With Alexander in India and Central Asia

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Moving East and Back to West

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Claudia Antonetti and Paolo Biagi

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Front cover: The mangrove swamp of Miāni Hor, Las Bela, Balochistan, close to the place where Nearchus landed. Photo by Paolo Biagi.

Back cover: The Indus River between Sukkur and Rohri in Upper Sindh, where Alexander crossed it to visit Aror. Photo by Paolo Biagi.

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Chapter 10

Uneasy Riders: With Alexander and Nearchus from Pattala to Rhambakia

Paolo Biagi

Abstract: The scope of this paper is to interpret the road followed by Alexander and Nearchus on their way back to Babylon from the Indus delta to the country of the fish-eaters (Gedrosia). To achieve this goal both classical sources and personal fieldwork experience in Lower Sindh and Las Bela province of Balochistan were taken into consideration. Given the absence of archaeological finds attributable to the Hellenistic period, the unreliability of most of the classical chronicles that were written centuries after the death of Alexander, the landscape changes that affected the aforementioned territories during the last two millennia, and the controversial results obtained by fieldwork by British officers and geographers during the period of their conquest of the region, our data on the Macedonian retreat from the country is very poor. Nevertheless, just a few topics can be reinterpreted on the basis of the field evidence acquired during the last 10 years. They regard the way, and the speed Nearchus moved from the mouth of the Indus to Las Bela, and a few data regarding the way Alexander crossed the Hab river, and probably camped along the shores of present-day Lake Siranda.

Riassunto: Lo scopo del presente lavoro è di interpretare il percorse seguito da Alessandro e Nearco durante la loro ritirata verso Babilonia, dal delta del'Indo al paese degli Ittiofagi. Sono state prese in considerazione sia le fonti classiche, sia i risultati acquisiti durante gli ultimi 10 anni di ricerche archeologiche nel Sindh meridionale e nella provincia di Las Bela (Balochistan). In seguito alla mancanza di resti archeologici attribuibili al periodo ellenistico, alla scarsa credibilità delle fonti classiche, redatte secoli dopo la scomparsa di Alessandro, i notevoli cambiamenti della geografia dei territori attraversati dai Macedoni negli ultimi 2000 anni, e i risultati controversi delle ricerche eseguite da ufficiali e geografi britannici durante l'Impero, le nostre conoscenze del problema sono in realtà molto limitate. Nonostante ciò, le prospezioni condotte degli ultimi 10 anni hanno portato ad alcuni interessanti risultati

che riguardano principalmente la rotta di navigazione seguita da Nearco dal delta dell'Indo a Las Bela, il periodo in cui ebbe luogo, ed i tempi di percorrenza, oltre che alcune informazioni circa l'attraversamento del Fiume Hab da parte dell'esercito Macedone e la probabile dislocazione dell'accampamento di Alessandro lungo le sponde del Lago di Siranda.

Keywords: Indus River, Arabian Sea, mangroves, radiocarbon dating, Fish-eaters (Ichthyophagoi).

Parole chiave: Fiume Indo, Mare Arabico, mangroveti, datazioni radiocarboniche, Ittiofagi.

1. Preface

The purpose of this paper is to discuss some aspects of the route followed by Alexander, Nearchus, the Macedonian army and fleet to return to Babylon. More precisely its scope is to define the way they moved south of Pattala, to reach first the Arabian Sea and then, turning west, proceed along the coast of Lower Sindh and Las Bela in Balochistan.

At present, we know little of the ancient geography of the territories they crossed for three main reasons:

1. the chronicles of the classical authors regarding the voyage from the kingdom of Mousikanos down to the country of the Oreitai (Horitæ) are often fragmentary and rather imprecise (McCrindle 1972; 1979; 2000; Baynham 2005; Cartledge 2005);
2. the landscape characteristics of the two aforementioned regions have changed noticeably since the beginning of the Atlantic period, and even Hellenistic times (Giosan *et al.* 2006; Biagi 2010; 2013);
3. given that our knowledge of the medieval history of the north Arabian Sea is relatively poor, at least as regards the period antedating the conquest of Muhammad ibn al-Qāsim (Elliot 1985; Kalichbeg 1990), we have to revert to the chronicles of British officers (Burton 1851; Holdich 1910), geographers (Tremenheere 1866; Blanford 1880; Pithawalla 1959; 1978), historians (Stein 1943; Eastwick 1989; Kevran 1999), and explorers (Burnes 1834; Watters 1904) to achieve a reliable picture of the conditions of Lower Sindh, the Indus Delta (Wilhelmy, 1968; Kazmi 1984; Inam *et al.* 2007), the coast of Las Bela (Minchin 1907; Snead 1966; 1969), and the changes that affected the region in early historic times (Snead 1967).

The observations that follow rely not only upon the chronicles of the classic historians (Romm 2005a), and the reports written by British and other authors, but also on the results of the surveys carried out by the Italian Archaeological Mission in Lower Sindh and Las Bela between 2008 and 2014. During the fieldwork seasons, specific areas of the Indus delta and the coastal strip have been carefully

and repeatedly surveyed on foot. The research led to the recovery of dozens of archaeological sites of different prehistoric and historic periods, many of which have been systematically AMS-dated by single specimens of mangrove or marine shells (Biagi 2011; 2013). The results contribute to the interpretation of the environmental changes that took place since the beginning of the Holocene, and the reconstruction of the landscapes that Alexander, Nearchus and their soldiers and sailors crossed during their retreat from the Indian Subcontinent to reach Mesopotamia and the west.

2. Pattala: Where was it?

Pattala (or Patala) has been a subject of great debate among historians. Although its precise location is still unknown, some authors identify it with the cities of B(r)ahmanabad or Al-Mansurah (Smith 1904; Khan 1990), or Hyderabad (Cunningham 1871; Pathan 1978; Pithawala 1978: 174), otherwise they locate it *ca.* 35 miles southeast of Hyderabad (Haig 1894: 19), or even Thatta (Holdich 1910: 148; McCrindle 2000: 187), although none of the above sites ever yielded any evidence of Hellenistic remains. In particular, Brahmanabad was still flourishing in the early 8th century A.D., when Muhammad ibn al-Qāsim conquered Sindh (Elliot 1985).

The changes that affected the Indus River course during the last three millennia (Panhwar 1964; Wilhelmy 1966; 1968), its westering tendency in historical times (Pithawalla 1959: 80), the landscape modifications caused by water transport, and sediment discharge toward the Arabian Sea (Snead 1969: 46; Milliman *et al.* 1984; Meadows and Meadows 1999), and the effect of the summer and winter monsoons and their consequent floods (Panhwar 2002; Akhtar 2011), led to the development of the present Indus Plain (Wilhelmy 1968: Abb. 2) and the impressive, submerged Indus fan and canyon (Coumes and Kolla 1984; Von Rad and Tahir 1997; Prins *et al.* 2000; Pandley *et al.* 2015).

The accumulation of thick alluvial deposits, and the progressive advance of the Indus delta, estimated *ca.* 13 feet per year (Haig 1894: 7) before the construction of the main barrages (Rahman 1988: map 11), though a greater rate has been suggested for the Bronze Age (Pithawalla 1938: 339), have radically transformed the geomorphology of the Indus Plain (Pithawala 1978: 219), and completely obliterated the surface on which Alexander moved his troops. Most of the cities reported by Arrian and more recent authors have disappeared below a thick cover of alluvium (Ahmad 1981). This is the case for Pattala, given the continuous rise of the plain, caused by progressive silting that has been calculated *ca.* 3.15 inches per century (Panhwar 1999: 191).

It is commonly believed that Alexander followed information gathered from Scylax, the Greek engineer employed by Darius the Great, to survey the river (Panchenko 1998), and reach the port of Pattala. According to Arrian, the city was located at the apex of the Indus delta and the region of Pattalene (Wilhelmy 1968: abb. 3). At

Pattala the river bifurcated into an eastern and a western branch, both of which were explored by the king before Nearchus's fleet began to move down to the Great Sea (Arrian, *An.* 6.18.2).

We know that the Indus flew some 25 miles east of its present course in the 4th century B.C. (Lambrick 1986: map 3). This fact makes the location of Pattala at, or near Hyderabad or Thatta unacceptable. Around 1770 A.D. the river bifurcated just north of Hyderabad (Wilhelmy 1968: abb. 3) and, after moving slowly westward, it reached its present position around 1758 A.D. (Memon 1959). Just south of Hyderabad its course was interrupted by rocky barriers (Postans 1843: 18), to form a long island including the high Palaeocene-Eocene sedimentary terrace of Ganjo Takkar that elongates in a north-south direction (Bannert *et al.* 1992).

Thatta is an even more improbable location because the city lies too close to the Arabian Sea. The Indus flew *ca.* two miles east of the city still 300 years ago (Smyth 1919: 110). Thatta stands a few miles northeast of the Makli Hills that were lapped by the westernmost branch of the Indus in Alexander's times (Wilhelmy 1968: abb. 3). This impression is supported also by the data gathered during the surveys carried out by N. C. Majumdar (1934: 19). He described the 16th century A.D. city of Kala Kot (or Kalan-Kot or Tughlikabad), some 5 miles south of Thatta, at the southeastern edge of a lake, formed by an ancient riverbed of the Indus (Raverty 1979: 321) (Fig. 10.1). All the area around Kala Kot was accurately surveyed in 2012 and 2014. A few shell middens made of fragmented mangrove gastropods were recovered at the top of a terrace some 130 feet high, radiocarbon-dated between 6320 ± 45 (GrN-32464: KK-2) and 5270 ± 40 uncal B.P. (GrA-50324: KK-3). The results suggest that freshwater was available in this part of the hills for at least one millennium during the Neolithic and Chalcolithic. The Arabian Sea coastline started to retreat from the area during this period. Soon later mangrove swamps began to flourish. The aforementioned surveys did not yield any evidence for early historic remains all over the surface of the Makli Hills.

Other data suggest that mangrove swamps were still growing somewhere below Kot Raja Manjera (Kaffir Kote), just a few centuries later, around the beginning of the Bronze Age. The archaeological site is located at the top of a limestone terrace *ca.* 100 feet high, overlooking a dry bend of the Indus, some three miles southwest of Jherruck (Khan 1979a: 6). One *Terebralia palustris* mangrove shell recovered from its surface (KRM-13) was AMS-dated to 4635 ± 35 uncal BP (GrA-47083) (Biagi 2010). The site yielded evidence of Chalcolithic and Bronze Age occupations, as well as the remains of Buddhist stupa of the 5th century A.D. (Cousens 1929: fig. 17), although it did not produce any find of the early historic period (Khan 1979a: 7, table 1).

In contrast with the opinions expressed by many of the aforementioned authors, H.T. Lambrick locates Pattala "*in the south of Nawabshah Taluka*" (Lambrick 1986: 111; map 3), and P.H.L. Eggermont some 35 miles northeast of Hyderabad, and 20 miles south of Brahmanabad (Eggermont 1975: 27, map 2).

3. Indus Delta, Alexander's Haven and Ladies' Pool

In his *Anabasis of Alexander* Arrian narrates the journeys of the king first along the western, and then the eastern branch of the Indus, and the difficulties he faced during his voyage down to the Great Sea. In his report regarding the western branch he mentions the island of Cilluta, and later another island located farther south, in the open sea (Arrian, *An.* 6.19.4). The same is reported by P.H.L. Eggermont as the "island in the sea" (Eggermont 1975: 28, map 2). At present, it consists of 5–6 limestone hillocks rising from the alluvium, some 26.5 miles southeast of Thatta. The largest, 115 feet high, is called Oban Shan (or Aban Shah, as reported by Blanford 1880: 165), *ca.* 40 miles north of the present coastline. Muslim shrines and tombs stand on the top of all hillocks (Fig. 10.2).

During the 2010 fieldwork season, aimed at the definition of the chronology of the Indus fan, just a few marine shells and one fragment of *Terebralia palustris* mangrove gastropod were collected from one of the above rocky outcrops *ca.* 7m above the sea, at 24°22'18"N–67°58'21"E. The specimen, AMS-dated to 3790 ± 35 uncal B.P. (GrA-47082) (Biagi 2011: 528), shows that during the Bronze Age, roughly one thousand years before the visit paid by Alexander, mangrove forests were already present somewhere around the island.

The voyage of Nearchus from Pattala is described in detail by W. Vincent (1797), who followed Arrian's *Indiké* (8.21.2-6). The same was later commented by P.H.L. Eggermont (1975: 33–56). According to the latter author, Nearchus left Pattala docks at the end of the summer monsoon season (Romm 2005a: 256, 6.21.1a), more precisely on 21st September 326 B.C. (McCrindle 1979: 84, note 2). On that day, the admiral directed his fleet, down along the eastern branch of the river. At its southernmost edge, he anchored at a sandy island called Crocala. He left Crocala the day after, turning west along the shoreline as far as the market town of Barbarikon (Schoff 1974: 37) that P.H.L. Eggermont interpreted as Alexander's Haven (Eggermont 1975: 37).

Eggermont's idea is most probably correct for the following reasons:

1. Barbarikon is located just one day's trip west of Crocala leaving the coast of Pattalene to the right (north);
2. from this region Arrian reports only low-lying islands;
3. according to the *Periplus* (38) (Schoff 1974: 37) Barbarikon was located at the mouth of the only navigable, central mouth of the Indus. Here Nearchus stopped for 33 days, and surrounded his camp with a stone wall, as he always did whenever he stopped (Arrian, *Ind.* 8.21). Arrian reports that the sea was very rich. His sailors fished razor-fish, and gathered large oysters and mussels.

Given that other places have been suggested for Alexander's Haven, this point needs further discussion. According to other authors Alexander's Haven lies at the eastern

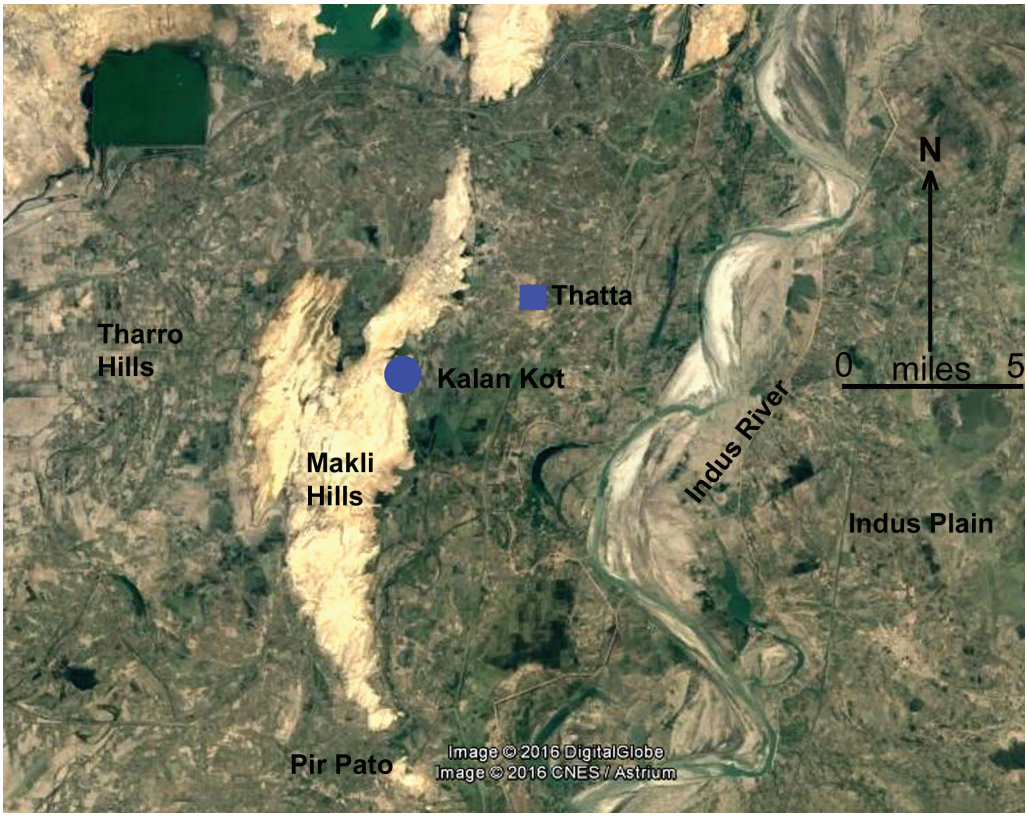

Figure 10.1: The Makli Hills that elongate west of Thatta and the River Indus, with the location of Kala Kot (blue dot) and other important places in the region.

edge of a limestone terrace called Tharro Hills, two miles southwest of Gujo, some 11 miles west of Thatta (Kevran 1995: 294; Ibrahim 2000–2001). They assume that Nearchus moved his fleet along the westernmost branch of the Indus, following the present-day course of the Gharo Creek (Haigh 1894: 12), which is suggested to have ceased to be an arm of the Indus recently (Holdich 1910: 153), leaving west (right!) a hill called Irus (Eiron). M. Kevran interprets Eiron as a mountain at the southeastern corner of Sindh Kohistan, and the low hill reported by Arrian as the Makli Hills. Nevertheless, the above interpretation does not fit into the general picture of the morphology and hydrography of the region suggested by H. Wilhelmy for the 4th century B.C. (Wilhelmy 1968: abb. 3).

The geography of the territory is quite different from that summarily described by M. Kevran. At present from Hyderabad to Thatta the Indus flows almost parallel to the easternmost flat-topped limestone terraces of Sindh Kohistan (Tremenheere 1867, map). In contrast the Makli Hill elongate for 14 miles in a north-south direction just west and southwest of Thatta (Smyth 1919). They consist of *Alveolina* limestone deposits, gently sloping to the west and southwest (Blanford 1880: 153). The easternmost edge

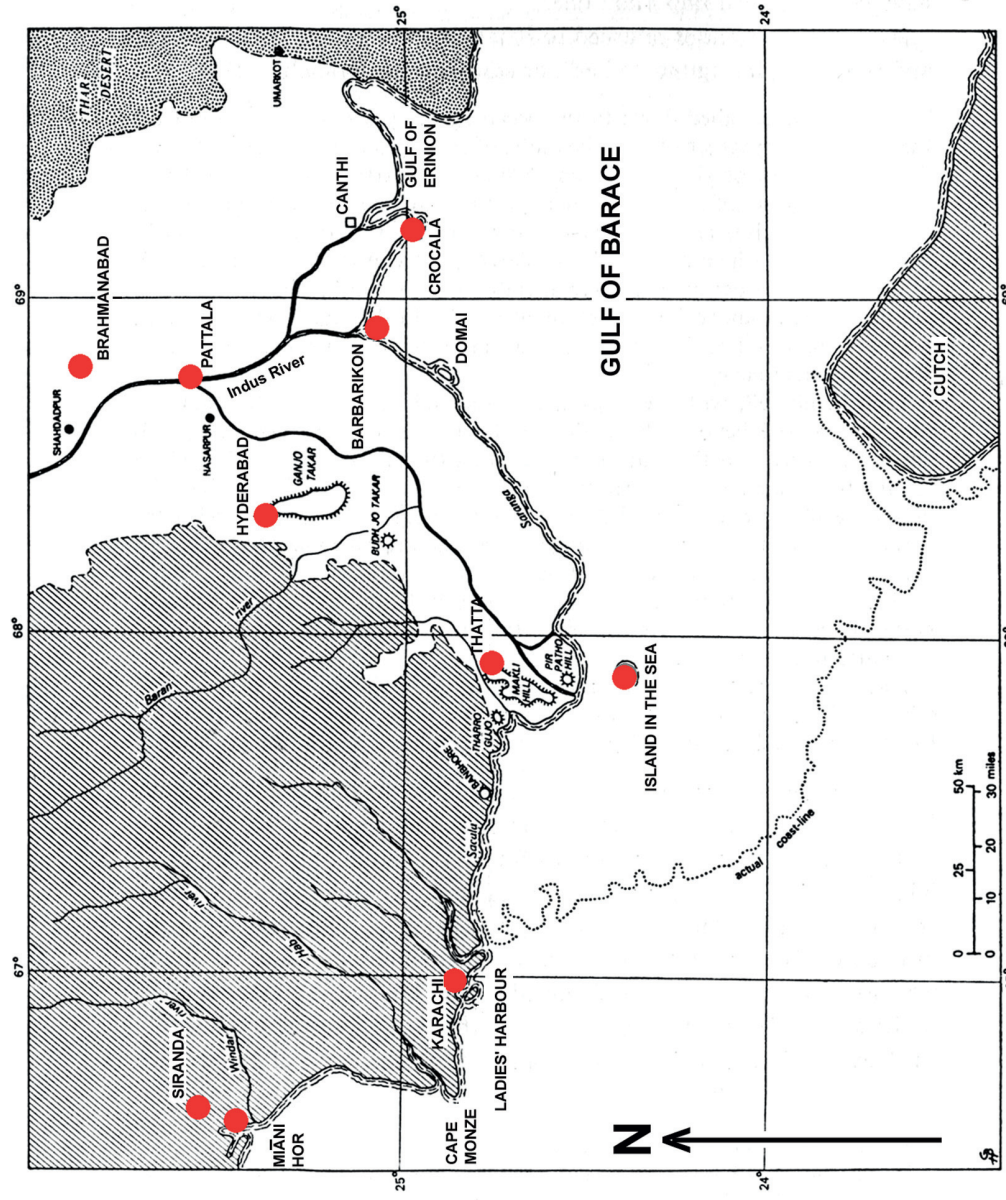

Figure 10.2: The Indus delta and Las Bela coast at the time of Alexander with the indication of some of the key locations (from Eggermont 1975, map 2).

of the Makli Hills reaches a maximum height of some 150 feet. Here spotted traces of Neolithic activity have been recovered and radiocarbon-dated (Biagi 2011).

"To the west of the Makli Hills there are several small scattered rises in the alluvium" (Blanford 1880: 154). Among them are the Tharro Hills that elongate in northeast-southwest direction (Fig. 10.3). The hills are *ca.* 1650 yards long and 480 wide. At their northeastern edge is a double, ring-shaped stonewall. The wall is continuous, though partly collapsed. It does not have any interruption or entrance, as erroneously reported (Kevran 1995: fig. 11B). Most authors consider the Tharro Hills a unique Chalcolithic, Amri Culture settlement. It is fortified as most sites of this culture and period (Khan 1979a: 7). "*Innumerable*" chipped stone tools and also potsherds characteristic of this aspect are scattered on its surface (Majumdar 1934: 20; Fairservis 1975: 174).

M. Kevran correctly reports the presence of oyster shells at the eastern edge of the Tharro Hills. In effect oysters recur with thousands of small (and not large!), decoloured specimens in some parts of the walled site. Other species are represented by *Terebralia palustris* and *Telescopium telescopium* mangrove gastropods, but no mussels. A thick layer of marine and mangrove shells was located inside the inner wall of the site. Two samples of Ostreidae and *Terebralia palustris* collected from the same spot were radiocarbon-dated to 5240 ± 40 (GrN-27053: THR-1) and 5555 ± 35 uncal B.P. (GrA-47084: THR-3) respectively.

The Tharro Hills, like all the other limestone outcrops that rise from the alluvium between Gujo, in the west, and the Makli Hills in the east, were surveyed between January 2008 (Biagi and Franco 2008) and August 2013. The surveys led to the discovery of another scatter of small Ostreidae (THR-2) *ca.* 760 yards southwest of the Chalcolithic site, dated to 6910 ± 60 uncal B.P. (GrN-32119). The above data show that the island was first visited around the middle of the 5th millennium cal B.C., and that a Chalcolithic settlement was later established during the 4th millennium cal B.C. The presence of oyster shell scatters covering some parts of the inner wall is also remarkably important because they demonstrate the Chalcolithic age of the structure (Fig. 10.4).

A few mounds are still well preserved inside the inner wall, at the eastern edge of the site. They yielded fragments of red-slipped, and brown and black painted pottery, characteristic of the Amri Culture. Behind the outer wall, clustered around it, there are many mounds and stone heaps oriented in north-south and east-west direction. N.C. Majumdar, who reports the presence of 100 such structures, excavated just one, inside which he found a high-pedestalled dish, and no human bones. He attributed the finds to the Chalcolithic or Bronze Age period (Majumdar 1934: 21). The Tharro Hills never yielded any evidence of early historic occupation. The ruins of an old Hindu temple, locally called Hāt, are still visible close at the northern edge of the terrace.

E. Kevran described another small rocky outcrop some 1,300 yards to the south of the Tharro Hills. On its surface she noticed the presence of a small Islamic cemetery (Kevran 1995: 297). The above terrace is locally called Beri (boat in Sindhi) because

of its shape (Begum 1984: 183). Beri is another prehistoric settlement, the surface of which is covered with chipped stone artefacts, and fragments of marine and mangrove shells dated to 5960 ± 50 uncal B.P. (GrN-32166) from a sample of *Terebralia palustris* gastropods (Biagi 2010: 9, figs. 16–18). Strangely J. Romm absolutely misled the location of this "island" (Romm 2005a: 255, 6.19.4a).

It is very strange that all the above authors never mentioned the highest and most visible elevation in the region, located between the Tharro and the Makli Hills, called (Jabal) Shah Husein. The hill, ca. 100 feet high, is well known to the local villagers because of the white shrine built on its hilltop, and the large, monumental 16th–17th century A.D. cemetery that covers most of its western slope. Also this hill is rich in prehistoric sites radiocarbon-dated to the Neolithic period from fragments of *Telescopium telescopium* mangrove shells that abound at many places up to the hilltop (Biagi 2010: 10, figs 20–22).

To sum up: the present evidence does not support M. Kevran's interpretation of Alexander's Haven at the Tharro Hills. Barbarikon, a few miles west of the ancient Gulf of Erinion is a more reliable location, which is supported by Arrian's *Indiké*, the *Periplus* and Strabo's *Geography* (15.2) (Hamilton and Falconer 1903; Eggermont 1975: 37–45).

Nearchus's voyage from Barbarikon to Ladies' Pool (or Harbour) is even more difficult to follow because of the little information provided by Arrian (*Ind.* 8.22.4–10). Another problem is due to the uncertainly-defined length of the *stadiòn* employed by Hellenistic navigators (Gulbekian 1987). Following Arrian's description the Macedonian fleet landed inside Karachi harbour (Rustomji 1952), as already suggested by M.R. Haig, that is still nowadays the best anchorage along the north Arabian Sea coast (Haig 1894: 42). A. F. Baillie provided us with a detailed description of Karachi harbour before Charles Napier (Baillie 1890: 12–22, map 2), though this author confuses Crocala with Karachi, as well as the sandy islet at the entrance of the port, following the description given by W. Vincent *et al.* (1807: 192) (Fig. 10.5).

4. Across the Hab River (Arabis), around Cape Monze (Ras Muari)

According to T. Holdich, Alexander left Pattala around the beginning of September 326 B.C. in a "*cool monsoon weather*" (Holdich 1910: 148). He moved first toward the country of the Oreitai, and then Gedrosia, present-day Makran (Hughes-Buller 1907). The same author reports that the king followed the "*medieval route which connected Makran with Sind in the days of the Arab ascendancy, a route that has been used as a high-way to India for nearly eight centuries*" (Holdich 1910: 148), although "*he did not know his way out of India*" (Holdich 1910: 147). The aforementioned medieval route is shown in T. Holdich's map. Although summarily traced, the track started from Debal, in the Indus delta, passed through Khur, close to the eastern bank of the Malir River, and crossed the mountains near a locality called Manhatara, some 30 miles east of the Hab (Arabis) River.

Figure 10.3: Tharro Hills: the terrace with the location of the Chalcolithic site surrounded by a double stonewall at the easternmost edge of the limestone terrace. 1) THR-2; 2) THR-1 and THR-3; blue) shell scatters; black) lithic scatters; red) mapped potsherds; white) ash concentrations; yellow) circular mounds (after Biagi and Franco 2008, with variations).

Figure 10.4: Tharro Hills: the northern part of the inner stonewall covered with oyster seashells (photographs by P. Biagi).

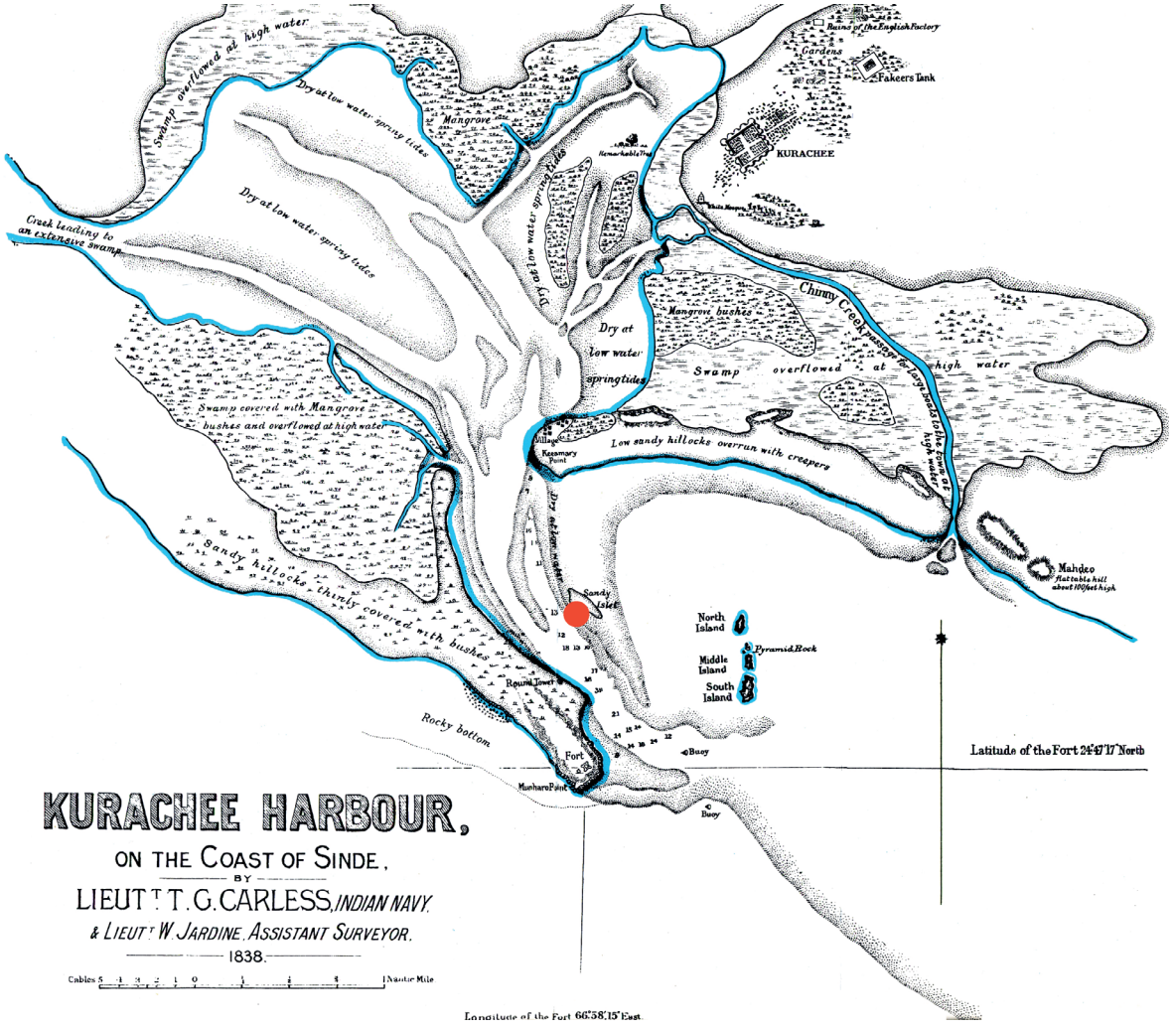

Figure 10.5: Karachi: plan of the Harbour as it was before Charles Napier in 1838, with the location of the suggested Nearchus' landing place (red dot) (from Baillie 1890, map 2).

H.T. Lambrick suggested quite different route. According to this author from Pattala the king moved straight to the southwest to reach Sindh Kohistan, where perennial springs are numerous (Flam 1987: 10), and the course of the Malir that flows down to Karachi Gulf. After crossing the river, he moved northwest toward the Hab somewhere north of Sona Pass, and then he turned southwest down to the Bay of Gadani along the Arabian Sea coast (Khan 1973). From there Alexander pushed his army north, to Las Bela plain and then reached Rhambakia (Lambrick 1996: map 3).

Arrian left a summary account of this part of Alexander's march. As usual his geographic description is absolutely insufficient, and the use of changing the local names into Greek-like ones, disastrous (Court 1839). Except for the cross of the Arabis, he did not provide us with any detail of the region. He simply reported that part of the route was made at night (Arrian, *An.* 6.21.3 and 5). From his text, we can assume that he had little or no idea of the complexity of the territory, and that he did not really know the track followed by the Macedonian troops. To make an example, if the king moved straight west from Pattala to reach the flat-topped Khirtar terraces that elongate west of the Indus Plain, undoubtedly an uneasy march in the late monsoon period, it is difficult to understand why Arrian did not mention the richest freshwater supplies of the entire region, namely Sunehri Dhandh and Kalri Lake (nowadays Keenjhar Lake) (Blanford 1880: 151; Zuberi 1973).

Reading Arrian's chronicles it is even impossible to understand where, and how, the army crossed the Pab Range (or Lakki Hills) that borders Karachi Basin in the west (Snead 1969: map 1B; Khan 1979a, map). At present the only way is through a saddle called Sona Pass (Khan 1979b: 23). West of it, along the slope down to the Hab River Valley, gush a few springs that were exploited since the beginning of the Holocene. The same can be said of the river itself, that Arrian described narrow and poor in water, as it often happens in the winter (Arrian, *An.* 6.21.4), though perennial (Stein 1943: 198). After crossing the river Alexander continued his march to the west, as far as the country of the Oreitai (Arrian, *Ind.* 8.25.2), where he encamped "close to a small sheet of water" (πρὸς ὕδατι οὐ πολλῷ, Arrian, *An.* 6.21.5) (Fig. 10.6).

The water sheet reported by Arrian is most probably Lake Siranda (Stein 1943: 214), located at the south-westernmost edge reached by monsoon rains (Siddiqi 1956: 14; Snead 1966: fig. 4). Its basin is seasonally filled with monsoon waters that, in some places reach a maximum depth of 10 feet during the summer (Pithawalla 1952: 33). Siranda is very important because north and west of it extends the plain of Las Bela (Lus), and then Gedrosia, just behind the Haro Range (Stein 1931; Snead 1969: map 1B). This country is almost waterless. Alexander crossed it with extreme difficulty and a great loss of both men and animals, most perished because of shortage in drinkable water and incredible heat (Arrian, *An.* 6.25.1–5). Still nowadays, similarly to what the Macedonians always did when water was scarcely available, in some areas people dig small pits for drinking water that soon becomes salty and undrinkable; while in the rainy season water is collected in pits or wells opened into the river beds (Hasan 2002).

Apart from the usual scarce information provided by Arrian, the best description of the region is that written by Sir Aurel Stein. He tried to define the route followed by Alexander through Las Bela and Makran (Gedrosia), and also commented on many important topics put forward by T. Holdich (1910) and J.W. McCrindle (1992) (Stein 1943).

After leaving Ladies' Pool, Nearchus moved along the coast of Sindh, circumnavigated Cape Monze (Ras Muari) (Fig. 10.7), and landed at the mouth of the Hab (Arabis) River, most probably where the present-day village of Sonari is located (Biagi and Nisbet 2014). Arrian describes this region waterless. Nearchus had to move 40 stadies inland to find a water hole. Two radiocarbon dates obtained from samples of *Terebralia palustris* shells indicate that mangrove swamps were flourishing at the Hab River mouth during Bronze Age (PSJ-1)(4130 ± 20 uncal B.P.: GrN-26370) (Biagi 2004), and sub-recent periods (18th century A.D.)(SNR-2)(670 ± 50 uncal B.P.: GrA-59834).

From the Hab River Nearchus proceeded along the coast inhabited by the Oreitai as far as a river flowing into a lagoon (Arrian, *Ind.* 8.24), most probably Miāni Hor (Sonmiani Lagoon). Nowadays the Winder River flows into it at the right (eastern) side of its mouth, less than two miles south of Sonmiani village made of stifling cabins (Pottinger 1816).

Arrian reports the great difficulties suffered by Nearchus during the voyage, and the way the fleet lost two ships because of the rough sea, while others had to be promptly repaired. His description of this part of Las Bela coast is again poor and imprecise. In effect, he did not report even on any of the headlands and anchorages available in the region, Gadani for instance (Khan 1973). The general impression is that all the complex territory crossed by Alexander as far as the country of the Oreitai, and the coastline along which the fleet moved as far as Miāni Hor (Minchin 1907; Snead 1966) were absolutely unknown to the Macedonian officers.

Lieutenant H. Pottinger made the same journey on 15th January 1810. After leaving Karachi port, his boat passed between Cape Monze (Mowaree) and Churna (Chilney) Island to enter Miāni Hor at the end of the same day. He anchored the day after just inside the entrance of the lagoon, two miles southwest of Sonmiani village, "on the bar of the Poorally River" (Pottinger 1816: 9). The channel leading into the lagoon is described "extremely narrow", with a depth of 16–17 feet at high tide, impossible to enter during the south-west monsoon season (Hughes 1877: 129) (Fig. 10.8). In effect, we do not know where the mouth of the Porāli River was located at the beginning if the 1800s. We know that the river moved his seasonal course westward, where it is at least since the end of the century when the lagoon began to fill and mangroves to spread from west to east (Snead 1966: fig. 21). Also the entrance of Miāni Hor changed repeatedly and significantly during the last two centuries (Snead 1966: fig. 24).

Figure 10.6: Lake Siranda: central-eastern shore of the lake in January 2013 with shallow filling waters. The dunes that separate it from Miāni Hor are visible in the background (photograph by P. Biagi).

Figure 10.7: Cape Monze (Ras Muari) from Mubarak village during the summer monsoon season, August 2013 (photograph by P. Biagi).

Figure 10.8: Miāni Hor: the entrance of Miāni Hor at low tide close to the village of Damb. Mangrove forests are visible in the background (photograph by P. Biagi).

Figure 10.9: Miāni Hor: mangrove forests at the southeastern edge of the lagoon (photograph by P. Biagi)

5. Freshwater at Lake Siranda? Mangroves at Miāni Hor?

As mentioned above, Alexander most probably camped at Lake Siranda, the largest water reservoir of Las Bela, after a march of some 50 waterless miles after crossing the Hab River (Stein 1943: 214). The lake is seasonally filled with monsoon waters, as well as those of the Watto River that flows from the Mor Range. The "lake" is an oval depression, nine miles long and two wide, formed by the progressive regression of the ocean. Its waters are "*brackish but is drunk by the cattle of the neighbouring villages*" (Minchin 1907: 10).

The discovery of dozens of shell middens shows that between the end of the 8th (SRN-43)(7200 ± 35 uncal B.P.: GrA-54290), and the middle of the 5th millennium B.P. (SRN-57)(4315 ± 35 uncal B.P.: GrA-57533) some of Lake Siranda shores were covered with mangroves seasonally exploited by shellfish gatherers (Biagi 2013; 2014). The same occurred along the coasts of the western Arabian Sea (Berger *et al.* 2013). Already during the Bronze Age Indus Civilization, the former lagoon had completely dried up, and life had ceased to exist along its shores forever.

Most probably around the end of the Bronze Age, or slightly later, the ancient lagoon started be seasonally filled with freshwater that soon turned into slightly saline because of the geological substratum of the region. This datum is reinforced by an AMS result obtained from one *Melanoides tubercolata* freshwater sample (SRN-2) (830 ± 30 uncal B.P.: GrA-57527). The "lake" conditions were most probably the same when Alexander reached Las Bela.

Both Arrian (*An.* 6.22.6) and Pliny (*Nat.* 4.13.51) (Rackham 1960) described *Avicennia marina* shrubs observed somewhere along the coast by Nearchus and his sailors. *Avicennia*, that characterizes the mangrove forests of the Arabian Sea tropical environment (Vannucci 2002), is a good indicator of freshwater, food and fuel supplies (Reid *et al.* 2008) that the Macedonians evidently did not know how, or had no possibility or time, to exploit. Many areas of the Indus delta coast, Las Bela, and Miāni Hor are spotted with mangroves (Campbell 1999; Saifullah and Rasool 2002; Baig and Iftikhar 2005) (Fig. 10.9). Their distribution changed through the time depending on climatic variation and presence/absence of sufficient freshwater supply (GIS LAB 2005).

6. Discussion

The few topics discussed above show that we know very little of the real track followed by Alexander. Even more poor is the evidence left on the field by his eventual passage (Possehl 1999: 403). All the deltaic and coastal regions accurately investigated by the Italian Archaeological Mission in Lower Sindh and Las Bela during the last decade did not yield any trace attributable to early historic of Hellenistic periods, among which are material culture remains, burials or even food residues. This fact is unique and needs further explanation.

The methodology applied during fieldwork consisted in the systematic radiocarbon dating of all the shell middens, shell heaps or shell scatters recovered during the

surveys, independently from their suggested age, and associated man-made artefacts (pottery, lithics, metal), when any. Special attention was paid to the occurrence of heaps made of fragments of mangrove gastropods (*Terebralia palustris* and *Telescopium telescopium*). These two species have a very thick, consistent shell, almost impossible to break if not hammered (Sriraman *et al.* 1987). They are ideal indicators of ancient mangrove environments eventually exploited by human groups up to the recent past. They are can also help define coastal variations consequent to seawater retreat. Mangroves are very delicate tropical environments that have always been exploited by human groups, because they provide freshwater, food and fuel (Lugo and Snedaker 1974; Bailey and Parkington 1988).

Some 100 ordinary and AMS dates have been processed from mangrove and marine shell samples recovered along the ancient coast between Kot Raja Manjera, in the north, and Lake Siranda in the west (Fig. 10.10). Strangely enough none of the results so far obtained fall into to the period discussed in this paper (Biagi 2004; 2010; 2011; 2014; Biagi and Nisbet 2014; Biagi *et al.* 2012; 2013). Another important point regards the boats/ships of Nearchus's fleet. We have just a short description from Arrian (*Ind.* 5.8.4), when Alexander crossed the Hydaspes River. The fleet probably consisted of 800 Greek type boats (Romm 2005b) of different size and weight, although a figure up to 2000 has also been proposed (Ray 2003: 169). They are definitively different from the Mohanna, flat-bottomed Indus boats (Shar 1984) of the type used also by Sir A. Burnes during his trip from the mouth of the Indus up to Punjab (Burnes 1834: 37). The Indus flat-bottom boats almost "slide" on the river surface. They have one rudder, steering roar and pennon-like strips (Begum 1984: fig. 1). This might be the reason why Alexander was so much in trouble when ebb tide occurred entering the ocean at the southernmost edge of the eastern branch of the Indus (Arrian, *Ind.* 6.19.1). Most probably Nearchus neither had suitable ships nor knowledge for navigating along both the Indus and the Indian Ocean (Bukharin 2012).

Another problem regards their repairing. Where did Nearchus find the material to repair them? Suitable trees do not exist in Las Bela (Minchin 1907: 16) and Makran (Hughes-Buller 1907: 28), and for sure they did not exist also along the sandy coast of Pattalene. Larger trees, among which are *Acacia arabica* and *Ziziphus* grow nowadays in the plain around Karachi (Siddiqi 1956), although only the latter might perhaps be used for repairing boats.

The last point concerns the fish-eaters or Ichthyophagoi (Arrian, *Ind.* 8.29). Repeatedly reported in the *Periplus*, they lived along the coasts of the Erythræn Sea. Although not so different from the Oreitai encountered for the first time at Miāni Hor (Arrian, *Ind.* 8.24), and soon defeated by Leonnatos. Some of them lived on fish, others in the interior. Their capital was Rhambakia, possibly present-day Bela, even though also this point is quite controversial (Hasan 2002).

How many were they? Where did they live? How many were slaughtered in the battle with Leonnatos, and how many escaped into the hills, given that no tangible trace of their existence has ever been gathered from the surveyed region?

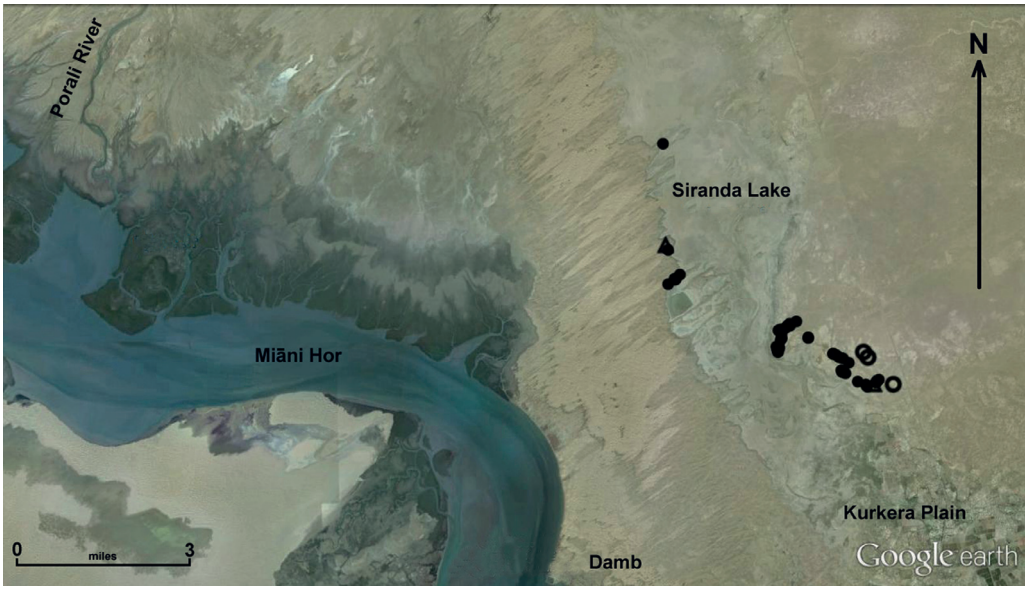

Figure 10.10: Miāni Hor and Siranda Lake: a general view of the area with the distribution of some of the radiocarbon dated sites along the ancient shores of Lake Siranda (symbols) and the location of the Khurkera Plain formed by the Windar River flowing into Miāni Hor just south of Sonmiani (original map from Google Earth; drawing by R. Nisbet).

Contrary to the evidence from the Oman Peninsula, where communities of fish-eaters are known until the 1960s, and lived either in simple cabins made of whale bones and wooden planks collected from the beach, or stone-walled houses built above marine shell floors, like Sharbitat or Shuwayhmyhya for example (Biagi 1988: 286; Ward 1987), M.U. Hasan reports similar living conditions along some remote regions of the Makran coast during the 1970s (Hasan 2002: 28). According to the data collected from Lower Sindh and Las Bela during the last ten years nothing indicates the presence of communities of historical/Hellenistic fisher-gatherers. The same can be said for the Makran coast (Besenval and Desse 1995). The only small fishers village of the Bronze Age has been discovered at Sonari, close to the Hab River mouth, a few kilometres northeast of Cape Monze (Biagi and Nisbet 2014). Thus, is archaeological record so perishable and easily vanishing?

The problems raised from this paper are just a few of the many that have not yet received a reasonable answer. The invasion of Alexander the Great was the most bloody and cruel ever suffered by Indian and north Arabian Sea communities before the occupation by another European army some 2000 years later (Outram 1846). Although conceived for quite different purposes, following quite a different strategy, they have some aspects in common (Strootman 2015). The absolute need of moving up and down along one of the most important waterways of the ancient world, known it, possess it,

utilize it, and find the best ways to cross it whenever and wherever necessary (Burnes 1834); navigate along a difficult coast in troubled sea waters, find anchorages, build ports and new infrastructures, and ultimately, though first, subjugate the natives in any fastest possible way (Napier 2001).

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