Alexander the Great at Aornos (Mount Pir-Sar), District Shangla, Khyber Pakhtunkhwa Province, Pakistan: Report on Historical and Archaeological Field Investigations (2017 – 2018)

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Abstract

The epic of Alexander the Great is one of the most fascinating aspects of human history and it has transpired historians for the last two millennia to try to create a picture of him and his exploits, using patchy historical references, in the greater part of Asia Minor, Persia and South Asia. The present paper, based upon historical literature and two seasons of fieldworks in northern Pakistan, is an attempt to investigate the exact location and battle of Aornos. The fieldworks were carried out in 2017 and 2018 in the Districts Swat, Lower Dir, Buner and Shangla of Khyber Pakhtunkhwa Province of Pakistan. Alexander invaded these regions of northern Pakistan in 327 BCE and had major battles and killing sprees at the ancient towns of Massaga (a still unidentified site), Bazira (modern Barikot or Barikot-ghwandai) and Ora (modern Odigram). Fearing the onslaught of Alexander and the imminent massacre, the inhabitants of the towns of Bazira, Ora and other regions of upper Swat valley fled to the legendry mount Aornos. Alexander followed and massacred them there. Using the accounts of historians Arrian, Plutarch, Diodorus, Curtius and Justin and archaeology of the region, Aornos have been identified with two different mountains that are Mount Illum in District Buner and Mount Pir-Sar in District Shangla. Using these sources and data from the current fieldwork, the authors identified, following Sir Aural Stein, Mount Pir-Sar as the Aornos of the ancient Greeks and Romans.

Keywords: Alexander the Great; Aornos; Bazira; Mount Illum; Mount Pir-Sar; Archaeology of Northern PakistanLiterature and Sources about Alexander the Great

Introduction

This paper is a report on historical research and archaeological fieldwork in Swat, Buner, Lower Dir and Shangla districts of the Khyber Pakhtunkhwa Province of Pakistan in 2017~2018, for the purpose of investigating the expedition of Alexander the Great in 327~326 BCE (Fig. 1).

The historical literature regarding Alexander the Great is represented by five extant sources: Arrian, Plutarch, Diodorus (written in Greek), Curtius, and Justin (written in Latin). All of these authors lived under the Roman Empire, and they wrote several hundred years after the death of Alexander. Their works present different images of Alexander, and their reliability depends on the original sources that they used. These include various narratives on Alexander that were widely read in the Hellenistic Age, but most of them originated from histories written by contemporaries of Alexander who had participated in the expedition [(1)]. As the focus of this paper is on the site and battle of Pir-Sar, we refer to three authors, namely Arrian, Diodorus, and Curtius, as they had described the battle at Pir-Sar in detail.

Arrian was a Greek from Asia Minor and he was a distinguished governor of the province and a general who commanded the expedition in the eastern frontier of the Roman Empire in the age of Trajan of the 2nd century CE. Arrian mainly used the works of Aristobulus, a Greek engineer, and Ptolemy, a Macedonian general and founder of the Ptolemaic dynasty in Egypt, who might have retained the

documents of Alexander's army. Thus, Arrian's work narrates the battles of the Macedonians in detail, and many scholars consider it the most credible source for Alexander's expedition. Indeed, Arrian often tends to depict Alexander as a superhuman hero, while Ptolemy, his main source, has recently been found defective in several aspects; we should be careful in recognizing that Ptolemy often exaggerated his own accomplishments [(2)].

Diodorus was a Greek historian from Sicily in the 1st century BCE, who wrote a 40 volume universal history from the mythical age to his own time, of which 15 volumes survive; the17th volume is assigned to Alexander's reign. He is often careless in how he treats facts, and his history tends to be regarded as almost a patchwork compiled from various authors who are not always reliable [(3)].

Curtius, supposedly a Roman senator of the 1st century CE, depicted Alexander as an Oriental despot, almost a tyrant whose model was either Emperor Caligula or Nero, who executed many senators of his own age. Indeed, his work is full of rhetorical narratives but preserves many traditions from the side of the Persians [(4)].

Therefore, we must estimate the reliability of the extant works in terms of each historian's inclinations, the purpose for writing Alexander's history, and the characteristics of their original sources.

Alexander's invasion of Swat

In late autumn 327 BCE, starting from Bactra, the capital of the province of Bactria, Alexander invaded the mountainous region of the northern areas of Ancient India (the modern-day Khyber Pakhtunkhwa Province of Pakistan (or formerly the North-Western Frontier Province of Pakistan) [(5)]. After reaching the Copen (modern-day Kabul) River, he divided his army and sent Hephaestion and Perdiccas to the Indus River through the territory of Peucelaotis (modern-day Charsadda), with orders to take all towns on their march and to prepare for the crossing of the Indus River. Alexander himself, after marching along the Cohes (modern-day Alingar or Kunar) River, advanced to the districts of the Aspasians and Guraeans and forced them into submission. Then Alexander crossed the Guraeus (modern-day Panjkora) River into the territory of the Assacenians. In Massaga, the largest city of the region, he encountered fierce resistance from seven thousand Indian mercenaries, but on the fourth day the Indians lost their leader and capitulated.

In the spring of 326 BCE, Alexander dispatched a section of his army from Massaga to Bazira (modern-day Barikot or Birkot-ghwandai archaeological site), and another to Ora (modern-day Udegram). The attack at Bazira was not successful, where the inhabitants gave no signs of surrendering on terms, since they were confident about the strength of the region which was very high and fortified carefully all round (Arrian 4.27.6). Our field survey coincides with this narrative. The top of the rock fort at Barikot (N.34°40"51', E.72°12"48'), situated along the Swat River, is 944 meters above mean sea level and about 150 meters above the modern-day road (Plates 1–2). We could easily perceive the difficulty of the siege attack from the plain.

Alexander advanced first against Ora and easily seized the city at the first attempt. Then, the inhabitants of the upper Swat valley abandoned their cities and took refuge in an enormous rock-like region, called Aornos (modern Mount Pir-

Sar). However, confronted with fierce attacks by the Macedonians, they were forced to surrender.

This is the most impressive episode of the battles of Alexander in the northern areas of Pakistan. We made two field surveys at Pir-Sar, on September 7, 2017 and on May 2, 2018, and tried to recreate this battle in detail through historical and archaeological evidence.

The identification of Aornos

Arrian describes Aornos as follows (translations of the classical texts are from Loeb Classical Library):

The circumference of the rock, it is said, about two hundred stades[approximately 36 km], its height at its lowest part eleven stades[approximately 2000 m], with only one way up, made by hand and rough. On the top of the rock there is said to be plenty of pure water which comes from a perennial spring, from which water actually pours out, as well as wood and good arable land which would be enough for a thousand men to cultivate (4.28.3).

The descriptions by other historians of its steepness and the level top are similar. Diodorus writes, 'the circumference of the "rock" was one hundred stades [approximately 18 km], and its height sixteen [approximately 2900 m.]. Its surface was even and circular on all sides' (17.85.3). Curtius also mentions, 'the rock did not, like many others, rise by moderate and gentle slopes to a lofty summit, but elevated itself very much in the manner of a turning-block, of which the lower parts are wider, but become narrower as they rise higher and force the highest parts into a sharp point' (8.11.6).

Many scholars have tried to identify Aornos, but Stein's identification of Aornos with Mount Pir-Sar has been widely accepted as conclusive. British - Hungarian historian and explorer Sir Aurel Stein conducted explorations in the Swat region during March - April 1926. He first climbed Una-sar by the northwestern route and reached Pir-Sar through the Burimar ravine (the locals now call it Gaurimar – horse killer pass). He found that the features of its terrain coincided perfectly with the descriptions by the historians of Alexander. In his report, *On Alexander's Track to the Indus*, Stein describes the following [6].

Owing to its greater height and the depth of the valleys on either side Pir-Sar forms a dominating position; overlooking all the other spurs [ranges] it offers an exceptionally wide and impressive view (p. 129).

It only remains to describe briefly the summit of the Pir-Sar spur. This presents itself for a distance of a little over a mile and a half as an almost level plateau, occupied along particularly its whole length by fields of wheat. The width of the cultivated ground on the top varies from about 100 to 200 yards, with strips available for grazing by the side of the fields (p. 131).

I may briefly sum up the essential features that necessarily invested it with exceptional advantages as a place of safety and natural stronghold for the ancient inhabitants of this region. Its great elevation, more than 5000 feet above the Indus, would alone make attack difficult. The extent of level space on the top would permit of the assembly of large numbers both for safety and for defense (p. 133).

We conducted our first research at Pir-Sar on September 7. 2017 (Fig. 2). We hired two cars with local drivers, starting at about 550 meters

elevation, near the Thakot bridge over the Indus River. We drove along a zigzaging and stony mountain path and arrived at a halting place some 1759 meters above sea level, from where we looked upon the ridge running from north to south (Plate 3). We then climbed by foot to the top at about 2200 meters and found an area of level plateau. Looking all around, we could easily perceive the summit perfectly isolated from the surrounding mountains. Walking toward the hill at the northern end, called Bar-sar, we found level ground with a cultivated field, a vast pond, and pasture for cattle (Plate 4~7), which would have provided thousands of native inhabitants with an ideal shelter and the location of a fort. After reaching the point at about 2294 meters on the northern area of the summit, confronted with forest, we returned. Thus, our observation confirms Stein's descriptions and we are confident that Aornos should be identified as Pir-Sar.

Mount Illam and Bazira

Some of the local people and researchers in northern Pakistan identify Aornos with Mount Illam in District Bunir. This idea is described in a map at the Swat Museum, Saidu Shareef, developed by the Italian Archaeological Mission working in the Swat region since 1950s, identifying/suggesting Aornos with Mount Illam (or Ellum Ghar) (Plate 8). The identification and the representation on the map is the result of the Professor Giuseppe Tucci identification of Aornos with Mount Illam; Tucci primarily tried to identify Aornos with Mount Illam due to the historic religious importance of Illam and not due to its proximity to the Indus River [7]. Using the Tucci identification as the base, Luca M. Olivieri of the Itlalian Archaeological Mission tried to identify Aornos with Mount Illam through ancient Greek, Indian and Persian sources and geographical contextualization [7]. However, this identification by Tucci and Olivieri does not seem to be correct as our source, Diodorus, clearly says that the southern side of Aornos was washed by the Indus River (17.85.3), and Curtius also writes that the Indus River comes close to its base (8.11.7). Moreover, Arrian's narrative indicates that Alexander moved towards the Indus River and subjugated several towns before turning to the assault upon Aornos. These preliminaries do not coincide with an attack on Mount Illam, some 40 km west in a straight line from the Indus River.

We are of the opinion that Mount Illam might be related to the route taken by the native inhabitants of Bazira when they sought refuge in Pir-Sar. To confirm this, we tried to climb Mt. Illam, starting from the White Palace Hotel, 1300 meters above mean sea level (Fig. 3). We reached a point 1895 meters above sea level (N.34°37"58', E.72°20"56'), but we did not have enough time to go over the pass in front of us (Plate 9). According to the locals, on the other side of the pass is a plain where a village called Ellam Kalay is situated. The mount in front of us is called Jogiano-Sar (or mount of the Yogis), which was until 2007 (when Taliban militancy broke out in the Swat region) a place of pilgrimage for Hindus, living in Pakistan. The locals point to a large water body and a cavern, where the Hindu Yogis meditated and pilgrims paid visits to.

On April 30, 2018, we tried to reach the Ellam Kalay or village through the southern route of Mount Illam. We found Ellam Kalay, a quiet village on a fertile highland, about 1800 meters above sea level (N.34°36"58', E.72°22"04') and had a distant view of that pass that we had not been able to cross the previous year (Plate 10).

The locals, including our police escort, informed us that there were several passes between Swat and Buner, and the local people could choose any pass when they wanted to travel to Pir-Sar. Therefore, we are of the opinion that there were several routes available to the inhabitants of Bazira to escape the onslaught of Alexander and that one such route passed through Ellam Kalay.

However, Arrian's narrative suggests another possibility. Just after Alexander captured Ora, when the inhabitants of Bazira learnt this, they despaired of their position, and about the midnight deserted the city and fled to the rock, as did the other barbarians; leaving their cities they all fled to the rock in this neighborhood called Aornos (4.28.1).

Arrian mentions two rocks, one to which the inhabitants of Bazira fled, and one to which all other people fled. Are these rocks different or the same? Bosworth comments that the people of Bazira fled to *their* rock (italics in the original text), while the rest of the population of the upper Swat valley fled to the rock named Aornos [(8)]. This is persuasive, because, as Bosworth says, Mount Illam is the best and the only rock that served the refugees from Bazira. While the people of the upper Swat valleys did not have such direct access to Mount Illam, they could access Pir-Sar after crossing the watershed into the Ghorband valley and marching down the Indus River.

The distance from Barikot to Pir-Sar is about 60 kilometers as the crow flies. Was it possible for the native people to move such a long distance in a short time? When visiting a friend on the way to Besham on September 6, 2017, an old man told us that he had walked from Mount Illam to Pir-Sar in one day. Another man said that it took two or three days. We shall remember that mountain people are strong walkers, so the inhabitants in the age of Alexander would have had no difficulty in walking this distance in a few days together with their families. The use of horses and mules would have made it much more easier for them to move around this mountainous region.

Nevertheless, it is apparent that Mount Illam was the most convenient refuge for the people of Bazira, and Arrian clearly makes a distinction between the inhabitants of Bazira who fled to the *rock* and other people who left their *cities* and fled to the *rock* Aornos. Thus, it is reasonable to conclude that the people of Bazira fled to Mount Illam, and the people of the upper Swat valley fled to Pir-Sar.

At the centre of the Ellum Killey, at the foot of Mount Illum, there is evidence of large standing walls of a Buddhist monastery, constructed in the ashler masonry (Plates 18–19). Similar ashler masonry monasteries have been dated to 3rd century CE in Taxila Valley.

Alexander's Motivation to Capture Aornos

Why did Alexander wish to capture a rock that was so difficult to attack? He clearly did not want to leave the inhabitants of Swat not subjected to his rule, and it was essential for him to fully subjugate the northern mountainous region before crossing the Indus River and advancing toward Taxila. Apart from such strategic reasons, we can add his desire to emulate a mythical hero.

Arrian says that 'the prevalent story about it [Aornos] is that even Heracles son of Zeus was unable to capture it' (4.28.1). 'As soon as Alexander heard this, he was seized with a longing to capture this mountain too, not least because of the legend

about Heracles' (4.28.4). Diodorus also mentions that 'it is said that Heracles of old thought to lay siege to this "rock" but refrained because of occurrence of certain sharp earthquake shocks and other divine signs, and this made Alexander even more eager to capture the stronghold when he heard it, and so to rival the god's reputation' (17.85.2).

Arrian's word 'longing' (Greek *pothos*) a key word to understand Alexander's inner motif of undertaking these superhuman exploits [(9)], and it is well known that his rivalry with his father, Philip II, and heroes such as Heracles, Achilles, and Dionysus always stimulated him to undertake endless challenges[(10)].

We cannot decide exactly what deity in Ancient India was identified as Heracles, but as Bosworth comments, local myths probably emphasized the impregnability of Aornos, and the local deity associated with this rock was identified as Heracles in Alexander's entourage [(11)]. The local people probably exaggerated the impregnability of the rock in the hope of deterring Alexander from attacking but such an effort ironically stirred up his eager desire to capture it

The Battle at Aornos

Now we will examine the battle Alexander engaged in. According to Arrian, Alexander attacked the Indians on Aornos in the following phases (our summary);

a. Alexander sent a part of his troops under the command of Ptolemy (later the king of Egypt) with native men as guides to the place most suited for attack upon the rock. Ptolemy seized the place, unobserved by the people on the rock. Then, Alexander himself brought his army to the approach and joined up with Ptolemy's force after repulsing the Indians' attack (4.29.1-6).
b. Alexander ordered each soldier to cut down a hundred trees, and started to raise a great mound, beginning from the top of the crest of the hill on which they had encamped and extending up to the rock (4.29.7).
c. On the first day, the Macedonians built the mound to about 180 meters in length. On the next day, the slingers fired on the Indians from the mound, and missiles were flung from the engines. This checked the attack made by the Indians against the Macedonians (4.30.1).
d. On the fourth day, a few Macedonian soldiers made a rush and occupied a small hill. Alexander drove the mound forward, intending to connect the mound with this hill (4.30.1).
e. The Indians were surprised at this boldness by the Macedonians, and sent a herald to Alexander, saying they were willing to surrender the rock. In fact, they planned to use the delay in negotiating the treaty to escape at night to their homes. When Alexander discovered this plan, he waited until they began to withdraw, and occupied the top of the rock they had abandoned. Then at a signal, the Macedonians turned on the retreating Indians and killed many of them as they fled (4.30.2-4).

We will examine each phase in detail (Fig. 4).

Ptolemy's encampment

Stein identified Ptolemy's encampment as the southern slope below the western flank of Una-sar,

which stretched from east to west on the western side of Pir-Sar. He called this slope 'Little Una'. Stein gives the following description; 'from here it was easier to guard the route leading up from the river [Indus], and thus to give that support to the subsequent ascent of the main force… 'Little Una' offers also the advantage, at any rate to-day, of easier access to water, and by its situation it was less exposed to attack from the enemy's main position on Pir-Sar' (p. 144).

From the top of Pir-Sar, we had a distant view of Little Una densely covered with woods (Plate 11), but could not conduct research on the spot because the paths were steeps and we did not have enough time at our hands to under take this journey, along with our climbing of Pir-Sar, in a single day. Referring to Arrian's narrative with the map, we may accept Stein's identification of Ptolemy's encampment

Necessity of an Artificial Mound

The most important factor in this battle is the mound made with wood that stretched from the encampment to a hill on the side of Pir-Sar. Arrian does not explain the reason for this operation, but looking at the ravine between Pir-Sar and Una-sar, we can perfectly understand the necessity and the effectiveness of constructing a great mound across the ravine (Plate 12). According to Stein, this Burimar ravine was 'the great natural obstacle' (p. 146), and the primary object of Alexander was 'to bring the opposite slope held by the enemy within effective range of what an anachronism might be called the small arms and field artillery of his force' (p. 141).

In 2017, we had only a distant view of this ravine from the summit of Pir-Sar, but we investigated on the spot in 2018 (Fig. 2). As in 2017, we went up to the halting area and fortunately found a newly constructed path that extended to a place near the summit, so we could drive to an altitude of 2066 meters above sea level. Then, we walked and arrived at the bottom of the Burimar ravine, a very narrow space, from where we could look up at the steep slopes of both Una-sar and Pir-Sar (Plates 13~16).

Our field observation coincides with Stein's description that the slope on the side of Pir-Sar was 'so easily defended from above, could not be attacked with any chance of success unless they could be brought within the range of missiles' (p. 146). He also reports, 'the direct distance separating the top of Bar-sar [the highest point of Pir-Sar] from ground of approximately the same level on the Burimar plateau is some 1300 yards' (p. 146). GPS data shows the bottom of the Burimar ravine at 2220 meters (N.34°50"04', E.72°52"18') and the top of Bar-sar at 2416 meters, about 200 meters high (Fig. 5). These features of the terrain made it essential for Alexander to construct a great mound from the hill of Una-sar to bring the slope of Bar-sar into the range of the missiles.

Construction of the Mound

Alexander ordered each Macedonian to cut a hundred trees on the second day, when he united with the troops under the command of Ptolemy. This work would have taken several days, and specialist engineers would have been summoned to direct the construction. Arrian does not refer to this, perhaps because he wants to emphasize the swiftness of Alexander's operation. We may assume a lapse of several days.

On the first day, the Macedonians built the mound to about 180 meters in length. Bosworth notes 'a suspiciously long distance for a single day's work'

[12], but near the top of Una-sar the slope is gentle, so this distance is not improbable.

Occupation of a hill

On the fourth day, a few Macedonian soldiers made a rush and occupied a small hill.

This hill is the Mashlun shoulder of Bar-sar, at 2311 meters altitude (N.34°50”04’, E.72°52”29’), about 90 meters above the bottom of the Burimar ravine (Plate 17).

Stein estimates the distance between the Mashlun shoulder and a corresponding elevation on the slope below Burimar as certainly not less than 500 yards (p. 146). In that period, Greek artillery soldiers could throw stones to a distance of only some 300 yards, and slingers and bowmen could fire their missiles not much farther [13], so we can understand that Alexander drove the mound forward, intending to connect the mound with the Mashlun shoulder.

Curtius says that the gap was bridged before the seven days (8.9.11), and Diodorus also mentions Macedonian troops ‘assaulting continuously for seven days and seven nights with relays of troops’ (17.85.6). Diodorus implies that the attack began after the completion of the mound and continued for seven days. He is confused, because Arrian makes it clear that the assault took place during the construction, and this work continued after the fourth day when the Macedonians occupied the Mashlun shoulder. So we may assume that whole operation took ten days (three plus seven) including the construction of a mound and the assaults in relays [14].

Curtius gives a colorful description of the attack upon this hill, where Alexander (another person by the name of Alexander from the army and different from Alexander the Great) and Charus, who commanded 30 of the young selected soldiers, died heroic deaths.

The Massacre of Native People

Diodorus mentions Alexander’s craftiness in removing the guard that had been left in the path, making way for those who wished to withdraw from the rock. Therefore, the Indians, already alarmed, left the rock in the night (17.85.7). According to Curtius, a Macedonian scout found the rock deserted and the Indians in flight, so Alexander struck fear into them by having the Macedonian soldiers shout; many Indians fell to death tripping over (8.11.22-23). Only Arrian mentions Alexander’s detection of the trick by the native people, which led them to be massacred as they fled the Macedonians. A similar incident occurred in Massaga, where, Diodorus says, Alexander slaughtered most of the Indian mercenaries in spite of the truce (17.84.1-6). Arrian reports that the fault was in the Indian mercenaries, who tried to escape after agreeing to participate in Alexander’s expedition (4.27.3-4) [15]. This explanation has a tone of excuse, so we may accept Diodorus’ reference as representing the truth.

At Aornos, the native people must have intended to escape before concluding the negotiation, while Alexander no doubt used their action as a pretext to justify the massacre as a ‘legal combat’.

On this occasion, Alexander occupied the top of Bar-sar. This slope is very steep, and Stein gives the following description, ‘I myself retain a very vivid recollection of the trying scramble over steep crags by which I gained the summit of Bar-sar after visiting Mashlun. I can hence realize what

this ascent of about 350 feet must have meant for men encumbered by armour' (p.148). GPS data shows the top of Bar-sar at 2416 meters altitude (N.34°50"05', E.72°52"39'), about 100 meters above the Mashlun shoulder.

Curtius rightly concludes that Alexander was the victor over the locality rather than over the enemy (8.11.24). In fact, the most important factor in his victory was his well-made plan and his determination to go through with it to take an attacking position against an impregnable stronghold [16].

Architectural Remains on the top of Bar-sar

On the event after the battle, Arrian mentions as follows;

> During the short fieldwork at the top of the Pir-Sar, locally called as the Bar-Sar, the authors were able to identify a relatively large structure/fortification
>
> (approximately 30 x 30 meters), overlooking the Indus River and surrounding regions (Plates 20–22). The structure is now covered by thick vegetation and pine trees and has been vandalized by antiquity hunters at places. The construction of the structure is more in Greek style than in the local architectural traditions. The structure consists of a large peripheral wall, around 1-meter in width, enclosing relatively small rooms. The structure was not constructed in the fashion of Buddhist monasteries and Hindu Shahi constructions that are so spread across the landscape in Swat and Buner regions. There are few large flat rocks near this structure that the locals, shepherds, claimed to been the seat of a legendry king. The structure seems to be a possible fort; however this needs to be excavated to know the purpose and function of the structure.

Summary:

Since Stein's research, no field survey of Mount Pir-Sar by European and American scholars has been reported. Therefore, our investigation of Pir-Sar is academically very important, and we believe this is also significant for the ancient history of Pakistan. Through our fieldwork and historical investigation, we could vividly imagine the battle of Aornos at Pir-Sar by Alexander the Great and the inhabitnts of the region and we can positively argue for Mount Pir-Sar to be the Aornos. The presence of archaeological site on top of Bar-Sar at Mount Pir-Sar is very important and must be investigated to know its exact nature. Similarly, archaeological sites within the vicinity of Mount Illam also need to be investigated.

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Bosworth, *Commentary* II, p.191 accepts much of the story in Arrian as correct, and says 'there must have been some indication of the defenders' flagging resolution, to excite Alexander's suspicion that they would withdraw'.

cf. Ashley, op.cit.pp.315-317.

Figures

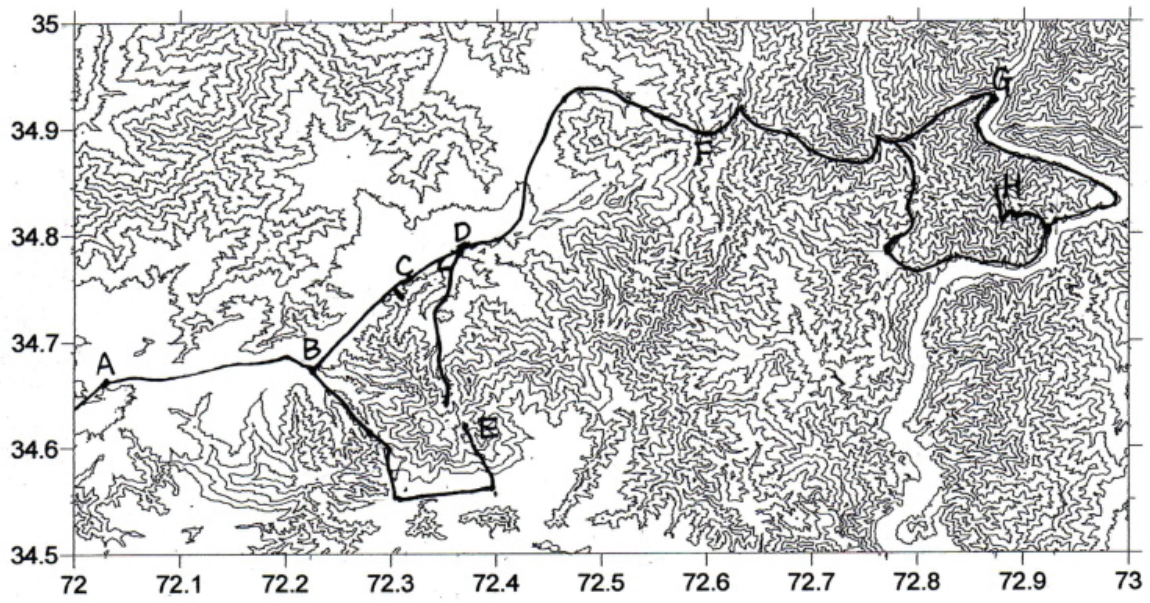

Figure 1: Outline of the Research Route Contour interval 300m
A Chakdara B Barikot C Udegram D Mingora
E Ellam Kalay F Shangla Pass G Besham H Pir-sar

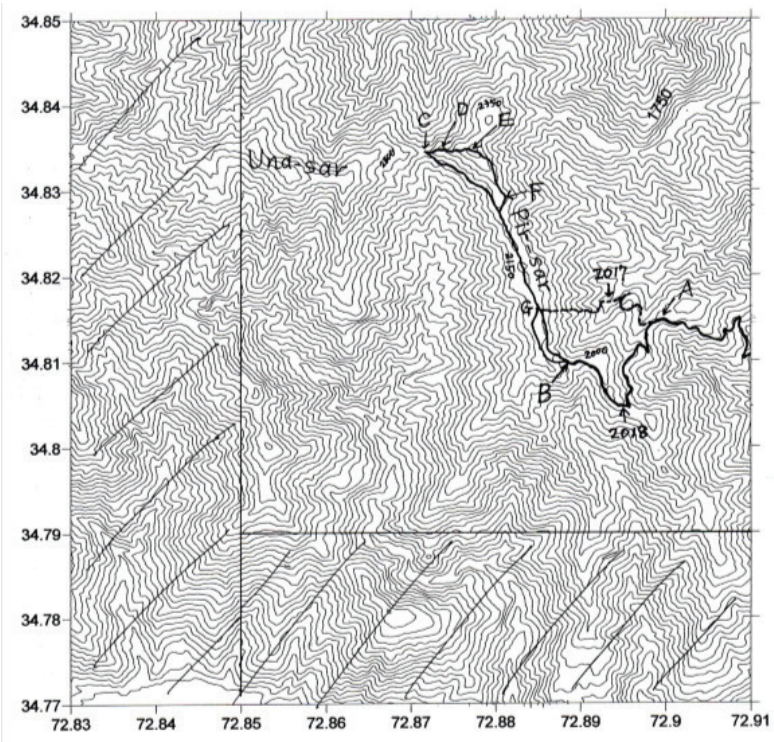

Figure 2: Research of Pir-sar Contour interval 50m
A halting area 1 A~G walking route on 2017
B halting area 2 on 2018 C Burimar ravine
D Mashlun shoulder E top of Bar-sar
F arrival point on 2017

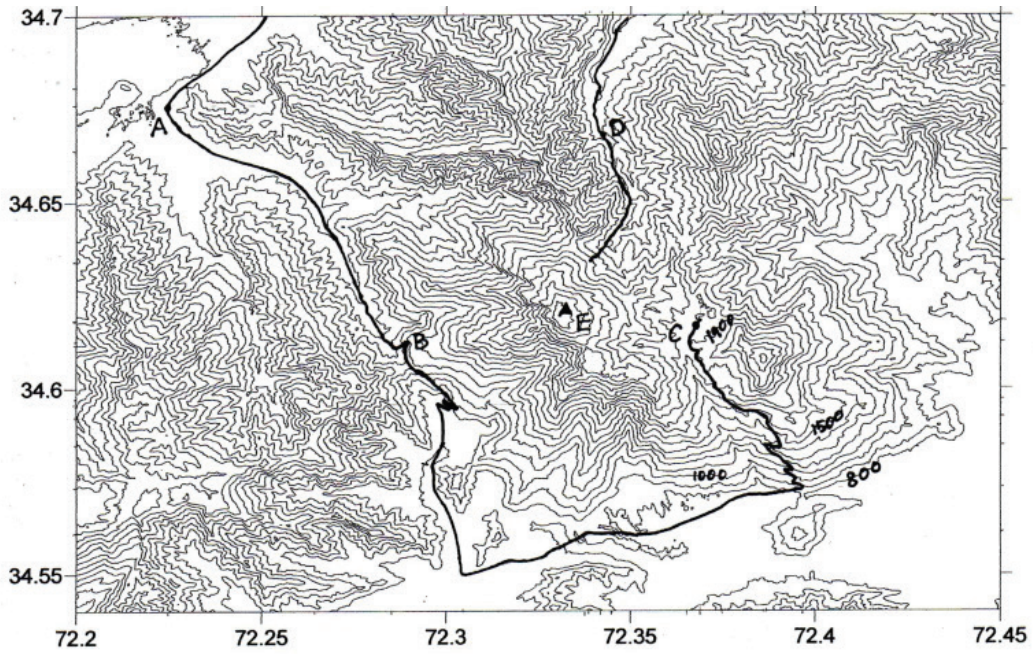

Figure 3: Mount Illam and Ellam Kalay Contour interval 100m
A Barikot B Karakar Pass C Ellam Kalay
D White Palace Hotel E Mt. Illum

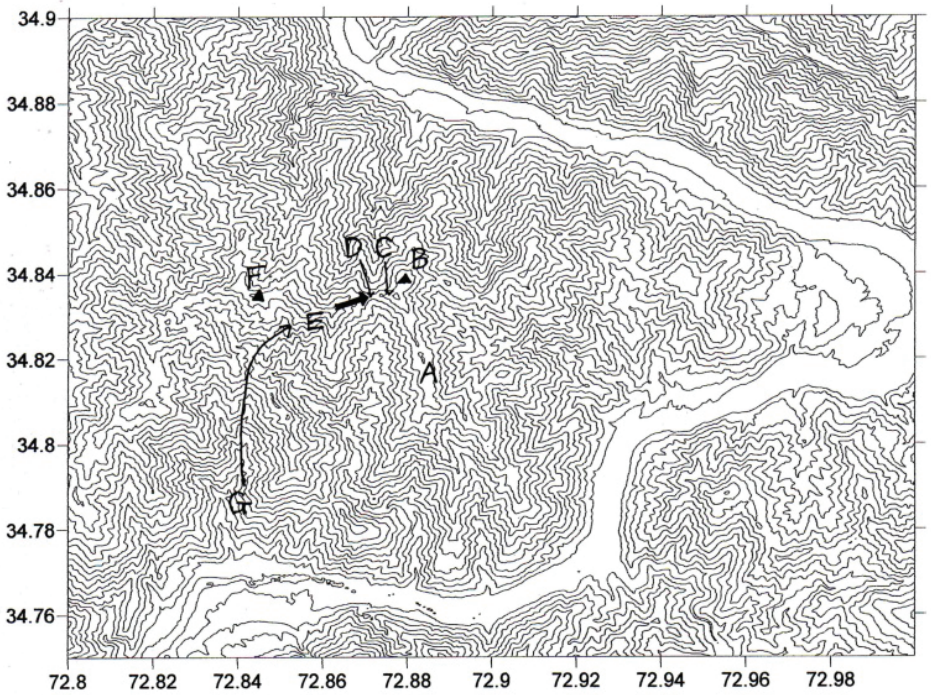

Figure 4: Restoration of the Battle at Aornos (Pir-sar) Contour interval 100m
A summit of Aornos B top of Bar-sar C Mashlun shoulder
D Burimar ravine E encampment of Ptolemy at Littele Una
F Una-sar G route of Alexander's troop
the mound constructed by the Macedonians

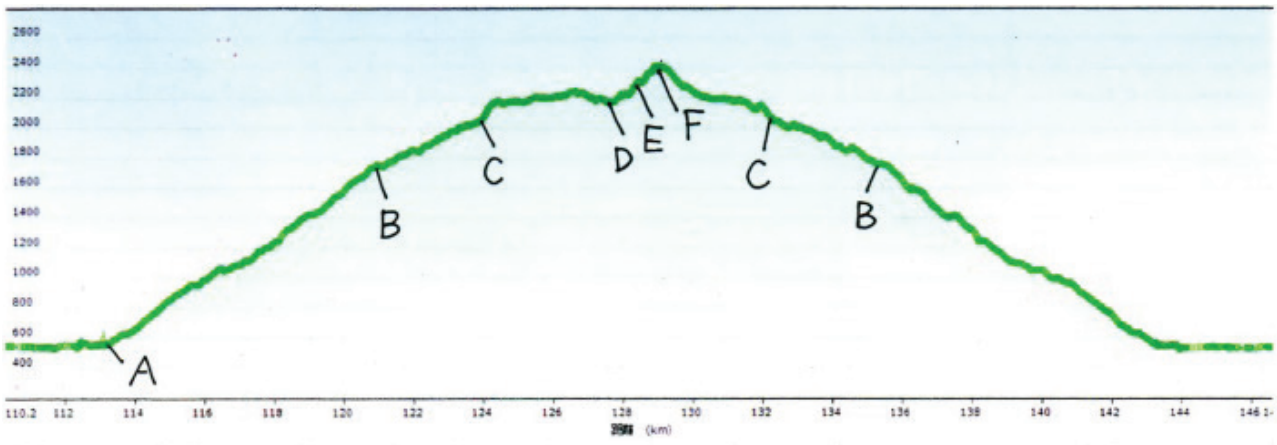

Figure 5: GPS data : Pir-sar (2 May 2018)
A starting point (550m) B parking area 1 (1747m)
C parking area 2 (2066m) D Burimar ravine (2220m)
E Mashlun shoulder (2311m) F top of Bar-sar (2416m)

Plate 1. The rock-fort at Birkot-Ghwandai, Swat

Plate 2. Swat river, looking down from the top of the rock-fort at Barikot or Birkot-ghwandai

Plate 3. Pir-sar viewed from the parking area

Plate 4. A pond on the summit of Pir-sar

Plate 5. Pasture and cattles on the summit of Pir-sar

Plate 6. Summit of Pir-sar, looking south

Plate 7. Indus viewd from Pir-sar

Plate 8. A panel at Swat Museum, showing Mt.Illam as Aornos

Plate 9. Mt. Illam viewd from north

Plate 10. Mt.Illam viewd from Ellam Kalay

Plate 11. Una-sar on the far side and Little Una on the near side

Plate 12. Una-sar on the left, Burimar ravine at the center, and Bar-sar on the right

Plate 13. Approching Burimar ravine

Plate 14. The bottom of Burimar

Plate 15. The slope of Bar-sar viewd from Burimar

Plate 16. The slope of Una-sar viewd fromravine Burimar ravine

Plate 17. The Mashlun soulder on the right

Plate 18. Buddhist Monastery at Ellum Kelly, Mount Illam

Plate 19. Details of the Walls of Buddhist Monastery at Mount Illam

Plate 20. Remains of walls or fortification on Mount Pir Sar

Plate 21. Remains of walls or fortification on Mount Pir Sar

Plate 22. Remains of walls or fortification on Mount Pir Sar