning jumping or springing) which word is used by Waṣṣāf (see also M. Horten, ZDMG., 63, p. 782).
In Egypt the "sliding" of the Kh. year had continued though not always regularly. We have records of several of these operations up to the middle of the eighth century A.H. (fourteenth A.D.). Maqrizi in his above mentioned book, *al-mawā'īz w' al-i'tibār*, better known as *Khitat*, devotes a chapter to the subject of the Kh. year (ed. Wiet, vol. 4, pp. 263–294) and Qalqashandi in *Subh al-ā'šā* (ed. Cairo, vol. 13, pp. 54–79) also deals with the same era. Apparently both authors had on this subject a common source. In these books there are reports of a double "sliding" in A.H. 501 when the Kh. year 499 (or 497 \(^1\)) was made (i.e. transferred to) 501, because as a consequence of neglecting of the "sliding" at the end of one (or three) previous cycles, the difference between the two eras had grown to two (or four) years. In this year (501) the beginning of the Egyptian solar year or *Naurūz* (the so-called Coptian *Nairūz*), which corresponds regularly to 29th or (in the leap years) to 30th August of the Julian year, fell on the 10th Muḥarram, and therefore the lunar year 500 has contained no Egyptian *Naurūz*. Accordingly a decree, of which the text was composed by the famous Ibn aṣ-Ṣairafi, was issued in 501 ordering compensation for the neglected "slidings" by calling the current solar or Kh. year also 501. The next "sliding" reported by the same authors is that of the year A.H. 567 in which again no Egyptian *Naurūz* fell, as this is also confirmed by Maqrizī himself (ibid., i, 281). This was again a double "sliding" and therefore the "sliding" which was due in A.H. 533 must have been neglected. Another "sliding" in Egypt is reported only by Qalqashandi as effected in the year A.H. 750, a year of great famine in which, according to the popular jest, "there was shortage in everything, even in the year." This operation was, however, carried out about fifteen years too late, as it must have been, no doubt, due in 735. Since it is said to have been no more than the transferring of the Kh. year 749 to 750, it may be inferred that the necessary "slidings" due for all of the previous cycles were always regularly or subsequently carried out in Egypt up to that date, as otherwise the difference would have been more than one year.\(^2\)

\(^1\) This is the variant reading in Maqrizī's book. Qalqashandi has only 499.

\(^2\) Neugebauer in his *Hilfstafeln zur technischen Chronologie* (Kiel, 1937) gives a table for the Egyptian Kh. years from A.H. 366 to 496 with the corresponding lunar Hijra years as well as the Christian and Panodoros dates (table 32, p. 56). This table, which is apparently worked out by the said author, is, no doubt, based on the supposition that the necessary "sliding" due at the end of each cycle between the two dates has been always regularly effected. However, since the "sliding" did not take place regularly, as we have seen, the table cannot be helpful for ascertaining the strictly correct Kh. dates.
I have no more information as to any other "sliding" after the date last mentioned, though I suppose some more records might still be found by an exhaustive and patient perusal of Arabic manuscripts and printed books. The adoption of the same kind of operation in Turkey in the eighteenth century under the name sivish, as is mentioned above, may suggest the possible continuation of that means of adjustment for the harmonization of the two eras, at least in some of the Muhammadan countries. This conjecture may find a confirmation in the fact that in an Arabic treaty entitled رسالة مختصرة في معرفة استخراج أوقات الصُّلوات وشيء من التواريخ, composed apparently about the middle of the sixteenth century by a certain Yahyā ibn Muḥammad ibn Muḥammad ibn ‘Abd ar-Rahmān ibn Ḥasan ar-Ruʿainī al-Mālikī (or Makkī) al-Ḥattāb, who died according to Ahlwardt in A.H. 1000 (Berlin MS. Lbg. 953), there is a detailed discussion of ḯilāq in the Persian and Egyptian years, including those relating to the author's own time. After interpreting the word ḯilāq with the [operation effected in] the Arabian year during which no Persian or Egyptian New Year (respectively) happens, the author states that the ḯilāq occurs in the Persian year twice after 33 lunar years and the third time after 34 years and that the last ḯilāq has occurred (or taken place) in A.H. 930 (A.D. 1523-4). A commentator adds in a marginal note that there have been three ḯilāqs in the Egyptian years from A.H. 902 to 1003, that the one which occurred in the last year named was after 32 years, and that the next one will occur at the end of a cycle of 33 years, namely in 1033. If it is not just a theoretical "sliding", i.e. only the points of time in which a "sliding" was necessary (though not actually effected), which is meant by the statements of the author and the commentator, then these would mean that the "sliding" was still practised in the tenth and eleventh centuries A.H.

It is a curious fact that the Kh. dates as well as the dates of the Turkish Māliyya year, which was in fact no more than a revival of the former, are often given with the omission of the hundreds and sometimes even of the tens. For instance the Kh. year 350 is spoken of as the year 50 and the year 583 as 3.

The system of the Kharājī year with its "sliding" was revived again in A.D. 1789 in the Ottoman Empire under the new name of Sana i māliyya or the financial year. This was the Julian year with the
Syrian month names (except in the case of three of them) used with the solar Hijrī era and with the "sliding" system as in the Kh. era. The "sliding" or sivish, as it was called in Turkish, was carried out when an Arabian lunar year did not contain the first day of March, which was the beginning of the financial year. The history of this year and of the way of keeping harmony between it and the lunar year and how this harmony was lost later, since A.H. 1288, is told by Ghāzī Ahmad Mukhtar Pāshā in his above-mentioned treaty, by Ginzel (i, pp. 265–6) and more fully by Babinger in his Geschichtschreiber der Osmanen (appendix, p. 418) to which books we may refer our readers for the details.

In 1925 the solar Hijra era was adopted in Persia but with a new calendar.1 The time elapsed since the Prophet's flight from Mekka is calculated in the solar tropic years. The months are old Iranian, but instead of counting 12 months each of 30 days with 5 supplementary days appended to the 8th or to the 12th month, the first 6 months of the year in the new calendar are made to have each 31 days and the next 6 months each 30 days in the leap years. In the common years the last month (the 12th) is of 29 days. The year begins with the vernal equinox and the New Year's Day is always the day on the midday of which the sun will be in Aries for the first time since it has left that sign in the year just coming to a close. The corresponding Christian year can be found by adding 621 to the number borne by the date of the solar Hijrī year in the period from 21st March to 31st December and by adding 622 from 1st January to 21st March. For instance, the present Persian year is 1317 solar Hijrī which began on 21st March, A.D. 1938, and will end on 20th March, 1939. It must be, however, borne in mind that in counting backwards with this solar year the beginning of the first year (17th March O.S., A.D. 622) would fall four months before the beginning of the first year of the Muḥammadan era of the Hijrat (16th July, 622) and about six months prior to the actual Flight (September, 622). In dating with this era it is always advisable to add the words "Hijrī shamsī" or the "solar Hijra" to the number of the date, in order to avoid the confusion of the dates of this era with those of the lunar time-reckoning having the same number.

1 The bill was approved by the parliament on 31st March of the same year.
While the secular and public affairs in Iran are now all dated according to this era and the civil year used with it, yet for religious purposes such as the fast of Ramadān, the pilgrimage in Dhu‘l-Hijja, and the celebration of the religious festivals or mourning days, the lunar year and months are used and therefore they are given, as a rule, in the Persian calendars and almanacs.

The Era of Yazdegerd with the old Iranian vague year and months.—This era was used in the Islamic age, for centuries, in most of the Persian provinces side by side with the Hijra era and Arabian lunar year and month. It was originally a Sassanian era which like all other eras of that dynasty began, according to the well-known Sassanian usage, with the accession of the reigning King. During the rule of that dynasty there were as many eras as rulers. With the accession of each King a new era came into use which, as a rule, began with the first day of the year during which the King came to the throne and ended with the close of the civil year during which his rule came to an end and he was succeeded by another Sassanian monarch whose era then had to replace the preceding one. Thus the Persian civil year during which Yazdegerd III became the King of Iran (16th June, A.D. 632, to 15th June, A.D. 633) was, according to the rule, the first year of the Yazdegerdian era. This era was for 20 years, i.e. up to the end of the life of the said Monarch or rather to the end of the last civil year of his reign, of course, the legal era of his country and his subjects, but as he was not succeeded by another Sassanian King and therefore no new era was instituted, it continued to remain in use with most of the Persians, even after the fall of the Sassanian dynasty and the Arabian conquest of Persia, for a long time. It is still used by the Zoroastrian community in Iran and by their Parsi co-religionists in India.

The epoch of the era is, as it is said, the 16th June, 632, or the beginning of the Persian year during which Yazdegerd came to the throne. The year used with this era was the old Iranian or Young Avestan year with 12 months of 30 days each and 5 supplementary days added at the end of the 8th month (Ābān). In A.D. 1006 or A.Y. 375 the epagomenae were, by the order of the Būyid

1 Some others, perhaps more realist, however, finding the use of an era relating to the reign of a king, after his death, unreasonable, started a new era in his memory which began with the year following the last year of his reign. This last era forms the subject of section 7 of this article.
2 A.Y. means in this article the Yazdegerdian era.
prince (probably Bahā ad-dawla) then ruling in Fārs, ʿIrāq, and central Persia, moved to the end of the year and appended to the twelfth month but they continued to supplement the eighth month in the Caspian provinces and Khōrasān. The Zoroastrian community in Iran as well as the Indian Parsis have, at the present day, the said five days at the end of their year. Moreover, as a consequence of an intercalation of one month by the latter about A.D. 1131 their year begins a month later than that of their co-religionists in Persia, but the era used by both communities is the same.¹

The Magian Era or era Magorum (called by the Muḥammadan writers Tūrīḵ al-majūs and sometimes Fārsiyya). — This era was once in general use in most parts of Persia and more especially in ʿTabaristān, ʿIlām, ʿAṣḵān, and perhaps some of the central provinces of Persia, as well as with the Zoroastrians of Khhorāsān and Transoxiana. The calendar used with it was exactly the same as that used with the Yazdegerdian era discussed above (No. 6). The two eras differed only in regard to their beginnings or epochs. While the era of Yazdegerd began, as we have seen, with the first year of the reign of that monarch (A.D. 632–3) the first year of the Magian era² was the Persian year following that during which the same King was killed, i.e. A.D. 652–3.³

¹ The year of the Iranian Zoroastrians and that of the Kadīmī sect among the Indian Parsis began in A.D. 1938 with the 7th August, whereas the year of the Shāhanshāhī or Rasīmī sect in India began with the 6th September. In recent times a third party called Faslis appeared in India who have adopted the vernal equinox day as the beginning of their year.

² The real name of this era by which it must have been called by those who used it in the first centuries of Islam is not known. Possibly this was also called the era of Yazdegerd as some authors call it so (e.g. Bar-Hebraeus in his Le livre de l'ascension de l'esprit . . .). The name of “Magian era” is a translation of Tūrīḵ al-Majūs of Birūnī, which is used by that author but not as the name of the era.

³ According to Tabari and most of the other Muḥammadan historians, the sad end of the last Sassanian ruler in the vicinity of Marv came in the year A.H. 31. Dinawari (al-Akhbār at-tīwāl, ed. Guirgas, p. 149), however, puts it in the year 30 and Masʿudi (Kitab at-tamīm, p. 103), as well as Sāʿīd ibn Ahmad al-Andalusi in his Tabaqāt al-umam (ed. Cheikh, p. 17), has the date 32 (beg. 12th August, 652). Accepting the year 31, which seems to be based on the best tradition, Yazdegerd must have been killed after the 23rd August, 651, which was the beginning of the lunar year A.H. 31. On the other hand, since the last known coin of that King bears the date 20 of his reign (see Mordtmann, ZDMG., 1879, p. 83, and Nöldeke, Tabari, p. 431), his death must have occurred before 11th June, a.d. 652. Thus he must have passed away either during the last four months of the Christian year 651 or during the first five months of 652. The first alternative is more probable as it agrees also with one of the relations given by Tabari (i, 2872), which puts the burying of the King’s body in Istakhr in the early part of the year 31 (possibly in September or October). However, the possibility
This is indisputably proved by the Chronological formula which Biruni (al-Āthār al-bāqiyya, p. 142, and al-Qānūn al-Mas‘ūdī, Brit. Mus. MS. Or. 1997, fol. 25a) and other old writers have given for the reduction of the era of Yazdegerd to the Magian era. This could be accomplished, according to them, by subtracting 20 years from the number of years of the dates of the former era.¹ According to Biruni (Qānūn, ibid.,) both “the Zoroastrians of Irānshahr” to the West of Oxus as well as those of Transoxiana, whom he calls Mubayyīda or Isfandiyya,² used this era, but while, with the former community, the difference between this era and that of Yazdegerd was exactly 20 years, the difference was, according to the practice ³ of the latter (no doubt on account of their having the epagomenae at the end of the year) 20 years and 5 days.⁴ According to the author of Tārikh i Qum (Teheran edition, p. 242) this era, which he always calls Fārsīyya, was “used in Qum and was well-known with the people of that town”.

The Magian era was in general use in Tabaristān and was most probably the same as the so-called Tabari era which was used on the coins of the Ispahbeds of the house of Dāboē or the dynasty founded by Gil Gāv-bārēch as well as on the coins of some of their Arab successors from 60 (A.D. 711-12) to 143 (794-5) and even occasionally later (see Vasmer EL—Mazandaran and Unvala, Coins of Tabaristān),⁵ mostly of the occurrence of the death of Yazdegerd in the 21st year of his reign and even in a.h. 32 as Sā‘īd recorded, is not absolutely excluded by a decisive proof. The number given by Tabari (i, 1068), as representing the interval between the Hijrat and the death of the King “according to the Zoroastrians”, namely 30 years 2 months and 15 days, could even indicate the autumn of the year 652 (20th September), if the 30 years were solar Persian years, though the duration of his actual reign would not be still longer than 19 years and about 4 months if his accession was, as Firdausi tells us, on the 25th day of the 12th Persian month, i.e. 10th June, 633. This date (32 A.H.), however, must be left aside as just an improbable possibility and not more than that.

We have dwelt at some length on this point particularly because of its bearing on the question of the dates of the coins of the Ispahbeds which is discussed below.

¹ Though Biruni in his last-named book (fol. 26a) says that the Magian era “is from the year of the perishing of Yazdegerd and not from the [first] year of his reign’’ this must not be taken in the strict meaning of the word but as meaning from his death.

² Professor V. Minorsky suggests (Hudūd al-‘ālam, p. 356) that the word may be a miswriting for Isfīdhāriyya.

³ The word madhab in the text means way and opinion, i.e. the practice.

⁴ This is, as a matter of fact, the difference between any Yazdegerdian date and its Magian correspondent wherever the epagomenae were at the end of the year.

⁵ According to the last-named author the coins of Tabaristān with this era are found with dates as late as 161 (A.D. 812-13).
bearing Pahlavi legends. The difference of one or two years supposed by many scholars to have existed between this "Tabari era" and the era Magorum was, so far as I know, first suggested by Mordtmann (SB. d. bair. Akad., 1871, part i, p. 33). However, the basis of his argument is not sufficiently solid, for he based his calculation on a passage of Ibn Isfandiyār's history of Tabaristān where it is said (see the abridged translation by E. G. Browne, GBS., ii, p. 124) that the Caliph al-Manṣūr died during the governorship of 'Umar ibn al-'Alā' in Tabaristān and was succeeded by his son al-Mahdī and that the latter was angered against 'Umar and dismissed him, sending Saʿīd ibn Daʿlaj to take his place as governor. Mordtmann interpreted this passage, which as it stands means nothing more than that the said change in the governorship of Tabaristān happened in the time of the Caliphate of al-Mahdī, as meaning that 'Umar was dismissed immediately or soon after the death of al-Manṣūr. As this Caliph died in October, 775, which date corresponds roughly to the middle of the year 124 of the Magian era, and since there exist some Tabari coins with the name of 'Umar as well as some others with the name of Saʿīd both dated 125 and therefore the change must have been occurred in one and the same Persian year (11th May to 10th May the next), Mordtmann concluded that this year (125) must have belonged to an era which began on 11th June, A.D. 651, and not in June, 652, because in the latter case the year 125 would have begun on the 11th May, A.D. 776, i.e. about six months after the death of Mansūr. The dismissal of 'Umar and the appointment of Saʿīd after the death of al-Manṣūr and in the time of Mahdī, however, by no means implies that these necessarily occurred very soon after the succession of the latter Caliph to the former. As a matter of fact the said change of governor must have taken place much after the beginning of the said succession. We find Saʿīd in A.H. 159 (November, 775–October, 776), i.e. in the Hijra year following that of the death of al-Manṣūr, still in an important office in Basra and then dismissed from there in the same year and fallen into disgrace (Tab., iii, 466). All these events up to his regaining the Caliph's favour and his obtaining the position of an important governorship needed, no doubt, some time and at least six months or more.

Since we have Tabarī coins of both 'Umar and Saʿīd with the date 125 (beg. 11th May, A.D. 766) and again from the years 127 (beg.

1 Vasmer, however, in his article Die Eroberung Tabaristāns durch die Araber z. Zeit des Chalifen al-Manṣūr (Islamica, 1927, p. 98, n. 2), pronounces very correctly in favour of 652 as the beginning of the era, when he differs with Marquart on the dates of the Arabian lunar years corresponding to the different "Tabari" years.
11th May, 778) and 128 (beg. 11th May, 779), and as, on the other hand, the duration of the tenure of office by Saʿid in Tabaristan is given by Ibn Isfandiyar (ibid., p. 125) as two years and three months (and in another passage on page 124 roughly as three years) and by Ibn al-Faqih (BGA., v, p. 311) as two years, we may be safe in suggesting the following course of events:—

‘Umar ibn al-ʿAlaʾ was dismissed from the governorship of Tabaristan and was succeeded by Saʿid in 777 before the month of May, i.e. in the Magian year 125 (towards the end of this year) and in the middle of the lunar year A.H. 160. But apparently he was not recalled from that province or if recalled he was soon sent back there again as a commander of the army or on a similar important mission, perhaps at the same time also as a co-governor. He was there at any rate in A.H. 162 (28th September, 778–17th September, A.D. 779) as a Chief of the Caliph’s army when he, according to Ṭabarī (iii, 493), attacked in that year from Tabaristan the revolting Muḥammira (the red garmented ones) of Jurjān and their Chief ʿAbd al Qahhār. He must have been also there as co-governor in the Magian year 127 (11th May, 778–10th May, 799 A.D.) and 128 as is proved by the coins with his name struck in Tabaristan with these dates, though we have also Saʿid’s coins from those same years. The co-governorship, though it may look strange and not quite in accordance with the normal course of things, is nevertheless the necessary conclusion from the existence of the coins, though it is possible that the coins were not necessarily limited to the governor’s name and were struck also in the name of the holders of other equally important offices.2 ‘Umar must have become again the sole governor of the province at the dismissal of Saʿid which probably happened in the first months of the year A.H. 163 (the year is given by Ṭabarī, iii, 500) corresponding to the middle of the Magian year 128 (probably in October or November, 779). Thus the governorship of Saʿid would have lasted a little over two and half years.

The establishing of the epoch of this era may help with the revision of the Chronology of the reigns of the Ispahbeds of Tabaristan. The first prince of whom we have coins seems to be Farkhvān of the coins or

1 J. M. Unvala in his valuable book just published (Coins of Tabaristan and some Sassanian coins from Susa, Paris, 1938, p. 35), ascribes a previous governorship to Saʿid in the year 121 of the so-called Ṭabarī era (beg. 12th May, 772 A.D.), apparently relying only on a not very clear date of a unique coin. I am unable to find a confirmation in the sources accessible to me.

2 Mordtmann (op. cit., p. 111) expresses the opinion that the province was occasionally divided into two parts and had two governors.
Farrukhān of the books, the son and successor of Dābōē, the son of Gīl Gāv-bārēh. This dynasty reigned in Ṭabaristān from 35 to 109 or 110 of the Magian era (the last date corresponding to A.H. 144-5), i.e. A.D. 686-7 to 761-2.¹

The Magian era, as has been already said, was widely used in the first centuries of Islam by the Zoroastrians and may have been more familiar to the people than any other era.² But with time the era of Yazdegerd apparently gained preference and at last found general recognition among the said community, as is shown by its unanimous use, at the present day, by all the followers of the ancient religion of Iran.

P.S.—The Magian era seems to have been in use in all parts of Persia in the early centuries of Islam side by side with the era of Yazdegerd. Mutawakkil in his reform took the latter era as the basis of the calculation and Mu'tadid took the former. This era continued to be used by the Zoroastrian community for much longer than I first believed. It appears from the colophons of some extant Pahlavi books that the Magian era was still in use by the said community in the sixteenth and seventeenth centuries A.D. In the colophon of the Bundahishn TD₂, edited by Anklesaria, the date of the copy is given as "the year 975 twenty years after Yazdegerd". [According to Anklesaria another manuscript of the same book (DH.) is dated again in the same way "946 after 20 [of] Yazdegerd" and in another part of the first codex (TD₁—fol. 2188-354a) the date is given as "978 Pārsik after 20 Yazdegerd"]. Another date of the same type is, according to the same editor, to be found in another part of the same codex (fol. 203a-206a), which date relates to the time of the composition of the treaty and reads: "in the year 357 twenty after Yazdegerd." The conclusion is that the real name of the era was Pārsik, that it was expressed by the words "20 years after Yazdegerd" written after the Magian date, which meant that the beginning of the era was twenty years after the era of Yazdegerd, and that the latter became the exclusive means of dating, with the Zoroastrians, only in the last few centuries, and at any rate after the sixteenth century.]

¹ According to the tradition related by Ibn Isfandiyār, Gāv-bārēh's independent reign in Ṭabaristān began in the year 35 of "the new era instituted by Persians". This is no doubt the Magian era and the said year began in A.D. 686 (3rd June). For the period between that year and the year 60 of the same era including two reigns, namely Gāv-bārēh and Dābōē our knowledge is limited to the chronicles. From the reign of the third Ispahbed, the great Farrukhān, on, the coins came to the help of the historical records. According to these trustworthy witnesses Farrukhān reigned at least from 60 till the year 79 (beg. 23rd May, A.D. 730). His successor Dādhiburzmihr (or Dātburjmatūn) reigned from 79 to 88 (or perhaps to 89) and the last prince Khurshid from at least 89 till 110. The greatest and most famous of them being Farrukhān, his name became to some extent a common name for the Ispahbeds of that province, and not only some of his immediate predecessors are designated by that name by the historians, but also it is given to much earlier chiefs of the province since 639 or A.H. 18 (see Ṭabarī, i, 2659, and Ibn Isfandiyār passim).

² Dinawarī (op. cit., p. 149) states that the era of the Persian (i.e. Zoroastrians) by which they date "at the present day" (third century A.H.) was from Yazdegerd’s death. Bar-Hebraeus in his above-mentioned Syriac book on astronomy published and translated by F. Nau (Le livre de l’ascension de l’esprit...), p. 176 of the French translation, also interprets the era of Yazdegerd as that which is reckoned from the death of that monarch, but in the examples which he gives of the correspondence of the dates of the different eras he counts it unconsciously from the accession of Yazdegerd, i.e. 632.

(To be continued.)