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THE HISTORICAL SIGNIFICANCE OF THE TOTAL SOLAR ECLIPSE OF OCT 17, 1762 PASSING OVER PANJAB

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The paper presents the circumstances of the total solar eclipse of Oct 17, 1762 that passed over India, specific to Amritsar to recreate the ambience to the input to certain perceptions that the total eclipse affected a fierce battle on the day between Ahmed Shah Abdali's forces and the Sikhs at Amritsar, forcing an early retreat by the former. The eclipse which took place in the afternoon at Amritsar has been analysed and found to be partial, not total. The magnitude of the eclipse, the fraction of the Sun's disc as covered by the Moon, was 0.99 while the path of totality missed the town by over 50 km. The year 1762 was one of the sunspot maximum phase of the Solar Cycle 1 when the solar corona presumably would have shown up as fairly symmetrical during the brief moments of totality. The eclipse might have a large impact factor over the human psyche.

Key words: Afghan-Sikh battle at Amritsar, Eclipse of Oct 17, 1762 over India, Solar eclipses

INTRODUCTION

Eclipses of the Sun and the Moon have evoked great curiosity and struck awe among the human societies the world over since times immemorial. The eclipses, particularly those of the Sun have affected the course of a number of battles in history. The most famous battle in this regard is the one between the Lydians and the Medians that was fought on May 28, 585 BC on the banks of the river *Halys* in central Turkey and the associated eclipse has been meticulously studied by astronomers[1]. Certain relevant aspects of a total solar eclipse of Oct 17, 1762 whose path of totality passed over India, specifically as at Amritsar has been considered to recreate the ambience that may serve as a definitive input to

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certain perceptions that the total eclipse affected a fierce battle on the day between Ahmed Shah Abdali's forces and the Sikhs at Amritsar, forcing an early retreat by the Afghans. Aim here is not to settle an issue in history but walk some distance with the historian, leaving them to reconstruct this particular leaf from the history of Panjab.

Since the beginning of the eighteenth century till date, the city of Amritsar has witnessed total solar eclipses in 1708, 1788 and 1814 and Delhi in 1708 and 1762 only but none thereafter. It is needless to emphasize that in the 18th century nobody knew of the real physical nature of the Sun, or its corona visible during only a total solar eclipse, and one need to appreciate today how important a total solar eclipse is to the solar astronomers who equipped with the state of the art equipment travel thousands of kilometres to make observations of the corona, a highly rarefied atmosphere of extremely hot ionized gas, during the brief moments of totality with the fond hope of being able to throw some more light on the physics of complex phenomena in and around the Sun. Since ancient times, prediction of the occurrence of solar eclipses in every detail has been very difficult for its path of totality over the surface of the Earth is very narrow, between 0 - 250 kilometres only, and it requires an accurate knowledge of the orbits and distances of the celestial bodies concerned as also the accurate geographical coordinates. This art had to wait till Kepler, Galileo and Newton changed our worldview with their monumental contributions. Edmond Halley (1656-1742) was the first to make a prediction of the 1715 eclipse on May 3 that passed over England, accurate to within 4 minutes. He prepared eclipse maps showing its track and also described what was to be expected. Modern predictions of the total solar eclipses became possible with Bessel's simple but accurate method first put forth in 1824. The first solar eclipse expedition known is the one led by Samuel Williams, a professor of mathematics and natural philosophy to Penobscot Bay, Maine in North America in 1780 for the eclipse of Oct 27, well equipped with telescopes and other supporting instruments[2]. It was only in the middle of the 19th Century that systematic eclipse expeditions began and the corona was identified as a solar phenomenon.

A Historical Parallel

It will be of interest to draw some parallel with another solar eclipse that influenced a great battle known in history as the Battle of the Eclipse. This is about a solar eclipse of the sixth century BC which is remarkable in more ways than

one. For the historian, astronomical considerations of the eclipse circumstances have helped date one of the first historical events with some certainty and narrow down the location of its occurrence to a specific area. For the astronomer it is the first ever prediction of a solar eclipse in a year, credited by Herodotus (c.484-525 BC) to the Greek philosopher Thales (c.624 – 546 BC) of Miletus. Though Thales had not specified the exact day of the year and locations from where it could be observed the prediction came to be true. On what basis the prediction was made also is not clear. It was possibly based upon the Saros, an 18 yr 11 1/3 days (6,585.3 days) rhythm in the eclipses the Babylonians had identified and the knowledge of an earlier eclipse in the same Saros series[16]. The Moon completes 223 lunations (the synodic periods of 29.53 days) in 6,585.3 days. The predicted eclipse most likely happens to be the one in the year 585 BC[1] while a fierce battle was being fought near the river *Halys* in central Turkey between two super powers of the time, *Cyaxares* of Media (Iran) and *Aylattes* of Lydia (NW Turkey) who had been at war for over six years. The eclipse occurred in the late afternoon of May 28, 585 BC during which, wrote Herodotus, 'suddenly the day was turned to night'. The eclipse, most likely total, was taken as an ill omen of the Sun and caused the warring armies to lay down the arms and negotiate an armistice. The river *Halys* (Kizilirmak) became the boundary between the two kingdoms.

The Battle of Amritsar

A total solar eclipse whose path passed over northern parts of India in the eighteenth century is worth a deeper look for the reasons of its historical significance. The eclipse occurred on Oct 17, 1762, a Sunday that also happened to be the day of *Dīpāvalī*, the festival of lights. The eclipse has been thought by many to have cast a decisive impact on the course of history in Panjab over which the path of totality passed. The backdrop here is the turbulent times Panjab was passing through over most of the 18th Century. The incident in question happened during the phase Ahmed Shah Abdali (1722-1772), acclaimed the greatest warrior of Asia, was attempting to establish Afghan rule in Panjab and the Sikhs thwarting him tooth and nail[3,4]. Between 1748 and 1767, the Shah had devastated Panjab nine times. He established his headquarters in Lahore in January 1762. In the carnage of Feb 5, 1762, known as the *vadda ghallughara* (the great holocaust) tens of thousands of Sikhs were killed, their sacred book *Shri Guru Granth Sahib* lost and the holy *Sarovar* (tank) desecrated by the Afghans, led by Abdali.

On Oct 17, 1762, the auspicious day of *Dīpāvalī*, the Sikhs, about sixty thousand 'horse and foot strong', congregated in Amritsar and fought out a fierce battle with the Shah and his forces to avenge their great loss and humiliation heaped upon their religion. Historians state that the battle raged furiously from morning till evening that witnessed a great loss of life. In the course there chanced to be a solar eclipse too. The fierce battle fought during darkness in the day turned symbolical of the evening of Abdali. The battle could not reach its decisive end[5]. The enthusiastic and fierce courage of the Sikhs compelled Ahmed Shah Abdali to ultimately draw off his forces and escape to Lahore under the cover of darkness[3]. The Sikhs left Amritsar, crossed the river Sutlej and disappeared into the dense jungles of Lakhi in Panjab. Khushwant Singh[6] notes the eclipse as total-

> 'The battle of Amritsar was fought in the grey light of a sun in total eclipse. It ended when the sunless day was blacked out by a moonless night with the adversaries retiring from the field: the Sikhs to the fastness of the jungles of Lakhi, Abdali behind the walled safety of Lahore'.

The strength of Shah's forces is not given. There is also no clear indication among the works cited here of the formations, strategies, topographical edge and even the Sikh leadership of the day. Many historians do not accept this battle. One should see Khushwant Singh[6] and Sarkar[7] and the references cited therein for details. Forster[8] in his 1798 travelogue refers to the war but expresses some reservations about how the '*Sicques*' did it; he refers though to 'a total solar eclipse' taking place the same day in a footnote but without a comment. Upon Abdali's drawing off his forces and escape to Lahore, Ganda Singh[3] in his footnote 21 comments (condensed here for brevity) that some writers have questioned the possibility of the event. He adds about the eclipse but cites it not as the cause. Quoting from the *Umda-u-Tawarikh* and the Delhi Chronicle he adds –

> 'There was a total solar eclipse at 18 *gharis* of the day, on the Katik *Amāvasyā* of 1819 Bikrami, October 17, 1762, and it became so dark during the day that the stars became visible in the sky'[3].

Mehra[9] has made some deductions from astronomical observations of a few eclipses, made in India in the 18th Century. In his listing of eclipses of the Sun during the century that passed over India drawn from Oppolzer's classic canon of eclipses, the one of Oct 17, 1762 does not figure. It figures in Swamikannu Pillai's Indian Ephemeris[10] and Fred Espenak's Five Millennium Catalog of Solar Eclipses, vide http://eclipse.gsfc.nasa.gov. The total solar eclipse of Oct 17, 1762

apparently has not received attention in the contemporary scientific documents. There are references though to the observations of the transits of Venus, in 1761 made from Madras, and of the clouding out of the one in 1769 while being observed from Pondicherry[11]. The Copernican ideas and the telescopic astronomy set foot in India somewhat late[12,13,14].

The Eclipse of the Battle of 1762

Was the eclipse of Oct 17, 1762 a deciding factor for Abdali's retreat from Amritsar? Or, was the eclipse just a catalytic factor? The historical works cited herein mention a total solar eclipse in their description of the battle but do not allude to the eclipse as the direct reason for a withdrawal by Abdali. They all mention the withdrawal or retreat under cover of darkness. It has been felt by some that the eclipse affected the battle. The soldiers dispersed once they saw the sun turn dark[15]. Our purpose here is not to reconstruct history but bring forth the eclipse circumstances that are relevant in the context and which can serve as additional but definitive bits of information for the historian to draw up a clearer scenario of the battle.

Some basic information on the Sun, the Moon and solar eclipses is in order here that will help one appreciate the event more fully. While the actual diameters of the Sun and the Moon are vastly different, their angular diameters are very similar, the very basis of a grand spectacle these give rise to whenever the Earth, the Moon and the Sun get so aligned as to cause an eclipse of the Sun by the Moon while the Earth and the Moon go about in their respective orbits. The orbits are eccentric and so the angular diameters as seen from the Earth vary with the respective orbital periods[16]:

	Angular diameter	
	Maximum	**Minimum**
Sun	32' 31.9"	31' 27.7"
Moon	33' 31.8"	29' 23.0".

The orbits of the Earth and the Moon do not lie in a plane, the angle between the orbital planes being close to 5°08'. Therefore, a solar eclipse does not happen on every New Moon day.

From the International Eclipse Tables (IET) by Brodbeck[17] for the period 1700-2100, one notice that the path of totality of the 1762 solar eclipse passed over India, but it actually evaded Amritsar (74°.93 E, 31°.58 N). Here the magnitude of the eclipse was to be 0.99 (the fraction of the sun's disc obscured by the moon). The path in fact grazed Kasur (that is, it lay at the borderline) a town over 50 km south of Amritsar (Fig. 1).

Fig. 1: The path of totality of the solar eclipse of Oct 17, 1762
(The Google maps showing the path are from 'Eclipse Predictions by Fred Espenak (NASA's GSFC)')

In the picture, adapted from NASA's Eclipse Web Site, the lunar limb profile limits the accuracy of the northern and southern edges of the path of totality to approximately 1-2 kilometres. The places like Sargodha, Faislabad, Faridkot, Firozepur, Bathinda, Mandi Dabwali, Sirsa, Delhi, Lucknow, Varanasi, Dhaka etc. just to name a few, fell well within the path. At Lahore too, the eclipse was partial, the magnitude being 0.995. For a solar eclipse to be total, the magnitude is always greater than 1. The eclipse circumstances as in the IET[17] or in Fred Espenak's eclipse predictions are very precise and any error therein is extremely small. These take into account several important factors including the precession of the Earth's axis, etc.

The eclipse began at 13h 27m 40.4s with the Sun at an altitude of 45°.7 and azimuth 205°.8 SSW, reached its maximum at 14h 50m 3.5s (altitude 34°.97, azimuth 228°.6 SW) and ended at 16h 06m 23.5s (altitude 21°.4, azimuth 243°.6 SW). The timings given above are in terms of IST. The Table 1 gives the locations of the solar system objects generated using the planetary data given in Meeus[18] corresponding to the time of maximum eclipse, 09h 20m 3.5s UTC, as observable from Amritsar on Oct 17, 1762 (the latitude and longitude of Amritsar are as given in the IET and UTC is coordinated universal time, equivalent to universal time or GMT, and IST = UTC + 5h 30min). The right ascension and declination are topocentric coordinates of the members of the Solar System. These calculations have been made for an elevation of 300m above the mean sea level. The geocentric coordinates of the Sun, Moon, Mercury, Mars, Venus, Jupiter, Saturn, Uranus

Table 1. The sky over Amritsar 31°34'48"N 74°55'48"E: Oct 17, 1762, 09h 20m 3.5s UTC

	Right Ascension	Declination	Distance (AU)	Altitude	Azimuth
Sun	13h 28m 46.3s	-9° 19′01.0"	0.995	34°.9	48°.7 Up
Mercury	14h 51m 57.4s	-18° 52′38.8"	1.169	36°.7	21°.1 Up
Venus	16h 32m 53.7s	-25° 04′53.9"	0.784	32°.9	-8°.0 Up
Moon	13h 28m 44.9s	-9° 19′39.7"	58.2ER	35°.7	48°.6 Up
Mars	17h 47m 01.3s	-25° 06′04.4"	1.524	28°.1	-26°.7 Up
Jupiter	2h 21m 52.6s	+12° 35′40.7"	3.994	-39°.6	-147°.2 Set
Saturn	1h 21m 35.2s	+5° 35′38.6"	8.344	-36°.5	-126°.7 Set
Uranus*	0h 40m 09.6s	+3° 33′09.9"	19.040	-30°.4	-116°.4 Set
Neptune*	9h 53m 13.9s	+13° 20′21.4"	30.628	04°.9	102°.7 Up

*The planets are not naked-eye objects. These have been included here for sake of completeness.

and Neptune are referred to the true equinox and equator of the date. In the calculation of the topocentric coordinates, the shape of the Earth is considered to be a geoid, an ellipsoid of revolution about the rotational axis and where all corrections (precession, nutation, etc.) are included.

The distances, in astronomical units (AU; 1 AU = 149,598,000 km), are as from the Earth; ER = Earth radii; in the azimuth values above, 180° is common to the figures.

In the IET[17], at the moment of maximum eclipse, the Sun's diameter is calculated to be 32' 08.21" while the angular separation between the centres of the Sun and the Moon is calculated to be 0.77', or over 46" as seen from Amritsar. This is not small; it indicates that for its angular diameter that day, the Moon could not cover the Sun fully when observed from Amritsar. At the moment of the maximum eclipse, the Moon had a (topocentric) declination that placed it slightly south of the Sun and so the waning Sun's northern part momentarily turned into a very thin crescent. At a 0.99 magnitude of the eclipse, the Sun's visual magnitude decreases from -26.74^{m} (un-eclipsed) to -22^{m} that drops within about thirty seconds to -13^{m} just when the totality begins[19]. At totality, the illuminance (lumens/mtrs^{2}; in short lux), the total amount of visible light incident upon a point on a surface from all directions, is similar to that of Full Moon [-13^{m}][20]. For example, the illuminance of the Full Moon is 1 lux while that of plain sunshine is 1,00,000 lux. At a 0.99 magnitude of the eclipse, the remaining photospheric crescent of the Sun is still visible and intensely bright and the Sun is not yet safe to view directly. Therefore, at Amritsar, the sky would not have become so dark as the records suggest. It would be more like twilight as the sky at the maximum eclipse would be a thousand times brighter than in a Full Moon night. The corona of course would not be visible. Whether any bright stars, or the planet Venus for that matter, could have been noticed at Amritsar is a question. Venus surely, but only if one knew to look for it (Fig. 2)! An elementary calculation of its elongation reveals that it was at 46°.03 from the centre of the Sun at the moment of the maximum eclipse. The planet Venus was in fact near its greatest east elongation which is 47°. When near its greatest elongation, Venus is always very bright, at about – 4.1 mag. With half of its disc illuminated it was close to its brightest possible phase (- 4.4 mag) and it would have been visible for long even as the Sun set. The planets Mercury and Mars too were in eastern elongation, about 22°.29 and 63°.1, respectively, from the Sun. Jupiter and Saturn had set at the

Fig. 2. The sky at the time of maximum eclipse over Amritsar (31°34’48"N 74°55’48"E: Oct 17, 1762, 09h 20m 3.5s UTC (Generated from John Walker’s site: http://www.fourmilab.ch/cgi-bin/Yoursky).

crucial hour. Mercury’s greatest elongation varies between 17°.9 at perihelion to 27°.8 at aphelion and calculations indicate that it reached its greatest elongation of 23°.9 a few days later on Oct 26, 1762. The brightest star closest to the Sun at the moment was Spica (0.91 mag; R.A: 13h 25m, Dec.: -11° 09′), in the constellation of Virgo and just about 2° below it.

It should be borne in mind that during a solar eclipse as the moment of second contact (beginning of totality) draws close an eerie and timorous ambience

begins to grip the scene. An unexpectedly early darkness in the day growing in an ominous manner causes great confusion among the people. In many cultures people would run for cover, shout at, hurl objects at or beat drums to scare away whatever is trying to eat up the Sun. As the eclipse proceeds, the ambient temperature falls several degrees, accompanied by changes in velocity and direction of the wind. In their natural habitat, the birds show signs of fear and fly to their nests. Horses and cattle too have been observed to sense the solar eclipse beforehand. They respond to the growing darkness, and at the same time, to their internal body clocks. They become agitated, sniff the air, shake their heads and tails and even paw the ground. Some may calm down or even lie down and refuse to advance. After the totality is over and the sky begins to brighten up again, the normal behavior resumes after the totality.[21] Extrapolation of the peace time behaviour to war time conditions needs some caution when conditions are completely different. No such studies are available and here we assume that the peoples' and the equine response was as referred to above, and possibly more pronounced.

With this information, it is possible for us to picture more clearly the circumstances during the great battle at Amritsar. The eclipse lasted for 2 h 39 min. At the start, the Sun was in the south-south-west direction and half way up between zenith and the horizon. As the Moon touched the Sun's western limb (the first contact) and the Sun's disc began to wane, ambient light levels started to drop though it would take a while before one could sense something peculiar happening to the Sun. The effect an eclipse casts on people and animals would have begun to sway the armies too when, the chieftains and men alike, unable to comprehend the presumably heavenly displeasure, would have swerved from their normal war-time conduct. As the moments of the maximum eclipse drew close the Shah would have seen his men and horses in a state of nervousness and panic. In the span of 72.5 min from the first contact at 13 27 40.4 hrs to the maximum, the noticeably diminishing light levels gave rather a small window to the anxious. If this was the moment, it was not in the evening but in the afternoon when Abdali actually may have drawn his forces from the scene and escaped to Lahore, westwards. Ironically, the eclipsed Sun was apparently moving from south-south-west direction to the west-south-west, oblique to their direction but low enough for anyone not to miss the sight of. Had Abdali stayed put for another hour or so, he would have seen the maximum eclipse giving way to a Sun gradually brightening up. The timing however was critical. By the time the Shah took to

retreat and could make it to Lahore 50 km away the darkest phase and probably the eclipse itself was already over but fear of the unknown would have continued to dominate the minds. Troop movement is a complex process and the armies would not move at a 50 km an hour speed but much less. Abdali himself would have had some kind of a cordon of trusted lieutenants and soldiers spread around him in specific formations. The sunset time at Amritsar on the day is calculated to be 17h 56.4m (azimuth 259°.5 W). The eclipse would have similarly affected the Sikhs and their horses. But, they were a determined lot and also, comparatively, entrenched, being in their homeland. No one would know that an eclipse would occur on the day, creating an unexpected darkness at noon and of such magnitude even though Amritsar, Lahore and Kabul had seen seven partial solar eclipses, although of lesser magnitudes ever since Abdali began his invasions in 1748. Partial eclipses generally escape the notice of populations but at a magnitude over 0.90 these would not, and the impact factor of a total or a near total solar eclipse over the human psyche can be startling.

All one can say is that the eclipse ended the war early which otherwise would have caused even more bloodshed. It possibly saved Abdali's life too. The historians as also the writer in the Delhi Chronicle[3] possibly extrapolated total eclipse circumstances at Delhi or at some other place in the path of totality to those at Amritsar. At Delhi, as also at Kabul, it was truly the day of the dark Sun. Delhi lay close to the central line of the path. The eclipse magnitude was 1.02, a total eclipse for that matter, with duration of 2h 37 min for the eclipse including 1m 54s of the totality. The sky at Delhi would have become quite dark during the brief moments of totality, with the Sun at a brightness level similar to a Full Moon night and surely much darker than what it was at Amritsar. In the rest of Panjab and at many more places in India particularly within or near the path of totality, the people would have rushed for shelter or just stayed indoors out of superstition and the fear of the unknown.

It is with interest to note that this eclipse occurred near the maximum of the 11 yr sunspot cycle which has been designated as the Solar Cycle 1 and where the year 1762 happened to be the year of the maximum phase of the solar cycle[22]. At such a time the solar corona is more or less symmetrical. The Figure 3 here gives an idea of how the corona may have looked like were it observed in the 1762 eclipse from a vantage location in the path of totality. The photograph of the solar corona was taken during the total solar eclipse of Feb 16, 1980 that passed over India, at the Hosur camp (near Hubli) of the Indian Institute of

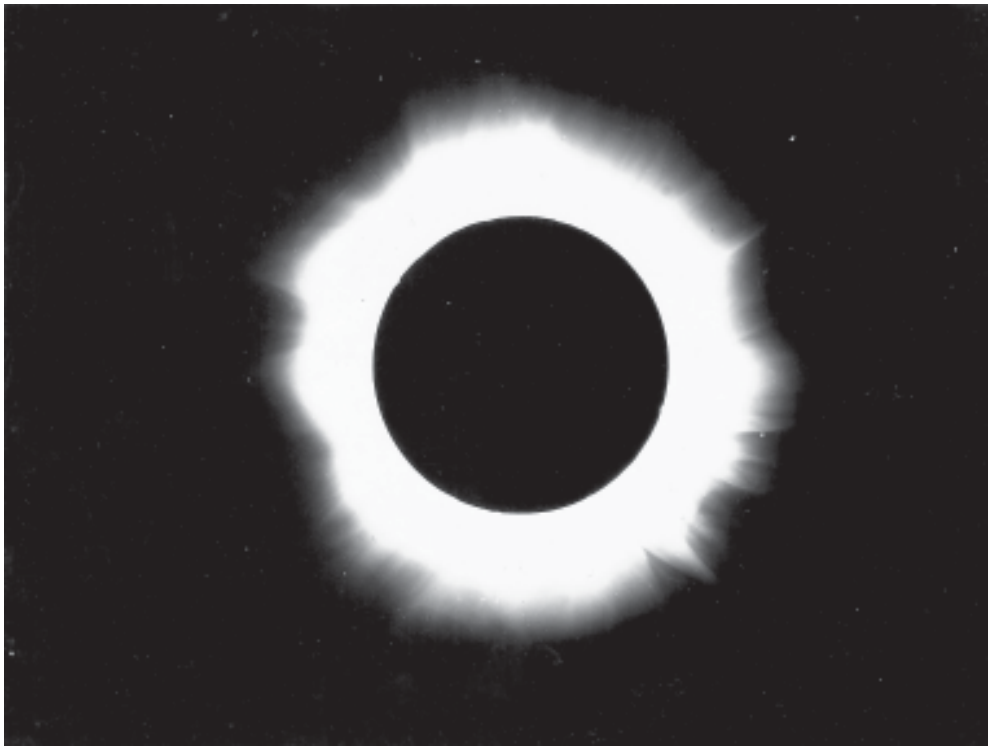

Fig. 3. The total solar eclipse of Feb 16, 1980. The picture was taken at the Hosur Camp (near Hubli) of the Indian Institute of Astrophysics. The year 1980 being a solar maximum year, the corona showed up almost symmetrical (IIA Archives)

Astrophysics. The 1980 eclipse had occurred in a solar maximum year and the corona showed up almost symmetrical. One may also note that its inner parts are bright, fading out with distance from the limb of the Moon and that human eye can notice the corona extending to about 4 solar radii beyond the limb.

Lastly, we can not rule out that the 1762 eclipse just worked as a distraction causing sufficient disarray in a fierce battle that continued well into the evening. We have also assumed an almost clear sky through the day at Amritsar.

Conclusions

The legend of the fierce battle of Amritsar on Oct 17, 1762 between Ahmed Shah Abdali's forces and the Sikhs holds a special place in the Sikh history. Many historians have alluded to the solar eclipse that chanced that day

to have had a decisive impact on the outcome of the battle causing an early retreat by Abdali from Amritsar under cover of darkness. Also, we have asked if the eclipse had just a catalytic effect. We have described here what happens when a total or a near-total solar eclipse takes place at a certain location and presented the eclipse circumstances specific to Amritsar.

Keeping in mind the vast difference in the respective levels of perception and awareness in India of the natural phenomena in the latter half of the 18th century and today, and drawing a parallel with historical records of similar earlier episodes we are well within reason to infer that the eclipse did affect the battle at Amritsar and may have caused an early retreat by the Afghan forces. But, scientific considerations alone cannot provide a final answer to the questions. The available historical accounts of the battle are sketchy and inferences will be better founded when the historian picks up the threads from here and reconstructs the battle of the day.

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Appendix

The folklore

Did the eclipse become part of the folklore in the times to come? Abdali of course had become so in the Panjabi folklore, as in the following saying –

'*Khada pita lahe da, baki Ahmed Sahe da*!'

Khushwant Singh[6] translates it thus -

'To eat and drink is all we know,

For the rest to Ahmed Shah doth go'.

It was during such times, troubled at some places and peaceful at some others, that Saiyad Waris Shah (1722?-98), an enlightened soul and the greatest among the *Kissa* writers of Panjab composed the classic *Kissa Heer*, a saga of ill-fated lovers Heer and Ranjha[23], during the years 1763-66 at Malika Hans in

the district of Sahiwal, a place 12 kilometres north of Pak Pattan. Before moving to Malika Hans, Waris had his religious and spiritual training at Pak Pattan[24]. Sahiwal and Pak Pattan fell within the path of totality of the 17 Oct, 1762 solar eclipse and so did Malika Hans. For one well into Islamic scholasticism and given to metaphysical pursuits, it is not known if he was exposed to astronomical treatises in the Persian. The *Kissa* by Waris appears untouched, not even through a figure of speech or an allusion, by the unusual phenomenon of darkness at noon that happened not many years ago although the turbulence in Panjab during the times finds a reflection in the poetry, replete with references to mythological and historical figures, notwithstanding some chronological violations, and even the protagonist's knowledge of the Indian traditional medicine. At one point in the later pages of the *Kissa* we note Waris Shah say it in a simile that 'the Moon and the Sun get eclipsed for they too are caught into/bound by their own evil doings'.-

'*Waris Shah, Chann Suraj grahin lage,*

Uh wi phade ne aapne phedian nun',

However, Waris does not weave *the* eclipse into the *Kissa* to heighten the drama the way he does with a divine intervention when Ranjha, upon seeing Heer being forcibly taken back by the Khedas to their village raises his hands to the sky in desperation and prays for the town and its people to be brought to justice. And, there and then there erupts a huge fire over the town and the news spreads all over of such effect of the curse of an ascetic.

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