

SIND'S CHANGING MAP

An Album

Containing

51 Old and Rare Maps of Sind with Critical and
Explanatory Notes on them

COLLECTED BY

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KARACHI

1938

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—M. E. PITHAWALLA.

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SIND'S CHANGING MAP

BY: PROF. M. B. PITHAWALLA, F. G. S., M. R. A. S.

(1) PTOLEMY'S MAP—150 A.D.

This is the oldest map of Sind available.

It shows the course of the Indus, a few towns on its banks e.g. Binagara, Difra, Prabali, Xodraca, Regio etc., the delta of the river, with its 7 branches and a port called Calaca (Karachi?) on one of the side branches. There is an island, Baraca, shown off the *Sind coast*.

It is difficult to identify all the towns given in this map, which, however, indicates in general the prosperity of the Indus valley, having so many settlements.

Binagara appears akin to Minagara, mentioned by Ptolemy "on the East Coast, somewhere near the Mahanadi river and Arrian, in the Periplus, has another Minagara in the valley of the Indus" (Elliot and Dawson—*The History of India* Vol. I. P. 356.)

Sir P. R. Cadell ascribes Minnagar to the aboriginal tribe of the Muhanas of Sind and the Minas of Kathiawar (J. R. A. S; Jan. 1938.)

(2) PTOLEMY'S MAP—150 A. D.

This is another version of Ptolemy's Map, taken from Munster's edition of Ptolemy's Geography (1540-42 A. D.)—Tabula Asia IX. In addition to the river course, it shows some relief, especially of Gedrocia, with some 3 tributaries of the Indus, rising from the mountains. No towns on the banks of the river are shown, but the seven mouths are clearly confirmed. The port on the western end of the delta is called Colamba, which is evidently different from Calaca on one of the side streams of the Indus in Map (1.)

(3) ISLAM MAPS—(Mappe Arabicae)—1.

KONRAD MULLER'S.

With the big gap of centuries, we come across the famous Arab Maps, which are valuable. The different versions are taken from Konrad Muller's *Mappe Arabicae* (different volumes) and they give a good idea of the geography of Sind, as found by the Arab pioneers. But there are defects in these Arab Maps, such as in compass bearings, names of places etc.

This map is taken from Vol. III Pl. 37. It shows the Indus and the Hab flowing north-south, the coast of Sind and Makran and the well-known towns of Mansura in the loop at the top, Nirun, Sarusen, Manabari, Tatta and the ports of Daibal and Gara Bundar.

(4) ISLAM MAPS—2.

VERSION BY IDRISI.

This is taken from the same Volume III but appearing on Pl. 39. It is somewhat better than Map (3.), shows some relief, the Indus and a tributary of the river, perhaps one of the Punjab rivers, with some towns on its banks. The delta is not shown as clearly as in No. (3). Mansura is still within the side loop of the river, Kalri, Atri and Kandabil are above this town and Manhabari, Birun, Asrusan etc., below it. Daibal is on the sea coast.

This map differs from Map (3) also in the number and position of the towns e.g. Manhabari stands opposite to Mansura on the western bank, a branch of the river, (perhaps the Puran), goes round the latter place and rejoins the parent river further south.

(5) ISLAM MAPS—3.

This map is also taken from the same source, Vol. III Asien I. It is in the style Ashkalu-e-Bilad and Istakhri (10th Century A. D.). *Vide my "Historical Geography of Sind" Part III.—The Arab Period.* The river Indus is shown by a straight band and three tributaries are in the north. Al-Mansura is within the loop wrongly shown on the right. Other towns are Albirun and Manhabari below it, and Kalari, Abri, Alrud above the first-named town. Alrud is no doubt Aror but on the left bank of the Indus. Numerous trade routes are also marked. Daibal is clearly on the sea coast but near the mouth of the great river.

An attempt is also made to mark three of the Punjab tributaries on the left and in the north-east corner.

(6) ISLAM MAPS—4.

Similar to No. (5), but the loop is correctly shown on the left (east side). Al Daibal is somewhat away from the mouth of the river. Al Birun and Manhabari are on the right side route connecting Daibal, while Balui, Kalari, Alrud, Al Multan etc. are all shown on the left bank. Only one tributary is given in the north.

(7) ISLAM MAPS—5.

This is similar to No. (6), though wider. Fewer towns are marked but the localities are the same.

(8) ISLAM MAPS—6.

The plan is somewhat different and the towns are also few. Manhabari is directly on the right bank and opposite the town of Mansura, here marked on the loop on the other side. Al-rud is not on the main river channel as in No. (7) but on the only tributary shown on the left side. The trade route leading to Tiz on the Makran Coast is plotted on the west.

(9) ISLAM MAPS—7.

Similar to the previous Arab maps, taken from the same Vol. III. Pl. 53.

Alruz (Aror?) is at the confluence of the Indus and the Sind rud. Al Multan is wrongly shown south-east of Alruz, while Sadusan (Siwistan) is also directly on the right bank. Al Mansura is on the loop itself as in Map No. (8).

(10) ISLAM MAPS—8.

This version is an entirely different style of the Islam maps. It appears in Vol. III Pl. 55. It is drawn as a *natural* map of Sind, very similar to No. (3). The stiff artificiality of the previous map-drawing is discarded. The river course is also natural, with 5 of its branches forming the delta. Hyderabad is just at the head of the delta. Alrud is also in the correct position on the left bank. Mansura is away from the river but the loop is not shown. Daibal is the only port. The Arab trade-route passes through Dark, Kandabil, and Tura to Multan.

(11) ISLAM MAPS—9.

This Map is after Ashkalu-l-Bilad and Istakhiri (Vol. V Pl. 69) and is similar to Nos. (5), (6), (7), (8), (9). Fewer towns are shown. A road goes from Mansura to Daibal across the country.

(12) ISLAM MAPS—10.

This one is from Al-Idrisi (Vol. VI). It is similar to No. (10) but shows some relief also. The river course is natural but the loop for Mansura is shown wrongly on the right bank. Kalri is above Mansura also on the right bank and Alrud further north but on the left.

(13) ISLAM MAPS—11.

This gives very meagre information but is similar to that drawn by Al Idrisi. (Vol. VI. Pl.-17.) Only Debal at the mouth of the river and Alrud are shown.

(14) ISLAM MAPS—12.

This is taken from the map of the world found in an Arabian manuscript of Al-Idrisi in the Bodleian Library. The Arabian geographers represent the world as an egg, floating in a basin of water. The portion given here shows several river basins and embraces Egypt with the Nile, Sind with Al Sunda, India with Al Hind, China with Al Seen. This last delta is correctly reversed. Even Ceylon is shown like a big island in the south. No towns are given but the whole indicates that the Arab geographers were keen on discovering rivers and their deltas from the commerce and navigation points of view.

(15) MERCATOR WELT KARTE—1569 A. D.

No maps are available for some centuries after the Arab period. This one is found as the next in the chronological order (16th century A. D.)

It gives the positions of Diul as the port and Bingiron (Binnagara of Ptolemy?) as the chief inland town. Multan is not on the main river Indus but much further up on a tributary of it. The delta shows 6 branches of the river. A branch of the river, issuing from about the middle of the province flows separately towards the east into the Rann of Cutch perhaps. It may be the Western Puran of Haig. See Map No. (35).

(16) WALTER PAYTON'S MAP—1613 A. D.

This is a very interesting but defective map taken from Vol. IV *Purchas his Pilgrimes*. (British Museum Add. Ms. 19276).

It shows the main river Sind (Indus) with only two towns, Diule-Sinde and Multan on the left bank, but Tatta on a side branch of the river on the east of Diule-Sinde. The port itself is much further inland and on a higher latitude according to this cartographer. This is not correct, as Tatta lies actually near the now dried-up Gara stream on the right side and far above Diul Bandar. Perhaps this Diule-Sinde is a name-sake and a town established upstream to commemorate the original sea-port of Diul. Or it may be that the two places are interchanged on the map by mistake.

Payton gives a note on this subject but it is impossible to follow it clearly:—

“Heare followeth ye portrait of ye ryver Sinde, soe neare as I cann judge by the description thereof made to me, by those whoe have seene most part thereof, which althoughe it bee not soe exact as I desyred, yett snohe as may geive some light to our employers.”

As regards the location of Diul-sinde itself, he says “Sinde or Diulsinde, in the Mogolls Dominions is foure and twenty degrees, eight and thirty minutes; variation west six degrees, five and forty minutes.” (Vol. IV *Purchas* P. 307).

Debal probably lay between latitudes 24°N and 25°N, but without the corresponding longitude it is impossible to locate it exactly here.

(17) Wm. BAFFIN'S MAP—1619 A. D.

This map is entitled Indolstani by William Baffin the Navigator and is based on information supplied to him by Sir Thomas Roe. The Indus is very prominently indicated with the mountainous region on the west. Tatta is the most prominent port on the river, while Diul is on the sea-shore but wrongly shown near the eastern mouth of it. Buccor-Succor is the next prominent place. Attock too is on the wrong side and Lahore is at the junction of the Indus and one of its Punjab tributaries!

(18) ABBOTT'S COLLECTION—(17th & 18th Century).

The following ten sketch maps are collected by J. Abbott for his book on "*Sind—the Unhappy Valley*":—

- (a) Bernier Edition, 1670—
—Giving Diul, Loure Bandar, Tatta, Rauree and Buckor clearly.
- (b) Bernier Edition, 1672—
—With Diul and Loure Bandar still persisting, but Tatta a little away to the west of the river channel.
- (c) Ptolemy's—
—Showing Palalene (the delta) and the seven mouths of the Indus, named Sasapa, Sinthon, Auruen, Karephlor, Sapara, Sabalasse, Lonigare. [cf Maps (1) and (2)]
- (d) Second Borgian Map—1520
—With only Gedrosia and not Sind marked in the valley.
- (e) Sir Thomas Herbert's Map—
—Diul is not shown but Div and Baroch are prominently marked outside Sind.
- (f) Mandeslo Edition 1720—
—Diul still persistent but Tatta far inland and Succor coming into existence. Tatta is on the Indus.
- (g) Mandeslo—1720
—Another version, with the position of Diul slightly changed and both Sucker and Buckor shown beautifully across the gorge.
- (h) Harris I—1705
—Ports Diul and Loare Bunder are shown on the coast line and Tatta inland but on the river Indus.
- (i) Harris II—1705
—The position of Diul on the west of C. Mons is faulty. There is no other inland town except Buckor.
- (j) Pietro Della Valle
No towns or ports are shown—only two rivers, the Sind passing through Makeron (Makran) and the Indus, with the Gulf of Indus.
- (k) Pierree vander Mandelsco—1720
From Purchas 1615. Tatta has become prominent on the main channel.
- (l) 1700 (circa)
Similar to (k), but Diul is well marked on the coast.
- (m) Hamilton—1744
Only the Sind coast and Gonzeratt are outlined.
- (n) Rennell (Memoir)—1793
Tatta is at the head of the delta.
- (o) 1740 (Circa)
Diul and Lari ports are in prominence.

(19) W. VINCENT'S PUBLICATIONS—1.

This a sketch of the river Indus collected from Major Rennell and others and published according to the Act of Parliament on January 1st 1797 (for the "*Voyage of Nearchus.*")

Patala is shown at the head of the delta while Tatta (doubted as the ruins of Brahminabad) is marked at the head of the two westernmost branches. Five other branches are also given but they are not regular. Siwan is on the Indus, midway between Tatta and Sucker-Bekkor, while nearby a tiny loop with Mansura reminds one of the Arab maps.

(20) W. VINCENT'S—2.

This is a plan of the coast from the Indus to the Persian Gulf, copied from a manuscript compiled by Dalrymple (1795).

It shows Krokala (Krochey) as the chief port, the delta of the Indus (Mehran) and the supposed course of Nulla Sakra navigated by Alexander. It also shows the low sandy Isle of Arrian, off the port of Alexander.

(21) W. VINCENT'S—(3).

This indicates Patalene (in the delta) with Patala at the head of it, Sewee (Selwan) and the island of Bekkor. It was drawn to show the march of Alexander's armies along the coastland with the progress of the fleet and published by Dr. Vincent on 1st January 1797.

(22) W. VINCENT'S—(4).

Only a part of the delta is magnified in this map. Cape Monz, Lori Bander, Barbarike port and Bandar Lori on Nulla Sankra are marked.

Tatta is at the head of the triangle formed by the two western branches of the river and Minnagara is further north.

This was published on 1st May 1805.

(23) Col. SIR JOHN MALCOLM'S MAP—1815 A. D.

This is taken from Malcolm's "*History of Persia*." It shows Capo Monz, Curachee (for the first time), Tatta on the Indus, Hyderabad (on the left bank) Haulla (Hala) Selwan, and Bhucknor (Bukker) on the right bank. Shikarpur a little away to the west of the river channel and Ouch in the north on the left bank. The main branch in the delta is on the extreme west of it, and two other minor branches are marked on its left side.

(24) Lt. CARLESS'S MAPS—1.

Shows the condition of the Indus delta in 1817. There are 9 mouths marked—Phittee, Pyatianee, Jonah, Richel, Gora, Kaher, Mull, Seer and Karee, and eight branches of the river, Garrah, Hujamree, Gora, Mootnee, Mull with Shah Bandar (port) on it, Bugana, Moograh, Setta and Pinyaree. Karachi is on the extreme west of the sea coast, Tatta on the right bank but outside the head of the delta and Hyderabad at the head of the triangle, formed by the Indus and the Fuleli.

(25) Lt. CARLESS'S MAPS—2.

This represents the condition of the delta in 1837, i. e. twenty years later.

The Bugger is disconnected from the Indus and is drying up, and the only two other branches now are the Moograh-Sitta and the Pinyaree. The Fulelee falls into the latter branch half-way and Shah Bandar is still on the Mull branch, which is falling off. There are some changes also in the mouths of the river, the following 11 being in prominence at the time: Phittee, Pyatianee, Jonah, Richel, Hujamree, Kidgwaree, Kookeewaree, Kaher, Mull, Seer and Korea.

(26) JAMES BURNES'—1827-28.

The map appears in "*Sketch of a Route from Bhoj to Hyderabad*", traversed by Burnes in 1827-28.

It shows the following 11 mouths clearly :

Western side ;—(1) Pittee (2) Pieteeanee (3) Koodee (4) Khow (5) Dubhoo and Eastern side :—(6) Jooa (7) Reecheel (8) Hujamree (9) Gora (largest of all mouths) communicating Khaeer and Mull) (10) Seer and (11) Koree. Lahory Bander is on the extreme west and Shah Bander is between the Wanjanee and Mootnee branches of the river. Burnes found most of the eastern branches suitable for communication, and his route lay from Bhooj across the salt desert to Tatta and Hyderabad.

(27) Lt. BURNES'—1831.

This is obtained from Burnes' *Travels to Bokhara* (1831). It shows the geographical conditions nearly a hundred years ago.

Gorah is the largest mouth on the east, while Pittee is the western mouth of the river. According to Burnes, the coast line was not distinguishable from a distance on account of lack of any vegetation on it. The bay or harbour of Karachi was touched by him. Burnes also anchored in the other two prominent mouths, Pieteeanee and Hujamree. Tattah is very much thrown back. On the Nara side there are the ports of Sindhri and Ali Bandar. There is a small loop on the east showing the Western Nara and the Aral. Bukker and Ooch are marked further north.

(28) BOMBAY ARMY MAP—1850 A. D.

This is the largest map of the delta available. It was prepared for the Quarter Master General's Department, Bombay Army and dated 18-10-1850.

No less than 23 mouths, small or big, are noticed as under :—

Gisri, Pitty, Kooddee, Kae, Pittyance, Dubbar, Jooa, Hujamree, Cheenoo, Phitta, Gaberwarce, Kahar, Charoochan, Mull, Gharar, Nowa Wakee, Wacree, Drowarra (1) Drowarra (2), Kajur, Tanghur, Seer and Koree. The harbour of Karachi is also prominent, so also the inland town of Tatta on the right bank but a little distant from the river.

(29) SIND DIRECTORY—1862.

This is a very clear map of the delta of the Indus as far north as Hyderabad which city and also Meeanee are shown on the Fuleli. The N. W. R. Railway built for the first time runs from Kiamari (harbour) to Kotree as the terminus.

Shah Bandar is thrown much inland and Kettee has come into existence in the S. W. corner of the growing delta. A beacon is now kept at Kettee to guide all sailing vessels. Seergunda is a minor port on the Sir branch towards the east, while Kiamari has drawn all the sea trade to itself. Evidently the Indus navigation is now abandoned in favour of the railway, due to the difficulties (*Vide* my Paper on "The Indus—its Navigability and Navigation," 1937. Pp. 7, 8). Compare also the present delta, creeks and the mouths of the Indus, beacons etc. (*Ibid* Pp. 14-15.)

(30) Gen. CUNNINGHAM'S MAP—1871.

This and the following maps are collected with a view to show the hydrographical changes that have taken place in Sind at various times.

It is drawn from the archaeologist's point of view, locating some ruined cities, such as Bahmanabad, Patala, Bhamblhare, Debal etc.

There are two river courses shown (1) the present Indus and (2) the old Indus. The latter was fed by the Raini and the Sotra coming from Ambala side and then flowed through the western Puran and the Guni into the sea. Bahmanabad and Patala are on the Western Puran and Bhamblhare on the Gara stream, now dried up. The position of Debal is more or less correct, though on account of the growth of the delta, it has now fallen some miles inland. The Western Nara falls into the Manchar lake and Sehvan (Sindomana) is on the road to Larkana and Khairpur.

(31) C. F. OLDHAM'S MAP—1874.

Sur. Gen. C. F. Oldham, writing in the *Calcutta Review* (Vol. LIX) on "*the Sarasvati and the Lost River of the Indian Desert*," advocated a theory that it was the old Sutlej that flowed into the Hakra (now the vanished river Eastern Nara) till the time it westward and met the Beas, owing to the silting of its own bed. He also thought that the Hakra-Dhora flowed independently of the Indus.

In this map this lost river is clearly shown and many ruined settlements are pointed out along its banks.

Dhora Puran is just a branch of the Indus and joining the tail end of the Hakra. Tatta, Hyderabad and Hala are also prominently shown in the map.

The Fuleli passes by Hyderabad and joins the Goni further south.

(32) MAP OF "NEARCHUS"—1875 A.-D.

Another anonymous writer under the pseudonym of "Nearchus" stated (*Calcutta Review* Vol. LX) that the Sutlej never flowed into the Hakra but westwards and directly into the Indus itself. It was the Jamna that once flowed towards the west and fed the Hakra. The map drawn by him shows these features, the Rain-Hakra (a dry river-bed) passes through the desert and by Brahmanabad. The Fuleli-Goni is also dried up and the Indus has already assumed its present bed. Even the Indus higher up has been shown to have westward in this map; so have other Punjab rivers changed their beds.

(33) R. D. OLDHAM'S THEORY—1886 A.-D.

R. D. Oldham, Director of Geological Survey of India at that time, supported the views of C. F. Oldham to a certain extent and contended that the Indus had not flowed into the Eastern Nara in historic times, but that the Jamna in recent geological times and later on the Sutlej did feed the East Nara.

The map shows the two river systems flowing independently, the Indus and the dry bed of the Wahinda-Hakra even within the boundaries of Sind.

(34) HAIG'S MAPS—1.

This map is drawn to show the condition of the Indus delta, Patalene, at the time of the Greek invasion of Alexander. Patala is clearly shown at the apex of the deltaic equilateral triangle, also the naval station near the western mouth, Krokala island and Alexander's haven, near Karachi. This is the only fixed and possible harbour likely to be in existence, as no other point on such a growing delta could be so permanent. Patala is located at a distance of about 32 miles from modern Hyderabad in the S. E. direction. It could be located more correctly still further east.

(35) HAIG'S MAPS—2.

This is an excellent representation of the Delta conditions as imagined by Haig and published in his book "*The Indus Delta Country*" in 1894. Not only is the course taken by the Indus since 1758 properly shown, but other old intermediate courses of the river and its several branches, eastern and western, are plotted. Beside the Hakra flowed the smaller Indus distributaries, such the Puran, the Western Puran the Ren and the Gungro-Sir rivers. The former main branches, the Kalri and the Baghar, formed a bifurcation, meeting together again as the Indus reached the sea. The Gharo had already dried up. A number of old ruined sites are also shown on the former beds of the various branches, e.g. Thari, (on the W. Puran), Jun, Fatbagh, Kat Bamblian and Old Badin on the Ren, Tur on the Gangro, Samui, Dewal, Lari Bandar on the Kalri and Bhambhar on the Gharo.

Most of the present-day river mouths, 11 in number, are also given in this map. On the whole, this is a very valuable sketch for the historical geography of Sind.

(36) MAJOR RAVERTY'S MAPS—1.

Major Raverty in his laborious work entitled "*The Mihran of Sind and its Tributaries*" (J. A. S. B. LXI. Pt. I 1892) has dwelt on the changing nature of the land in Sind and shown it in half a dozen maps of the province. But his writings are confusing, indeterminate and misleading; he has attempted to do almost an impossible task and his theory is not acceptable to scientists. He tries to drive at the idea that the Indus has ultimately grown at the expense of the Hakra, the dried-up river. The Mihran at first flowed past Aror and through the channel of the Eastern Nara. Gradually passing through five transition stages, this great river, in Raverty's opinion, has come to its present condition in Sind.

This map represents the Arab times—the Mihran or Hakra-Wahindah is more prominent, while a minor stream called the Kumbh is gradually coming into existence to the west of it. Aror is placed on the right bank of the former and also Bahmanabad lower down. Debal is the main port.

(37) Major RAVERTY'S MAPS—2.

Here the Indus and the Hakra have come closer together. The positions of Aror and Bahmanabad are almost the same as in the first map.

(38) Major RAVERTY'S MAPS—3.

In this map the Indus is shown very prominently far to the west, while the Hakra with the town of Amarkot on it is still flowing but independently of it on the east. Aror and Bahmanabad have evidently lost their importance, though the port of Debal still persists on the coast.

(39) Major RAVERTY'S MAPS—4.

In this stage a third and intermediate stream has developed, connecting the Indus towards the north and the Hakra towards the south. Both the old towns, Aror and Bahmanabad, now lie on this new stream.

(40) Major RAVERTY'S MAPS—5.

In the fourth transition, the intermediate stream has moved considerably towards the Indus, so that a loop, resembling the Western Nara, is formed. But the Hakra is shown wholly dried up and Aror and Bahmanabad are in ruins. This event probably took place in the 14th Century.

Debal is now found much in the interior.

(41) Major RAVERTY'S MAPS—6.

This is the fifth and the final stage representing more or less the present hydrographic conditions in Sind. Karachi has replaced the old port of Debal. The Hakra valley has turned into desert-land.

(42) Col. MINCHIN & J. N. BARNES' INVESTIGATION—1904 A. D.

A study of the physiography of the Bahawalpur State enabled Col. Minchin and J. N. Barnes to discover that the bed of the Hakra was too narrow to carry the whole of the Sutlej flow through it. In their opinion, only the flood waters of the latter flowed into the Hakra. This map shows the overflow of the Sutlej river during the flood season of 1871, suggesting that such floods took place *every year* and supplied water previously to the Hakra.

(43) VINCENT SMITH'S MAPS—1908 A. D.

They give an idea of the hydrographical changes in the Punjab. Even the Upper Indus bed is changed. In the smaller map, the dry bed of the Hakra, as well as the old coast line are shown. The Sutlej seems directly connected with the Hakra.

(44) HENRY CONSENS' MAP—1929 A. D.

Henry Consens' sense of archæology enabled him to picture the old course of the Indus, between the present bed of the river and that of the Eastern Nara or Hakra for the age of the Arabs (700 A. D.) The Kalri and the Baghar then flourished, and Bahmanabad stood beside the old Indus channel.

(45) Col. KEITH YOUNG'S MAP—1912 A. D.

This map shows the route of H. M. 86th Regiment to and from Bahawalpur in 1846 (*"Scinde in the Forties"*) and incidentally marks the course of the river Indus. The route lies through Ghotkee, Roree, Khyrpore, Nowsharah, Sakrand, New Halla, Mutharee, Meeanee, Hyderabad along the river valley and then, *via* Kotree, Jorruch and Tatta to Garrah, Wattajee, Laudee and Karachi.

The British abandoned the Indus route below Hyderabad and directed their attention to the *road* between Kotri and Karachi, which later on became the first railway in Sind. (cf. Map No. 29).

(46) IMPERIAL (MOGHUL) ROUTE—1590-92 A. D.

As a contrast to the route shown in No. 45, the route of the Imperial (Moghul) Troops in Sind during the campaign of 1590-92 A. D. is given here. It lies past Old Halah, Unarpur, Bhore and Nasrpur, then Fatlibag, Jun and Badin, suggesting that the river and its branches must have given prosperity to these towns which are now in ruins more or less. The Indus westered distinctly during the course of the next two centuries.

(47) Mr. WHITEHEAD'S THEORY—1932.

In a paper published in the *Indian Antiquary* (Vol. LXI, 1932) Mr. R. B. Whitehead, i.c.s. (Retd.) has put forth his theory, from a close study of the hydraulic data for the Punjab rivers, that the rivers like the Sutlej could not oscillate 70-80 miles and that all rivers are governed by levels. A possible cause of the Hakra having dried up is diminished rainfall and the consequent loss of the Ambala streams.

A large number of ruined towns are shown along the Hakra-Wahinda river system in the map drawn by him.

(48) SIND GAZETTEER—1910 A. D.

The delta of the Indus appears in this Map to be slightly different from the present delta, the mouths and the main channels, Uchito and Halamro. The Juna mouth has now silted up and the port of Ghorabari is replaced by Ketti Bandar at first and now by the new port of Sukhi Bandar in 1937.

(49) EARTHQUAKE MAP OF SIND—1935 A. D.

The study of the Quetta Earthquake of 1935 has enabled Mr. W. D. West of the Geological Survey of India to revise the Earthquakes Map of India. A portion of the map given here shows three different zones:

- (1) Danger zone with epicentres of eight severe earthquakes since 1850. The one which took place in 1819 in Cutch affected the Rann and South Sind. (See Map No. 50).
- (2) Zone in which severe damage may be caused by earthquakes originating in the Danger Zone. This covers a large part of Sind also.
- (3) Area of comparative safety.

This is mostly outside the boundaries of Sind.

Thus, Sind is likely to be affected by earthquakes in future.

(50) ALLAH BUND (CROSS SECTION)—1819 A. D.

This section of the country through Sindri and the Allah Bund, illustrating deformations of the ground at the time of the Cutch Earthquake of 1819 A. D., is drawn by R. D. Oldham. It shows how the earth near the Bund experienced a slight upheaval while there was subsidence within the Rann itself, the fort of Sindri having also sunk.

The section shows how an earthquake is likely to produce only local hydrographical changes in Sind.

(51) MASCALL'S SKETCH OF NATURAL HARBOUR & MODERN MAP OF KARACHI.

The small plan on the left is that of the natural harbour of Karachi pictured by Mascall (1774). It shows the low sandy island of Arrian (Kiamari?) Krokala, Krochy (Karachi) and the Manora rock.

The larger map is that of the city and harbour of Karachi, prepared for the Census Report of 1931. It shows the wonderful growth of the city (the only one in Sind with a population of 263,565 including the Cantonment) and also the development of the harbour.

There are some 41 quarters of the city, spread all over, and there is still a vast scope for expansion on three sides of it. With the recent developments of the air port at Drigh to the north of it and the sea-plane port near the West Wharf, Karachi has a very great future before it.

Karachi can also be developed as a health resort on account of its excellent beach alongside Clifton and Gizri.

GENERAL NOTE

The study of all these maps of Sind from various sources, Oriental and European, clearly indicates.

1. That Sind is a changing land, of changing river courses, changing delta and changing inlets of the sea.

2. That Sind has had a changing population and unstable settlements, unstable ports and capital towns due to unstable water supply, etc.

3. That Sind has all throughout these milleniums preserved its individuality and unique position in Asia as a provincial and trading centre, the Indus valley and delta having been marked even in the oldest maps available, and Sind and the Punjab having been merged into one natural region with prominent settlements of their own, due to the navigability of the Indus and the other Five Rivers.

4. That Sind is likely to be affected in future by earthquakes, which may take place in future within the Danger Zone, which embraces it to a certain extent.

5. That Sind is bound to flourish after the working of the Lloyd (Sukker) Barrage, which has given a perennial water supply to the land and its population is likely to grow and stabilise.

6. That Karachi, a natural harbour, as the Capital of Separated Sind, has immense possibilities of development and expansion on all sides, being on the cross roads of sea-routes, air routes and other routes.

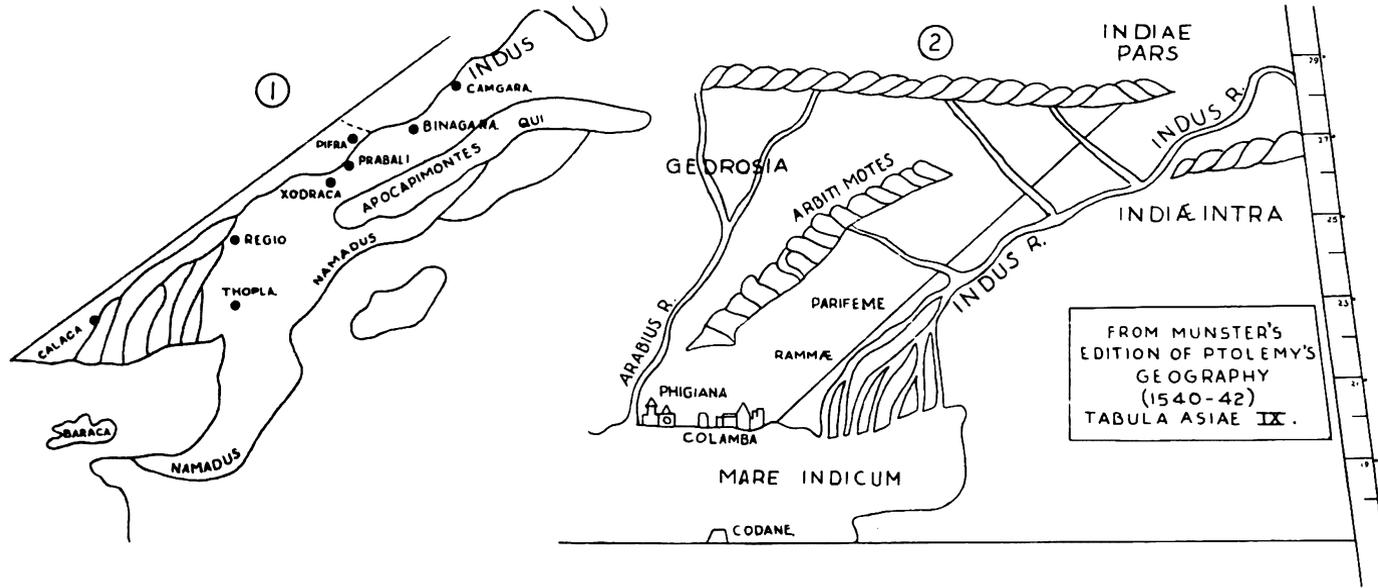
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ACKNOWLEDGMENT

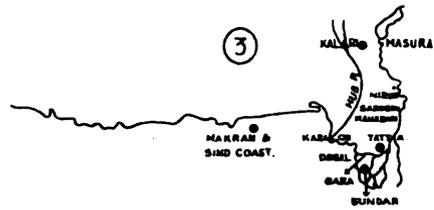
I am indebted to all the authors and publishers of the books, journals etc., mentioned in the above notes, for the collection of the maps. I am also grateful to the Librarians of the various public libraries, who gave me facilities for obtaining copies, especially the Librarians of the British Museum, the Royal Geographical Society and the Royal Asiatic Society, London, during my stay in the city in 1932-33, and also those of the Karachi Victoria Museum, the Frere Mall Library, the Karachi Mayor's Library etc.

KARACHI, }
21-3-1938. }

MANECK B. PITHAWALLA

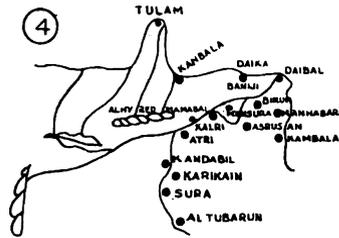


ISLAM MAPS- Mapped Arabic
KONRAD MULLER
(DIFFERENT VERSIONS)

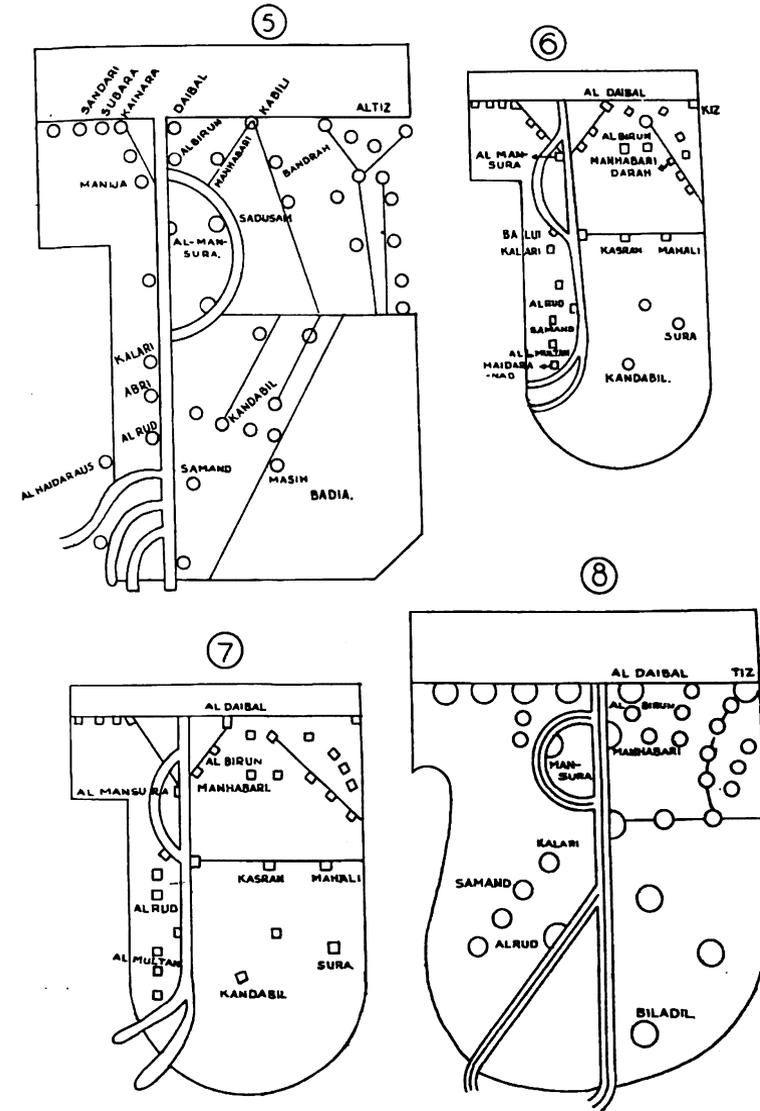


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(SINDH COAST AND NEARBY ISLANDS)

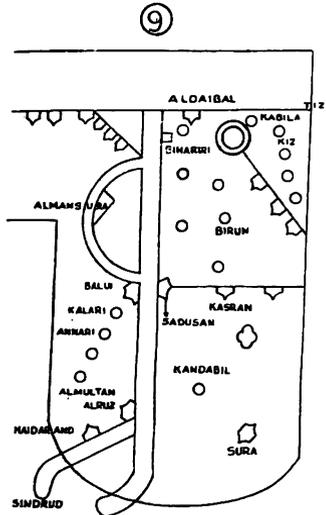


NACH IDRISI
VOL III P. 39.

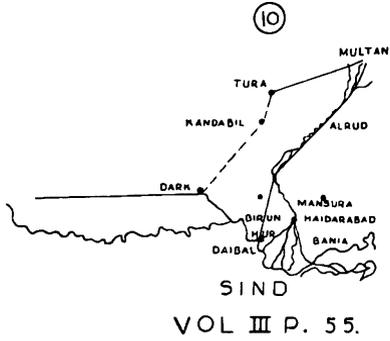


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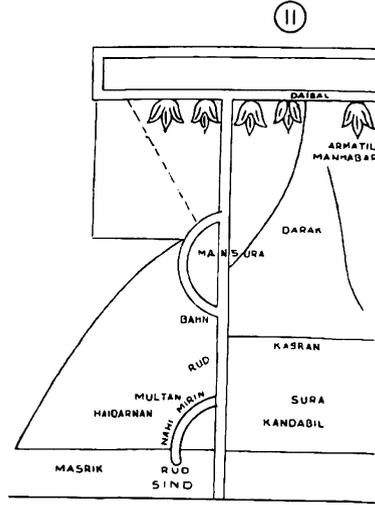
COLLECTED BY Prof. M.B. PITHAWALLA



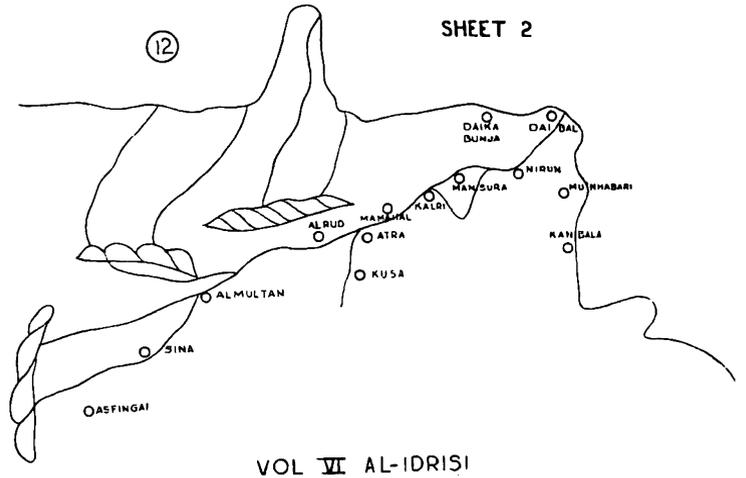
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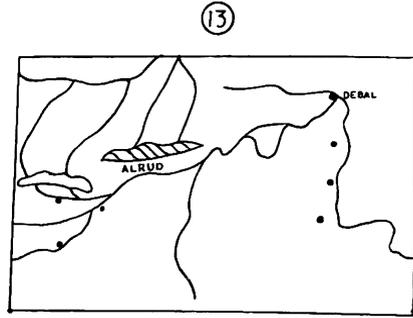
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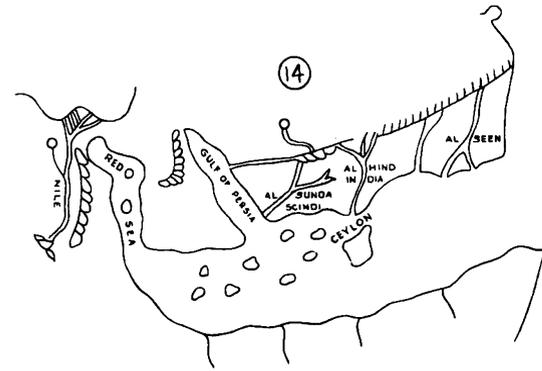
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VOL VI AL-IDRISI



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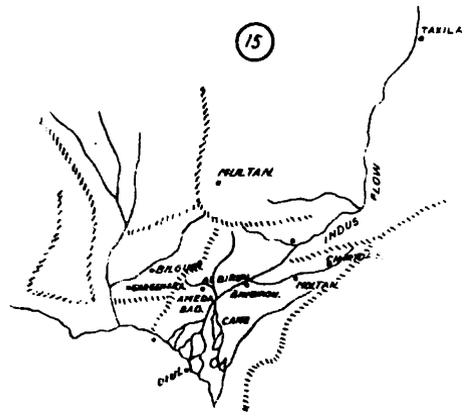


FROM MAP OF THE WORLD TAKEN FROM AN ARABIAN MS. OF AL-IDRISI IN THE BODLEIAN LIBRARY (N.B. THE ARABIAN GEOGRAPHERS REPRESENT THE WORLD AS AN EGG FLOATING IN A BASIN OF WATER.)

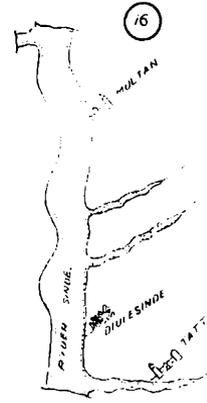
COLLECTED BY *Prof. M.B. PITHAWALLA*

SHEET 3

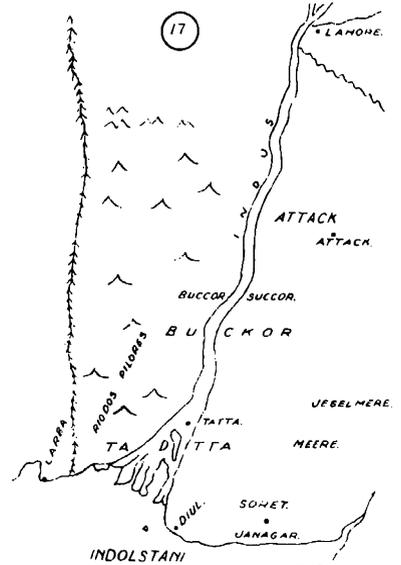
J. ABBOT'S COLLECTION



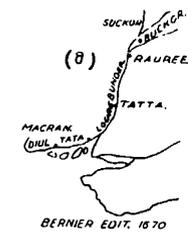
MERCATOR. WELTKARTE. 1569. BL. II



WALTER PAYTON'S MAP VOL II PURCHAS HIS PILGRIM'S BRITISH MUSEUM AGO. MS. 1827 B.



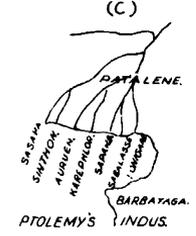
INDOLSTANI LONDON 1619 WILLIAM BAFFIN THE GREAT NAVIGATOR BASED ON INFORMATION SUPPLIED TO HIM BY SIR THOMAS ROE



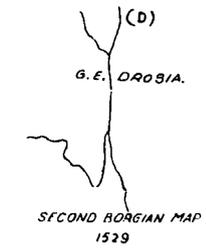
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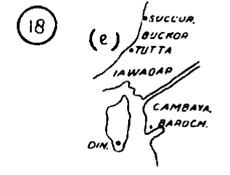
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PTOLEMY'S INDUS. 1700



SECOND BORGIA MAP 1529



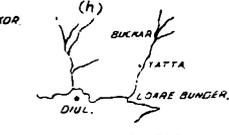
SIR THOMAS HERBERT'S MAP



MANDELSLO EDIT. 1720



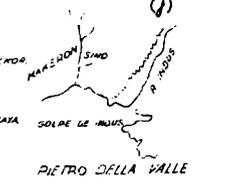
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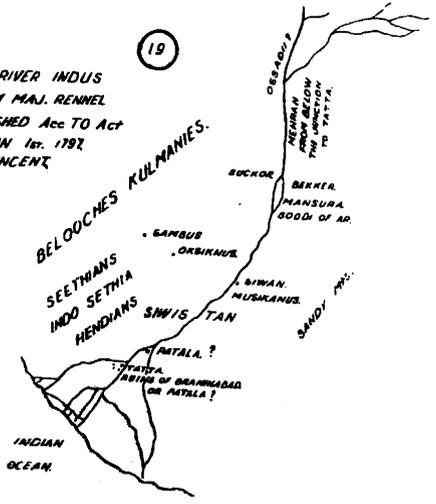


HARRIS II 1705

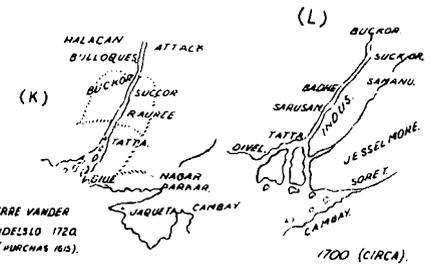


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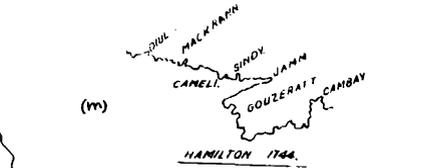
SKETCH OF THE RIVER INDUS COLLECTED FROM MAJ. RENNEL & OTHERS PUBLISHED ACC TO ACT OF PARLIAMENT JAN 1st. 1797 BY DR. VINCENT



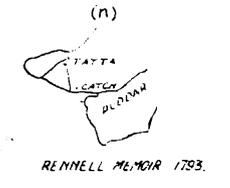
PLAN OF THE COAST FROM THE INDUS TO THE PERSIAN GULF CODIED FROM A MSS. COMPILED BY MR. DALRYMPLE. 1795. PUBLISHED ACC. TO ACT OF PARLIAMENT JAN. 1st. 1797 BY DR. VINCENT.



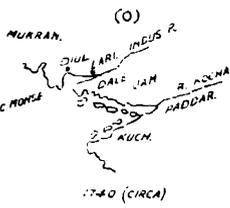
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HAMILTON 1766



RENNELL MEMOIR 1783

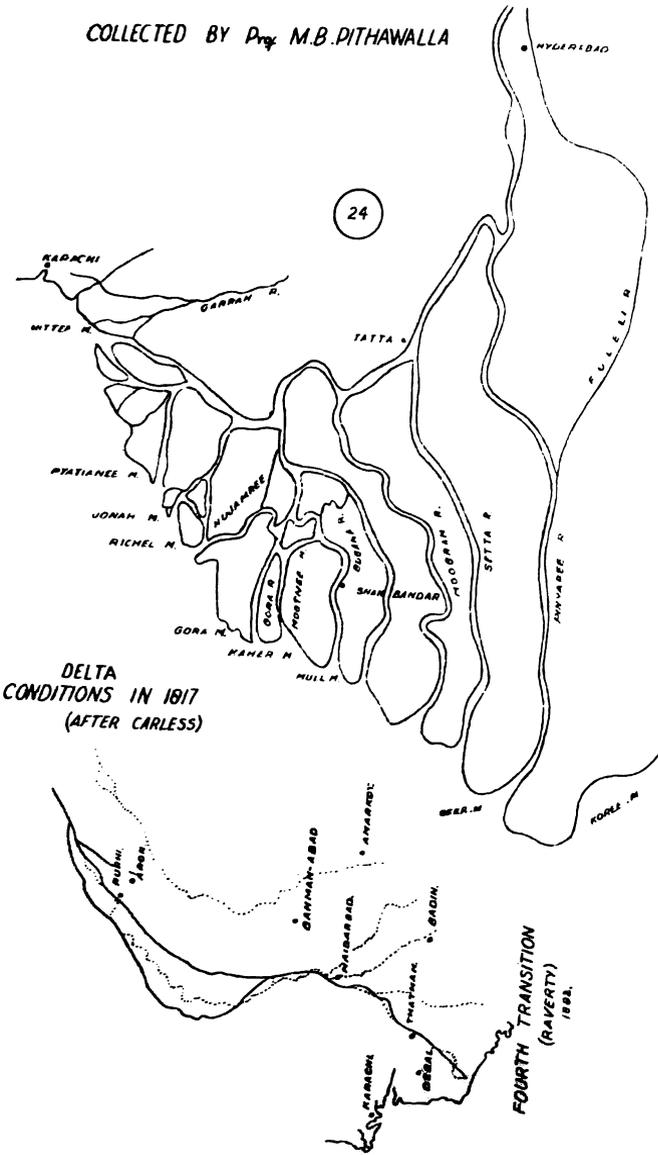


1740 (CIRCA)

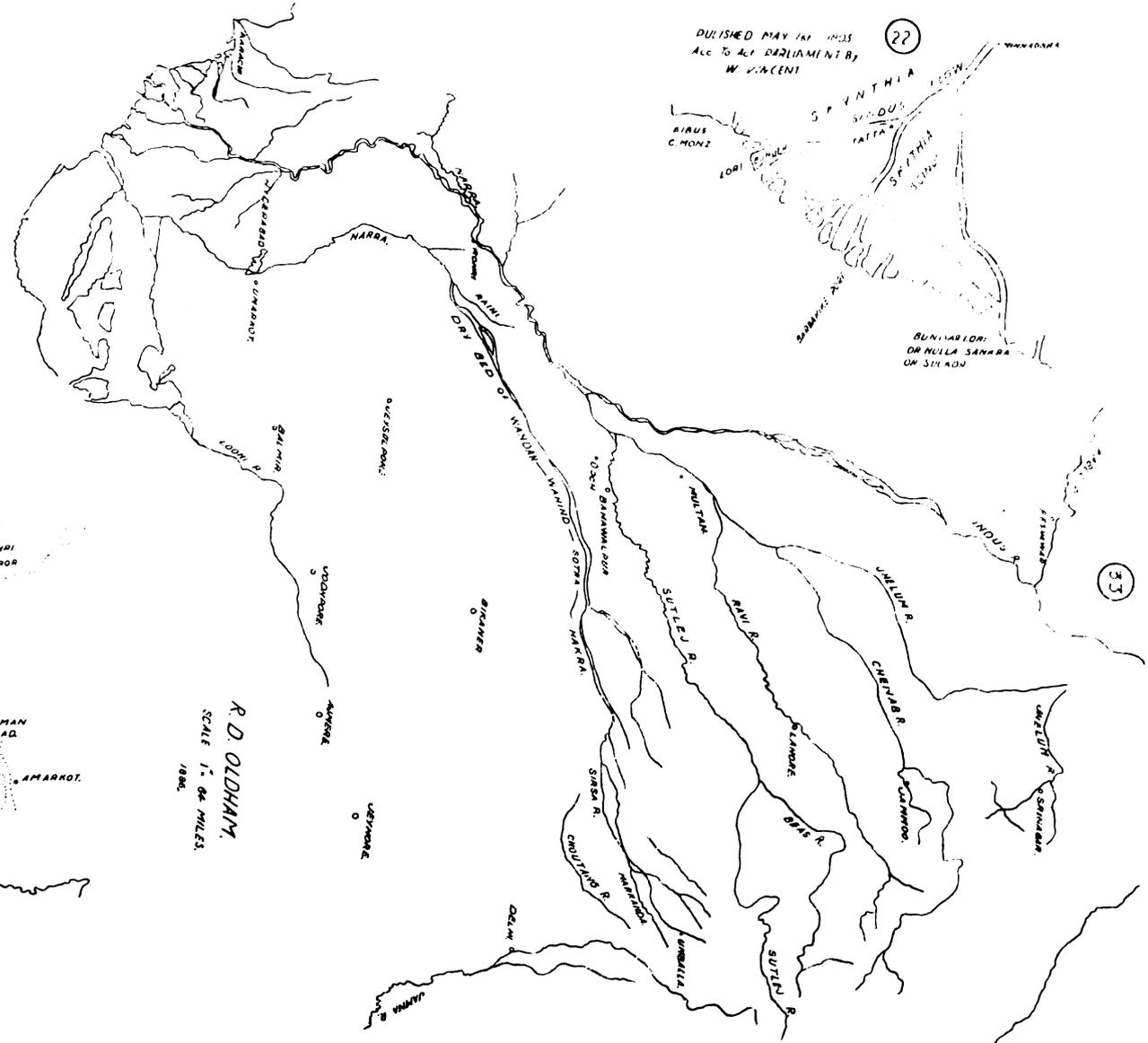
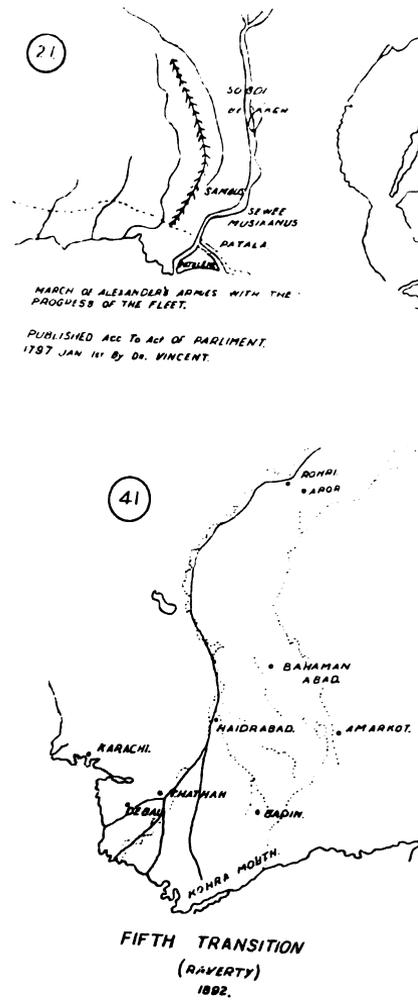


COL. SIR JOHN MALCOLM'S HISTORY OF PERSIA.

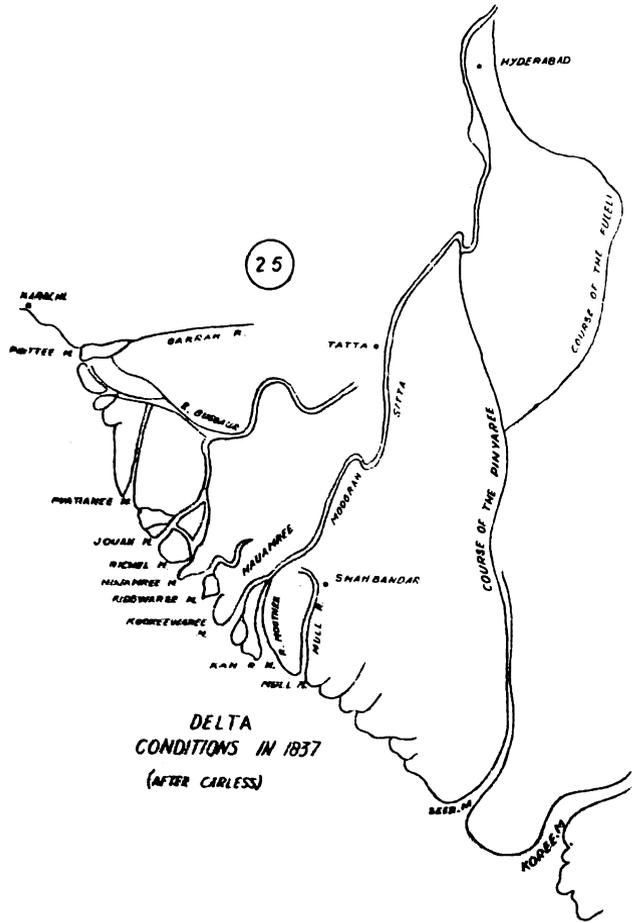
COLLECTED BY P^Y M.B. PITHAWALLA



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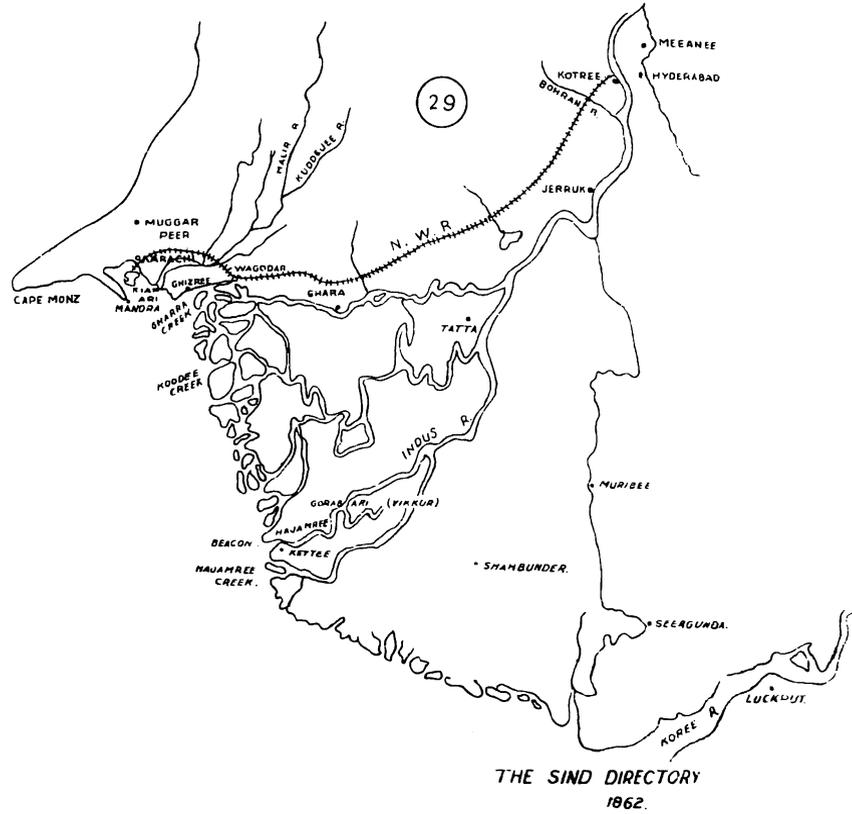


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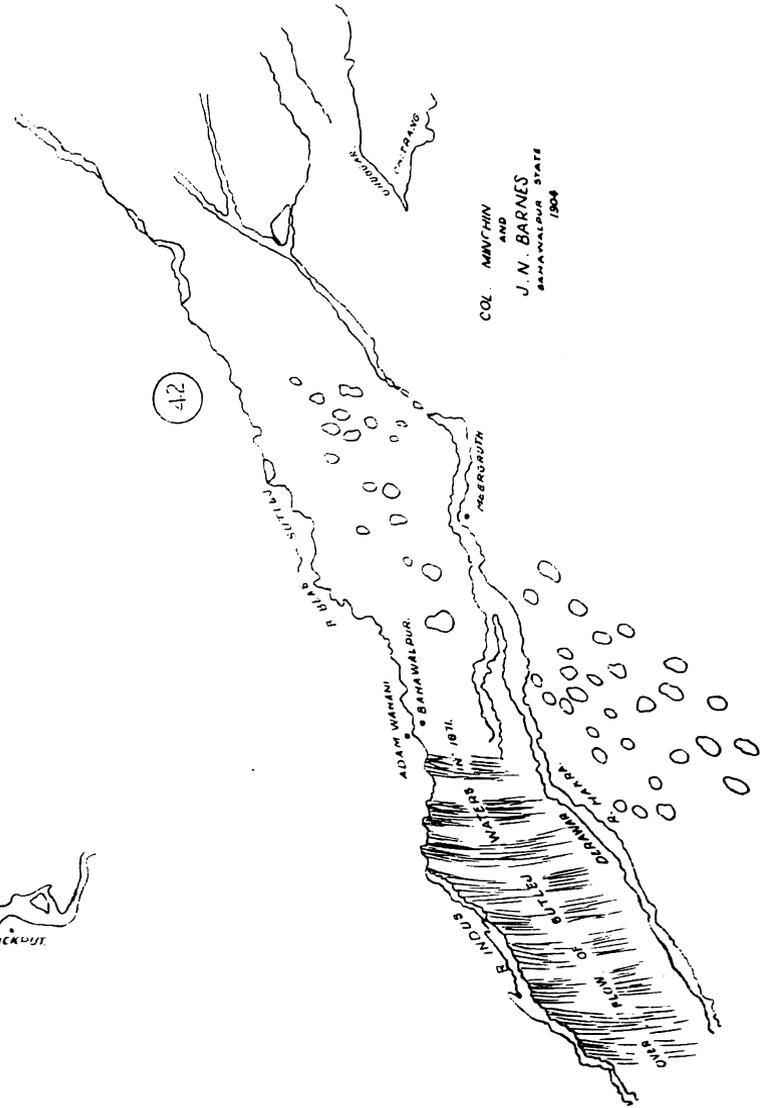


DELTA CONDITIONS IN 1837 (AFTER CARLESS)

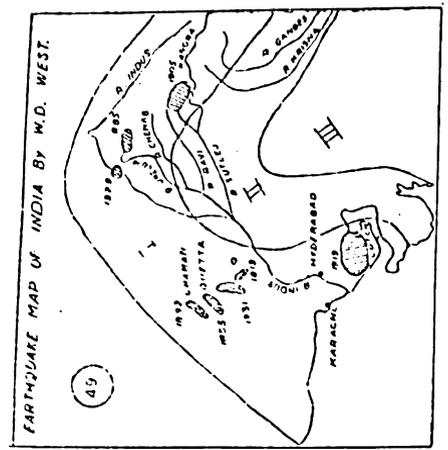
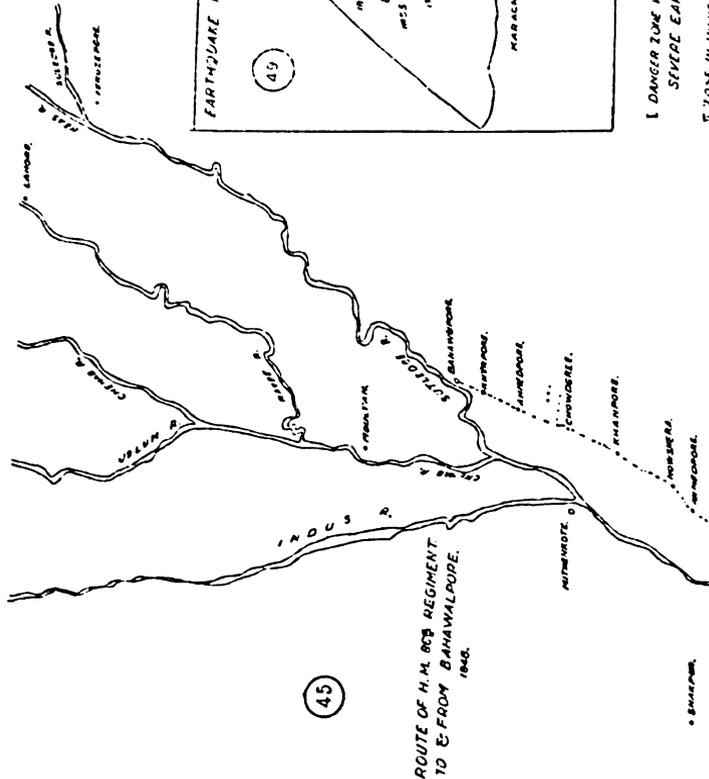
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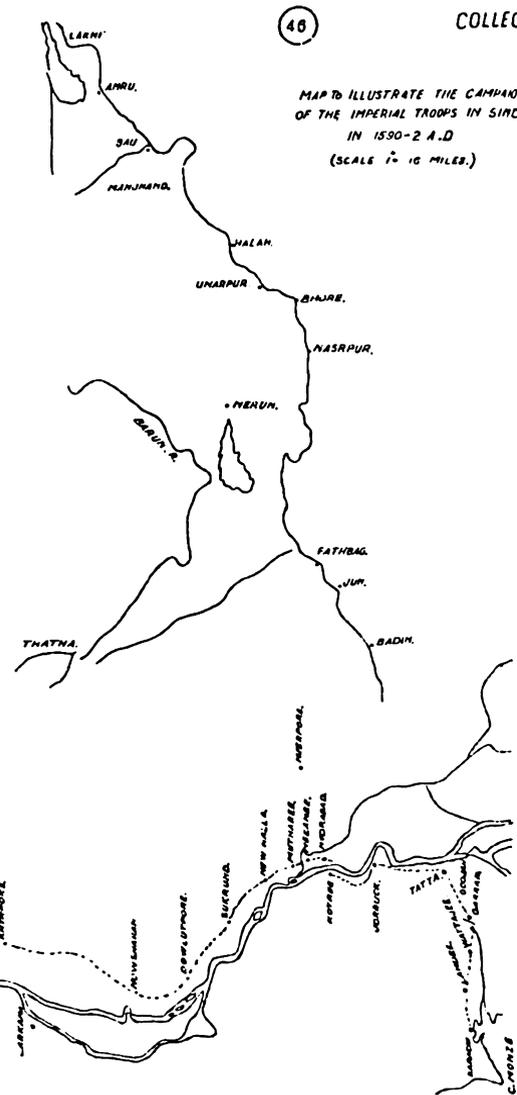
THE SIND DIRECTORY 1862.



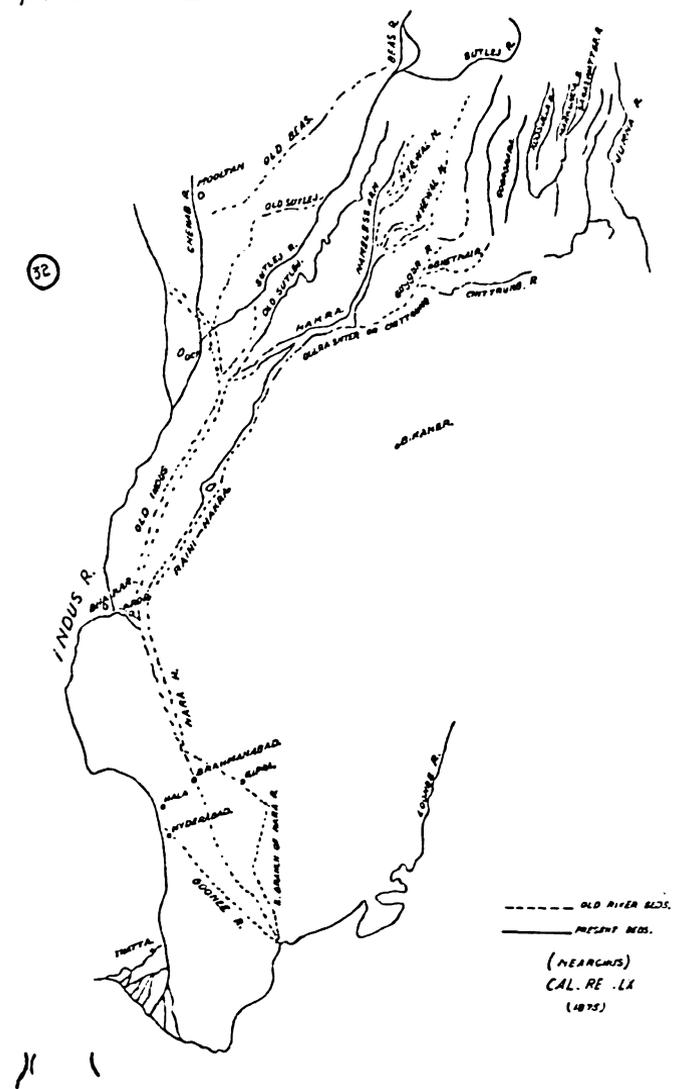
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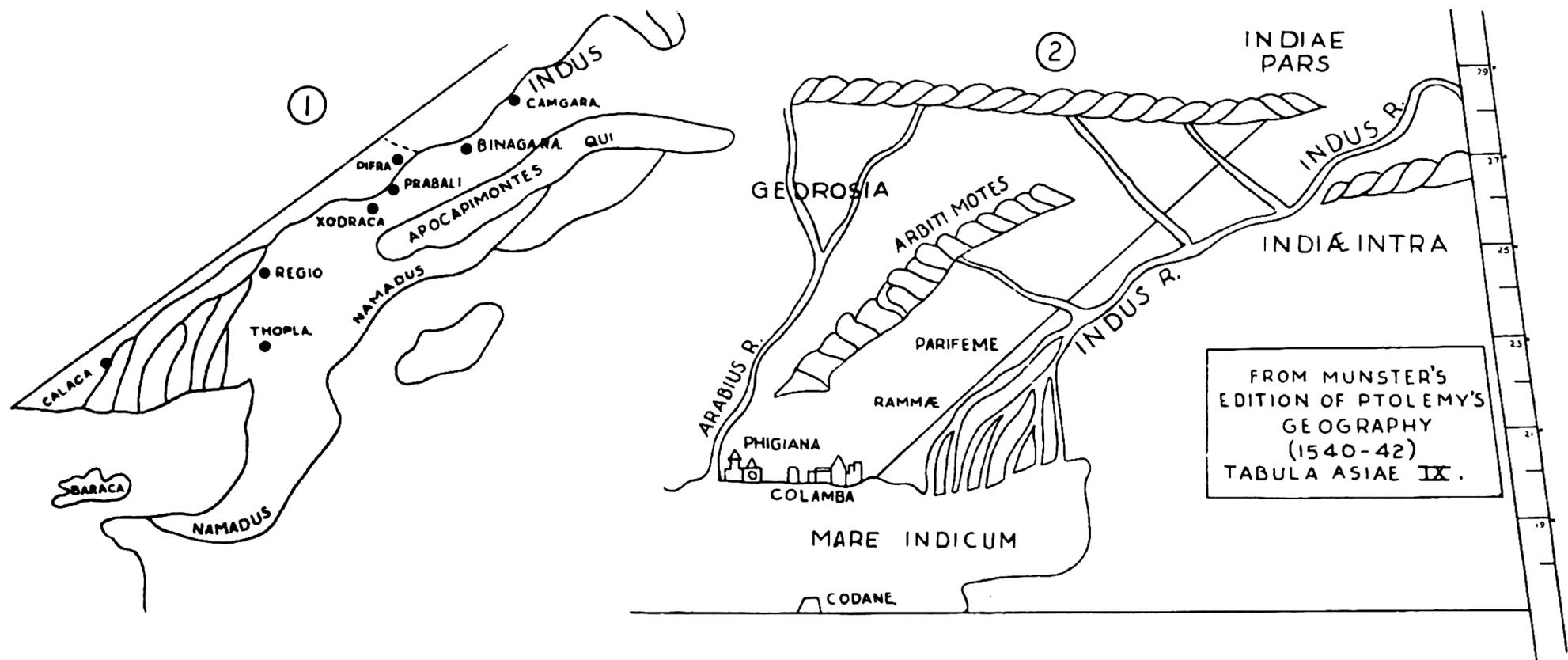
I DANGER ZONE WITH EPICENTRES (SHADED AREA) OF SEVERE EARTHQUAKES SINCE 1850.
 II ZONE IN WHICH SEVERE DAMAGE MAY BE CAUSED BY EARTHQUAKES OCCURRING IN THE DANGER ZONE.
 III AREA OF COMPARATIVE SAFETY.



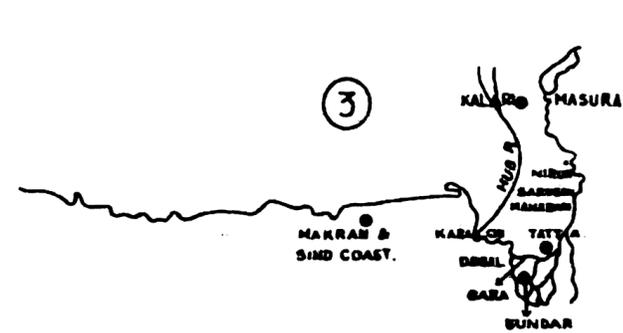
48
 MAP TO ILLUSTRATE THE CAMPAIGN OF THE IMPERIAL TROOPS IN SINDH IN 1550-2 A.D.
 (SCALE 1" = 10 MILES.)
 COLLECTED BY Prof. M.B. PITHAWALLA



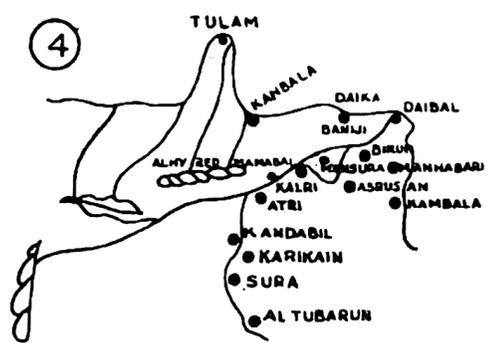
--- OLD RIVER BEDS.
 ——— PRESENT BEDS.
 (NEARCATS)
 CAL. RE. LX
 (1875)



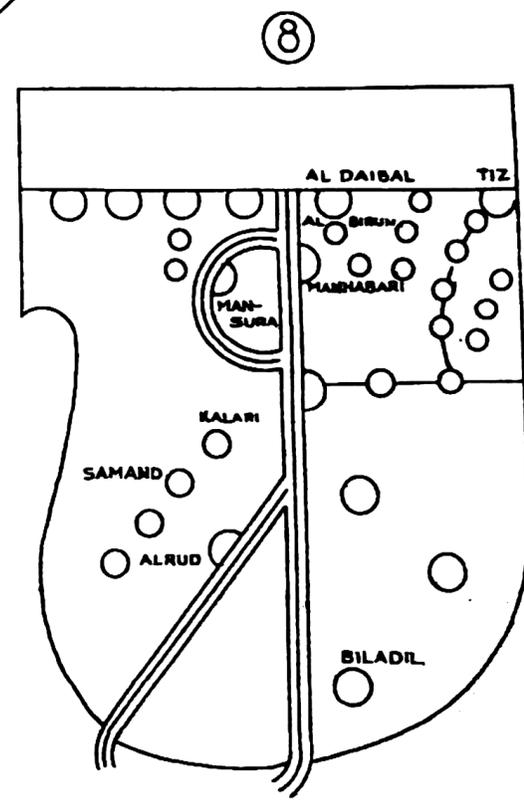
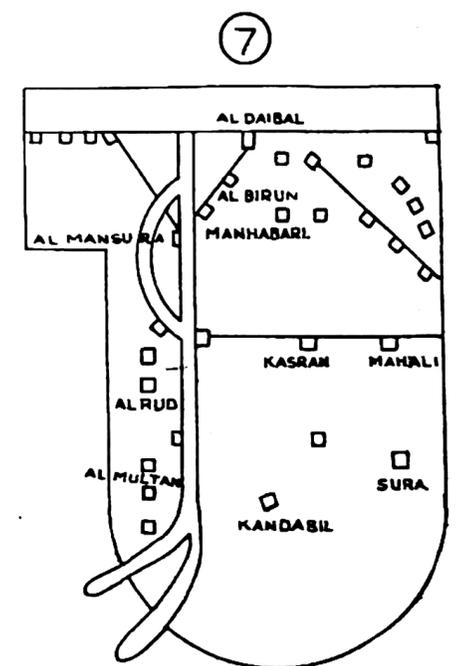
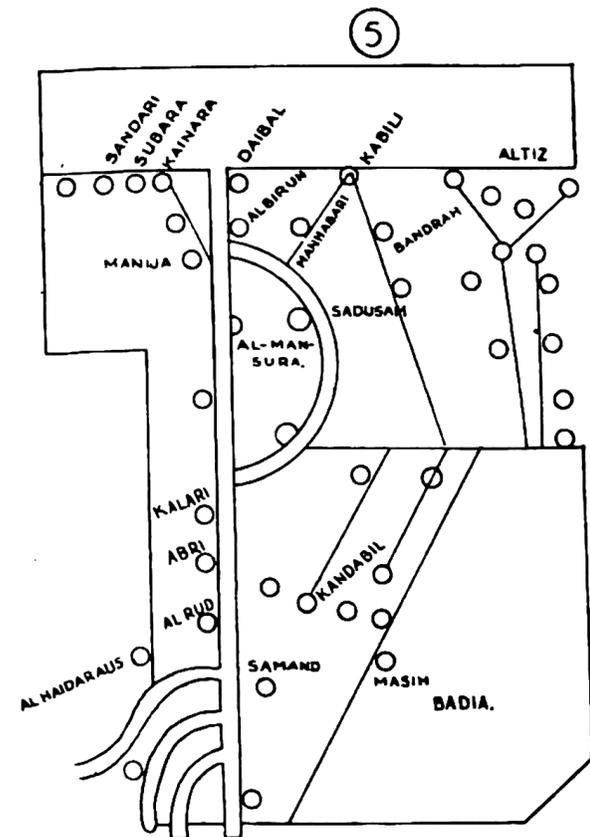
ISLAM MAPS- Mapped Arabicae
KONRAD MULLER
(DIFFERENT VERSIONS)



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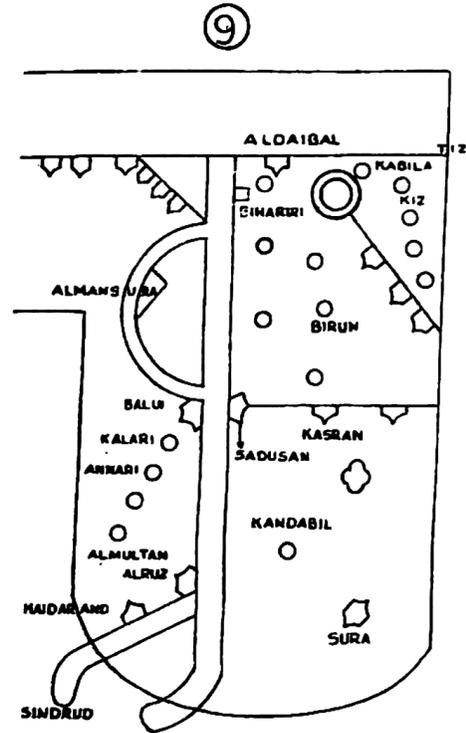


NACH IDRISI
VOL III P. 39.

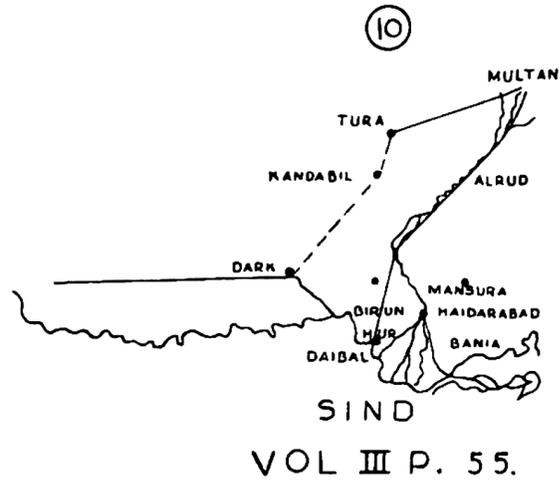


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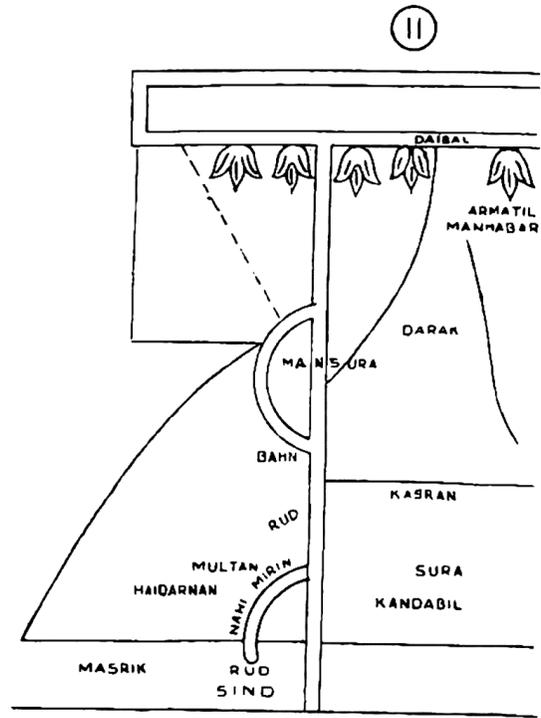
COLLECTED BY Prof. M.B. PITHAWALLA



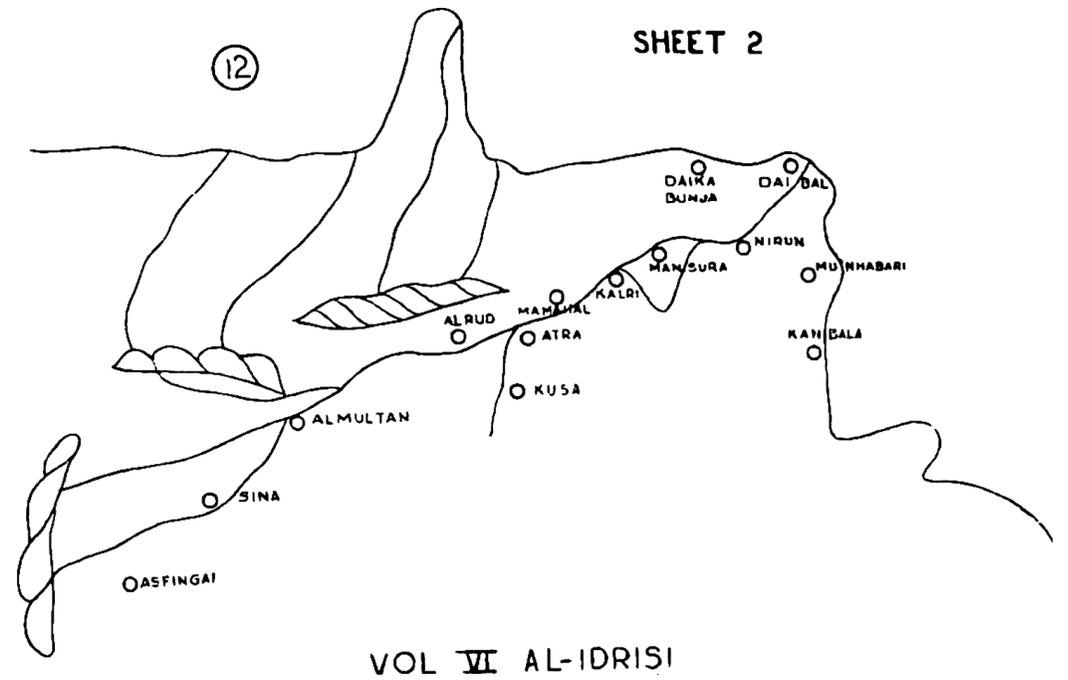
VOL III P. 53



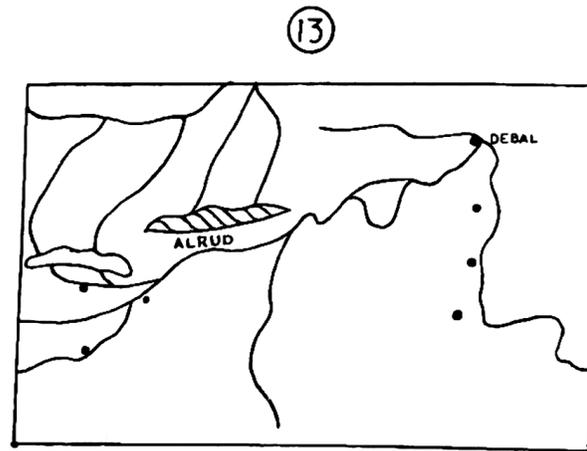
VOL III P. 55.



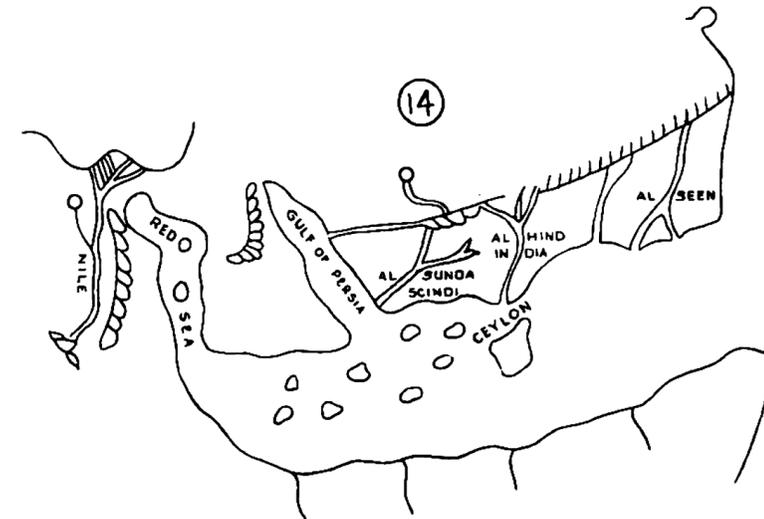
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VOL VI AL-IDRISI



VOL VI. P. 17

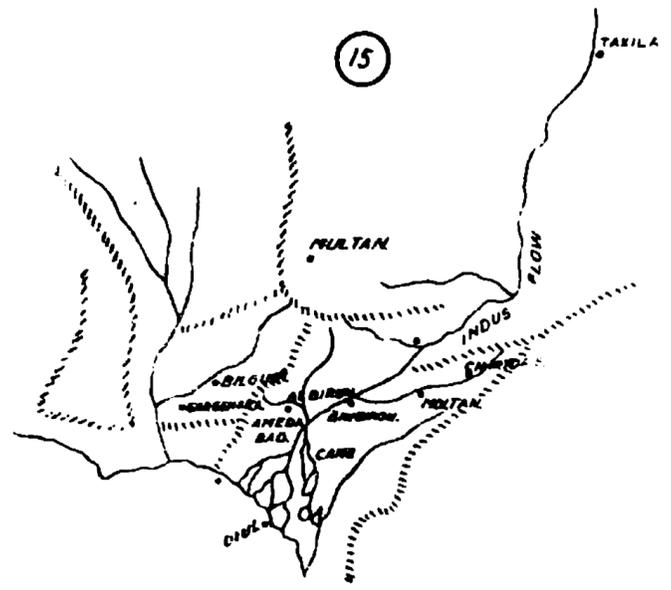


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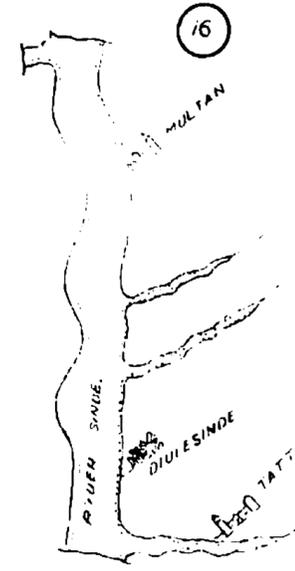
COLLECTED BY Prof. M.B. PITHAWALLA

SHEET 3

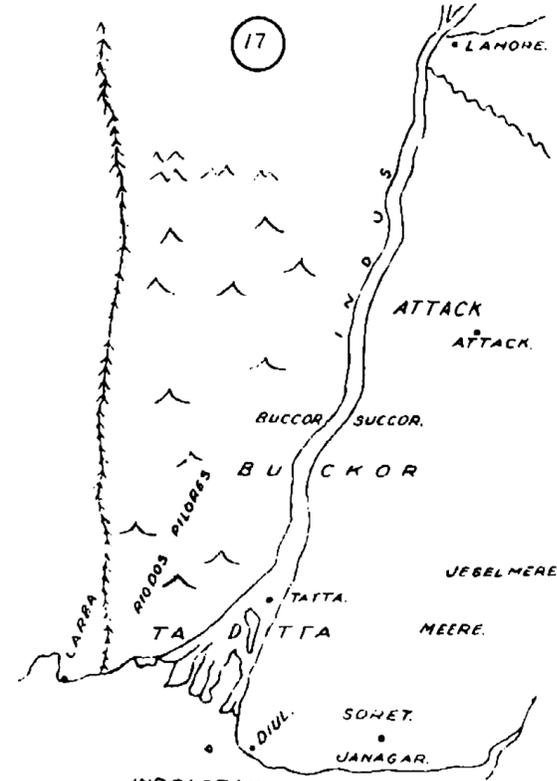
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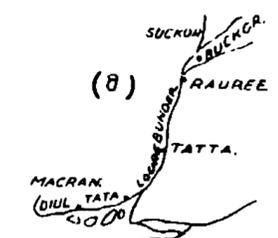
MERCATOR. WELTKARTE. 1569 BL. II



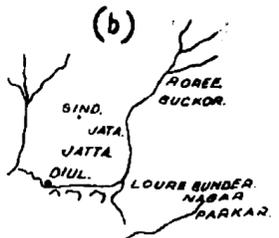
WALTER PAYTON'S MAP VOL II PURCHAS HIS PILGRIM'S BRITISH MUSEUM AGU. MS 1927.6



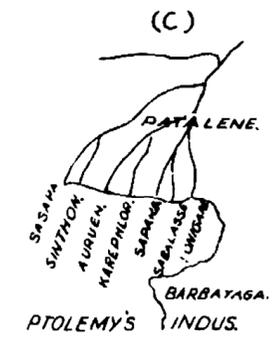
INDOLSTANI LONDON 1619 WILLIAM BAFFIN THE GREAT NAVIGATOR BASED ON INFORMATION SUPPLIED TO HIM BY SIR THOMAS ROE.



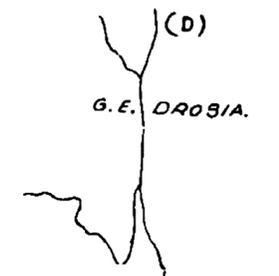
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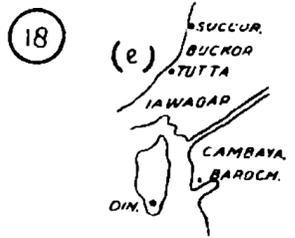
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PTOLEMY'S INDUS.



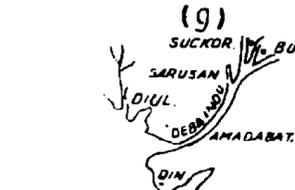
SECOND BOGIAN MAP 1529



SIR THOMAS HERBERT'S MAP



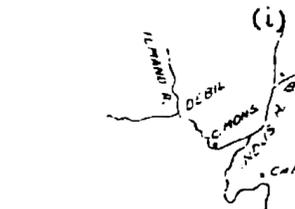
MANDELSLO EDIT. 1720



MANDELSLO 1720.



HARRIS I 1705

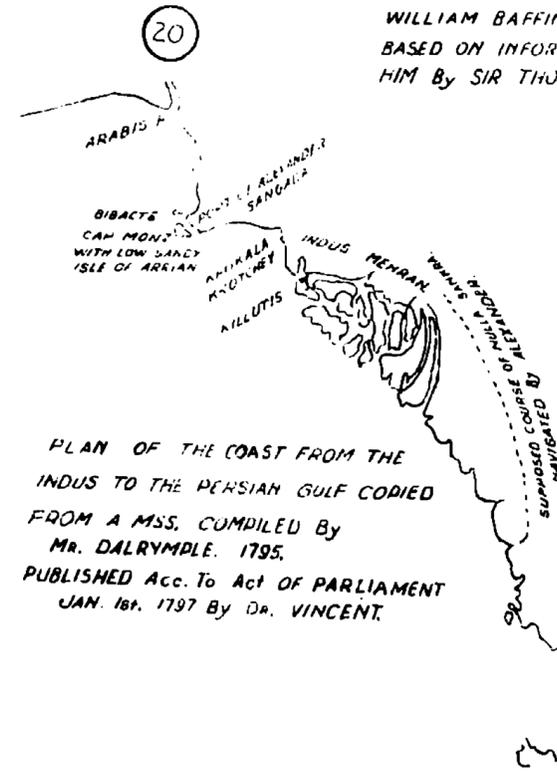
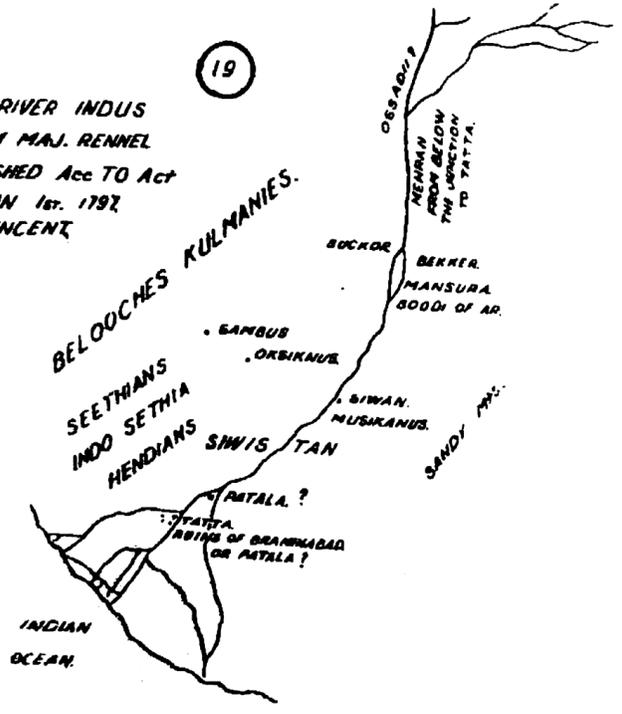


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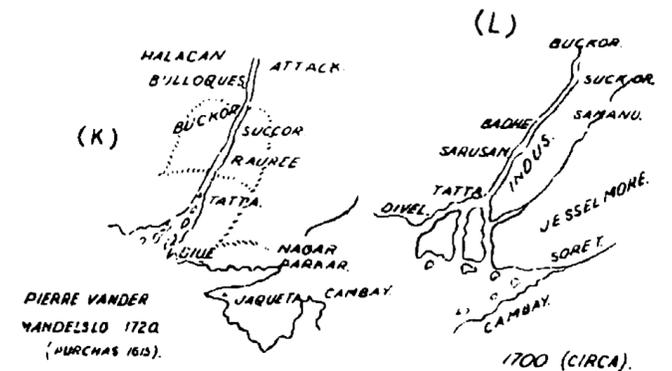


PIETRO DELLA VALLE

SKETCH OF THE RIVER INDUS COLLECTED FROM MAJ. RENNEL & OTHERS PUBLISHED ACC TO ACT OF PARLIAMENT JAN 1st. 1797 BY DR. VINCENT



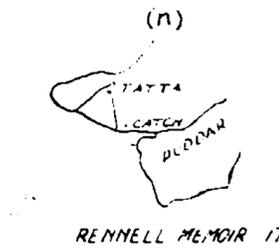
PLAN OF THE COAST FROM THE INDUS TO THE PERSIAN GULF COPIED FROM A MSS. COMPILED BY MR. DALRYMPLE. 1795. PUBLISHED ACC TO ACT OF PARLIAMENT JAN. 1st. 1797 BY DR. VINCENT.



PIERRE VANDER MANDELSLO 1720 (PURCHAS 1612). 1700 (CIRCA).



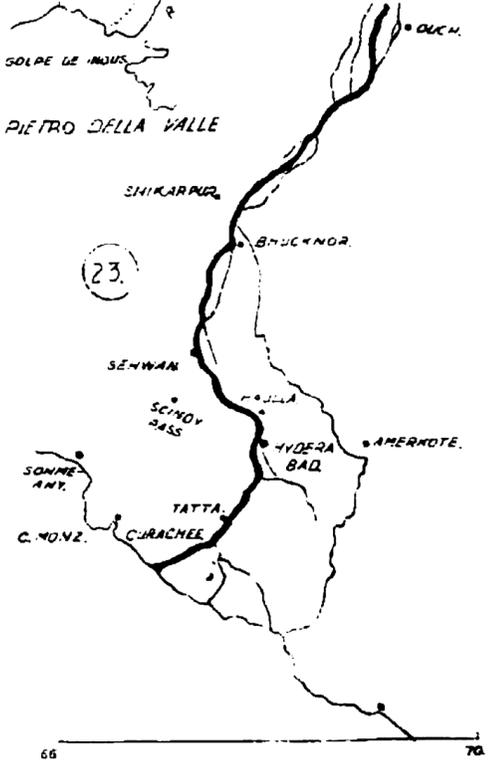
HAMILTON 1744.



RENNELL MEMOIR 1793.



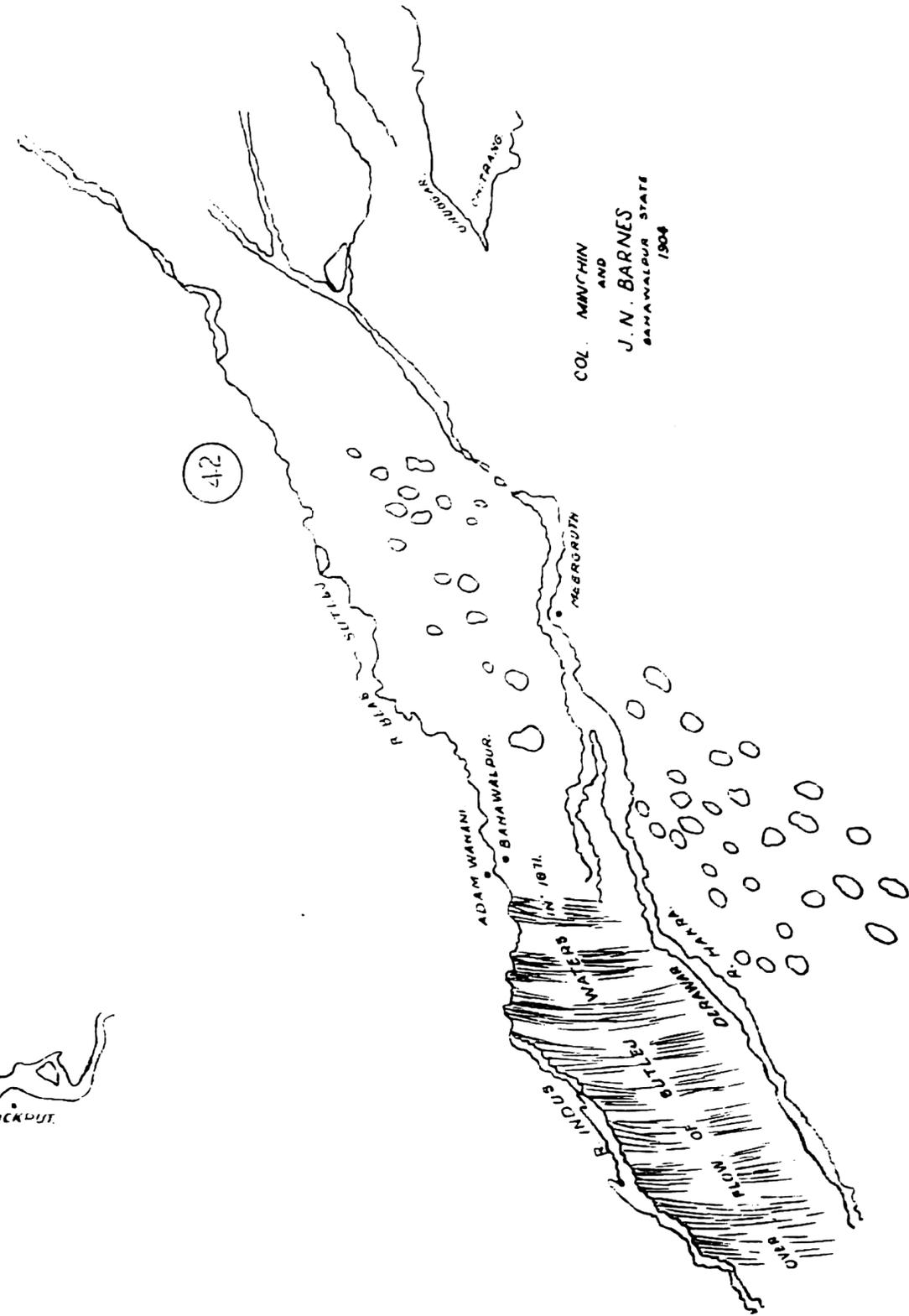
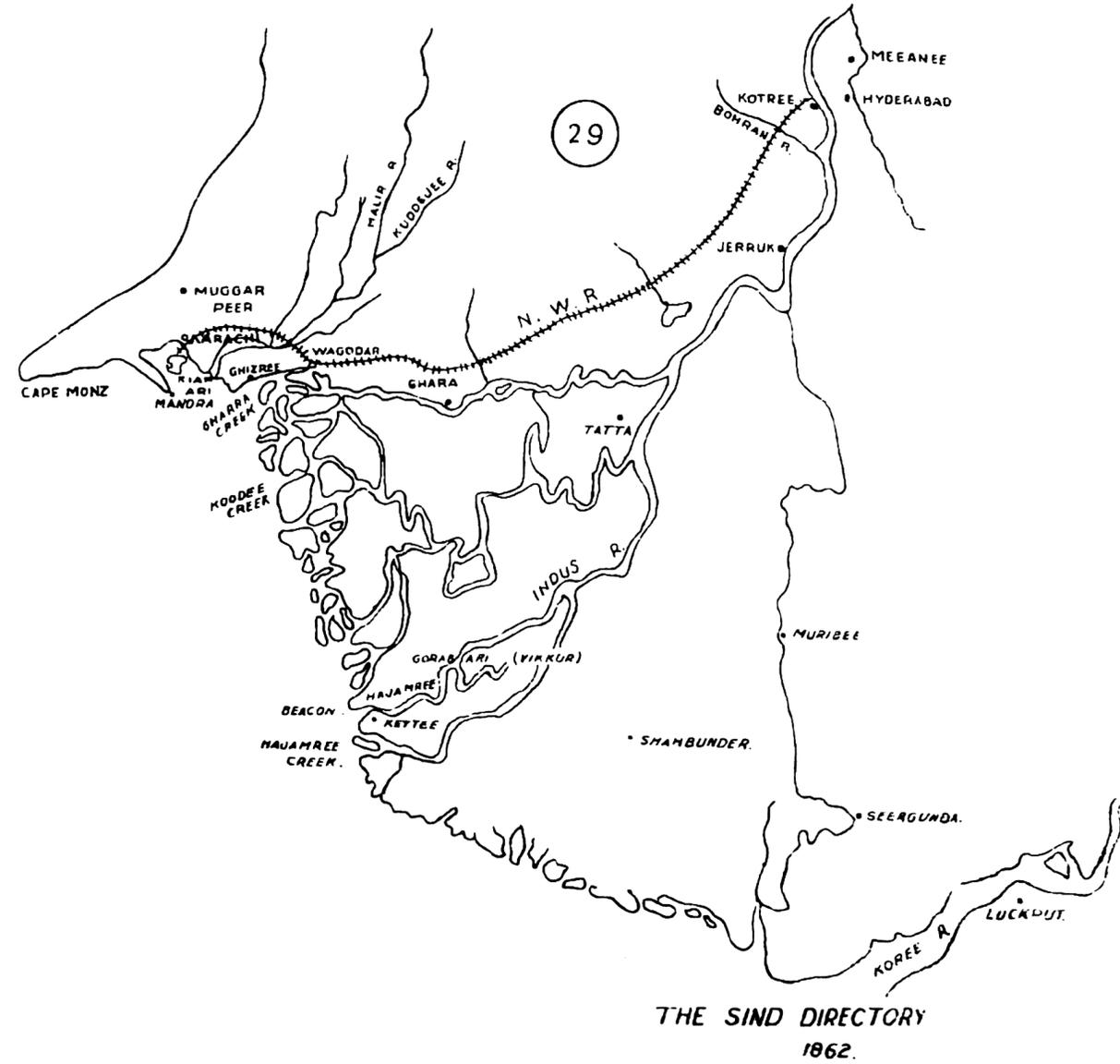
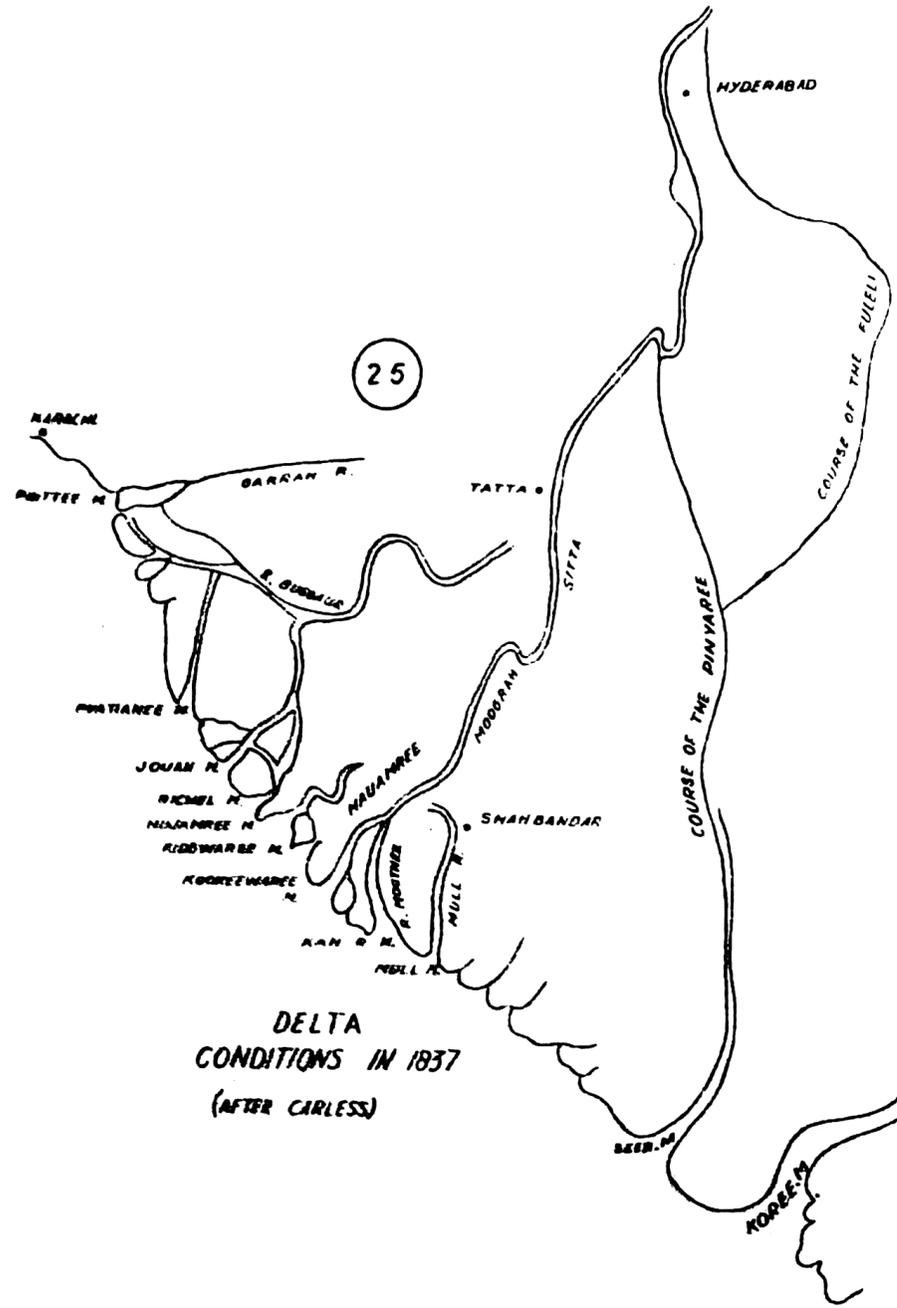
1740 (CIRCA)



COL. SIR. JOHN MALCOLM'S HISTORY OF PERSIA.

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SHEET 7

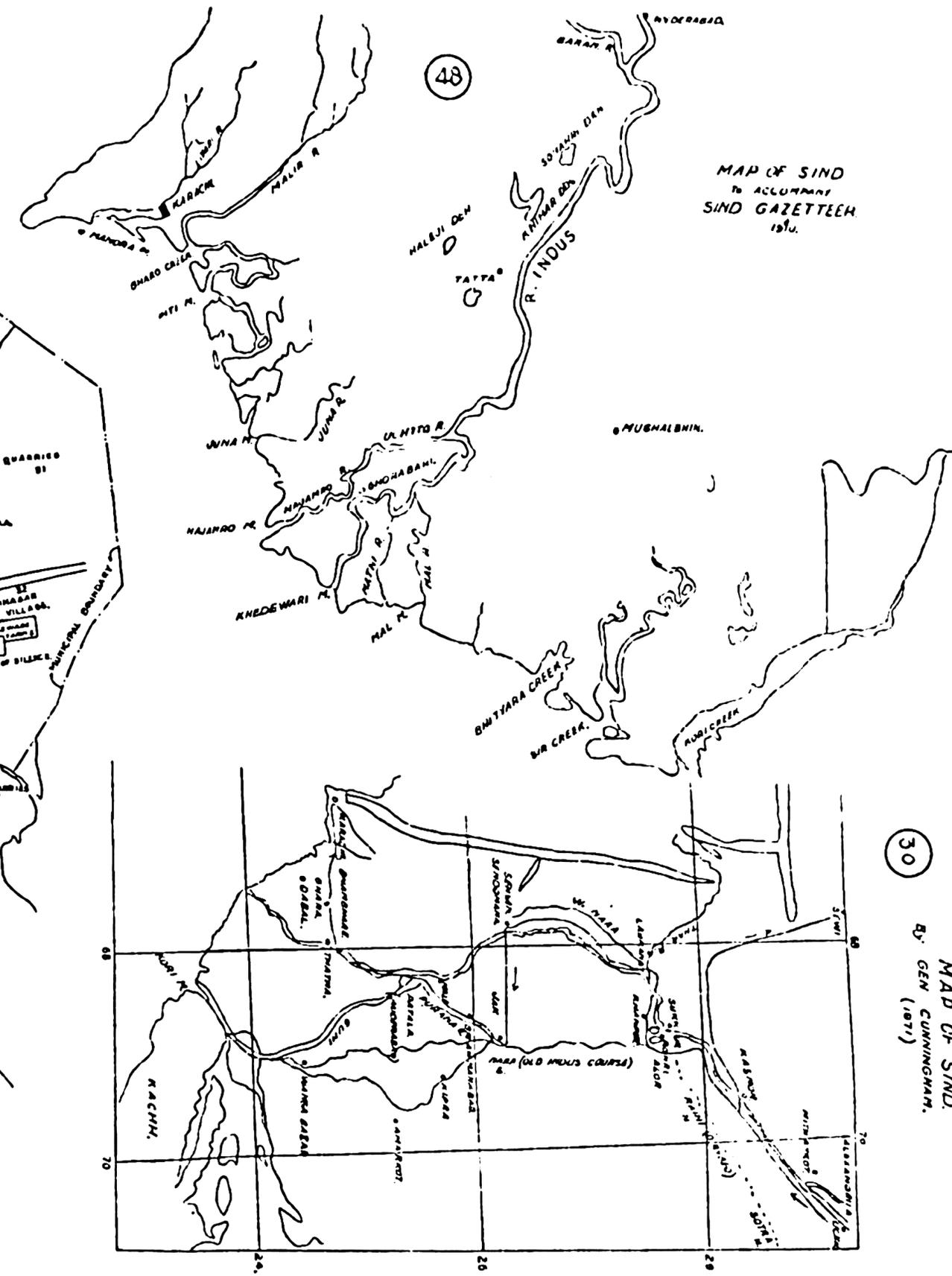
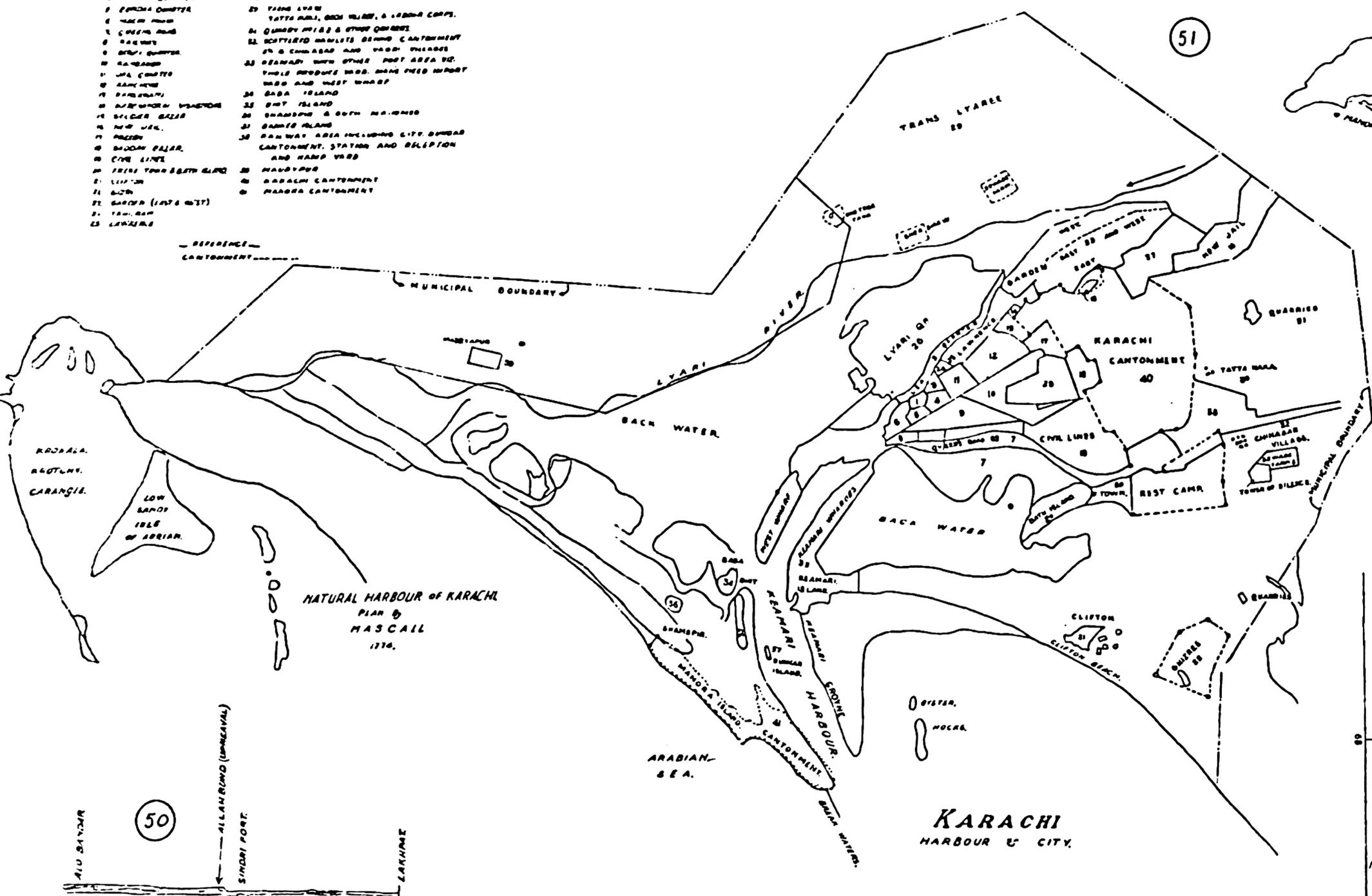


KEY TO QUARTERS

- | | |
|-------------------|--|
| 1 OLD TOWN | 21 QUARTERS |
| 2 LEA QUARTERS | 22 GARDENS |
| 3 NETHER QUARTERS | 23 BOTTLED FLORUM |
| 4 UPPER QUARTERS | 24 TANGI LANE |
| 5 FRENCH QUARTERS | 25 TANGI LANE, BACH ISLAND, & LAROSA CORPS. |
| 6 TANGI LANE | 26 QUARTERS 11 & 12 |
| 7 QUARTERS 13 | 27 SCATTERED BARRACKS BEHIND CANTONMENT |
| 8 QUARTERS 14 | 28 5th & 6th BATTALIONS AND VARIOUS VILLAGES |
| 9 QUARTERS 15 | 29 BEACHES WITH OTHER POST AREA VILLAGES |
| 10 QUARTERS 16 | 30 TANGI LANE, BACH ISLAND, & LAROSA CORPS. |
| 11 QUARTERS 17 | 31 BACH ISLAND |
| 12 QUARTERS 18 | 32 SHAMSHA & SOUTH BARRACKS |
| 13 QUARTERS 19 | 33 BACH ISLAND |
| 14 QUARTERS 20 | 34 RAILWAY AREA INCLUDING CITY BARRACKS |
| 15 QUARTERS 21 | 35 CANTONMENT, STATION AND RECEPTION AND HANGAR YARD |
| 16 QUARTERS 22 | 36 HADYPOUR |
| 17 QUARTERS 23 | 37 KARACHI CANTONMENT |
| 18 QUARTERS 24 | 38 KARACHI CANTONMENT |
| 19 QUARTERS 25 | 39 KARACHI CANTONMENT |
| 20 QUARTERS 26 | 40 KARACHI CANTONMENT |
| 21 QUARTERS 27 | 41 KARACHI CANTONMENT |
| 22 QUARTERS 28 | 42 KARACHI CANTONMENT |
| 23 QUARTERS 29 | 43 KARACHI CANTONMENT |

SHEET 10

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