Sumatran Coastline in the Straits of Bangka: New Evidence for its Permanence in Historical Times

by Dr. Pierre – Yves Manguin

When, after visiting the lower reaches of the Sungei Musi, Professor O.W. Wolters wrote his Note on Sungsang Village", he suggested that "the present estuary and shipping fairway, connecting Palembang with the sea, have not substantially changed since the fourteenth century."[1] O.W. Wolters based his iconoclastic hypothesis on field observations and on mostly 15th century Chinese literature. In doing so, he revised his own earlier suggestions and ran counter to most previous theories which stated that major geomorphic changes had taken place in the area in historical times[2].

The present paper will bring new evidence in support of O.W. Wolter's hypothesis. The adduced evidence is to be found in early 16th to mid-17th century Portuguese nautical literature – ***roteiros*** (seapilots) written by Portuguese pilots familiar with Indonesian waters and particularly with the all-important fairway of the Straits of Bangka – and, to some extent, in maps they themselves drew.

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Evidence from the Roteiros

Quite a number of Portuguese Roteiros provide us with sailing directions for the crossing of the Straits of Banka, in both directions. Not all of them are precise enough to be of any value for this paper. On the other hand, roteiros with an identical text will be found in different manuscript collections. Most of these texts remain unpublished so far and have been consulted in the original manuscript form.

Those that have been selected as evidence for this paper are contained in the following volumes:

1. ***Codex Castello Melhor*** (abbreviated as ***CCM:*** private collection, Lisbon) and ***Codex Cadaval (CCad;*** private collection, Lisbon)[3].

   The second codex is a somehow improved copy of the first one. A brief description of the ***CCad,*** together with some of its texts dealing with the coasts of Viet-nam and Camfa, has been published by the present author[4]. The original version, i.e. the ***CCM,*** remains totally unedited[5]. The roteiros copied in these two volumes were brought together around the middle of the 17th century but a greater number were written during the 16th century. Only the more trustworthy text of the original ***CCM*** has been used for this paper (for. 56v°-57v° 58r°-59r°, 87v°-88r°); a few readings have nevertheless been double checked with the ***CCad*** texts.
2. Manuscript n° 1-12,3,6 of the Biblioteca Nacional, Rio de Janeiro (BNRio; fol. 118v°-119r°, 130v°, 133v°-134r°).

   A thorough description of this codex has been published by A. Teixeira da Mota, together with a selection of its texts[6]. So far, those on the Bangka Straits remain unpublished. This collection of roteiros was brought together sometime after 1633, but, again, some of the roteiros it contains were writern much earlier.
3. ***Livro da marinharia*** by Joao de Lisboa (***LMar:*** published in Lisbon in 1903 by J.I. de Brito Rebello).

   The roteiros of this collection were written and brought together in the first quarter of the 16th century. The texts on the Straits of Banka are found on pages 248-250, 256-259.
4. ***Reys-Gheschrift*** by Jan Juygen van Linschoten (RGL).

   This collection of Portuguese roteiros in Dutch translation was first published by Linschoter in 1595. The edi-

tion used for this paper is that of the Linschoten-Vereeniging (vols. IV&V, ed. by J.C.M. Warnsinch, of the complete works of Linschoten, published under the general title of *Itinerario*, ,s-Gravenhage, 1934-39; vol. IV, pp. 139-140, vol, pp. 159-161). O.W. Wolters translated as an appendix to his study the first of these two roteiros dealing with the Banka Straits[7].

The Route

To avoid the reefs along the rocky Banka coast, the route followed by the Portuguese pilots (and, no doubt, by all other pilots) ran close to the muddy Sumatran coast. Rather than ask navigators to rely on precise cape reckoning, the authors of the roteiros advised them to constantly check the depth and to keep their ship within the limits of a channel 7 to 12 fathoms deep. This means that the route ran some five nautical miles (9 km) from the main coastline of Sumatra, which is often very close to its 3 fathom depth line. Indeed, as it is more than once noted by the authors, better hit a mud bank on the Sumatran side than a rock on the Bangka side. This explains why most of the informations provided in these roteiros deal with the Sumatran coast at length, the area we are interested in.

Landmarks

The only three landmarks in Pulau Banka described are: the Menumbing hills and cape which are an all important landfall on the way south from the Straits of Malaka; Pulau Nangka which has to be sighted before rounding Tanjung Selokan and changing course further to the south; and Tanjung Berani which face Tanjung Tapah on Sumatra and where the Banka Straits is at its narrowest.

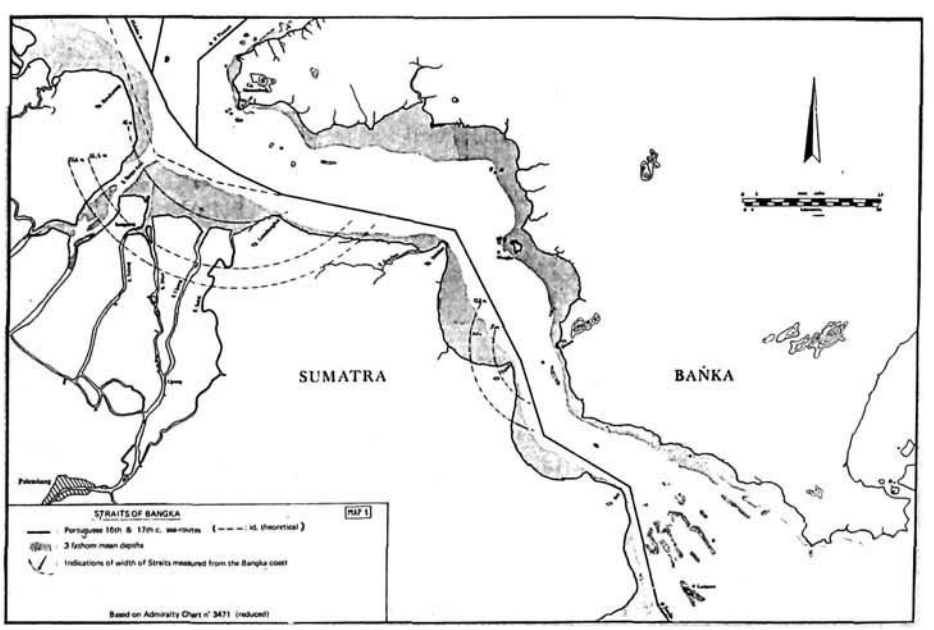
As these three landmarks are rocky and cannot have shifted position in historical times, they will be used here, as indeed they are used by contemporary navigators, as fixed points to estimate the position of the ship and, consequently, of the Sumatran coastline.

Let us now examine the information on the Sumatran coastline available in the roteiros. Moving from northwest to southeast, after sighting *Monopim* (the Menumbing hills) on Banka, the ships drew near to Sumatra until the low green line of its mangrove woods was visible. Due west of Menumbing, a cape had to be rounded, which carried a few rocks out at sea. No such reefs may be found nowadays off Tanjung Batukarang. But the Malay name of the latter — meaning "reef" —, as well as its precise position indicate that this is the one which is meant in the roteiro. A confirmation of this may be sought in the modern **Eastern Archipelago Pilot** (vol. IV: 74), which remarks that Tanjung Batukarang keeps extending towards the sea. These reefs may thus have been swallowed by the moving coastline. This cape is followed in the roteiros by a bay which again may only be interpreted as a wider and deeper opening of the estuary of the Sungei Banyuasin than that represented nowadays on nautical charts. The coastline south of Tanjung Batukarang, now concave, seems to have been convex in the 16th century.

The roteiros provide us with a rather crude method of estimating the amplitude of land accretion on Tanjung Batukarang since the time when they were written. The south-southeast route that had to be followed from Pulau Berhala to the entrance of the Straits would bring the ship much too close to the land, by some 4 nautical miles (n.m.) (7,4 km), if it is plotted on a modern chart. This distance — provided the 7 fathom depth line the ship had to stay clear of was then at a similar distance from the coast — would constitute a maximum estimate for land accretion in this area.

The Three Mouths

This is the only evidence of any change in the coastline of Sumatra, and it is restricted to the Banyuasin estuary. Afterwards, the ships sailed along the coast where the "three mouths of Palembang" met the sea. These are undoubtedly the mouths of the three rivers leading inland to Palembang: Sungei Musi, Upang and Saleh[8]. Nowhere in the roteiros is there any mention of a bay in this area, far less any mention of a gulf stretching inland towards Palembang. The coast is always said to run along an east-west line. This firmly contradicts the informations gathered from inadequate Portuguese contemporary maps (map 1 below).



Furthermore, the width of the Straits of Bangka at this point, measured between Menumbing and the "three mouths", is often provided in the roteiros. Most of them, four out of five, give a distance of 5 leagues, i.e. 16 n.m.; the exception is an indication of "7 to 8 leagues" (22,4 to 25,6 n.m.) in a 17th century text of the *CCM*[9]. A 16 n.m. radius circle centered on the cape at the foot of Menumbing hills brings us roughly to the present coastline (see map 1). Judging from the overwhelming majority in favor of this estimate, we can accept the fact that the coastline along the mouths of the Palembang rivers has not moved since the 16th and 17th century. The unlikely estimate would bring us some 6,5 to 9,5 n.m./12 to 17.5 km more inland.

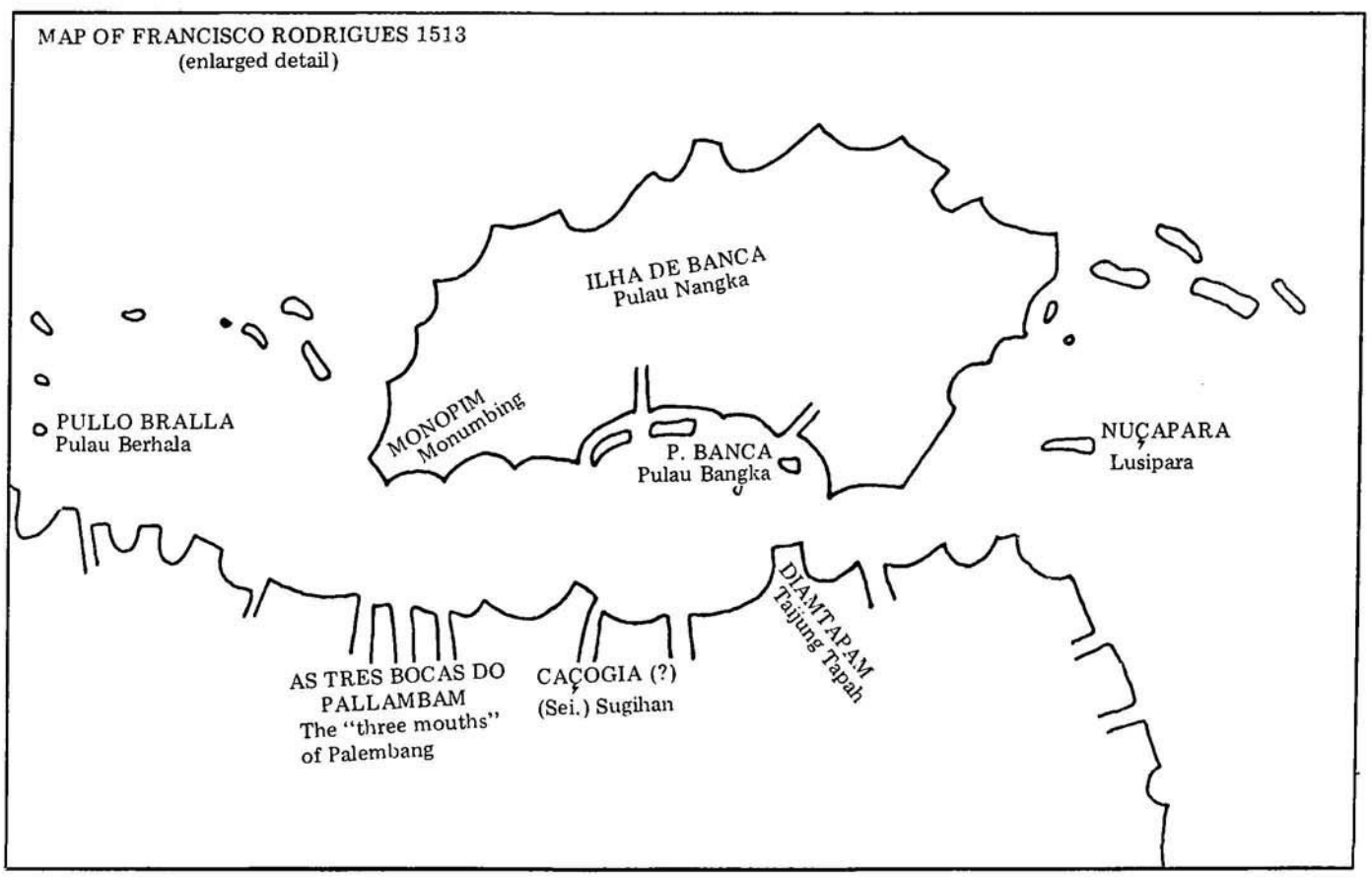
Proceeding further on a roughly easterly course, the ships reached a cape with high overhanging trees, from near which local people sailed to sell fresh food. As most capes along the Sumatran coast in the Straits of Bangka, Tanjung Selokan is made of firmer ground than the neighbouring marshy bays; the trees growing on it overtop the surrounding mangrove forest and are visible from afar. This is still noted in the modern *Eastern Archipelago Pilot* (vol. IV: 68-70). The mention of this peculiarity in Portuguese roteiros, together with the course to be steered, again do point that the coastline was by then substantially at the same place as it is now.

The next landmark on a southeasterly course is Tanjung Tapah, facing Tanjung Berani on Banka, at the narrowest point of the straits. The width between the two capes is given in two roteiros: once *(LMas,* p. 250) as 3 "short" leagues (± 9 n.m.); the second as 3 to 4 leagues i.e. 9,6 to 12,8 n.m. *(CCM,* fol. 57v°). This is contained in the roteiros which, as we have seen, grossly overestimated the width of the Straits near Menumbing. The two shorter distances, measured from the fixed point of Tanjung Berani on Bangka, fall slightly inland of Tanjung Tapah. The largest brings us some 6,5 n.m. (12 km) inland (see map 1). The fact that this cape, like Tanjung Selokan, seems to be made of firm ground is again a circumstantial evidence for a substantially unchanged coastline.

The course to be steered further to the south-east until the ship passed Pulau Lusipara and cleared the Straits is not very precise, but the general impression is that it follows the present day coastline out at sea.

Evidence from Cartography

When studying restricted areas of a specific region such as Southeast Asia, Portuguese 16th and 17th century maps are generally of a very limited value. The vast majority of those now kept in public libraries or in private collections are



planispheres and atlases describing the whole world. They were drawn at a time when Lusitanian court cartographers were interested in giving an overview of the globe as it was little by little being encompassed, rather than in describing in detail any particular area for shipping purposes.

Details of the Sumatran coast along the Straits of Banka, for example, are much too small to be correctly depicted in such large scale maps. Furthermore, understandable errors of early 16th century cartographers were often repeated without emendation late into the 17th century. A good example of this is the constant localisation of the city of Palembang on the Java coast near the Straits of Sunda, even when the real Palembang is properly situated in Sumatra. Early Dutch engravings of Portuguese originals more often than not add to the errors of their models.

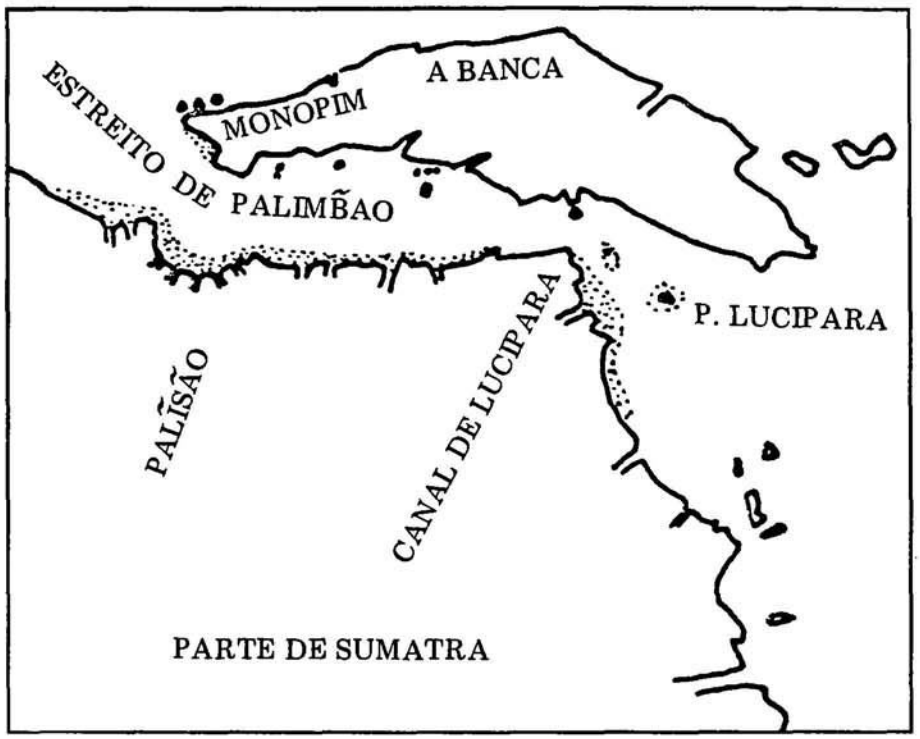
The majority of these maps, though by no means all of them, do represent a deep gulf opening itself in front of Bangka[10], and this has given rise to a lot of speculation, starting with the Obdijn[11] theory. As the accuracy of these maps can in no way be compared with that of the previously described roteiros, their evidence may reasonably be discarded when not in agreement with that of the latter[12]. Furthermore, some of the pilots who wrote these roteiros on the spot — as opposed to the court cartographers working in Lisbon from second hand information — were themselves competent cartographers. Their works are of great value for this kind of study since they provide a graphic confirmation of the textual data.

Unfortunately, only a handful of such documents have been preserved for Southeast Asia and, amongst these, a mere two maps depict the Palembang area with details enough to be useful for our purpose. Both happen to further confirm the hypothesis of an unchanged coastline near the estuary of the Musi.

Maps of Roteiro Pilots

The first map is by Francisco Rodrigues and was drawn around 1512-1513[13]. Rodrigues was one of the first Portuguese pilots to sail in Indonesian waters after the fall of Malaka in 1511. Other sources state that he interviewed local pilots at length and even sent to Lisbon a copy he made of what he called a "Javanese map". It got unfortunately lost when Albuquerque's ship sank in the Straits of Malaka[14]

Hence, no one doubts that he gathered first hand information during his stay in the region. One of the maps he drafted depicts the southeastern coast of Sumatra and the nortwestern portion of the Javanese island. The section of the map depicting the Straits of Bangka (see map 2) shows a surprising accuracy never again to be matched, to the best of my knowledge, by any other 16th century Portuguese map. It fully confirms the texts of the roteiros studied above. It shows a bay in place of what is now a concave coastline just west of the estuary of the Sungei Banyuasin and a roughly straight coastline at the openings of "the three mouths of Palembang". Tanjung Tapah (Diamtapam) is located precisely where it should be, at the narrowest point of the Straits.



Map 3: Map of André Pereira Dos Reis 1654 (detail)

The second map was drawn by the pilot-cartographer Andre Perreira dos Reis in 1654[15]. It is more modern in aspect, and certainly more elaborate than Rodrigues' map, but not that much more accurate. It seems to show a straighter coastline west of Sungei Banyuasin, which possibly indicates land accretion after almost a century and a half. The mouths of the three rivers leading to Palembang are depicted in a shallow bay, rather than in a straight line as depicted in the roteiros and in Rodrigues' map. It shows a closer rendering of what a modern chart would represent.

Conclusion

The evidence brought forward in this paper only bears upon the coastline of Sumatra facing Pulau Bangka. At the time the Portuguese documents used here were written, the city of Palembang was at its low ebb and the pilots who wrote sailing instructions for Portuguese merchants — contrary to their Chinese counterparts one or two

centuries earlier – saw no point in describing the fairway up to the city. The passage through the Straits of Bangka, leading from Malaka to Sunda, Java and to the east of the archipelago was what mattered most.

Despite this deficiency, the adduced evidence is of utmost importance. It confirms O.W. Wolters' suggestion that during the 16th and 17th centuries – as in the 14th – the city of Palembang was obviously as far from the Straits of Bangka as it is nowadays. If the coastline has not substantially moved since the 14th century, then it remained unchanged in earlier times. The only area which seems to have been affected by sedimentation is that immediately to the northwest of the Banyuasin estuary. This accretion is moreover limited in scope and has no bearing on the transformation of the access of the Palembang site towards the sea.

Complete results of the detailed geological surveys of the lower Musi basin that have been carried out these last years have not yet been published. However, the evidence available at present does seem to contradict the early theories of an exceedingly high rate of land accretion all the way from the Palembang ridge down to the sea, after the heyday of Srivijaya. Riverine sedimentation, contrary to what was earlier throught, does not seem to be responsible for the expansion of the tidal swamps of the Musi Basin; on the other hand, longshore drift along the Straits of Bangka caused seaborne sedimentation only south of the Musi estuary[16]

Furthermore, the low terrace extending east of Palembang almost all the way to the sea, according to a joint Indonesian-Japanese team who worked in the area in 1978-79, is an ancient geological formation which was shaped much earlier than in historical times [17]. Only final results of such geological field studies will convince historians that studies on the historical geography of the Srivijayan sites of the Musi basin should be started anew on a revised basis.

Meanwhile, enough elements seem to cast a very serious doubt on earlier theories which turned the most probable site of the capital of Srivijaya into a seaside harbour. This would be contrary to the general pattern of settlement on the east coast of Sumatra: harbourtowns such as Aceh, Pasai, Deli, Arun, Kampar, Indragiri or Jambi, irrespective of time, have always been situated some distance upriver.

The low terrace extending east of Palembang ... is an ancient geological formation...

Footnotes

[1] Wolters 1979: 33.

[2] See Wolters 1975 for his earlier suggestions and n. 48, p.11 of his article for complete references to previous discussions of advancing coastlines in Southeastern Sumatra. Recent statements of the theory put forward by Obdijn may be found in Soekmono 1979/1981 and Sargono 1979/1981.

[3] I wish to thank the Marquess of Cadaval for allowing me to consult, microfilm and publish parts of the ***CCad*** and Mr. A. Vasconcellos Sousa for allowing me to do the same with the whole ***CCM.***

[4] Manguin 1972: 61-125 & 254-292.

[5] The author of this paper is currently preparing an edition of this codex.

[6] Teixeira da Mota 1975.

[7] Wolters 1975: 56-57.

[8] It is unfortunate that, to the best of my knowledge, no roteiro provides intructions for sailing upriver to Palembang which would compare with the Chinese sailing directions commented upon in Wolters 1979.

[9] The exception is ***CCM,*** fol.57v°. Distance of 5 leagues appear in ***BNRio,*** fol. 133v°; ***RGL,*** vol. IV, p.139; and twice in ***LMar,*** p.250 & 258.

[10] Portuguese maps of the 16th and 17th century will be easily consulted in the exhaustive five large volumes of reproductions by Cortesao and Teixeira da Mota 1960. Maps showing the Straits of Banka in more or less detail will be found in vol. I: pl. 10, 20, 38, 39, 40, 52, 97, 105, 124, 139; vol. II: pl. 156, 177, 204, 217, 234; vol. III: pl. 271, 285, 307, 324, 341, 375, 383, 385; vol VI: pl. 401, 408, 412, 461, 463, 467, 505, 514, 516; vol. V: pl. 527, 532, 576.

[11] See above n.2.

[12] The present author previously met with the same problem when studying the historical geography of Vietnamese coasts. There, as here, the maps were proved to be of far less value than the ***roteiros*** (Manguin 1972: 155-159).

[13] It is now kept in the library of the Chambre des Deputés in Paris. It was published by A. Cortesao, together with an exhaustive study on Francisco Rodrigues (Cortesao 1944: pl. XVIII, p. 1xxviii sq. & 519 sq.). A second map of the same area was drafted by Rodrigues (pl. XXX of Cortesao 1944), but it is far too sketchy to be of any value. The atlas was published again with a detailed cartographical study by Winter (1949).

[14] Ferrand (1918) was the first to study this "Javanese Map" but he did not know at that time of the Rodrigues' atlas. The relationship between the two is carefully studied by Winter (1949).

[15] Andre Perreira dos Reis' manuscript is now kept in the library of the Prins Hendrik Museum in Rotterdam. The map depicting the Straits of Bangka was published by Cortesao and Teixeira da Mota (1960, vol.V, pl. 543 C). I have not had a chance yet to consult the original in Rotterdam and the reproduction used for this paper is not clear enough to be properly reproduced. Map 3 is therefore a mere hand copy of that reproduction.ı.

Continued on page 49