

This well document research by S H Taqizadeh shows that the calendar has undergone changes throughout its history. What has come down to us is not something holy and God given which should be followed in spite of its flaws.

Old Iranian Calendars

By: S. H. Taqizadeh

The Old Iranian Calendars [1]

[In 1917, I made a study of the history of the Iranian system of time reckoning, with a view to writing an article on the subject in a Persian review. This took me at that time beyond the scope of the intended article, and the idea was ultimately dropped. I had, however, made a number of notes on that subject. Two years ago, I came across these notes, which again roused my interest in this question. I decided to carry out the original intention and, instead of throwing away these notes on which a considerable time had been spent, to incorporate them in a monograph on this somewhat complicated question. The work is already in the printer's hands, and will, I hope, be soon at the disposal of Persian scholars. I thought, however, it might be useful to give in English, as concisely as possible, the conclusion reached in the Persian work which amounts to some 350 pages, with some of the principal arguments supporting the opinion expressed therein.]

The Iranian calendar[2], like the calendars of many other nations, had many variations, each belonging to a different historical period or to a different geographical region. The influence of neighboring cultures, the customs of kindred races, or the change of the climate due to the southward and westward movement of the Iranians in their migration from their original home, are among the factors capable of affecting changes in the whole system or in some details of it. We have records of at least six more or less different calendars in Iran, during the Islamic period, besides the well-known Muhammadan and widely used Yazdegerdian systems of time reckoning.[3] The latter, which was, at least down to the eleventh century of the Christian era, the calendar most commonly used in Iran after the Arabian calendar, and which has survived less widely used till the present century, was the same as the official calendar of the Persian empire in the Sasanian period (of course, with the exception of the era). This is hardly questionable, though we have no contemporary report of that period except as to the names of the months. All our information regarding the pre-Islamic calendar is derived from works composed later than the 8[th]century AD. Nevertheless, we have no reason to doubt the statements of the learned Persians of post-Sasanian times as to the calendar of their not very remote ancestors. There is also an

older reference to the Persian year in a short notice by Quintus Curtius Rufus, a historian of the first century AD and biographer of Alexander the Great, from which it may be inferred that the Persian year in his time did not differ from the Zoroastrian year of later centuries. This author declares that "The Magians used to sing a native song. There followed the Magians 365 young men clothed in purple (crimson) mantles equal in number to the days of the year. For with the Persians too the year is divided into the same number of days." [4] The Persian year as we know it in the Islamic period was, in fact, a vague year of 365 days, with twelve months each of thirty days, with the exception of the eighth month, which had thirty-five days or, rather, thirty days plus another five supplementary days, or epagomenae, added to it. The only difference between this year and the year in use in early Sasanian times was in the place of the epagomenae, as we shall see.

Moreover, we know that the Armenians and Cappadocians to the west of Persia, as well as the Sogdians, the Khwarazmians and the Sistanians in the east, were all using calendars which, though the names of the months were in each case different, were, save for the place of the epagomenae in most of them, exactly the same as the Persian. [5] Most probably all these six calendars had a common origin. Now we have fortunately Armenian documents showing the dates of some Armenian months and days in the fourth, sixth, and seventh centuries (mostly collected by E. Dulaurier [6]). These dates correspond exactly with the positions which the corresponding Persian days of the vague year would have occupied in the Julian year at that time, according to backward calculation, the only difference being that during a part of the year there would have been a difference of five days owing to the different places of the epagomenae. [7] A similar inference may be drawn from the Cappadocian dates, with their Julian correspondents, preserved in the writings of St. Epiphanius, the bishop of Constantia or Salamis (Cyprus), and relating to his own time. Here again we find that the Cappadocian dates occupy in the Julian year exactly the same places as the corresponding Persian dates would have occupied if the Persian vague year had been in use in that period (of course, again with five days difference due to the different places of epagomenae in the year). These dates belong to the years AD 367 and 368, in the first of which Epiphanius became the bishop of the above-mentioned metropolis. [8] There are still other indirect evidences of the use of the same Persian year in Sasanian times, some of which were discussed in my article in BSOS., vol. ix, 1. [9] Thus I think the existence in Sasanian and even earlier periods, of the same vague year as we find in later centuries in Persia, and which is up to the present day the calendar year of the followers of the Mazdayasnian religion, can be reasonably taken as an established fact. This calendar is the best known among all Iranian systems of time reckoning in ancient or middle ages, and is generally referred to as the Persian, Parsi, Mazdayasnian, Zoroastrian, or Young-Avestan calendar. We shall use this last term in the following pages to designate this particular system as distinct from other Iranian calendars of ancient times, such as Old-Avestan and Old-Persian, both of which will also be discussed here. It is the calendar of historical times and, as stated above, was in general use long before the Arabian conquest of Persia and for several centuries afterward. [10] The later history of this calendar is more or less clear, but its earlier development and the date of its first use in Iran is controversial.

The Y.A. month name found in the Pahlavi parchment of Awraman (No.3), according to the reading of Cowley, Unvala, and Nyberg, shows that the use of these names, and most probably also of the calendar to which these months belong, goes back as far as the first century BC.[11] On the other hand, the existence of two other old Iranian calendars is attested by the Behistun inscription, and proved by deduction from the Avestan texts. Also the use of the Syro-Macedonian calendar in Iran in the Macedonian and Parthian periods is indisputable. The latter might have been in use in official circles and State documents[12] side by side with the Young-Avestan, which may have been the people's calendar, but the two former (Old-Avestan and Old-Persian) must have preceded the Young-Avestan. Therefore the question is often asked and discussed as to when the latter was instituted. The answer is not easy to give, as the available data are very limited. For more than two centuries, many scholars have tried to solve the problem, and have reached different conclusions. Freret,[13] Gibert,[14] Bailly,[15] Drouin,[16] West,[17] and many others have discussed the question, and have suggested dates for its introduction, but their suggestions do not seem to be wholly satisfactory.

Gutschmid,[18] though he has made a profound study of the general subject of the Iranian calendar, was, however, misled on this point (like Gibert before him) by his own misunderstanding of a passage in the book of the Persian astronomer Kushyar (tenth century) as to the coincidence of the sun's entry into Aries with the Persian month Adar in the time of the Sasanian king, Khosraw I (Anosharvan). Thinking that the passage in question meant that the equinox was on the first day of Adar, Gutschmid made this wrong interpretation the basis of his calculation, and came to the conclusion that the Y.A. calendar was introduced in 411 BC. This view found acceptance among later students of the question for some time.[19]

Marquart, however, in the last part of his *Untersuchungen zur Geschichte von Eran*, p. 210, went a step further in the solution of this problem. He made, indeed, a remarkable contribution towards the solving of different questions relating to the Iranian calendar in the said book, as well as in his paper "Das Nauroz", published in the Modi Memorial Volume in 1930. Nevertheless, his conjecture on the date of the introduction of the Y.A. calendar in Persia does not solve the difficulties involved by the contradictory indications. Adopting West's method of starting from the contemporary Kadimi Parsi New Year's Day, which, take into account the four-yearly retrogressions of one day, accords with the well-known fact that the Persian year began on 16th June in the year 632, during which Yazdegird III, the last Sasanian king, was enthroned, and making it the basis of the backward calculation, he reached almost the same conclusion as West, with only about twenty years' difference. This difference was due to the fact that West had relied on the Persian dates, whereas Marquart like Gutschmid, has rightly preferred the Armenian dates[20] because, as a result of an error committed on the occasion of the first intercalation, namely the omission of the five supplementary days in that year, the Persian dates in a great part of the year were five days in advance compared with the Armenian.[21] Both scholars, however, have taken it for granted that the Persian year at the time of its adoption must have begun on the vernal equinox, in other words that the first day of the month of Frawardin was at that time the first

day of spring. Therefore West has arrived at the years 510-505 and Marquart at 493-486 BC as being the date of the introduction of the Y.A. calendar in Iran. Both authors attribute this important reform to Darius I, who according to them officially established the said calendar in the Persian empire. But it must be stated that the theory of the Persian New Year's Day originally falling on the vernal equinox is not supported by any convincing proof. The idea may have arisen from the impression made on the minds of those acquainted with the Persian calendar by Malikshah's reform in the eleventh century and the resulting celebration of the Nawruz on the vernal equinox, which prevails in Iran down to the present day. The legend of Zoroastrian cosmogony, according to which the "seven planets" including the Sun in Aries,[22] were in their hypsoma or exaltation points at the beginning of the seventh millennium of world cycles, and Zoroaster's intercalation of the year to bring it back again to the same position (i.e. the sun in Aries on New Year's Day), found partly in Pahlavi works and partly in Old-Arabic books, can hardly be advanced as evidence in this connection.

All the above-mentioned hypotheses about the Y.A. calendar have been based on the supposition that the Persian year, even in Sasanian times, was a vague year of exactly 365 days, without any intercalation whatever in the civil year for making good the difference (of about a quarter of a day) between such a year and the tropic year. This presumption is, however, contrary to our oldest reports of the Iranian calendar by early Muslim astronomers. These reports are expressly to the effect that an intercalation of one month in the Persian year every 120 (or 116) years was more or less regularly carried out in pre-Islamic times.[23] It was apparently the idea of coordinating this tradition with the presupposed adoption of the Egyptian calendar system in Iran in the fifth century that led Cavaignac[24] to advance a totally different theory on this matter. This is based on accepting literally the statements of the Muhammadan astronomers regarding the actual intercalation in the Sasanian period even in the Persian civil year, and at the same time admitting the introduction in Persia of the Egyptian calendar without any change whatsoever (except, of course, for the substitution of Persian names for the months). The prevalent opinion, as it is well known, is that there were two sorts of year in use: the civil year which was in general use, and the ecclesiastic, used only for religious purposes, that the first was a vague year, and that the intercalation was limited to the religious year. It is also generally believed that, in adopting the Egyptian vague year, the Iranians changed the year's beginning from the season corresponding at that time to the Egyptian New Year (December) to the vernal equinox. Now Cavaignac, though he admits that the Egyptian calendar was introduced in the fifth century BC, is of opinion that originally the Persian month Frawardin, and not the month Dai, stood for the first Egyptian month, namely Toth. Moreover, according to his theory, though this vague year (without any intercalation) possibly has been since used to a certain extent by the mass of people, nevertheless the Babylonian (or the Old-Persian used in the Behistun inscription) remained the official calendar of Persia until the fall of the Achaemenian empire, after which it was superseded by the Syro-Macedonian calendar, which lasted from Alexander's conquest till the rise of the Sasanian dynasty. He thinks, therefore, that it was in the Sasanian period that the Y.A. or Mazdayasnian calendar became the official and general means of time-reckoning in Persia, and that it was in that epoch that the intercalation in the Y.A. year was instituted, after which the year remained nearly fixed during the Sasanian period with the New Year about the time of the summer

solstice. He believes also that the intercalary month was inserted at the first intercalation after Shahrewar, the sixth month (possibly in the fourth century AD) as a second Shahrewar, and that on the next occasion a second Mihr was added to the year and so forth. As a matter of fact, the beginning of the Egyptian year in AD 632 was only ninety days prior to the Persian New Year's Day, the Egyptian being on the 18th March and the Persian on the 16th June, which [9] difference might be easily interpreted as the consequence of three intercalations of one month each, during the Sasanian period (406 years).

Of all the different theories proposed about the date of the introduction of the Egyptian calendar system in Persia, i.e. the creation or the official adoption of the Y.A. calendar, only two are, I think, more or less consistent with many of the known facts and supported, to a certain extent, by tangible arguments. These are those suggested by Marquart and Cavaignac. But each of these two theories has, nevertheless, its weak points and is far from being satisfactorily established or indisputable. They cannot, therefore, be considered as a final solution of this difficult problem.

Cavaignac's thesis agrees, it is true, in every respect with Biruni's statements^[25] regarding the old Iranian calendar, namely that the pre-Islamic year of Persia was a stable or fixed year beginning at (or near) the summer solstice and maintained around that point by a 120-yearly intercalation of one month. But besides being incompatible with the contents of the Pahlavi books on this matter and with other evidence in favor of the vague year,^[26] this theory cannot be brought into harmony with what we know of the parallelism of the Persian year with the Armenian, the Cappadocian, the Sogdian and the Khwarazmian years without the assumption of a very unlikely, if not impossible, condition, namely the general application of exactly the same intercalatory system to all the calendars of these different and often politically separate nations. Moreover, it must be pointed out that Biruni himself, who is our principal authority on this subject, is not consistent in this particular point, and his books contain many contradictory passages implying different times for the beginning of the old Iranian year. For instance, his statement regarding the last intercalation, namely that it was the eighth one and that it was executed through the intercalation of a second Aban, i.e. the eighth month (or a second Aban and a second Mihr together), can only be based on the supposition of the original Nawruz (1st day of the month Frawardin) having been on or about the vernal equinox, and of the latter having been always considered theoretically a New Year's Day.

On the other hand, the theory of West and Marquart of placing the official introduction of the Y.A. calendar in the Persian empire in the middle or the last part of the reign of Darius I, and attributing this reform to that monarch himself, who according to these scholars established the first day of the year on the vernal equinox, is also irreconcilable with the contents of the Afrin gahambar and the Bundahishn on this question. According to the first of these two Mazdayasnian literary documents the season festival maidyoshahem corresponds to 15 Tir. But the Bundahishn states expressly that from maidyoshahem till maidyarem the night increases, and from maidyarem to maidyoshahem the night decreases and the day

increases,[27] though this book interprets maidyoshahem to be the 11[th]day of Tir (i.e. the first of the five days of that gahambar) probably following its source not very strictly.[28] Marquart is right when he expresses [11] the opinion that the Mazdayasnian traditions are in this respect contradictory and that the different passages of the Bundahishn are not consistent. For while the summer solstice or the time when the night begins to increase in length is put, as we have seen in the above-mentioned passage, on the 11[th]day of Tir (or, rather, strictly on the 15[th]), it is declared in another passage of the same book immediately following the former that "in the feast of hamaspathmaidem that is the epagomenae at the end of the month Spandarmad the days and nights are equal [in length]". Nevertheless, his conclusion does not seem to be incontestable. He apparently considers the last-mentioned passage of the Bundahishn (relating to the equality in the length of the day and night during the five supplementary days of the year), as well as that part of the former passage implying the identity of maidyoshahem with the summer solstice, as authentic; but he thinks that the gloss placing this gahambar about the middle of Tir, and maidyarem about the middle of the month of Dai, is a wrong interpretation added by the author of the Bundahishn to the original tradition, which was based on the lost parts of the Avesta. Therefore he seems to be of the opinion that maidyoshahem was originally, i.e. at the time of the adoption of the Y.A. calendar, on or about the 1st day of Tir, and maidyarem on or about the beginning of the month of Dai.

Although the original concordance between maidyoshahem and the beginning of the month of Tir in the Old-Avestan calendar (i.e. the calendar of the Avestan people before the adoption of the Egyptian system) is more than possible, the traditional and rather canonical fixing of the places of gahambars in the Mazdayasnian months is, nevertheless, certainly based on the older and authentic sources. These [12] places are given in the part of the Avesta called Afrin Gahambar. Though it is generally believed that those explanatory passages relating to the places of these season festivals are addenda of later date, interpolated as glosses in the original Avestan text, there is no reason to doubt the antiquity of their contents, which I suppose is as old as the introduction or the official establishment of the Y.A. calendar in Iran.[29] The gahambars are thus fixed at an early date in these places and are stabilized in the months of the religious and fixed (vihêjakîk) year.

Relying on the presupposed principle that the Y.A. year originally (i.e. at the time of its introduction or, rather, its official recognition by the State and "Church" in Persia) began on the vernal equinox, I myself two years ago placed the date of the institution of this calendar in the second decade of the fifth century BC, and have tried to suggest the exact date of this reform.[30] The reasons for this conjecture are given in a paper read before the International Congress of Orientalists held in Rome in 1935 (section iv, sitting of 26[th]September), as well as more fully in my above-mentioned Persian book entitled *Essay on the Iranian Calendar*.

A New Conjecture

A later study of the question, however, has led me to change somewhat my former opinion. The conclusion reached is this. The abandonment by the Zoroastrian community of their traditional Old-Avestan calendar, and by the Persian court and Government of the Old-Persian or early Achaemenian calendar, in favor of the Egyptian system took place during the Achaemenian period. This reform may not have been [13] effected in both cases (the "Church" and the State) simultaneously, and most probably one preceded the other by a considerable time. Nevertheless the final union of the two, i.e. the religious community and the court, in this matter must have been accomplished in the first decade of the second half of the fifth century BC, probably about 441. It was also then, I think, that the beginning of the year was placed near the vernal equinox, and not far from the Babylonian zagnûg (New Year's festival) and that the intercalation system was instituted. The reasons which have led me to this conclusion are as follows: --

There is no doubt that the Achaemenian kings used, in the early part of the reign of that dynasty, a calendar based most probably on the Babylonian (perhaps indirectly through the Elamite or Assyrian calendar). Their months were running strictly or almost parallel with the Babylonian months and their year must have been a luni-solar one like that of the Babylonians. The only difference between these two calendars was in the names of the months, and perhaps also in the fact that, while the Babylonian year began near the vernal equinox, the beginning of the Persian year was probably near the autumnal equinox. This last theory, if it should be satisfactorily proved, would suggest that this practice was a survival from that of the early ancestors of this branch of Iranian stock, as the name sared in Avesta and thard in Darius's inscription for the year and their similarity with the Indian sarad (autumnal season) also may suggest. We shall call this Achaemenian or south-western Iranian calendar here Old-Persian.[31]

[14] The people among whom Zoroaster preached his new religion and founded the first Mazdayasnian community (whom we may conveniently call "the Avestan people"), on the other hand, appear to have had a totally different system of time reckoning which, there are strong reasons to believe, was an ancient form of the Iranian calendar of early Aryan (probably north-eastern) origin and of a rural character, beginning with or about the summer solstice, This calendar which we shall call in the following pages Old-Avestan has, in many respects, great similarity with the oldest Indian (Vedic) calendar and in some aspects also with the post-Vedic calendar, and both (the Indian and Avestan) may have had a common origin. The year of the Old-Avestan calendar, which seems to have been called yâr, appears to have been first divided into two main parts, from the summer solstice (maidyoshahem or mid-summer) to the winter solstice (maidyarem or mid-year) and vice versa, exactly like the old Vedic year, which was also originally divided in the same way into two ayanas (uttarâyana and daksinâyana).[32] The further division of the year in later [15] times in India into more and shorter seasons (ritu) up to six in number, which took place there gradually, has also great resemblance to the similar division of the year into six seasons (yâirya ratavô) or gahs among the kindred race of the Iranians, though the Iranian seasons, unlike the Indian, were of unequal length.[33] This later and gradual division of the year in both countries certainly took place as a consequence of the climatic

change encountered by Indo-Aryans and Iranians during their migration southwards, and hence the difference in the way of division. The Old-Avestan year began, as already stated, with maidyoshaem or the summer solstice, and was presumably of 360 days with two parts, each of 180 days, like the Indian ayanas. The second part began accordingly with maidyarem, near the winter solstice. The very name of this gahambar, which certainly means mid-year with its description or its epithet in the Avesta indicating "the cold bringer" (Visperad 1.2, 2.2), testifies to the year's commencing with summer. Also there is in Yasht 8.36, perhaps further support in favor of this theory. It is said there that when (or after) "the year [again] comes to the end for men the counselor princes (? chieftains) and the wild animals, [who] house in the mountains and the shy [animals who] graze (or wander) in the plains, watch [when it (the Tishtrya) is in] rising".[34] The Tishtrya, which is generally held to be Sirius, had its first heliacal rising in July in the first half of the first millennium BC (in north-eastern Iran it rose about 26[th]-27[th]July, i.e. four weeks after the solstice). Thus the people might have been waiting and longing impatiently for this rain-bringing star in the first days of the summer. The epithets of the other gahambars, as well as the attributes by [16] which they are qualified in the Avesta, also all agree with these supposed positions of maidyoshaem and maidyarem. Again, the verse of the Vendidad (18.9) which refers to Marshavan, "who could through his wrong religion seduce one to commit the sin of not having devoted (neglecting to devote) himself to the study [of the holy text], continuously for a period comprising three springs (thrizaremaêm)," deserves attention. Could it not be interpreted as suggesting that the spring was the last part of the year, and with the third spring, a period of three full years was completed, which would mean that the year began with summer?

There must have been, in the Old-Avestan calendar, no doubt in practice, some sort of intercalation in order to keep these seasons and the agricultural and religious festivals which were at the end of the seasons more or less in their fixed places in the tropical year. But the way, by means of which this stabilization was achieved, is as little known to us as that by which the old Indo-Aryans prevented the old Vedic year from becoming a vague year. If the year (Old-Avestan) was lunar, i.e. a year of 354 days, then the intercalation must have taken place through the addition of an extra month each two or three years. Apparently this was the opinion of Marquart, who refers to this Old-Avestan year as also vermutlich ein gebundenes Mondjahr.[35] The analogy with the old Indian Vedic year and Biruni's report of a year of 360 days in the time of Peshdadian dynasty,[36] i.e. in the prehistoric Iranian period, however, make the identification of the Old-Avestan year with this sort of year (i.e. a year of 360 days) more acceptable.[37] We may also accept Biruni's statement as to the [17] method of stabilizing the Old-Avestan year, namely by the intercalation of one month of thirty days every six years[38] [and perhaps sometimes five years], though a supplementary intercalation of another month each 120 years, which he reports also in the same passage about that calendar, seems to be very unlikely in those ancient times.

This calendar must have been in use when Zoroaster appeared among the people whom we have called the Avestan people, and it must have remained in use with or without some small changes for a

considerable time, thus becoming later the calendar of the early Mazdayasnian community. Therefore it must have existed in south-western Iran in the time of the first Achaemenian rulers as the religious calendar of the Zoroastrians of that region side by side with the Old-Persian calendar, which was the official system for the computation of time for the State as well as for the non-Zoroastrian people of that country.

Footnote:

This paper was composed in November, 1937.

The abbreviations used in this article are: B.= Biruni, AB. = al-Âthâr al-bâqiya (Sachau's edition), M.= Maquart, Y.A.= Young-Avestan, ga.= gahambar, gas.= gahambars.

I propose to deal with these calendars later.

Curtius, iii, 3, 10.

The Sistanian year even in this respect, i.e. the place of the supplementary days, had no difference from the Persian year, but in the other four calendars these days were invariably at the end of the year. The Persian epagomenae were, as is known, moved a month forward every 120 years.

Recherches sur la chronologie armenienne, technique et historique, Paris, 1859.

It would take us too far afield to dwell upon the details of these Armenian dates here. It will suffice to say that Agathangelos, the Armenian historian of the fourth century, gives according to M. (Das Nauroz) the beginning of the Armenian year in 304 as corresponding to 11[th]September. The Persian New Year on that date was no doubt on the 6[th]September.

Though the Cappadocian year has been officially stabilized by the introduction of the Julian system of intercalation, apparently about 63 BC, following the establishment of the Roman rule in that country in the same year, the old vague year has, nevertheless, survived a long time after that date and has continued to be the popular means of time reckoning of the common people.

"Some chronological data relating to the Sasanian period."

Some small changes, however, have taken place from time to time during the Islamic period, and these must be described in an article dealing with the calendars of that period.

The document in question was written twelve years before the Christian era.

It was certainly used on Parthian coins with Greek letters. According to Drouin (Revue Archéologique, Juillet-December, 1889) even the Macedonian months appear on the tetradrachms from the time of Phraates IV (37-4 BC) down to AD 190.

"De l'ancienne année des Perses," 1742, published in l'Histoire de l'Académie Royale des inscriptions et belles lettres, tome 16, Paris, 1751, partie, 2, les memoires.

"Nouvelles observations sur l'annee des anciens Perses," in l'Histoire de l'Académie Royale des inscriptions, etc., tome 31, Paris, 1788, Mémoires pp. 51-80.

Traité de l'Astronomie indienne et orientale, Paris, 1787.

Revue Archéologique, 1888-9.

SBE, 47, introd., pp. 42-7.

Über des iranische Jahr in Berichte über die Verhandlungen der königlichen sächsischen Gesellschaft der Wissenschaften, 1862.

For instance, Spiegel has accepted it in his Eranische Alterthumskunde, iii, 670, and even M. in the first part of his Untersuchungen, p. 64, has followed that famous scholar.

West also has made his backward calculation by taking back the new year's day 0.2422 day for each year from its present place, which is not strictly accurate for ancient times. M. apparently took the Julian days as his basis.

The first day of the Armenian year during which the accession of Yazdegird took place corresponded to 21st June, 632.

According to one version the sun was on the first point of Aries at midday of the day Ohrmazd of the month of Frawardin.

Only the Pahlavi book Denkard speaks of a double system and two sorts of years.

JA, t. 202, 1923, pp. 106-110.

There are, of course, also similar statements by older, though less famous, writers.

Such as the changing positions of gahambars, the distribution of the months among the four seasons in Bundahishn beginning with the spring, maidyoshahem being the season of cutting the grass according to Visperad, and its place in the middle of the month Tir according to Afrin gahambar, and the two apparently different but really identical dates for Zoroaster's death in Zadspram, as well as the correspondence apparently given to the month Vohuman and Shahrewar in the Pahlavi commentary of Vendidad (i, 4), and some other data discussed by the present writer in BSOS. ix, 1.

Bundahishn, West's translation, xxv, 2-3. Justi's p. 34.

The real gahambar day in each of the season festivals of five days' duration is most probably the last or the fifth day. But apparently the author of the Bundahishn, notwithstanding the fact that the point of time after which the day decreases and the night increases can only be one day, has considered all the five days of maidyoshahem roughly as the longest days of the year and equal in length. He has perhaps

believed these days to be a stationary period, just as he considers the day and night equal in length in all the last five days of the year (in the same chapter). The whole passage relating to the two festivals of solstices, must be a faithful quotation from a very much older source (possibly the lost parts of the Avesta) without any interpolation except for the identification of maidyoshahem with 11[th] Tir.

This part of Afrin gahambar 3, 9-12, dealing with the length of the six seasons and the places of the festivals in the months is, according to Hertel (*Die awestischen Jahrenszeitenfeste, Afrinagan, 3, p. 22*), found only in seven out of thirty-one manuscripts of Avesta. Nevertheless, Hertel thinks this is taken from the Hadokht Nask of the Avesta.

I have proposed the 28[th]March, 487 BC, for the epoch of this reform.

The idea of the Old-Persian year having been borrowed from a neighboring people of the West (possibly Elamites), who in their turn might have adopted in much older times the calendar system of one of the Sumero-Babylonian cities which had the autumnal New Year, could also be considered if this last theory about those cities could be proved. Indeed, Hommel (*ERE-calendar*) asserts that in the oldest forms of the so-called Chaldean calendars, e.g. those used in Ur, Girso, etc., the beginning of the year was in autumn. S. A. Pallis also (*The Babylonian akîtu Festival, p.30*) states that "in the time of Sargon of Agade, Gudea, and partly also in the time of Hammurabi, the New Year began in Tishritu, and not until after that time in Nisan". He states further (pp. 30-31) that under Hammurabi perhaps the beginning of the civil year was transferred from Tishritu to Nisan, but that "in astronomical calculation, however, the autumnal equinox was still used as the point of departure". But Father Schaumberger, who is a great authority on questions relating to the Assyro-Babylonian astronomy and calendar, informs me in reply to my inquiry that there is only one passage (K 775 = Thompson, *Reports of the Magicians and Astrologers of Nineveh and Babylon, 16, 5s.*) where two different dates (Nisan and Tishri), i.e. the spring and the autumn, are mentioned as the beginning of the year similar to the Jewish calendar, but that we have no proof for assuming that the Babylonians used in their real life an autumnal New Year. This venerable scholar contests also the actual use of a year of 360 days in Babylon or Sumer (also advanced by Hommel), and says that we have no proof for it though there are some texts speaking of months of thirty days or of a year of 6 x 60 days, which could be explained by the fact that in Babylonian business documents the months are counted as thirty days.

According to Kaye (*Hindu Astronomy, Memoirs of the Archaeological Survey of India, No.18, p.27*), there is in the Rig-Veda also a division of the year from one equinox to the other called Devayana and Pitryana, but the basis of the Vedic calendar seems to be the two solstitial divisions.

The Indian seasons are each of two months and all are equal in length.

I have followed more or less strictly F. Wolff's translation, with which most scholars agree, but Lommel in his *Die Yäsht's des Awesta, p. 54*, gives the translation of the words in italics above as "the annual tilling" (*Jahresbestellung*). If that part of the Avestan word connected with the word "year" should not prove to mean the "end" then the whole argument loses its basis.

Untersuchungen, p. 206.

AB., p. 11.

The year of 360 days was perhaps the first step in the transition from a lunar to a solar year, being half-way between 354 and 365 days. Some scholars believe that this sort of year existed also in Babylon and Nippur (see note 1, p. 13 supra), and there are others who suppose that the vague year of 365 days was preceded also in Egypt in prehistoric times by the same system, though there is no unanimity on this point.

This sort of intercalation may be a very old Aryan or Indo-European practice. Could not the six yearly feast of the calendar of the Hittites, which Goetze translates as Sechsjahresfest (*Kulturgeschichte des alten Orient, Kleinasien*, p. 154), be also a feast of intercalation? If this form of intercalation was really in use, then there would have been no real divergence between the dates of the Old-Avestan years with the Y.A. In this case the Zoroastrians would not have found it difficult at all to change their system to that of the Egyptians, as no real change in the position of days and months was involved. This may also give a clue to the approximate date of the institution of the Old-Avestan calendar or of the said system of intercalation which will be referred to later.

- See more at:

http://www.iranchamber.com/calendar/articles/old_iranian_calendars1.php#sthash.Fp6WDuKT.dpuf