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ART. VII.—*On the Identification of Places on the Makrān Coast mentioned by Arrian, Ptolemy, and Marcian.* By Major E. MOCKLER.

DURING the latter part of 1876, I travelled along the Makrān coast from Gwādar to Jāsk, and as it appeared to me that the identifications of the various places on this coast mentioned by Arrian as having been touched at by Alexander's Admiral Nearchus, and others, mentioned by Ptolemy and Marcian, had not, up to the present time, been satisfactorily established by Dr. Vincent, Otter, Kempthorne, Müller, or, indeed, by any one who has touched on the subject, I collected all the names of places along the coast I could, and made notes regarding its physical aspect, in the hope of finding some traces of the spots mentioned by the geographers above alluded to, and which might be sufficient to fix their positions with somewhat more certainty.

In Dr. Vincent's exposition of the "Voyage of Nearchus," there is not after Kalama=Kalamat¹ any place, unless we accept Têsa=Tês (mentioned by Ptolemy and Marcian), whose site is conclusively established; on etymological grounds certainly not one, and on topographical grounds or by measurement few are even admissible. The identifications of Kempthorne on this part of the coast are supported by no arguments, while those of Müller, as given in his valuable compilation of Grecian geography, appear to me to be based on wrong premises.

¹ "Final "t" is constantly dropped in Balôchee.

The results of my investigations, though certainly not fulfilling the expectations I had indulged in at starting, are given in the following paper, and may perhaps prove not uninteresting, the more so that some of the conclusions arrived at differ a good deal from any previously noted.

A map of that portion of the coast under discussion, according to the most recent surveys, with additions and corrections by myself, is appended, which it would be well to compare with those found in the works of Dr. Vincent, Müller, and Wilson.

The following are the tests I employ for the identification of each place:—

1. Measurement, according to the distance given by the author quoted.

2. Topographical description.

3. Similarity of name.

The length of the stadium I take as about one-sixteenth of a mile, and, differing from Dr. Vincent in this respect, I believe that Marcian and Arrian used the same standard of measurement in their computation of this coast.

I commence by examining Marcian's itinerary, or rather a portion of it, and take as my starting-point Têsa, which can be none other than Tês. The order of Marcian's stages is from west to east, contrary to that of Arrian's. From Têsa=Tês to the Kandriakes river the distance given is 200 stadia= $12\frac{3}{4}$ miles: this distance, measuring along the coast-line, brings us exactly to a small torrent called Chandrishêp ("Shêp" in Balôchee means "a small torrent"), in the name of which Kandriakes will be recognized.¹ From the Kandriakes river=Chandrishêp to the promontory of Bagia, the distance given is 400 stadia=25 miles. Sailing along the coast the first promontory we come to is Cape Brês at 29 miles, and there is no other until we reach

¹ What is marked on the charts as the Kenj (properly "Kênzh"=blown sand) river, and with which Dr. Vincent identifies the Kandriakes of Marcian and the Tâmena of Arrian, is only a creek up which the sea runs for about a mile during the monsoon, and is at other times dry, with a natural "band" of sand thrown up by the sea and wind across its mouth (hence its name). Its depth never exceeds a few feet.

Nānjukānee, 19 miles further on; so that there can be no question as to the identity of Cape Brês with Cape Bagia, and the name itself is probably found in Bagānee¹ or Bagee, which is that of the highest point of the range of hills which terminates in Cape Brês. From Bagia promontory=Cape Brês or Bagānee, to the port of Kuidza the distance given is 250 stadia= $15\frac{1}{2}$ miles. The first harbour we come to is that now called Pasā-bandin,² 19 miles distant, which must necessarily therefore correspond with Marcian's Kuidza, his distance being $3\frac{6}{10}$ miles too little. Pasā-bandin is an excellent little harbour formed by an indenture in the rocky coast-line south of Gwatar, protected, on its south side, by a narrow strip of table rock, about 100 feet in height, ending in a point called Nānjukānee. On the summit of this table rock, about a mile from the head of the bay, I found the remains of a small town, in which I counted some 35 groups of houses or rooms. Some of these were arranged in a very peculiar manner; sometimes three or more rooms were in a crescent, touching each other, with another growing as it were out of the back; sometimes they were in concentric crescents. I opened a dozen of these rooms, and found all their floors strewn with the shells of shell-fish, generally with traces of fire. In two of the houses were fragments of coarse cooking pots, containing the charred vertebræ of fish; while fragments of finer pottery were found on the ground outside. In one house two round stones with flattish faces, having an indenture in each, and indentures round the rim, as if for the fingers, were found; these I imagine were stone hammers of a primitive form, used possibly for, and worn on their faces by, the process of breaking the shells of shell-fish, on which their owners were wont to dine. A small hone, and grinding-stones resembling those found in the ruins of undoubtedly

¹ "Bag" means a "herd of camels;" Bagān is simply the plural. Bagee kôh or Bagānee kôh=hill of camel herds.

² "Bandin"=harbour in Balôchee.

Gedrosian towns,¹ were also extracted, and afford an argument for the antiquity of these structures. The name of this place is Chideezei or Chideezow (*i.e.* the muddy spring), the transition of Chideezei into the Greek Kuidza being, as it seems to me, a simple one;² be this, however, as it may, Kuidza cannot be further on, since, to reach Pasābandin, Marcian's measurement has been exceeded by $3\frac{6}{8}$ miles, and it cannot be further back, because there is no other port between Pasābandin and Brēs=Bagia. This will be also found to answer correctly to Arrian's description of Kuidza, in that it is rocky, surfy, and utterly barren.

From Kuidza=Pasābandin or Chideezei to the promontory of Alambāter or Alabāgia, the distance given is 400 stadia=25 miles; this distance, measuring along the coast-line, brings us exactly to Rohām point, or Kipalow, or Kipala, as the rocky headland is called. The promontory of Alambāter, or Alabāgia, formed the eastern extremity of the "Paragon sinus," and, off it, was said to be an island called Pola, or Pala, or Palow. That Kipalow, or the neighbouring point now called Rohām (or Rujām by the Mēds=fishermen), was the Alambāter or Alabāgia of Ptolemy and Marcian, had it not been led up to by absolute measurements, as already shown, a glance at the map would immediately suggest; for it is clear that this cape is the southernmost of all those on the coast, that, in fact, *down* to which the coast-line trends from the westward (from Karpella=Koh Mubārak, the other extremity of the "Paragon sinus"), and *up from* which it trends to the eastward; and, therefore, that it cannot be the Gwādar headland, as fixed on by Dr. Vincent, an identification made by him with no argument except that "it forms the most conspicuous feature on the whole coast." In fact, his suggestion that "it forms the termination eastward of a vast

¹ I found an Arsacide silver coin in the ruins of one of the best-preserved of these cities, which might place the probable date of its occupation some 150 years B.C.

² I may mention that this hill is full of "springs" ("zow" or "zei"), and may possibly have been called Koh-i-zei="the hill of springs," or Kuidza.

imaginary bay which Ptolemy calls the 'Paragon sinus,' is not the fact, moreover is not so even on his own chart. Dr. Vincent's reason for fixing Alambāter at the Gwādar headland will be seen hereafter. The name Alabāter or Alambāter may perhaps be found in Libātee, which is marked on the map a short distance from the point. Libātee is, I am told, only a Balôch corruption of Alwādee="the valley," the name given to the place by the Arabs, and in both Alabāter and Alabāgia the "Al" is only the Arabic definite article ال "the": possibly, Alabāgia may be preserved in the name of a small stream, the land adjoining which, a couple of miles inland, is still called Bāg. There is no garden here, as the name might lead one to suppose, and I was assured that there had not been one there for the last 300 years or more, that is, during the occupancy of the present "Lords of the Manor;" so the name may be an old one. The Arabic Alwādee, as preserved in Libātee, may be, after all, the most probable derivation of Alabāgia also.

Off the point, some distance out to sea, there used to be an island, now covered by water, the presence of which, however, is still shown by breakers; in the name of this headland Kipalow, or Kipala, I would venture to suggest a trace of the island called Pola, or Pala, by the Greeks. From Alambāter, or Alambāgia=Rohām point to Derānabila (Derānê billa or Moderānibêla) the distance given is 250 stadia=15 $\frac{1}{8}$ miles. 14 miles brings us into the bay of Ganz, to the foot of the road up to the site of an ancient town called Darān, marked by the existence of some of the peculiar sepulchral monuments of the Gedrosii (described by me in a former paper). "Bila" in Balôchee means a "small hill," and, at Darān, there is a solitary hill on the plateau, which may well be a conspicuous object, as seen from the sea, through an opening in the rocky coast-line. Darāna-bila in Balôchee means the "small hill of Darān." I ought not, perhaps, to omit to mention the existence of a long hill behind and overlooking Darān, called the "Môl," as there is a reading of the name

of this place "Moderānibēla," which may not impossibly have some connexion with it. Off Derānabila was said to be an island called Kārmina or Karbinê; and, in front of the opening in the coast-line before alluded to, immediately south of Darān, there is, some distance out at sea, a large rock or island, covered by water, the presence of which, however, is marked by breakers. It is called Kaheerband. Kaheer (sometimes pronounced Kāhir) is a species of acacia, and Kaheerband means therefore a place, the position of which is marked by a transit observation with a Kaheer tree on some point on the mainland. I believe no such tree now exists. The etymological resemblance of Kaheerband or Kāhirban¹ with Kārbinê or Kārmina is certainly striking, though I do not suppose there is really any connexion between them. Ganz was without doubt the harbour of Darān ("bila," as already explained, means "a small hill"), and still continues to be. On the south side, close to Darān, it is impossible to land, except in very calm weather, and nearer than Ganz there is no way up to the plateau on which Darān stands, or rather stood.

From Derānabila=Darān or Darānabila to the port of Kôphas is 250 stadia= $15\frac{1}{2}$ miles. This distance brings us round Cape Mānbar, almost exactly into the harbour of Pishikān, which is probably the port indicated by Marcian; it might, however, have been the harbour of Trapabandin, about two miles further, into which a river called the Passa,² or Passow, falls. The present Koh Pasa is some distance inland (two miles or more). That there was an extensive settlement of the Gedrosii in the neighbourhood of these two bays, is marked by the existence of a vast number of cairns on the hills in their vicinity. The identification by Dr. Vincent and Müller of Kôphas with Ras Koppa might of course be etymologically possible if there were any such place. The proper name of the place, however, to which they allude, nearly 30 miles to the east

¹ Final "d" is often dropped in Balōchee.

² "p" and "f" are interchangeable in Balōchee, and the transition sound of "pf" is also met with, and his very name is pronounced Pasa and Fasa and Pfasa.

of Gwādar, is Kappar; but this is four or five miles inland, and I do not think any philologist would think of changing Kappar into Kôphas.

From the port of Kôphas=Pishikān bay (or Trapabandin bay) to the Zorāmbus river, the distance given is 200 stadia = $12\frac{1}{2}$ miles. This distance brings us to the river now called Ankāra or Ankārow, which has its rise in the Darāmb درامب or (old Persian) زرامب Zarāmb hills, perhaps, when Marcian wrote, called the Darāmb or Zarāmb or Zorāmb river: with this, therefore, I have not the slightest hesitation in identifying the Zorāmbus of Marcian.

From the Zorāmbus=Ankārow river to Bādara, the distance given is 250 stadia = $15\frac{1}{2}$ miles. This distance, though about $1\frac{1}{2}$ miles in excess, brings us to the anchorage in the west bay of Gwādar, about a quarter of a mile from the present town, and it is at once apparent that Gwādar(a) and Bādara are identical, since the two names are really the same. The change of "b" into "gw" is one well known to philologists, and fully exemplified in the Balôchee language, as, for instance:—Persian *bād* 'wind,' Balôchee *gwāt*¹ 'wind'; Persian *bāzee* 'play,' Balôchee *gwāzee* 'play'; Persian *bāng* 'a shout,' Balôchee *gwānk*² 'a shout'; Persian *bāfta* 'woven,' Balôchee *gwāpta*³ 'woven,' etc., etc. It is a matter of some astonishment to me that this etymological identity of the names Bādara and Gwādar has not, as far as I am aware, been noted before; the more so, that actual measurements from Tès leave no doubt that Gwādar and Bādara are one and the same place.

Marcian's next station is Mosarna, distant 300 stadia = $18\frac{3}{4}$ miles from Bādara. The position of Mosarna I propose to discuss after we have followed out the itineraries of both Nearchus and Marcian along the whole length of the coast.

We will now turn to the itinerary of Nearchus. I have said that the last place on the coast whose identity is established with certainty by Dr. Vincent is Kalama =

^{1 2 3} It is hardly necessary to say that "d" and "t," "g" and "k," "f" and "p," often change into each other.

Kalamat, from which place to Mosarna no distance (Kysa follows Kalama at 200 stadia) is given, but the fleet is said to have sailed thence round a certain high promontory stretching 150 stadia= $9\frac{6}{16}$ miles into the sea, and which promontory can be none other than that now known as Koh Zarên. As to whether the name Mosarna is really preserved in Koh Zarên, as suggested by Müller, I shall not now stop to consider, but take it as probable that the Mosarna of Arrian was just round this cape, from which place, as a starting-point, we will proceed to take measurements.

From Mosarna to Balomus is stated to be 750 stadia=47 miles (nearly), and measuring from Koh Zarên on the map, 47 miles brings us to the mouth of the Baṛambāb river. Baṛam might certainly pass into Balom, and "bāb" signifying "a door" or "gate," the whole word might signify the "gate" or "outlet" of Baṛam, or Balom, which was possibly the name of the coast.

From Balomus=Baṛambāb to Bārna is 400 stadia=25 miles, which is the exact distance from Baṛambāb to Gwādar, with which place I have no hesitation in identifying it. The Bārna of Arrian, and the Bādara of Marcian, have been pronounced by almost every commentator to be the same place, and viewing the question by the light of the identification now laid down of Bārna with Gwādar, it appears that they really are identical, for Gwādar and Bādara have been proved to be the same place. Gwādar or Bārna, at the time of Nearchus, appears to have been a thriving and, for the Gedrosii, luxurious little town, with its gardens and palm-groves, and it now is the principal seaport town on this coast; but the sea has undoubtedly encroached on its former limits, and probably now covers deeply the site of the town visited by Nearchus; palm-groves and part of the town as it stood only 100 years ago are now never uncovered by the sea.

The present town of Gwādar is built on a narrow isthmus of sand, now only half a mile across, terminating in a rocky headland from 200 to nearly 500 feet in height, by some

eight miles in length, which trends at right angles across it from east to west. Two bays, one on either side of the isthmus, are thus formed between the headland and the mainland, which bays, in the time of Nearchus, were, I believe, of but comparatively small extent, though doubtless large enough to form harbours sufficiently convenient to account for the civilization and prosperity of the town as noted by Arrian.

Topographical identification is also not wanting, for on leaving Bārna=Gwādar, the term *περιπλωσαντες*, "sailing round," is used to denote the course of the fleet, which refers most certainly to the headland of Gwādar. Dr. Vincent notices this term also, but conceives it to refer to the Darāmb hills, 25 miles inland, the position of his Bārna being on a straight coast-line.

From Bārna=Gwādar the fleet is said to have gone 200 stadia= $12\frac{1}{2}$ miles to Derenobosa, which has hitherto been considered as identical with the Derānobila of Marcian. I do not think so. The distance given by Arrian would place Derenobosa at the western extremity of the Gwādar headland. I can find no trace of the name here, but it is said that there was formerly a large island at a short distance from this point; it is stated, indeed, that the flocks of the town used to be taken there to graze, almost within the recollection of the present inhabitants. Perhaps the ancient name of this island or place, for it was probably a continuation of the headland, was Derenobosa, and I am somewhat inclined to believe that such is really the case, from the distance given between this position and the next stage. $12\frac{1}{2}$ miles measured along the coast from the west bay would place Derenobosa exactly at the Ankārow river, which we have already identified as the Zorāmb or Darāmb river of Marcian. There is some similarity between Derenobosa and Darambus, but the distance given to the next stage appears to negative the supposition that they are the same.

From Derenobosa=west point of Gwādar headland, to the port of Kōphas, the distance given is 400 stadia=25

miles; and measuring along the coast this distance exactly brings us to Pishikān bay, which we have already identified as the Kôphas of Marcian, and so affords an additional argument for the correctness of the identification.

From Kôphas=Pishikān bay to the port of Kuidza, the next stage, the distance given is 800 stadia=50 miles; this distance, measuring along the coast, brings us very nearly into the harbour of Pasābandin, or Chideezei, with which we have already identified the Kuidza of Marcian. Kuidza is described by Arrian as rocky (or surfy) and barren, and inside and outside the harbour of Pasābandin the shore is both rocky and surfy and barren, with a nasty landing, except at low tide, thus answering to Arrian's description of it. Dr. Vincent places Kuidza at Gwatar, and the next stage, viz. the promontory of Bagia, at Nānjukānee¹ point; but the distance from Gwatar to Nānjukānee is 8 miles = 128 stadia, that from Kuidza to Bagia, as given by Arrian, is 500 stadia=31 miles; so that Bagia at Nānjukānee, at any rate, can hardly be correct. By Marcian's measurements Bagia has been identified with Cape Brês, about 28 miles from Gwatar, which accords better with Arrian's measurement; but it will be presently shown that even with Kuidza at Gwatar (and it cannot be placed further east), it is impossible to make Arrian's measurements along this portion of the coast fit in, and I feel very sure that Arrian's Kuidza is identical with Marcian's at Chideezei or Pasābandin, and his Bagia with that of Marcian at Brês.

It may perhaps occur to some to argue, in face of the difference of 8 miles against 31, that the small town plundered by Nearchus, and placed just here by Dr. Vincent, is that I have described as having stood on the plateau above Pasābandin, but this is not probable, since that of

¹ Dr. Vincent in a note states that the modern name of this point is "Bagia." This statement is incorrect; neither the point, nor any place near it, bears that name, or anything approaching it. His information was probably derived from the same authority by which he calls Rohām point, on the opposite side of the bay, Noa point. Noa (properly "Now") is the eastern extremity of the Gwadar headland (*vide* map).

Nearchus was close to the shore, close enough, at any rate, for the fleet to be signalled to, and to render immediate assistance, which the distance of a mile from the landing and bad ground would appear to negative, even if it were possible (which it is not) that corn could have been grown in this neighbourhood, or, if grown, have been seen from the sea.

The narrative runs thus: "From Kuidza, the fleet sailed along the coast until it came to a small town, seated on a hill close to the shore; and, thinking that grain might be obtainable there, because they saw the tall stalks of corn growing a short distance inland, they 'looted it,' after which the fleet anchored off a promontory called Bagia." Bagia has been fixed at Brês by Marcian's measurements, and there is no other cape on the coast until we reach Chahbār, besides which, at the foot of the hills near Brês, is the only spot of ground from Gwatar to Chahbār capable of producing corn near the coast, so that it could be seen growing from the sea. For the site of Nearchus' little town, I think the hill of Pādkôpag, now some 2 miles to the westward of Brês, is the most likely (if it was not on, or at the foot of the Brês hill itself); this hill is now little more than a large mound of clay half a mile or so in length, and close to the shore; the hard upper crust of sandstone, which formerly capped it, is now fast disappearing, and its sides furrowed and eaten away by the rain (I did not examine it closely). The actual promontory of Bagia, also, probably does not exist now, from the face of the Brês cliff falling in great masses every year, and it doubtless once extended a good bit further into the bay than it does now.

Marcian's distance from the port of Kuidza to Cape Bagia = Brês is 250 stadia = $15\frac{6}{7}$ miles; that of Arrian is 500 stadia = 31 miles. Marcian's distance is nearly correct.

From Bagia = Cape Brês to the commodious harbour of Tālmena the distance given is 1000 stadia = $62\frac{1}{2}$ miles. The distance from Brês to the bay of Chahbār, which is the largest and best harbour on this part of the coast, is only about 35 miles; but, as we have already seen reason to doubt the correctness of Arrian's distances between stage and stage,

and as it is almost inconceivable that Nearchus should have especially noted any harbour as being particularly safe and commodious, and leave the finest, namely Chahbār, without mention, we should certainly first satisfy ourselves that no trace of the name Tālmēna is to be found near Chahbār, before passing it by. Chahbār is, I am told, quite a modern name, and the old name of Tālmēna is, I believe, preserved in that of a small torrent (shêp), about three miles to the east of the present fort, called the Tālumānee shêp, viz. "the small torrent of Tālumān," which runs at the foot of some old ruins, standing on the rocky surface of the tableland through which it has cut its way. To what age these ruins belong I was unable to determine; they might possibly be Gedrosian, but more probably Arab, built on the old site of Tālmēna or Tālumān, as was the Arab city of Tēs (occupied between 800 or 900 years ago), on the site of ancient Tēsa—a few miles distant. Personally, I have no doubt whatever that Chahbār bay was Nearchus' harbour of Tālmēna, and that the town which gave its name to the bay stood on the plateau in which the Tālumānee has made for itself a bed. Müller also places Tālmēna in this bay; Gesselius also. Dr. Vincent's position for the harbour of Tālmēna in the Kēnzh creek cannot be admitted for a moment; this creek has been already described when following Marcian.

After Tālmēna = Tālumān or Chahbār, none of the names in the itinerary of Nearchus along this coast occur in that of Marcian, to whom we cannot therefore again turn for assistance. Of these names, also, except Kanātê, which might possibly be Koh Kalāt, there is no place to be found in the charts which bears an etymological resemblance to any of them, and the topographical hints given are too slight by themselves to build upon for a precise identification; but if we could find a point a little further on, about the identification of which there can be no possible doubt, it might help us in our inquiry, and such a point is certainly found in the island of Oaracta, which was full 800 stadia = 50 miles in length, and said to be distant 300 stadia = $18\frac{3}{4}$ miles from a point on the coast called Harmozia, at the mouth of

the river Anamis; for Oaracta can only be the island of Kishm, since that is the only island in this part of the gulf at all approximating to the size given of Oaracta, and is, in fact, more than 60 miles in length; the spot on the coast called Harmozia, by the measurement given, viz. 300 stadia = $18\frac{3}{4}$ miles, is a little to the east of north of the island now called Hormuz, and which was probably, nay certainly, the desert island Organa, and there is a tradition current on the island that the name Hormuz was transferred to it from the mainland.

In the following table are shown the different stages in Nearchus' itinerary from Tālmēna = Tālumān or Chahbār to Harmozia, a point on the coast ($18\frac{3}{4}$ miles from the island of Kishm), N.E. of the island now called Hormuz, with the distances given between them:—

FROM TĀLMENA TO

	stadia		miles
Kanasida	400	=	25
Distance of a day and night's sail omitted	...	=	...
Kanātē	750	=	47
Taoii	800	=	50
Dagasara	300	=	$18\frac{3}{4}$
Limit of the coast of the Ichthyophagi .	1100	=	$68\frac{3}{4}$
	<hr/>		<hr/>
	3350	=	$209\frac{1}{2}$
	<hr/>		<hr/>
Bādis	=	...
Desert shore	800	=	50
Neoptana	700	=	$43\frac{3}{4}$
Harmozia	100	=	$6\frac{1}{4}$
	<hr/>		<hr/>
	1600	=	100
	<hr/>		<hr/>
Total	4950	=	$309\frac{1}{2}$
	<hr/>		<hr/>

Dr. Vincent has fixed upon Jāsk as the site of Bādis, "a well-cultivated place of Karmania," and in this has been, I believe, followed by all commentators since he wrote.

The distance from Chahbār to Jāsk, measured along the

coast-line, is about 216 miles=3456 stadia, against the 3350 stadia=209½ miles from Tālmena to the limits of the Ichthyophagi (and Bādis?), and it may be at once granted that so small a difference, considering the length of the coast, does not negative the situation of Bādis, as Dr. Vincent has placed it.

From Jāsk to Koh Mubārak is about 26 miles=416 stadia.

From Koh Mubārak to the point we have fixed for Harmozia by Arrian's measurement from Oaracta=Kishm is 100 miles=1600 stadia, and this is the exact number of stadia given between Bādis and Harmozia by Arrian, which seems to indicate that the site of Bādis ought to be at Kôh Mubārak, as placed by D'Anville. Dr. Vincent says that he himself first fixed Bādis at Kôh Mubārak, but omits to point out that this was the result of *back measurements* from Harmozia; he afterwards changed his mind and the position of Bādis, giving as his reason for this, that in a sketch of the coast by Captain Blair, breakers are shown off Cape Maksā and none off Cape Mubārak; *forward measurements* from Tālmena also, doubtless, helped to confirm him in this opinion; the sign of breakers, however, on a chart, simply marks the presence of invisible rocks or a spit on which a ship might strike; but a very impracticable surf may be met with in many places not so marked, and among others at Koh Mubārak and all along this part of the coast, so that this part of his argument has not much weight.

At any rate, wherever Bādis may be, the sum of the distances given by Arrian between Tālmena and Harmozia is 4950 stadia=309¼ miles, and the real distance of the coast-line from Tālmena=Tālumān or Chahbār to the point we have fixed upon as Harmozia is about 342 miles=5472 stadia, so that there is a difference of 522 stadia=32¾ miles to be made up somewhere between these two places.

We might, in the first instance, allow this to be the length of the day and night's sail between Kanasida and Kanātê, the distance of which is omitted by Arrian, and try the result.

From Tālmena = Tālumān or Chahbār to Kanasida, the distance given is 400 stadia = 25 miles; this distance measured along the coast brings us into the bay of Kunarak, where, close to the shore, is a place called Kalêsa, which bears some resemblance to Kanasida, and on the hills above there are some Gedrosian cairns.

Leaving this, and allowing $32\frac{3}{4}$ miles = 522 stadia for the day and night's sail along a barren coast, brings us a little to the westward of Kôh Tungee, at the eastern extremity of the rocky headland called in the charts Ras Gôrdêm. This headland is quite inaccessible from the sea face, and does not admit of a landing. At either end is a harbour—the eastern one called Râshadee, and the western Gôrdêm. Why Nearchus did not anchor in one of these bays might, perhaps, be explained from the journal, "that he was afraid to let his people land for fear of desertion." The next place mentioned is Kanâté, distant 750 stadia = 47 miles; this distance brings us to Kôh Kalât.

Kôh Kalât is a mass of hills some 7 or 8 miles in breadth, which reach right down to the sea; in some parts they attain a height of 300 feet, and are intersected in every direction by torrent beds and ravines. On these hills there are many cairns, the greatest number at Darak, close to the point where the hills first touch the sea to the east. Concerning Kanâté, Nearchus says, or Arrian does for him, "sailing thence because it was a *flat* shore, everywhere intersected by small ditches or rills of water."

Etymologically, Kanâté might certainly be Kalātee (viz. the city, hills, or anything else of Kalât); it is intersected by torrent beds, and by Dr. Vincent, and, I believe, all others, is the spot fixed upon for Kanâté; but to call it a flat shore, such as Kanâté is distinctly described as being, is impossible, and the identification must therefore be abandoned.

I will now call attention to the fact that the average daily (24 hours) distance accomplished by the fleet between Tālmena and Harmozia, when not detained by a chance of procuring food, as at Dagasara, is about 800 stadia = 50

miles, and it seems probable, therefore, that the 522 stadia = $32\frac{3}{4}$ miles, we have allowed for the distance omitted as a day and night's sail along a "barren coast," after leaving Kanasida, is somewhat too little, and that it would be well to try what results would follow from a distance of 800 stadia = 50 miles being allowed. We will do so. From Tālmēna = Tālumān or Chahbār to Kanasida = Kalēsa 400 stadia = 25 miles. Thence 800 stadia = 50 miles along a barren coast (the description is quite correct) brings us to the vicinity of Tank, anywhere near which place it would be easy to land; so that Nearchus, in dread of desertion, anchored in the open sea. From hence 750 stadia = 47 miles, brings us to the vicinity of Meidānee; here the shore is as flat as it could well be, and is everywhere intersected by creeks and backwaters; many of these are impassable (without swimming), except at low tide, and the largest, immediately adjoining the sea, is of considerable size; is, indeed, large enough and deep enough to form an excellent harbour for vessels of small tonnage; its western branch runs nearly up to the picturesque village of Karatee (pronounced by some Karātee), which, I think, resembles Kanātē in etymology quite as closely as Kalāt does, while the shore exactly corresponds with that near Kanātē, as described by Arrian. In my own mind I feel convinced that this is the place alluded to by Nearchus. This position of Karatee for Kanātē may be arrived at in another way also, which may, perhaps, be the right one. As before stated, there is a distance of some $32\frac{3}{4}$ miles to be made up somewhere between Tālmēna and Harmozia, which distance we have just considered as contained in, but too short of itself to be the whole distance, of the day and night's sail, the length of which has been omitted by Arrian; but the argument for this rests, to some extent, on our having fixed on the site of Kanasida in the bay of Kunarak, by measurement along the coast-line from Tālmēna = Chahbār; if, however, we measure in a direct line from Tālmēna = Chahbār, we shall find, at a distance of about 30 miles, a place near the bay of Rāshadee, called Kalēsashit, which certainly bears a very

close resemblance to Kanasida, the distance being about five miles too much; from thence to Karatee, which, I feel sure, is the site of Kanāté, is about 70 miles, a distance which may be held to include the 47 miles to Kanāté, from some place on the shore as given by Arrian, and the remainder as the day and night's sail omitted.

From Kanāté=Karatee to the country of the Taoii is 800 stadia=50 miles; this measure brings us to a spot between the Gābrêg and Jageen rivers, swampy, and lined with mangroves, the latter a favourite food for camels; to this place all the camels in this part of the country are sent to browse for months at a time, and I have a strong suspicion that the seven camels caught, killed, and eaten by Nearchus' people in this vicinity were there for the purpose of grazing, browsing, or feeding (whichever may be the correct term), under charge of Taoii, viz. *slaves* (in Balôchee *teeh* 'a slave'), who fled at the approach of the foreign robbers, and whose habitations are described as poor, a term they doubtless well merited, being, probably, nothing more than a few sticks and a mat.

From the country of the Taoii the fleet proceeded 300 stadia=18 $\frac{3}{4}$ miles to Dagasara, which is, probably, Jakeisar or Jakasar, near the mouth of the Jageen river, but the exact position of which I am unable to lay down, as I was not able to visit that portion of the coast. Jakasar would probably be written Dagasara in Greek.

From Dagasara=most likely Jakasar the fleet sailed for a day and a night without touching anywhere, and at 1100 stadia=68 $\frac{3}{4}$ miles, reached the limit of the country of the Ichthyophagi; afterwards they arrived at Bādis, "a fertile place of Karmania," probably but a short distance further.

68 $\frac{3}{4}$ miles brings us to a spot some 14 miles north of Kôh Mubārak, and, if Harmozia was not where I have placed it, by adhering strictly to the distance given between it and Oaracta=Kishm, by Arrian, but was, in fact, Bander Abbas, this position for Bādis is correct, since the distance from Bādis to Hārmozia is given as 1,600 stadia=100 miles, and the distance from this spot to Bander Abbas is also 100

miles=1,600 stadia. There is also a place somewhere in this neighbourhood called Bālee, which might, perhaps, become Bādis; but I do not myself think that this position for Bādis is the true one, but rather believe that it was either at or very close to Kôh Mubārak; for the position for Harmozia, as placed by Arrian's measurement, agrees also with what we must assign to it by Marcian's measurement, viz. 1,550 stadia from Karpella, which, it will be afterwards seen, is Kôh Mubārak. So that if the position of Harmozia between 1,550 and 1,600 stadia from Kôh Mubārak is correct, Bādis ought to be either at or within 3 miles of Kôh Mubārak.

I will now endeavour to follow out Marcian's itinerary along this coast from Têsa=Tês. His first station, westwards, is the Samedaké river, at 400 stadia=25 miles. Referring to the map, we find only the Pārag and Kajow rivers within the distance stated—the former at 7 miles, and the latter at 17 miles from Tês. Both of these are evidently too close to be the Samedaké of Marcian, as in name, also, they bear no resemblance to it; hence I conclude, that from Têsa=Tês, which when Marcian wrote was probably the principal city on this coast, he has measured across a well-known bay, having no place of note on its sandy desert shore, in a straight line to the river now known as Keer, which is almost exactly 25 miles=400 stadia from Tês. And in this opinion I am supported by the fact that this river flows through a "dak" or pass in the hills to the north, which is called Shamadak. This opening in the hills is conspicuous, and well defined; and was, probably, therefore, a well-known mark to the mariners of ancient times for fixing their positions by transit observations (a method, I may note, invariably employed by the fishermen of this coast at the present day); and the river which flowed through it probably called by them the Shamadakee, or Samedaké river, as it would be written in Greek. I do not see that there can be any doubt about this identification. From the Samedaké river=the Shamadakee or Keer river, to the city of Samedaké, is 500 stadia=31 miles. This distance, measured along the coast, brings us to a spot at the extremity of the Wank hills, on which, and on some

of the hills close to it, is a great number of Gedrosian cairns, marking the former existence of a large city in their immediate vicinity. It will be further observed that the Keer¹ river, which we have already identified as the Samedaké river of Marcian, runs close to these hills, and, probably, gave its name to the town which stood near it, on the plain at the foot of the hills. There can be, I think, little doubt that the city of Samedaké was in this neighbourhood.

From Samedaké city=neighbourhood of Wank to Pasis the distance given is 200 stadia= $12\frac{1}{2}$ miles. This distance brings us to Hômdân, close to the Geetô² river, which is the only site for a town close to the coast, within the distance given. On the hills close by (Kôh Kalât) is a great number of Gedrosian cairns, which show that there was a town in the vicinity. The name of the spot where these cairns are is called Darak; and I failed to find any trace of the name Pasis or Pagis, unless it be Pāshee, about half a mile to the west of the cairns, but I do not think so. The Magis of Ptolemy is, I think, to be found in Makhi, some distance further to the west. Makhi, as pronounced by the natives, might easily be mistaken for Magi.

From Pasis = Hômdân (?) to the Salārus river, the distance given is 200 stadia= $12\frac{1}{2}$ miles. This distance brings us to a small river now called Judee, but the higher ground, on which the village stands, close to the foot of which it flows, is called Siloor. Surely Siloor and Salār, or Salārus, are the same word, altered in sound by a very common permutation of the vowels; and I take it that Judee is a modern appellation given to the stream, which was originally called the Salār or Siloor; it might be, of course, contended that the Greeks gave the name of the town to the stream; but of the identity of Siloor with the Salārus of Marcian there can be little doubt.

¹ The old bed of the Keer river, and which is the one in which it now runs, is that here alluded to, and shown in the map. Some 50 years ago it cut for itself another channel, and fell into the sea to the east of Rashadee, but does not run there now.

² I may here note, that into the Geetô (quite a modern name) river there flows a stream from the hills called the Hasār, which might possibly be the Sārus of Ptolemy, and the old name of the Geetô.

From the Salārus=Siloor or Judee river to Rhôgāna, the distance given is 150 stadia=9 miles; this distance brings us to the mouth of the Rāpch river; to the village of Gālik, the whole way from Siloor is a desert of sand-hills, destitute of vegetation, and presents no site for a town; of the name Rhôgāna I have failed to find any trace.

From Rhôgāna=probably Gālik to Omāna, "a celebrated port, or well-known harbour," the distance given is 150 stadia=9 miles; this distance brings us to Rāpch-a-bandin, an excellent harbour for small vessels, or what are called small now-a-days. It may possibly have once formed a mouth of the Rāpch river; but if so, there is no connexion between them now; it is certainly the best harbour on the coast until we reach Jāshak, and though I failed to find any trace of the name Omāna in its vicinity, which, as the people who now live near it are comparatively recent settlers, is not to be wondered at, still the identification appears to be the only possible one. Perhaps it might have been in olden times, as it is now, much frequented by Arabs from the opposite coast of 'Omān, and from this circumstance called by the Balôch¹=Gadrôsii of those days "Omānee-bandin" viz. "harbour of the people of 'Omān;" or this name may have been given to it because it afforded a safe harbour against the south-west, or wind from 'Omān, and, reasoning

¹ The Greek name for Balôchistān=country of the Balôch was Gadrôsia=country of the Gadrôs, and I am inclined to think that Balôch and Gadrôs are the same word. "Day" in Balôchee is "rôch" or "rôsh" (in modern Persian "rôz"). The adjacent country of Siestān was anciently called "nêmrôz" or "nêmrôch" or "nêmrôsh," that is, "half-day," and generally understood to mean in this instance "the south," whatever may have been its true signification. The name Gadrôs=Gadrôsh=Gadrôch=Badrôch=Barôch=Balôch was probably used in contradistinction to it, and "gad" in old Persian or Pahlavēe meant "bad, evil" (in modern Persian "bad"), and Gadrôs or Gadrôch or Gadrôz meant "bad-day." An inhabitant of the country at the present day, if asked the meaning of the word Balôch, will invariably answer Balôch badrôch, that is, "straitened as to livelihood or daily subsistence." In the neighbouring country of Sind, the Balôch are called the Barôch. The Zarangæ and Drangæ, the Zariaspæ and Daraspæ or Adriaspæ, afford, I think, other instances of this kind of name being applied to neighbouring tribes and their countries. In Balôchee "shar"=good, beautiful (adjectival from "sharên"), "bad"=bad, "rang"=colour, "aps or asp"=horse; therefore the Zarang="shar-rang"=beautiful coloured (they were noted for the beautiful colour of their garments). The Drangæ="bad-rang"=bad-coloured. Zariaspæ="sharênaspee"=having beautiful horses. Daraspæ or Adriaspæ="badênaspee"=having bad horses.

from analogy, this is the probable signification of the name, for we find several "Heerānee bandins" on the Makrān coast, that is, harbours affording shelter against the north-west or wind from Heerān (Persia). (Pliny, in book vi. chap. 32, says this port was on the Arabian coast.)

From Omāna=Rāpchabandin to Agris is 600 stadia=37 miles; this distance brings us nearly to the mouth of the Sadêch river, where there is a harbour for small vessels, and from Rapchabandin there is no site for a town near the coast until we arrive at this point. Of the name Agris I could find no trace, possibly it might be some sort of inversion of Soorag, the name of the district which ends at this point. From Agris=vicinity of Sadêch river to Kaneatis or Kanthatis, the distance given is 250 stadia= $15\frac{3}{4}$ miles; this distance brings us nearly to the mouth of the Gābrêg river, and I would draw attention to the fact that Marcian's measurements on this part of the coast invariably place the towns or villages he mentions near the mouth of a river, a most likely position for them in a country where water is so scarce. I was myself obliged to abandon the sea-shore at Kunarak, but sent a man along the coast to collect the names of all the places; part of his work I was afterwards able to prove to be incorrect, and I cannot therefore positively state that no etymological identification can be found for Kantheapis, or Kaneatis; there is a place somewhere near here called Kahna, which might perhaps answer to it. From Kaneatis=vicinity of Gābrêg river to Karpella the distance given is 1000 stadia= $62\frac{1}{2}$ miles; this distance brings us almost exactly to Kôh Mubārak, with which Karpella has before been identified by others, while back measurements from Harmozia prove this to be correct, and is also an identification I have no wish to dispute, as it has been led up to by my own computation of Marcian's measurements.

The question may perhaps be raised as to the grounds on which Marcian's stadium has been fixed by me at $\frac{1}{16}$ of a mile. Dr. Vincent considered Marcian's stadium to have been double that length, viz. $\frac{1}{8}$ of a mile. I might answer with some fairness that the topographical and etymological

identifications already noted as arrived at by this computation of Marcian's stadium ought to be sufficient proof of its correctness. We will, however, try it over a longer stretch of coast. The total number of stadia given by Marcian as the distance from the Tigridis=Tigris to Bādara is 16,720 (to Mosarna is 300 stadia more).

The distance by the chart from the angle of the west bay of Gwādar, and measuring across the mouth of Chahbār bay (for this proposition ample reason has been given), following the coast-line to the mouth of the Tigris, is as nearly as possible 1042 miles, which, at 16 stadia to the mile, is 16,672 stadia against Marcian's 16,720, that is, a difference of 48 stadia=3 miles in over a thousand miles of coast.

Again, the total number of stadia between Karpella=Kôh Mubārak, and Bādara is 5650, the distance from Kôh Mubārak to Gwādar (*viâ Tês*) is 360 miles, which, at 16 stadia to the mile, gives 5760, making Marcian's error, in 360 miles, 110 stadia=not quite 7 miles.

Again, the total number of stadia from Têsa=Tês to Bādara is given as 2200. The distance, by chart, from Tês to the angle of the West bay of Gwādar, is 141 miles, which, at 16 stadia to the mile, is 2256 stadia. Marcian's error over this distance being, therefore, only 56 stadia, or $3\frac{1}{2}$ miles.

Surely these close approximations to the truth, found in Marcian's measurements, by taking the length of his stadium as $\frac{1}{16}$ of a mile, are sufficient to prove the correctness of this computation of it, and also afford the strongest possible evidence in corroboration of the etymological identity of Bādara with Gwādar—and if this point be conceded, as I think it must be, why should we suppose, after finding the distances given by Marcian, from point to point, over a thousand miles of coast, to be almost exactly correct, according to the most perfect surveys we possess,—why should we imagine, I ask, that the distance given by Marcian, or $18\frac{3}{4}$ miles between Bādara, fixed at Gwādar, and Mosarna, must be wrong? and that Mosarna, perhaps I should say his Mosarna, must be $90\frac{3}{4}$ miles from his Bādara, that is, at Kôh

Zarên, simply because a place of that name appears to be fixed there by Arrian, whose description of it, however, we may remark *en passant*, certainly cannot be made to apply to that locality at the present day? Arrian's description of the rounding of Kôh Zarên, and of the fleet coming to anchor immediately afterwards, is, however, too vivid and too precise to admit of doubt that Nearchus did touch at Kôh Zarên—a fact, moreover, borne out by Nearchus' measurement of the coast (72 miles) from thence to Barnā = Gwādar; and as Arrian declares that "the name of this place was Mosarna," a very serious difficulty arises as to how the position of Arrian's Mosarna and that of Marcian can be reconciled.

The distance from Bādara = Gwādar to the city of Mosarna, is given, by Marcian, at $18\frac{3}{4}$ miles; this distance, measuring round the headland, would place Mosarna at the northern angle of East bay; and, possibly, Mosarna might have stood just round the western extremity of Mehdee hill, where there are some cairns, or what remains of them, still to be seen, and which point to the existence of an ancient town in the vicinity, and are the only ones to be found in the neighbourhood of Gwādar; here the aspect of the country changes from sand to a soil capable of cultivation, and close by are some large mounds consisting of, and large tracts covered with, the shells of a cockle-shaped bivalve, which may possibly be "kitchen-middens"; but there is no harbour here, and of the name Mosarna I can find no trace—the nearest approach to it is Mōsara, in the West bay of Gwādar, the anchorage in fact for native vessels; but this name is, I am told, simply a local pronunciation of "Musalla," "a praying-place," and properly belongs to a smooth rock, uncovered at low tide, which is convenient for the purpose, and can, therefore, have no relation to Mosarna. I am somewhat doubtful about this derivation. It is possible also the town of Mosarna stood on the plateau of the headland, to reach which it would be necessary, on account of the precipitous character of the cliffs, to sail round into the East bay. A distance of two miles or more intervenes

between the beach and the summit of the headland (which would make up the requisite number of stadia), and on this may be still found traces of a very ancient occupation. A large valley on the summit, and other parts also, used once to be cultivated, and Kempthorne (who also places Mosarna here, but on what grounds does not appear) was much struck with its fertile aspect; but since the bursting of the very remarkable stone "band" (built probably a thousand years ago), which used to retain the water in this valley, at times converting it into a deep lake of more than a square mile in extent, it has been left untilled and uncared for, the present inhabitants being quite incapable of repairing the old, and too lazy to construct a new "band" of earth of sufficient strength to hold in the water, which now, when the heavens are bountiful, runs waste into the sea.

The place Arrian *calls* Mosarna was, however, undoubtedly at Kôh Zarên, but it is possible that Nearchus, on rounding the cape, in answer to his inquiries as to the name of the locality, was told Mosarna, viz. the designation of the district; in the same way as at the present day a traveller in Balôchistân will get the same name given to him for twenty different places in the same district, although they may be many miles apart; each has, of course, a distinctive appellation, which is, however, but rarely given to a first inquiry.

The Mosarna of Arrian, or at least the place he intends, as that touched at by Nearchus, was probably a little harbour at the point of Kôh Zarên, now called Judee; there is no harbour elsewhere until we reach Sur (a very poor one), except Shimâlbândin, which, as its name implies (Shimâl = west wind), only affords shelter against a westerly gale.

It is, however, somewhat curious to note, that Arrian's description of Mosarna as "a safe harbour, with plenty of sweet water," applies, at the present day, to no other place on the coast westwards of Pasnee (and to Pasnee itself certainly not), except Gwâdar, which does certainly give rise to a suspicion that some mistake as to the relative position of Mosarna may have been made by Arrian (perhaps

from the close proximity of Bārna), pointing to the suggestion I have ventured to make as to Mosarna having been on the headland, and Bādara on the plain below; or perhaps it might have been Bādara or Bārna on the headland, and Mosarna on the plain, which would satisfy every requirement, and is, I think, the most likely solution of the difficulty of any.

If we place the Mosarna of Marcian at Kôh Zarên, a position for it not warranted by Marcian's own measurements of the coast, but simply for the sake of making it agree with the spot certainly *called* Mosarna by Arrian, we find that the distance given from it to the promontory of Alambâtêr, viz. $77\frac{1}{2}$ miles, though a little in excess, must place that promontory at the Gwādar headland, and we immediately perceive that Müller's identifications are worked out from this assumption of the position of Marcian's Mosarna, which was probably also the true reason of Dr. Vincent fixing upon this site for Alambâtêr.

For the intermediate stages, viz. the Zorāmbus river, the port of Kôphas, and Derenobila, there are no possible identifications to be made, either topographical or etymological, on the coast between Kôh Zarên and Gwādar. Moreover, Arrian's Kôphas is 25 miles to the westward of Bārna, which has been fixed at Gwādar by his measurements, while the Kôphas of Marcian is nearly 32 miles to the eastward of Alambâtêr, also fixed at Gwādar according to the present argument, from which it would follow that there were two ports called Kôphas.

To proceed. From Alambâtêr=Gwādar headland (?) to Kuidza Marcian gives 25 miles, which places Kuidza either at Mānbar (already occupied by Arrian's Kôphas), or, measuring in a direct line, in the bay of Ganz, where it has been placed by Müller, and in the name of which he professes to recognize Kuidza. I confess I do not. But Arrian's Kuidza is no less than $87\frac{1}{2}$ miles from the town of Bārna=Gwādar, against Marcian's 25 miles, measuring from the same spot; this is hardly a slight discrepancy, and is one which can be but inappreciably reduced by taking into

consideration the direct measurement we have been forced to adopt for Marcian, or that following the coast-line we have allowed for Arrian.

From Kuidza, now supposed to be Ganz, to Bagia promontory, Marcian gives $15\frac{1}{8}$ miles; a distance which brings us to Rôhām point or Kippalow Cape; but Arrian's distance from Kuidza to Bagia is 31 miles—a discrepancy still further widening the great gap already existing between his localities and those of Marcian of the same name.

From Bagia=Rôhām point (?) to the Kandriakes river, the distance given is 25 miles. The only river possibly answering to this distance is the Bāho river, which falls into the sea near Gwatar, an identification adopted by Müller; but the distance given by Marcian from the Kandriakes river to Têsa is $12\frac{1}{2}$ miles, while that from the Bāho river to Tês=Têsa is more than 70 miles—a difficulty, I confess, I see no way out of, and considering that the assumption from which we started, which has led us to this result, has certainly not reconciled the statements of Arrian and Marcian one with the other, it can hardly be considered a satisfactory one, while that I have advocated in the present paper, although it leaves some doubt as to the position of Mosarna, does place Marcian's stages, by measurement, in localities the topography of which answers to the description given by them, and where some approximation to their names even may be sometimes found; while, at the same time, Arrian's stages are found to agree with those of Marcian, of the same name, as nearly as the undeniable error of 31 miles in Arrian's computation of the coast-line from Bārna=Gwādar to Tālmena=Tālumān or Chahbār, could possibly be expected to allow.