1 A Coast of Curiosities

INTRODUCTION

In Salman Rushdie's novel, *The Moor's Last Sigh*, the narrator's father, Abraham Zogoiby, a Cochin Jew married into one of the city's most prominent spice trading families, moves his family and their business to Bombay in 1945 with the emphatic declaration, 'Cochin is finished anyway'.[1] In the novel, Zogoiby's abandonment of his crumbling hometown allows Rushdie to shift the novel's setting to his own place of birth, Bombay. But the novel's depiction of mid-twentieth-century Cochin as an erstwhile cosmopolitan centre of commerce steadily sinking into commercial irrelevance is not particularly accurate, because on the eve of India's independence, far from bracing itself for the city's demise, Cochin's mercantile community was, in fact, gearing up for a long-awaited rebirth following the execution of the Cochin harbour development project in 1936.

Zogoiby's declaration would have, however, definitely resonated with Cochin's merchants a hundred years earlier. Indeed, in the mid-nineteenth century, some of Cochin's most prominent merchants were themselves penning elegies to the town, lamenting its commercial demise due to the diversion of its trade towards Bombay.[2] This reorientation had begun as soon as the English East India Company (EIC) had established its control over the Cochin harbour after ousting the Dutch in 1795. Cochin's commerce had up until this point largely expanded in European hands, with the port

[1] Salman Rushdie. *The Moor's Last Sigh*. London: Vintage, 2006.

[2] See, for instance, F. C. Brown. 'On the Natural Advantages of Cochin as a Place of Trade', *The Journal of the Royal Geographical Society of London*, Vol. 3 (1833): 268–270.

serving as one of the most crucial commercial nodes in the Indian Ocean region under the Portuguese and the Dutch. But by the mid-eighteenth century, the changing nature of commerce and colonialism around the region had begun to exert novel pressures on the port, becoming particularly pronounced under British rule.

Unlike the mercantilist empires of the Portuguese and the Dutch, the English EIC had by the nineteenth century begun to assert greater territorial control over inland regions allowing it to execute unprecedented political and economic transformations. Existing ports along the Indian Ocean, including those across Malabar, were among the most notable casualties of this process, with the English EIC diverting trade away from these erstwhile trading emporias and towards a few large ports like Bombay, Madras and Calcutta that were already firmly under British control. In Malabar, colonial policies like the timber monopoly through which the EIC laid claim to the region's forests in order to supply timber to Bombay's expanding dockyards played an especially significant role in this regard.[3] By the time that the monopoly was abolished in 1822, more than 50 per cent of the region's trade was being conducted through Bombay, striking a huge blow to the fortunes of Malabar's own ports.

This story of Cochin, and indeed Malabar's commercial decline in the first half of the nineteenth century, is well documented.[4] But if historians have closely tracked the processes through which ports like Cochin were dislodged from their central position in the Indian Ocean economy, they have not been as attentive to the actual ways in which they were simultaneously incorporated at the margins of the emerging colonial economy – a process that I argue was shaped

[3] Devika Shankar. 'A Forest of Ships: Malabar's State Forests and Bombay's Dockyards, 1795–1822', *South Asia: Journal of South Asian Studies*, Vol. 46, No. 3 (2023): 682–696.

[4] See, for instance, Ashin Das Gupta. *Malabar in Asia Trade 1740–1800*. Cambridge: Cambridge University Press, 1967; Pamela Nightingale. *Trade and Empire in Western India*. Cambridge: Cambridge University Press, 1970; Margaret Frenz. *From Contact to Conquest: Transition to British Rule in Malabar, 1790–1805*. New Delhi: Oxford University Press, 2003.

fundamentally by ecological, technological and political forces. This chapter will trace this process through a focus on the rising interest in port development projects in mid-nineteenth-century Malabar and by examining the role played by the rhetoric of 'natural advantages' in helping Cochin emerge as the most likely site for such a project.

FINDING NATURE'S PORT

In 1841, the master attendant of Madras, Captain Biden, embarked on a tour of all significant ports along the Malabar Coast to consider their potential for development. This tour was prompted by the Madras government's growing resentment against Bombay's continued dominance over Malabar's commerce. While Biden made several recommendations for improving facilities at each of the locations he visited, the one port that stood out in his report was undoubtedly Cochin.[5] The historic port of Cochin, Biden noted, had an extremely productive hinterland, which was rich not only in spices that had made the region famous, but increasingly also in other plantation produce, especially cotton.[6] Cochin's location was also particularly fortuitous because of its access to the region's extensive lagoons or backwater system (Figure 1.1). The backwaters, which ran almost parallel to the Malabar Coast, emptied into the sea through six outlets, of which only the one at Cochin was navigable for ships.[7] Situated almost at the centre of this intricate network of lagoons, Cochin could therefore attract the produce from both north and south Malabar at a low cost. But what set Cochin truly apart from other ports in the region was its harbour, on a coast famously lacking in favourable anchorages.

To Biden and others lobbying for Cochin's development, the port's harbour and other natural advantages made its commercial inertia in the nineteenth century appear wholly unnatural and unnecessary. As several scholars have highlighted, perceptions of the

[5] Letter from Biden to Secretary of Marine Board, 18 May 1841, File No. F/4/1996, IOR, BL.
[6] Ibid.
[7] Brown, 'On the Natural Advantages of Cochin', 268.

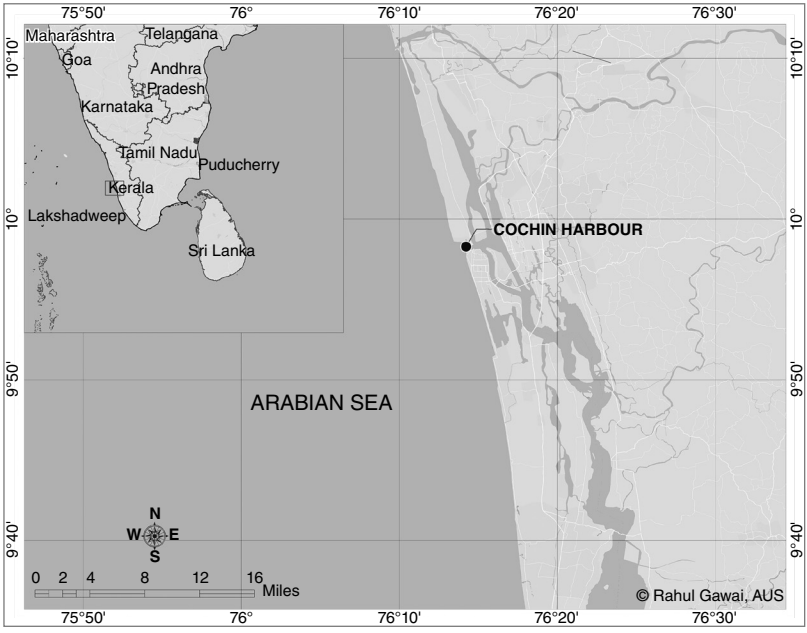

FIGURE 1.1 Map showing the Cochin harbour and the surrounding backwaters. (Map drawn by Rahul Gawai)

environment have historically played an important role in shaping the development of modern cities.[8] In *Nature's Metropolis*, for instance, William Cronon shows how 'boosters' across the United States often utilized the rhetoric of 'natural advantages' to attract investment towards their towns and cities.[9] In Chicago, much like in the case of Cochin, the city's natural harbour and location were frequently cited as signs of the city's special commercial destiny. Nature, it seemed, had blessed some places with so much that 'nothing remained for man to do, but gather up the gifts'.[10] If in nineteenth-century Chicago

[8] See William Cronon. *Nature's Metropolis: Chicago and the Great West*. New York: W.W. Norton and Company, 1992, and Jared Orsi. *Hazardous Metropolis: Flooding and Urban Ecology in Los Angeles*. Berkeley, CA: University of California Press, 2004, for two examples from the United States.

[9] Boosters were individuals who promoted the development of particular towns and cities during the westward expansion in America during the late nineteenth century.

[10] Cronon, *Nature's Metropolis*, 36.

it was private investors who were urged to do this work, in Cochin, it was the colonial state that was asked to fulfil the port's apparent destiny.

As Cronon masterfully elaborates, however, discourses of 'natural advantages' come into being under certain conditions, most of which have very little to do with nature. While the idea that a site is divinely ordained for commercial greatness could have a powerful effect on public opinion, it was ultimately various political, strategic and commercial factors that determined the fate of most cities. In the case of Chicago, it was the town's proximity to New York, on the one hand, and to a vast agrarian economy, on the other, which made the city's harbour and inland water communication attractive to eastern investors looking for a gateway to the West. 'Without New York', Cronon writes, 'the natural advantages of Great Lakes shipping would have meant little. Had New Orleans and not New York, been the chief entrepot between Europe and North America, the evolution of Western trade would have surely followed a different course'.[11]

In the case of Cochin too, the port's fortunes fluctuated with those of its rulers and merchants. Through the early modern period, Cochin maintained its commercial pre-eminence due to the success of its Portuguese and Dutch rulers in channelling a significant portion of Malabar's trade through the port. When the hold of these rulers weakened, or when other powers rose in importance, rival ports along the coast, especially Calicut, flourished, despite lacking nature's seal of approval. So while natural forces could come together to create a splendid harbour, those lobbying for Cochin's development recognized that only sustained state intervention could create a great port.

Cronon's critical appraisal of narratives extolling Chicago's natural advantages should remind us to be cautious of similar narratives in Cochin. At the same time, a critical lens should not blind us to the role of Cochin's environment in its commercial development

[11] Ibid., 62.

or to the real power that the discourse of 'natural advantages' could possess. Many visitors to Cochin in the early part of the nineteenth century saw in the harbour and its long history, not only reminders of what Cochin had been but also hints of what it could become. Along the Malabar Coast, there were other ports that had a long and illustrious history, but none that had a harbour quite like Cochin. Discussions surrounding Cochin's environment in the mid-nineteenth century therefore highlight the importance of engaging with both the material and social dimensions of ecological forces. Neither can such factors and their importance be simply naturalized nor can they be understood as just social constructions. As several STS scholars have emphasized, it is instead the interaction between the material and the discursive or their co-production that needs to be closely analysed.[12] In the rest of this chapter, I will examine this process of co-production in Cochin through a focus on three natural formations or processes that were also fundamentally social: the Cochin harbour, mudbanks and coastal erosion.

FROM HARBOUR TO ENTREPOT?

In the early years of Company rule, concerned by reports that the port of Cochin was going to be returned to the Dutch, the local British administration decided to destroy all the fortifications and several public buildings in Cochin.[13] At the beginning of the nineteenth century, then, the much-celebrated Cochin harbour literally stood amidst a pile of ruins. The physical destruction around the harbour serving as a poignant reflection of the state of the commercial networks that had once thrived around it. Cataclysmic events though

[12] Sheila Jasanoff (ed.), *States of Knowledge: The Co-production of Science and the Social Order*. London: Routledge, 2006. Also, see Sara Pritchard's *Confluence: The Nature of Technology and the Remaking of the Rhone*. Cambridge: Harvard University Press, 2011, 17.

[13] John Edye. 'Description of the Sea-Ports on the Coast of Malabar, of the Facilities They Afford for Building Vessels of Different Descriptions, and of the Produce of the Adjacent Forests', *The Journal of the Royal Asiatic Society of Great Britain and Ireland*, Vol. 2, No. 2 (1835): 324–377.

were not new to Cochin; indeed, it was an upheaval of an altogether different order that had apparently given rise to the harbour itself.

According to many local traditions that we will examine in greater detail later in this chapter, a catastrophic flood had overrun parts of the Malabar Coast in 1341, laying to waste what was at the time the region's pre-eminent port, Muziris. The flood was not only destructive, however, for while it caused Muziris to silt up, it also caused a breach further south. This gap widened and deepened due to the twin action of tidal waves from the sea and the 'onrush of torrential waters from the backwater' giving rise to a spacious harbour at Cochin.[14] Over the course of the nineteenth century, this harbour would tantalize political and commercial interests in the region: Was it too good to be left alone, or was it just not good enough to meet the needs of modern commerce? While it would be years before a consensus would be reached over its utility, everyone seemed to agree that Cochin's fate would be decided by its harbour.

Cochin's harbour had long provided refuge to coasting crafts, especially during the monsoons. As the only sizeable harbour along the Malabar Coast, Cochin certainly held an advantage over the open roadsteads that dotted the coast. Unlike Bombay, however, Cochin's harbour was not particularly deep, and its entrance was marked by the existence of a spit or a sandbar that was produced out of the interaction of the ocean swell with the ebb tide, especially during the monsoon.[15] As the size of ships began to increase in the nineteenth century, this accumulation of mud and sand had practically rendered the harbour redundant by making it inaccessible to large ships.

To see Cochin as a natural harbour in the nineteenth century therefore meant overlooking or unseeing the sandbar at its mouth – in

[14] L. M. Pylee. 'Cochin Port: Its Growth and Maturity', in *Bristow Remembered*, ed. Bristow Centenary Celebrations Publications Committee. Cochin: East West Publications, 1981, 41.

[15] A. D. Taylor. 'Survey Report on the Bar of Cochin and Roadstead of Alleppey, with Suggestions for the Improvement of Navigation', in *First Report of the Cochin Chamber of Commerce*. Cochin: Cochin Courier Press, 1859, BL.

other words, to view the sandbar as superfluous and removable.[16] For as long as sand continued to accumulate around Cochin, most ships could not actually enter the estuary and were forced instead to treat the port as an open roadstead. Thus, first Cochin had to be imagined without its sandbar for it to be represented and discussed as a harbour in waiting – a vision that could only be turned into reality through the use of technology. Despite being naturalized as a harbour, in other words, Cochin's utilization as one would depend entirely on the use of technology revealing the harbour, much like most other such spaces, as a fundamentally enviro-technical landscape.[17]

On the basis of his own observations in 1841 and calculations made during a survey conducted a few years earlier, Chris Biden, the master attendant of Madras, was one of the first colonial officials to prepare a detailed plan for turning Cochin's estuary into a natural harbour through the application of technology. 'To form such a complete and perfect harbour of Cochin as circumstances would admit', he noted, 'the sandbanks should be cleared away … and the channel widened to the utmost extent and deepened to about 24 feet at low water mark … the harbour would then be accessible and available for all classes of men of war and merchant men'.[18] According to Biden, Cochin's sandbar could be removed with the help of a steam dredger, and he noted that a dredger had only recently been used to successfully open up the harbour at Manila. For a dredger to be effective, however, it was important to restrict the continuous accumulation of sand around the harbour mouth. Biden therefore recommended the construction of an embankment 'on either side of the Cochin estuary', which, he insisted, would greatly increase the effectiveness of any dredger.

Biden was not the first to recommend the use of a dredger at Cochin. When asked for his views on the subject, the fiscal, an important local official, claimed that 'many experienced persons' had

[16] I thank Chandana Anusha for pushing me towards denaturalizing Cochin's harbour.
[17] On 'envirotech', see Pritchard, *Confluence*.
[18] Letter from Chris Biden to the Secretary to the Marine Board, 18 May 1841, File No. F/4/1996, IOR, BL.

similarly urged the government to employ a dredger to open up the harbour.[19] These demands would, however, not be heeded until the early part of the twentieth century, and almost a century would ultimately elapse before the sounds of a dredger would begin to echo around Cochin's harbour.

While commercial groups and some local officials around Cochin saw a ready-made harbour that only needed minor technological interventions to fulfil its economic role, senior colonial administrators recognized the difficulties involved in transforming the Cochin estuary into a modern port. Above all, the administration was concerned with the expenditure involved, especially since Cochin's strategic and commercial significance was fairly limited at this stage.

Historically, within Malabar, British power was concentrated in the northern part of the coast. The English EIC's first factory in Malabar was located in Tellicherry (Thalassery), while the adjoining town of Cannanore (Kannur) housed its biggest garrison.[20] Calicut, situated just to the south of Cannanore, had meanwhile emerged as British Malabar's administrative headquarters and was also the most populous city along the coast. Predictably, then, it was Calicut that attracted the bulk of the colonial state's attention when it came to the development of infrastructure in the first half of the nineteenth century. The administration had built roads to not only connect Calicut to other towns along the coast but to also bring the port closer to its hinterland, especially the rich forests of Wayanad. It was hardly surprising, therefore, that when the railways finally entered Malabar in the 1860s, they were brought within touching distance of Calicut.

This concentration of British assets and infrastructure in north Malabar discouraged the investment of significant capital on Cochin's harbour, especially at a time when there were serious apprehensions about the efficacy of dredging. Several engineers asserted

[19] Ibid.

[20] These two towns are now known as Thalassery and Kannur, respectively.

that dredging would be impossible in Cochin during the monsoon months when the accumulation of sand took place. Others claimed that even the removal of the sandbar would not provide Cochin's harbour with adequate depth for accommodating large ships.[21] As late as 1877, in a report submitted to the government, Lieutenant J. H. Taylor asserted that 'it would be utterly impossible to keep dredged to the depth of say 22 feet (the least depth that could raise Cochin into a harbour) by any mechanical means'.[22] Taylor, therefore, asked the government to avoid spending on large works that could at best create a 'partial harbour' at Cochin, which would not be deep enough for large ships. Cochin, he emphatically stated, 'could never be an important harbour'.[23]

Arthur Cotton, best known for championing the cause of canal construction in India, was another important figure who was sceptical about Cochin's prospects. He insisted that the construction of a breakwater was the only possible means of building a 'perfect harbour' in Malabar.[24] In this respect, he declared, 'all points of the coast (were) alike', and this meant that any harbour developed along the Malabar Coast would have to be an artificial one, implying that Cochin did not hold any decisive advantage over other points along the coast because of its natural harbour (Figure 1.2). Despite the articulation of these concerns, the conviction of those who saw commercial success inscribed on Cochin's very landscape would not be shaken so easily. Cochin's impressive commercial history and

[21] Ref. No. 15804, Cochin Harbour History: Notes relating to Cochin Harbour, Tamil Nadu State Archives (TNSA) Library, Chennai.

[22] Extracts from reports of Engineers on the Possibility of Dredging and Maintaining a Channel through the Cochin Bar, Ibid., p. ii.

[23] Letter from J. H. Taylor, Acting Master Attendant, Madras, to D. F. Carmichael, Chief Secretary to Government, Fort St. George, 20 October 1874, Board of Revenue Proceedings, March 1874–January 1876, Madras Records, Kerala State Archives – Kozhikode (KSA – K).

[24] A letter, with an appendix, from Col. A. T. Cotton, afterwards Sir A. T. Cotton, KCSI, to the Acting Secretary to Government, Presidency of Madras, on the ports of Malabar, and so on, the proposed Neilgherry tanks, and the project for a canal or light railway from Trichinopoly to Negapatam, General Reference Collection I.S.M.119/5. BL.

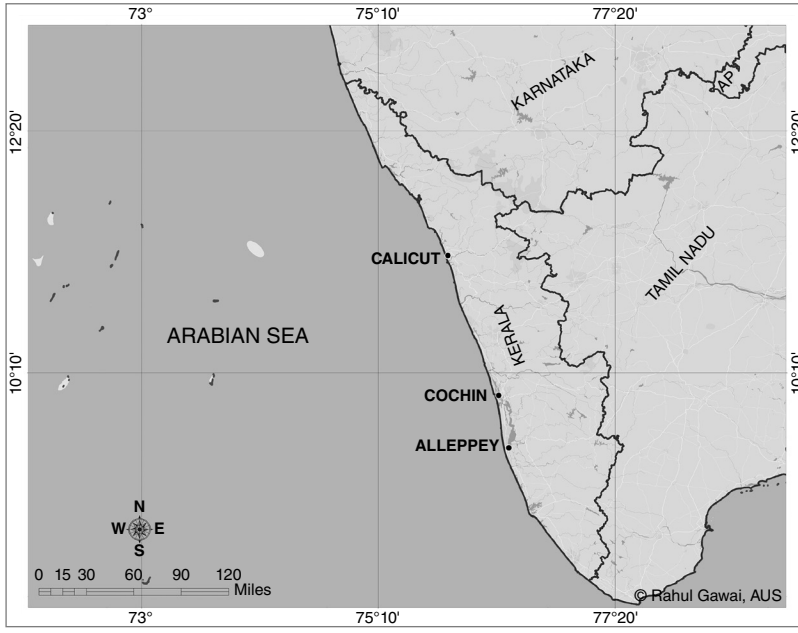

FIGURE 1.2 Map showing three of the most important ports in Malabar in the 19th century: Calicut, Cochin and Alleppey. (Map drawn by Rahul Gawai)

its long list of natural advantages would continue to cast a spell on commercial groups across the region who were convinced that commerce was in the port's destiny. This faith in Cochin's commercial future would receive a huge boost in the years following the inauguration of crown rule in India in 1857, with the discovery that the accumulation of mud around the port, long considered a hindrance, also had the seemingly magical ability to subdue the tempestuous monsoonal sea. In the next section, we turn to this phenomenon that drew unprecedented attention towards Cochin's peculiar and mysterious coastal environment.

LULLS IN A STORM

In June 1861, as the monsoons intensified over the Malabar Coast, the master attendant of Cochin, Captain John Castor, received an important communication from the master of the *John Cobbold*, a ship

that had just arrived at the coast.[25] The ship had reached Cochin on 22 May but was greeted with a heavy ocean swell making it impossible for it to discharge its cargo. While contemplating his next course of action, the master of the stranded ship, John Rennels, heard reports of the possible existence of a 'mudbank' just north of Cochin's harbour. While the term 'mudbank' has been used to describe a wide range of mud formations across the world, in the context of Malabar, it refers to highly sedimented patches of calm water that appear along parts of the coast during monsoon months when the sea is otherwise extremely rough. Long considered to be rare and unique to Malabar, these mudbanks, especially the most prominent one next to Alleppey in Travancore state's territory, had attracted the attention of various European figures since at least the eighteenth century. In *Pinkerton's Collection of Voyages and Travels*, which contains what is perhaps the earliest European reference to the phenomenon, the Alleppey mudbank was described thus:

> Mudbay is a place that … few can parallel in the world. It lies on the shore of St. Andrea, about half a league out in the sea and is open to the wide ocean, and has neither island nor bank to break off the force of the billows which come rolling with great violence on all parts of the coast in the south-west monsoon, but on the bank of mud lose themselves in a moment and ships lie on it, as secure as in the best harbour without motion or disturbance.[26]

It is interesting to note that at this stage, the mudbank was thought of as a *place* rather than a *thing*.[27] Later observers however realized

[25] File No. C-89, History of Mudbanks, Volume I, Cochin Government Press, Ernakulam, Kerala State Archives – Cochin (KSA – C).

[26] Ibid. Pinkerton's collection of voyages and travels was an early modern compilation of travel accounts. The description of the mudbank was part of a travel account by Alexander Hamilton written in the early 1700s. St. Andrea seems to refer to present-day Arthunkal close to Alleppey. It was so named because of the St. Andrews church.

[27] For more on this and the terminology behind the mudbank which is known locally as *Chaakara*, see Devika Shankar. 'A Monsoon Miracle, Naming and Knowing the Mudbanks of Malabar', in *Terra Aqua*: *The Amphibious Lifeworlds of Coastal and Maritime South Asia*, eds. Sudipta Sen and May Joseph. London: Routledge, 2022.

that this bank was seasonal and mobile, often appearing along different parts of the coast. For instance, when its position in 1825 was compared with that in 1723, it was found that the bank had moved 15 miles in a little over a hundred years. The discovery that the mudbank was not a place but a transient phenomenon only added to the sense of mystery surrounding it. As did some of its other seemingly bizarre properties. Every now and then, for instance, apart from its familiar tranquilizing effects, Alleppey's mudbank also exhibited more unusual features throwing up cones of mud along with scores of dead fish.[28]

On hearing that this extraordinary occurrence had now been observed at Narakkal less than 10 miles away from Cochin, Rennels decided to immediately proceed to this spot to personally investigate the veracity of these reports. To his great joy and surprise, Rennels found himself staring out at a portion of the coast where the sea was indeed completely calm, in sharp contrast to the rough seas surrounding it. A week later, he returned to Narakkal with his ship, and the tranquilizing effects of the mudbank ensured that Rennels could discharge his cargo 'without even going through a ripple' even as squalls raised waves to threatening heights in the adjoining areas[29] (Figures 1.3 and 1.4).

Rennels' report on the mudbank at Narakkal was addressed to John Castor, who, as the master attendant of Cochin, had been proactively attempting to attract more trade towards his port over the years. Recognizing the significance of having a mudbank so close to Cochin, Castor rushed to Narakkal to furnish the government with a lengthy and detailed first-hand account of the phenomenon. Referring to the marvellous sight before him, Castor exclaimed that witnessing the 'quiescent state of the sea' he could hardly believe that he 'was standing on the shores of the Indian Ocean in the height of the south-west monsoon'.[30] Assured of the mudbank's tranquilizing

[28] File No. C-89, History of Mudbanks, Volume I, Cochin Government Press, Ernakulam, KSA – C, 74.
[29] Ibid., 35.
[30] Ibid., 17.

FIGURE 1.3 Photo of a mudbank with characteristically calm waters at Punnapra about 3 miles north of Alleppey. August 2018. (Photo: Devika Shankar)

FIGURE 1.4 Photo taken from an adjoining beach showing the usual state of the sea during the monsoons on the Malabar Coast. August 2018. (Photo: Devika Shankar)

effects, Castor asked the administration to encourage ships seeking shelter from monsoon storms to now resort to Narakkal instead of Alleppey, which had so far been the port of call for ships in distress. What was more, Castor claimed that mail and passenger steamers from the west that had hitherto been following a circuitous route around Ceylon could now save time and money by landing at the Malabar Coast instead. A railway line to the Malabar Coast was already under construction, and Castor asserted that communication with both Madras and Calcutta could be made quicker and more efficient if ships stopped avoiding the direct route through Malabar due to the monsoons.[31]

A second mudbank situated much closer to British Malabar was undoubtedly a great boon for British trading interests across the coast, but it was Cochin that stood to gain the most. Strong lobbies had emerged in port cities across Malabar to apply pressure on the government to invest in the development of their respective ports, and in Cochin, commercial groups were quick to recognize Narakkal's value. Despite the fact that it lay within the Cochin State's territory, Narakkal's proximity to Cochin meant that it could help the British port essentially function as an all-weather port.

Narakkal's mudbank too, much like the one at Alleppey, left observers perplexed. Since many believed that this phenomenon was unique to the Malabar Coast, several observers tried to offer explanations for this strange and singular occurrence. Some attributed its formation to the action of soft mud at the bottom of the sea, which when 'stirred up' by a heavy ocean swell had a calming effect on the waves above, others claimed that the soft mud was brought to the ocean by a subterranean stream or a succession of such streams, which during the monsoons pushed mud out into the ocean through the backwaters.[32] These were just two of the many theories that were put forward to try and explain mudbanks at a time when the administration was only

[31] Ibid., 20–23.
[32] Ibid., 73.

beginning to recognize and appreciate their tremendous significance. At this stage, no systematic scientific enquiries had been conducted to explain the unique action of mud around the coast, and much of the speculation surrounding it emerged out of piece-meal investigations carried out by various civil and military functionaries in the region.[33]

While there was much that was unusual about the mudbank, what was perhaps most astonishing about it was its 'discovery' in 1861. When it was first spotted, this mudbank was thought to be of recent origin. Further enquiries, however, revealed that local fishermen were not only acquainted with the Narakkal mudbank, but they had also grown accustomed to utilizing it for catching fish during the monsoons.[34] Similarly, local sailors claimed to have known of its existence for decades.[35] Suspicious of such accounts in the beginning, colonial authorities were forced to take them more seriously as interviews revealed the intimate knowledge that many of Cochin's residents appear to have had of the phenomenon. One such long-time resident of the port, Dervish Hadjee, the agent of the imam of Muscat, asserted that he had known about the mudbank for close to three decades. One of his earliest memories of the phenomenon involved a disabled ship belonging to the imam that could not quite approach the shore owing to the monsoons but proceeded to Narakkal where the requisite repairs were undertaken. Five years later, Hadjee further claimed, another one of the imam's ships that had lost its rudder had also similarly taken refuge at Narakkal when confronted by monsoon storms. He went on to state that the 'safety of Narakkal as a port [was] generally well known among the native community of [Cochin]' and that coasting crafts often sought refuge in Narakkal in bad weather.[36] Many other residents of Cochin, especially those

[33] Through the late nineteenth and early twentieth centuries, Malabar's mudbanks attracted the attention of several scientists and administrators, but the most systematic investigation into the mudbanks was conducted in 1937 after Cochin's harbour had been dredged through the Cochin Harbour Project.

[34] File No. C-89, KSA – C, 26, 30.

[35] Ibid., 42–47.

[36] Ibid., 45.

connected with the port's shipping, attested to the accuracy of these reports and insisted that Narakkal's mudbank was well-known to them. But if it was so widely known among local seamen, how had Europeans sailing along the coast failed to notice this mudbank? As it turns out, they had not – the Narakkal mudbank, as it emerged, had been known to Europeans for more than a generation, and yet it had somehow slipped out of their collective memory by the mid-nineteenth century.

Almost exactly two decades before catching John Castor's eye, Narakkal's mudbank had caught the attention of the master attendant of Madras, Captain Chris Biden who, as previously mentioned, had embarked on a tour of ports across Malabar in the 1840s. On his visit to Cochin, a port that clearly stood out in his estimation, the master attendant interviewed an important local official in an attempt to better understand the port and its prospects. Biden's very first question was regarding the possible existence of a mudbank next to Cochin. He stated that he had heard about 'a very peculiar sort of mudbank parallel with the coast, and near Cochin, on which vessels [could] anchor in stress of weather'.[37] Where, he asked, was this mudbank? And what was its extent? The local official who was clearly familiar with the mudbank replied that it was located around 9 miles to the north of the harbour in the Cochin State's territory and that its extent was around 6 miles.[38] Evidently, both of these important colonial functionaries knew of the mudbank as late as 1841. This was also not the last account of the phenomenon prior to its 'discovery' in 1861, the mudbank's existence being noted in a local journal as late as February 1858.[39] Upon delving deeper into the documents at his disposal, John Castor also discovered that there were several other, much older references to subdued seas around Narakkal dating as far back as the late eighteenth century.[40]

[37] File No. F4. 1996, IOR, BL, 87.
[38] Ibid.
[39] File No. C-89, KSA – C, Appendix.
[40] Ibid., 32.

What then explains this curious lapse in memory? How did Europeans simply forget or fail to take note of a mudbank situated right next to Cochin even as they began to depend on another one situated much further away in Alleppey? This was a question that baffled John Castor and his colleagues in Malabar, and we can at best speculate about the possible reasons. Narakkal's insignificance as a port perhaps made it easier to forget. It was after all not a full-fledged port that was used frequently, unlike Alleppey, which was the primary port of Travancore state. This is, however, not an adequate explanation in itself, since Narakkal's relative insignificance did not render its mudbank worthless or dispensable in the aftermath of its 'rediscovery' in 1861. Narakkal's rediscovery and the sudden interest in mudbanks in the decades that followed illustrate the importance of examining why certain phenomena come to be recognized as 'scientific objects' to be investigated at particular points of time.[41] While there had been dispersed references to the appearance of these tranquilizing wonders around the Malabar Coast in various European accounts in the past, it was only in the 1860s that the phenomenon became a 'coherent category' with clearly identifiable properties. Commercial developments in Malabar and especially Cochin had played a crucial role not only in this transformation but also in bringing Narakkal into focus. Examining the specific contexts in which these developments occurred helps reveal these phenomena as simultaneously real and historical, allowing us to understand why the mudbanks, especially the one at Narakkal, moved from the margins to the centre of the collective consciousness of Europeans in Malabar in the mid-nineteenth century.

In the early part of the nineteenth century, when Malabar's primary importance for the British lay in sustaining Bombay's growth, Narakkal's mudbank clearly failed to leave a lasting impression on Europeans who had seen or heard of it. Noticed only by a few,

[41] For a discussion on the emergence of scientific objects, see Lorraine Daston (ed.), *Biographies of Scientific Objects*. Chicago: The University of Chicago Press, 2000.

knowledge of the mudbank slowly faded from collective memory, lingering around Cochin's colonial establishment merely in the guise of a vague rumour. When the mudbank was noticed in 1861, the situation around Malabar was markedly different. The railway line from Madras which was close to completion had galvanized hopes of commercial regeneration even though there was no consensus on the route that the line was to take. While Beypore, situated next to Calicut, was rather controversially chosen as the terminal station on the Malabar Coast, powerful lobbies in other port cities continued to push for increased state investment in their respective ports. Such a lobby was particularly strong in Cochin, especially following the formation of the Cochin Chamber of Commerce in 1857, which seized the opportunity provided by the rediscovery of the mudbank in 1861 to push hard for greater state investment. It was under these circumstances that the mudbank began to attract significant attention from scientists and administrators alike, ensuring that it would be much harder to forget this time around. But if changing economic conditions had increased the significance of the mudbank, then its rediscovery in 1861 would in turn help attract unprecedented attention towards Cochin and its commercial prospects.

With a mudbank situated so close to its harbour, Cochin could finally overcome the age-old limitations imposed by the monsoons on trade along the coast and emerge as an all-weather port, despite the fact that Narakkal was situated in the princely state of Cochin. While there had earlier been talk of establishing such a port by connecting Cochin to the mudbank at Alleppey, that scheme was always going to be hard to actualize given the distance between the two. But the rediscovery of Narakkal finally turned the tide in Cochin's favour, ensuring that what had so far been a distant dream was now a practical possibility.[42] It is this change that accounts for the sudden enthusiasm for harbour development in Cochin in the years following Narakkal's rediscovery. Cochin's supporters recognized that the

[42] File No. C-89, History of Mudbanks, Vol. 1, KSA – C. 38–40.

mudbank had given Cochin a decisive edge over other ports in the region, allowing the port to now stake a claim for greater state attention and investment.

In order to turn the mudbank into a valuable accessory for Cochin's harbour, however, it was important to first establish whether it was also mobile like the one at Alleppey. As long as it was unsure about the mudbank's movements, the colonial state was not going to invest in improving facilities at both Narakkal and Cochin to take advantage of the situation. Such concerns prompted Castor to look into the bank's history in order to ascertain whether it could be expected to maintain its position. After tracing its location over the preceding decades by going through written records and interviewing long-time residents of Cochin, Castor concluded that there were no serious doubts about the mudbank's long existence, and that its 'future permanency' could be 'safely inferred from its past duration'.[43] But how could Narakkal's mudbank be stationary when its southern counterpart off Alleppey was prone to significant movement? Castor explained that Narakkal's mudbank was held in place by the adjoining Cochin estuary, which, through its discharge of water towards the north and the west, arrested the natural southward movement of the bank.[44] Castor's encouraging reports helped establish Narakkal as a viable place of refuge for ships navigating the treacherous seas around the Malabar Coast during the monsoons and by 1865, the Cochin State had begun to invest in improving facilities around the port in light of the increase in traffic.[45] For its part, the colonial state had commissioned a survey of the mudbank and prepared a trace chart to facilitate shipping.[46]

The enthusiasm generated by the rediscovery of the Narakkal mudbank also coincided with certain other events that aided the cause of harbour development in Cochin. Of these, the opening of

[43] Ibid., 32.
[44] Ibid.
[45] File No. 882, Correspondence Files, KSA – K, 18.
[46] Ibid.

the Suez Canal was of course the most significant. Even before it was formally inaugurated in 1869, the Suez Canal promised to literally change the course of international trade. By facilitating a dramatic reduction in the distance between Europe and the Indian Ocean region, the canal revolutionized long-distance commerce and travel.[47] With its opening, the distance between London and Bombay was reduced by 42 per cent, leading to a significant increase in steam traffic and the virtual ouster of sail ships from long distance trade.[48] Aided by government subsidies, European and especially British steam ship companies were already making regular voyages to India and beyond, and the opening of the Suez Canal gave these companies a further boost. The increase in the size of ships made possible by the introduction of steam and the opening of the canal necessitated a concomitant increase in the depth of ports. Port development projects were thus an important consequence of these late nineteenth-century maritime transformations. Calls for harbour improvement at Cochin during this period must as a result be seen in the context of this growing concern with port modernization across the Indian Ocean region and beyond.

Through the early part of the nineteenth century, the sandbar at the mouth of the Cochin harbour had come to be regarded as an impediment to be overcome someday, but this sentiment assumed unprecedented urgency in the 1860s. Narakkal's mudbank might have helped Cochin establish itself as the most important port on the Malabar Coast, but with the nature of commerce itself changing rapidly, Cochin's harbour too would have to evolve significantly in order to remain relevant to international commerce. This was especially true for Cochin since the growing popularity of steam ships presented the port with an opportunity to emerge as a coaling station. It must be kept in mind that early steamships consumed extremely large quantities of coal that necessitated the establishment of several coaling stations across important

[47] Michael Pearson. *The Indian Ocean*. London: Routledge, 2003, 211.
[48] Ibid. It should be kept in mind that only steam ships could use the Suez Canal.

trade routes.[49] Cochin's location made the port an obvious candidate for a potential coaling station meant to service ships travelling to East Asia.[50] But to fulfil this function, Cochin's harbour would first have to be deepened and cleared of its sandbar in order to allow access to large steamships. In the decades both preceding and immediately following the inauguration of the Suez Canal, such projects were executed in various ports across the region.[51] Hong Kong, Singapore and Colombo all saw significant investments of capital during this period, allowing them to emerge as Asia's pre-eminent entrepots.

In Singapore, a significant increase in steam traffic in the final decades of the nineteenth century necessitated a shift in the port's location from the river, which had traditionally been the centre of commerce, to Keppel Harbour. First used in 1852, the new harbour provided 'deep water berthing and better servicing facilities for larger vessels'.[52] In Ceylon, similar developments led to a reorientation in the island's trade away from Galle and towards Colombo.[53] When the Suez Canal was opened in 1869, Galle still handled more than half of the colony's shipping, while Colombo's share was merely 33 per cent. But within a couple of decades, this situation was reversed. Colombo's proximity to the plantations in the island's lush hinterland had enabled the port to attract much-needed investments for port improvement measures, while Galle suffered from neglect, making it increasingly unsuitable for the large steamships traversing the Indian Ocean. The dramatic shift in the fortunes of Galle and Colombo illustrated that in the age of steam, a few ports benefiting from large-scale technological interventions would dominate international commerce at the expense of others. Following

[49] For more on late nineteenth century transformations in shipping following the opening of the Suez Canal, see Laleh Khalili, *Sinews of War and Trade: Shipping and Capitalism in the Arabian Peninsula* (London: Verso, 2020).

[50] Ibid.

[51] Ibid.

[52] Stephen Dobbs. *The Singapore River: A Social History, 1819–2002*. Singapore: NUS Press, 2003, 11.

[53] K. Dharmasena. 'Colombo: Gateway and Oceanic Hub of Shipping', in *Brides of the Sea: Port Cities of Asia Sixteenth to Twentieth Centuries*, ed. Frank Broeze. Honolulu: University of Hawaii Press, 1989, 161–162.

the rediscovery of the Narakkal mudbank, commercial groups in Cochin had reasons to hope that their port might be among the chosen few. These hopes would, however, be disappointed for some time to come. There were several reasons for the colonial state's continued refusal to invest in the development of Cochin at a time when such projects were being undertaken in various port cities across the Indian Ocean region. For the colonial state, the port was clearly just not important enough at this stage to warrant a heavy outlay. As Johan Mathew points out, the high construction and operational costs associated with deep water harbours meant that such projects were largely restricted to colonial metropolises.[54] But in Cochin, there was also another important factor discouraging investment during this critical time. Nature, which had so far appeared to be Cochin's greatest asset, began, almost suddenly, to be experienced and represented very differently – appearing not as a benefactor but as a threat to the port's very existence.

ON EDGE AT LAND'S END

Unlike what modern maps suggest, the often unpredictable ebbs and flows of water are integral to coastal spaces. While coasts can be frozen on paper by endowing them with illusory lines and deceptively hard edges, separating land from the sea is of course much harder to effect along water soaked shores where such sharp distinctions do not exist.[55] From the perspective of the modern state, which has traditionally privileged the view from land, this movement of land and water, as many have noted, invariably appears as a problem to be fixed, and the sea as a threat to be neutralized. For colonial officials in nineteenth-century Cochin, this threat seemed particularly ominous because of the port's location and geography. British Cochin lay on a narrow strip of land, which, some claimed, only came into being

[54] Johan Mathew. *Margins of the Market: Trafficking and Capitalism across the Arabian Sea*. Oakland: University of California Press, 2016, 39.

[55] See Paul Carter. *Dark Writing: Geography, Performance, Design*. Honolulu: University of Hawaii Press, 2008, Chapter 2, and Mathur and Da Cunha. *Soak* for a close engagement with the problems emerging out of efforts to separate land and water along coastlines.

after the first century CE.[56] Sometimes referred to as a 'false shore', this strip of land, along with two others, took shape gradually as the sand and alluvium-bearing rivers of Malabar collided with the sea, which had originally extended much further east.[57] The formation of these spits of land was also shaped by significant changes in sea levels experienced around the region in the middle and late Holocene.[58] Some believed that until even 2,000 years ago, the 'eastern shore of the backwater from Cranganore to Quilon was the coast line of the country'[59] and various natural formations attest to both the transgression and regression of the sea during this period.[60] Legends surrounding towns and settlements lost to the sea are, as a result, popular all along the coast.[61] There were, for instance, some references to a 'sunken town built by the Portuguese' off Calicut and more credible stories surrounding the loss of the tomb of an Arab priest named Mamukkoya in the same area. But it was just to the north and south of Cochin that land seemed to be especially vulnerable to the sea.

According to some traditions, the island of Vypeen which flanked the harbour's northern entrance was the most recent of Malabar's three false shores – a claim that is supported by historical and scientific evidence. Radiocarbon dating and the absence of any archaeological remains along this part of the coastline, for instance, both point to the relative newness of this part of the coast, as do historical maps that show central Malabar as a collection of islands.[62] In the nineteenth century, however, this process of accretion that had given rise to Cochin, Vypeen and other parts of the coastline

[56] Davies, *Cochin, British and Indian*, 4.
[57] Doraiswamy Ayyangar. *Canals and Backwaters of Travancore*. Madras, P. R. Rama Iyar and Co., 1919, 2.
[58] CP Rajendran. 'Quaternary Geology of Kerala: Evidence from Radiocarbon Dates', *Journal of the Geological Society of India*, Vol. 33, No. 3 (1989): 218–222.
[59] C. A. Innes. *Madras District Gazetteer, Malabar*, Vol. 1. Madras: Superintendent Government Press, 1908, 7.
[60] Rajendran, 'Quaternary Geology of Kerala'.
[61] Ibid., 8.
[62] Shajan. 'Studies on late quaternary sediments and sea level changes of the central Kerala coast, India', 84.

inexplicably stopped, even as the erosion of land increased.[63] Why this happened is hard to say, but there is some reason to believe that here too changing sea levels might have played a part.[64] Scientists have pointed to a rise in sea levels from the nineteenth century onwards, and studies focused on the southwest coast of India have suggested a close relationship between these variations and the worsening problem of coastal erosion in the region.[65] In the nineteenth century while the reasons for these changes were not known, seasonal surges of the sea became more noticeable, leading to fears that the sea might soon submerge or wash these narrow strips of land away.

Local officials had begun to raise concerns about Cochin's surroundings in the early decades of the nineteenth century. In 1821, the port's old wharf was seriously threatened by the action of waves around the harbour, and in the following decades, there were several instances of the sea moving inland during the monsoons.[66] But it was in 1862 – the year that the sea tore through the coast creating a breach right next to the harbour – that anxieties about Cochin's future started assuming significance. Though this was not the first time the sea had made significant inroads along this part of the coast, this breach, which came to be known as the Cruz Milagree gap, would give colonial officials much to worry about over the following decade. The gap in fact derived its name from a church that was reported to have been submerged on an earlier occasion. Through its very presence, and by preserving the memory of an earlier deluge, the Cruz Milagree gap was doubly suggestive of the coast's vulnerability to the sea. Moreover, by providing another outlet for the backwaters to flow into the Arabian Sea just a mile and half to the north of

[63] Robert Bristow. *Cochin Harbour Development: History of Proposals*. Madras: Government Press, 1929, 4.

[64] V. S. Kale and S. N. Rajaguru. 'Neogene and Quaternary Transgressional and Regressional History of the West Coast of India – An Overview', *Bulletin of the Deccan College Post-Graduate and Research Institute*, Vol. 44 (1985): 153–167.

[65] Ibid.

[66] Letter from Ravenshaw to Chief Secretary, Fort St. George, 25 April 1821, File No. 4834, Madras Records, KSA – K.

the one at Cochin, the gap had the potential to reduce the harbour's depth and to make the coast even more volatile.

As far as the harbour was concerned, it was the erosion along Vypeen that was most worrisome to colonial officials. In 1862, the year that the breach at Cruz Milagree was created, local administrators also reported extensive damage in other parts of Vypeen. What was especially alarming about the action of the sea in this particular case was that unlike previous occasions when coastal erosion began with the onset of the monsoons, in 1862 heavy erosion began to be experienced as early as January, several months before monsoon clouds made an appearance.[67] These sudden 'ravages' or 'encroachments' of the sea, as they came to be called, were also particularly destructive on this occasion. Not only was a significant breach created, but the sea also washed away a 'large number of houses and plantations' in the village of Vypeen. The sea had, in fact, lashed Vypeen with such force that it was said to have 'materially altered the configuration of this part of the coast'.[68] The following year, local administrators braced themselves for more trouble but were relieved to find that the coast was spared on this occasion.[69] It was clear, however, that this respite would be temporary and that it was a matter of time before this section of the coast would bear the brunt of the sea's fury again. The master attendant of Cochin warned that if left unchecked this coastal erosion along Vypeen had the potential to cause considerable damage to the harbour. He added that sooner or later, 'urgent' and 'energetic measures' would have to be undertaken in order to protect the coast if the harbour was to be saved from certain destruction.[70] John Castor, who had by this time already served as the port's master attendant for several years, of course knew the coast better than most colonial administrators, and over the following years, his

[67] Letter from Master Attendant to Collector of Malabar, 2 May 1862, File No. 922, Correspondence File, KSA – K.

[68] Ibid.

[69] Report of the Marine Department 1863–1864, File No. 924, Correspondence File, KSA – K.

[70] Ibid.

requests for government intervention would become progressively more desperate.

In his official report to the government in 1865, Castor dramatically stated that the whole coast around Cochin was likely 'to be submerged' in the not so distant future.[71] After witnessing even greater levels of erosion the following year, he exclaimed that the date of such a catastrophic inundation was drawing nearer. With the 'encroachment of the sea' continuing to destroy coastal lands along Vypeen, a very concerned Castor pointed out that the harbour was losing its northern flank and was likely to silt up before too long.[72] Barely two years later, his dire predictions seemed to be coming true when the sea began to move even closer to Cochin, posing a grave threat to the port's newly built lighthouse.[73] Worse, the town of Cochin itself seemed to be in 'imminent danger', forcing Castor to undertake a series of emergency measures to stall the advancing waves. These measures might have succeeded in thwarting the sea for the time being, but the threat still loomed large. A small breach next to Vypeen point that had been hastily filled up the year before was showing signs of bursting open again, and the much older gap at Cruz Milagree, which was yet to be closed, was continuing to widen. Parts of the coast appeared to be simply crumbling under the weight of a heavy sea and it was clear that ad hoc measures would not be sufficient to fortify the coast against this relentless onslaught. Local newspapers reflected and added to the sense of unease by carrying disquieting reports on the state of the port's surroundings. Through alarmist titles like 'Cochin in Jeopardy' and 'Cochin Harbour Threatened Again!', the newspapers attempted to highlight the urgent need for state intervention. Much like the official missives filed by Castor, these reports too gave detailed accounts of Cochin's vulnerability to the sea and the potentially disastrous consequences of leaving the port and its surroundings unprotected.

[71] Report of the Marine Department, 1866, File No. 882, Correspondence File, KSA – K.
[72] Ibid.
[73] *Report on the Administration of the Madras Presidency*, 1868–1869, 90–91.

Under sustained pressure, the Madras government admitted that the widening Cruz Milagree gap had to be closed and it deputed an expert from England to suggest remedial measures for the wider problem of coastal erosion.

George Robertson, a high-ranking civil engineer from Britain, accordingly visited Cochin in 1871 to evaluate the situation and to offer possible solutions. In his report, Robertson highlighted the changes that had taken place following the opening of the Cruz Milagree gap a decade earlier. Comparing the state of the harbour in 1871 to that in 1858 when a survey was last conducted, he asserted that considerable changes had taken place along the harbour within this short span of time. The ship channel had travelled north and the Cochin bar, which now had less water over it, had moved 200 yards closer to the shore.[74] Robertson attributed these changes to the opening of the Cruz Milagree gap and to the continuing encroachment of the sea around Cochin. Following the publication of the report, the Madras government took steps to close the gap, but it chose to ignore Robertson's other recommendations including the construction of groynes because of the heavy outlay involved.[75]

In the latter half of the nineteenth century, a systematic and far-sighted response to the problem of coastal erosion was completely lacking, owing to the colonial state's reluctance to disburse funds on protecting what it saw as 'low-value' lands. In his painstakingly researched *Financial Foundations of the British Raj*,[76] Sabyasachi Bhattacharya demonstrates how following the revolt of 1857, there was a concerted effort made by the Government of India and the provincial governments to curtail expenditure. Motivated by a line of economic thought that emphasized the importance of a balanced budget in which revenue would exceed expenditure, financial planners in

[74] Ibid.

[75] 'Cochin Harbour', *Madras Mail*, 17 October 1873.

[76] Sabyasachi Bhattacharya. *Financial Foundations of the British Raj: Ideas and Interests in the Reconstruction of Indian Public Finance 1858–1872*. New Delhi: Orient Blackswan, 2005.

India tried to keep costs to a minimum. One of the biggest casualties of the government's fiscal conservativeness in the aftermath of the revolt was the Public Works Department. While it is true that the decades following the revolt saw the state take an unprecedented interest in investing in infrastructure, a bulk of these investments went into financing what were known as remunerative or extraordinary public works. These large-scale projects, which included the construction of railways and big canals, were expected in the long run to generate enough revenue to make up for the money spent on their construction and maintenance. Bhattacharya, however, shows that between 1857 and 1872, even as the state began to invest heavily in such projects, its expenditure on what were categorized as 'ordinary public works' fell sharply. Such public works projects were entrusted to provincial governments, which were expected to finance them, but at a time when these governments were struggling to break even, they predictably avoided heavy expenditure on non-productive investments. The Madras government's unwillingness to invest in coast protection in Malabar is easy to understand in such circumstances. But financial stringency was not the only reason for the government's seeming inaction: equally significant perhaps was the government's continuing inability to fully comprehend the coast and its ways. As late as 1929, Robert Bristow, the chief engineer of the Cochin Harbour Project, remarked that the problem of coastal erosion around Cochin ranked along with the mysterious formation of Chesil Beach on the south coast of England as a 'prize puzzle among foreshores'. Bristow was, of course, writing at a time when the Cochin harbour had already been subjected to intense scientific scrutiny through the first stages of the Cochin Harbour Project. If there was still so much uncertainty about the harbour's surroundings even after the coast had been so thoroughly investigated, how much greater must the uncertainty have been in the 1860s when so little was known about the coast?

Across the world, several methods of coast protection had been attempted, but since the Malabar Coast seemed to be anomalous in

many respects, the government was not quite sure which of these measures could be successfully applied to Malabar's peculiar environment. Adding to this uncertainty, local experts expressed widely divergent views on the subject, making it hard for the government to decide what course of action to follow. Through the 1860s, for instance, as the 'ravages of the sea' intensified, the local administration was forced to hastily build some groynes to avert serious threats of inundation.[77] In 1869, a 'special harbour committee' consisting of two railway engineers from Madras and a master attendant concluded that these groynes had been very successful in checking erosion alongside Cochin's harbour.[78] According to this committee, these structures had in fact completely removed the danger from coastal erosion for the time being. Just a few months after the committee released its sanguine report, however, another local expert who had been observing the groynes closely expressed a diametrically opposite view and declared them to be completely useless. He instead favoured the use of revetments, a method that had been employed the year before when the sea had almost swept Cochin's lighthouse away. Dogged by a shortage of funds and a lack of consensus on coast protection measures, the Madras government suspended further protective works around Cochin and stated that only 'works of an immediate and emergent nature' would be carried out at this stage.[79]

This lack of government response only heightened anxieties about the port's future among commercial groups who were beginning to cluster around the harbour due to an expansion in the port's trade. It is important to historicize both the anxiety produced by these movements along the coast and its effects. We need to ask: why did concerns about the port's environment suddenly escalate in the 1860s? Was this simply a response to an actual increase in erosion around Cochin or was it reflective of wider issues and concerns? In the case of Cochin, a senior government official in fact pointed out

[77] Groynes are low barriers constructed from the coast into the sea to trap drifting sand.
[78] Bristow, *Cochin Harbour Development*, 153.
[79] *Report on the Administration of the Madras Presidency*, 1868–1869, 126.

that unlike what a simple reading of the decade's events might suggest, there had, in fact, been 'nothing unusual' in the developments along the coast during this period.[80] The deposition of sand around the coast as well as its sudden disappearance, he observed, was a normal occurrence in this region. Why then did local colonial officials and commercial groups in Cochin find themselves in the grip of a panic in the 1860s?

It should be noted that anxieties about the harbour's future peaked at the same time that Cochin had begun to experience a commercial revival. This was no coincidence. As we have already seen, over the previous decade, several European merchant houses had established themselves in the town forming the Cochin Chamber of Commerce in 1857. This was accompanied by the establishment of local English newspapers that provided a platform for commercial interests to express their concerns about the port's future.[81] Not surprisingly, then, even though the problem of coastal erosion was most acute to the north and south of Cochin, fears about the sea converged around the harbour and the town where European interests were concentrated. And as the port's commerce grew, so did fears about its possible inundation. If the rise and growing prominence of commercial groups had contributed to the 'rediscovery' of the Narakkal's mudbank in 1861, as this chapter's preceding section showed, then by the end of the decade, growing interest in Cochin and its commercial prospects had also helped draw attention to other, more menacing movements along the coast. To be sure, there does seem to have been some actual increase in erosion in the harbour's immediate surroundings in the period under consideration, and yet even this development cannot be seen in isolation since there was some evidence to suggest that this rise was caused by recent reclamations executed in the backwaters. Over the previous decades, the demand for coconut produce had grown in both Europe and America providing local

[80] 'The Cochin Harbour', *Madras Mail*, 6 January 1870.

[81] There were two weekly English newspapers that were published in Cochin during this time: *Cochin Argus* and *Western Star*.

inhabitants with significant incentives for planting coconut trees on reclaimed lands. Several observers pointed out that it was this encroachment of land on water that was in turn leading to the sea making claims on land.[82] As environmental historians have convincingly argued, both 'natural advantages' and 'natural disasters' have as much to do with political, social and economic factors as they do with 'nature'.[83]

The increasing attention paid to coastal erosion in the 1860s must also be tied to the growing importance of geological knowledge in colonial India.[84] After being neglected initially because of a perceived lack of economic and scientific importance, geology, as several scholars have noted, began to make rapid strides in colonial India by the mid-nineteenth century. The establishment of the Geological Survey of India in 1851 had also helped foster a far more systematic approach towards the collection of geological information relating to the Indian subcontinent.[85] In Malabar, this shift contributed to a growing interest in the region's environment and to the production of new knowledge about the region's natural resources, especially those that were seen to be significant for securing the economic interests of the colonial state.

David Arnold argues that the 'discovery of India' by European travellers, stretching roughly from the 1780s to the 1850s, had by the time contributed to the 'tropicalization' of India, that is, to India's incorporation both physically and conceptually into the tropical world.[86] The 'tropics' as various scholars have shown had

[82] 'Cochin in Jeopardy', *Madras Mail*, 7 December 1869.

[83] See William Cronon. *Nature's Metropolis*, and Ted Steinberg. *Acts of God: The Unnatural History of Natural Disaster in America*. Oxford: Oxford University Press, 2006, for representative examples.

[84] On the professionalization of geology in India, see David Arnold. *Science, Technology and Medicine in Colonial India*. Cambridge: Cambridge University Press, 2004; Satpal Sangwan. 'Reordering the Earth: The Emergence of Geology as a Scientific Discipline in Colonial India', *The Indian Economic & Social History Review*, Vol. 31, No. 3 (1994): 291–310.

[85] Arnold, *Science, Technology and Medicine in Colonial India*, 44–45.

[86] David Arnold. *The Tropics and the Travelling Gaze: India, Landscape and Science, 1800–1856*. London: University of Washington Press, 2006, 27.

become associated in the European imagination with various characteristics connected with the environment.[87] Nature in the tropics accordingly came to be regarded as both more luxuriant and tempestuous than elsewhere.[88] While the diversity of India's climate and topography often made it hard to fit parts of the subcontinent into the tropical schema, Malabar was an exception. Here European travellers and officials found a region that was as lush and fertile as the paradigmatic tropical spaces of Brazil and the West Indies and was unlike the 'poor tropics' encountered in most other parts of the country. But if Malabar's luxuriant environment matched edenic expectations, it also provided ample examples of the perils associated with such spaces. Unpredictable and dynamic, the coastline around Cochin exemplified an environment of excess, one that did not conform to temperate bounds and was prone to break out in spectacular ways. At a time when anxieties about the vulnerability of landscapes especially in the tropics had intensified, Cochin's shifting surroundings evoked greater interest and dread than before.[89]

In his essay, 'Not at home in Empire', Ranajit Guha highlights the extent to which colonial officials in India expressed a pervasive sense of anxiety when faced with a world that they could never fully understand or be a part of.[90] This anxiety, Guha points out, was an inescapable aspect of colonial rule, which was predicated on establishing a clear line of difference between the rulers and the ruled. In telling passages that Guha cites in his essay, colonial officials express a deep but vague sense of unease and disquiet at being placed in a

[87] See, for instance, Mary Louise Pratt. *Imperial Eyes: Travel Writing and Transculturation*. London: Routledge, 1992.

[88] Also see David Spurr for how the concept of nature has historically performed a number of functions in European discourse on the non-western world, standing in for a wide variety of, often contradictory values, David Spurr. *Rhetoric of Empire, Colonial Discourse in Journalism, Travel Writing and Imperial Administration*. Durham: Duke University Press, 1993.

[89] Richard Grove. 'The Origins of Environmentalism', *Nature,* Vol. 345 (1990): 11–14, 14.

[90] Ranajit Guha. 'Not at Home in Empire', *Critical Inquiry*, Vol. 23, No. 3 (1997): 482–493.

culture that they did not belong to, among people they could not quite understand. In mid-nineteenth-century Cochin, I argue, a similar sense of anxiety was experienced and expressed by members of the local colonial establishment in the late nineteenth century, when confronted by an unfamiliar environment that they could not quite comprehend and one that they often did not have the means to order and control.

Asking whether we 'can afford to leave anxiety out of the story of the empire?', Guha asserts that colonialist historiography 'has promoted an image of the empire as a sort of machine operated by a crew who knew only how to decide but not to doubt, who knew only action but no circumspection, and in the event of a breakdown, only fear and no anxiety'. If, however, we were to only 'step outside official discourse and meet individual members of that crew agonizing … over the immensity of things in a world whose limits (were) not known to them',[91] Guha insists, a very different image of empire would emerge – one in which the protagonists of colonial rule were far less sure of themselves than is commonly supposed.[92] Despite this important intervention, historians of infrastructure development in South Asia have for the most part continued to emphasize the confidence with which the colonial state set about reordering the landscape they encountered. Colonial anxieties have, however, been taken far more seriously by environmental historians who have shed light on the concerns produced by tropical environments and the colonial state's responses to them.[93] While these historians have successfully highlighted

[91] Ibid.

[92] Other influential accounts of colonial anxiety in South Asia include Kim A. Wagner. '"Treading Upon Fires": The "Mutiny"-Motif and Colonial Anxieties in British India', *Past and Present*, Vol. 218, No. 1 (2013): 159–197; Jon Wilson. *India Conquered: Britain's Raj and the Chaos of Empire*. London: Simon and Schuster, 2016.

[93] See, for instance, Richard Grove. *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism 1600–1860*. Cambridge: Cambridge University Press, 1996; K. Sivaramakrishnan. *Modern Forests: Statemaking and Environmental Change in Colonial Eastern India*. Stanford, California: Stanford University Press, 1999; J. Beattie. *Empire and Environmental Anxiety Health,*

the problems associated with earlier representations of the colonial state as a homogenous and omnipotent force effecting transformations at will, a focus on valuable forest and agrarian lands nonetheless has led this scholarship to almost treat increased state intervention, however tentative, as the default response to environmental concerns.[94]

A close examination of the colonial administration's attitude towards Cochin's unstable coastline in the nineteenth century, however, reveals a very different story. Here, unsure about whether Cochin's coastline could in fact be saved from surging waves and also doubtful about whether the port was worth saving at all, colonial officials would leave the harbour and its surroundings at the mercy of an 'encroaching' sea.

We tend to think of a recognition of 'non-human' agency as a fairly recent development, one that is still considered to be controversial by many.[95] In the humanities and social sciences, this recognition owes much to the works of scholars like Bruno Latour and Donna Harraway who have highlighted the limitations of traditional humanistic approaches and the need to engage with the power of non-human forces.[96] In the process, this post-human turn in scholarship has encouraged us to rethink the very nature of agency itself. But in the nineteenth century, a recognition of the agency of various ecological forces, including water, was not controversial. In fact, most important geologists, including Charles Lyell, wrote about moving water as one of the prime 'agents' of geological change. Water's

Science, Art and Conservation in South Asia and Australasia, 1800–1920. London: Palgrave Macmillan, 2011.

[94] See, for instance, D'Souza, *Drowned and Dammed.* For a global perspective on the use of technology in response to environmental anxieties in the nineteenth and twentieth centuries, see Lehmann, *Desert Edens*.

[95] For an important intervention in this field, see Jane Bennett. *Vibrant Matter, A Political Ecology of Things*. Durham: Duke University Press, 2010.

[96] Bruno Latour. 'On Actor-Network Theory: A Few Clarifications', *Soziale Welt*, Vol. 4, No. 4 (1996): 369–381; and Donna Haraway. 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', *Feminist Studies*, Vol. 14, No. 3 (1988): 575–599.

productive and destructive power was, in other words, widely recognized and discussed during this period. The anxieties produced by the sea around Cochin in the late nineteenth century should as a result be examined within this intellectual context. While this section has examined such concerns in relation to the port's geography, in the following section, we turn to similar fears emerging out of an engagement with the port's history.

MEMORIES OF MUZIRIS

From the mid-nineteenth century onwards, it became a regular practice among writers of both official and unofficial publications to begin their account of Cochin with the sensational story of the harbour's birth. According to these accounts, which only differed in minor details, Cochin was born out of a cataclysmic and violent upheaval that shook the coast in 1341 CE. Narratives differed on whether the convulsions were caused by an earthquake or floods and whether it was the sea or the Periyar River that had caused the maximum damage. However, they all agreed that it was this churning of waters in the fourteenth century that had led to the formation of both Cochin and Vypeen and the annihilation of Cranganore (Kodungallur), a port 18 miles to the north of Cochin, often identified with the fabled city of Muziris.

Over the following centuries, Cochin came to be regarded as having inherited Muziris' commerce, but with more and more land being washed away around the port in the mid-nineteenth century, many began to wonder whether it was also destined to meet Muziris' tragic fate. Today, historians are still unsure of Muziris' location and some in fact contend that Cranganore was unlikely to have been the site of the ancient city. But in the late nineteenth century, the association between Cranganore and Muziris was widely accepted as were the legends about its dramatic destruction.[97] Over the following decades, tales of the coast's eventful past would merge with nascent

[97] For the controversy around Muziris and its location, see Rajan Gurukkal and Dick Whittaker. 'In Search of Muziris', *Journal of Roman Archaeology*, Vol. 14

geological research to produce an image of Cochin as an anomalous and precarious space – one where quixotic natural forces often erupted in spectacular and devastating ways. So while traditions would be called forth to narrate stories of cataclysmic floods in times past, more prosaic geological records were deployed to reveal the relative newness of the coast. Some of these scientific accounts suggested that the sea had extended to the foot of the Western Ghats until as late as the first centuries of the Common Era, while others claimed that the land around Cochin was produced out of recent volcanic eruptions.[98]

The origin and source of these theories about the great flood of 1341 are unclear.[99] While there are no literary or archaeological sources to corroborate these dramatic upheavals, the fact that scientists have dated parts of the coastline roughly to this period suggests that these narratives might have some historical basis.[100] Whatever the origin of these theories might have been, however, it was from the late eighteenth century that stories of the flood began to regularly feature in European accounts of the region, and a text written by a missionary called Paolino Bartolomeo appears to have played an important role in this process.[101] This was a period when diluvial theories had begun to attract significant attention in Europe with the role of floods in shaping landscapes, especially that of the biblical flood, being discussed and debated in unprecedented ways.[102] In such

(2001): 334–350. As the authors point out, the term Cranganore was historically applied to a wide area and did not just refer to the town of Kodungallur with which it is associated today.

[98] For a discussion of legends and geological records pertaining to the creation of parts of the Malabar Coast, see KP Padmanabha Menon. *History of Kerala*, Vol. 1. New Delhi: Asian Education Services, 1982, 22–28.

[99] See C. P. Rajendran. 'Historical Accounts of Sea Disturbances from South India and Their Bearing on the Penultimate Predecessor of the 2004 Tsunami', *Seismological Research Letters*, Vol. 90, No. 2A (2019): 774–783.

[100] A. Sreedhara Menon states that it is from the 1400s that Cochin begins to appear in literary sources with the travellers Ma Huan and Nicholas Conti visiting the port in 1409 and 1440, respectively. See Sreedhara Menon, *Kerala Charitram*.

[101] Paolino Da San Bartolomeo. *Voyage to the East Indies, 1777–1789*, translated by William Johnston. London: J. Davis, 1800.

[102] Richard Huggett. *Cataclysms and the Earth History: The Development of Diluvialism*. Clarendon Press: Oxford, 1989, 52–75.

a context, it is not surprising that stories about the catastrophic flood in Malabar seem to have caught the attention of various European figures including Bartolomeo.

Having lived in India for 13 years, Bartolomeo was known to have learnt a number of Indian languages, including Sanskrit and Tamil. While his influential text, *Voyage to the East Indies*, was primarily a travel account, as the title suggests, the author's linguistic abilities and interests are evident throughout the book, with Bartolomeo repeatedly highlighting and correcting European corruptions of local place names. Such a concern with nomenclature is apparent in his description of Cochin as well, with the author beginning his account by stating that the port's original name in Malayalam was *Cocci*, which he traced to the name of a small river that used to flow into the sea before 1341.[103] In that year, 'the sea … broke through the banks of the river Cocci and overwhelmed the village of the same name with such violence that it swept it away and formed in that district a very large river, a lake and a harbour so spacious that the largest ships can now lie in safety on the north east side of Cochin where the river runs into the sea'.[104] Referring to the movement of water around Cochin during the monsoons, Bartolomeo noted that,

> nature always exhibits here a most magnificent spectacle, as a violent contest then arises between the sea and the rain water which falls down in torrents from the mountains … if the latter is sufficiently powerful, it forces its way … and drives sand before it into the sea; but if the sea proves victorious, the mouths of the river, the canal and even the harbour are choaked with sand. The sea then overflows its banks, inundates the adjacent country... obliges the inhabitants to abandon their dwellings and gives to many districts a totally different appearance. In this manner new towns and harbours gradually arise; and the old ones are so

[103] Bartolomeo, *Voyage to the East Indies*, 126.
[104] Ibid.

> destroyed that at the end of four to five centuries their former site can scarcely be discovered.[105]

Quoting sources from the Dutch EIC, Bartolomeo insisted that these dramatic events were commemorated in local tradition through the declaration of a new epoch called Puthu Vypu. This theory was subsequently disputed by the famous colonial naturalist, Francis Day who, in 1863, presented evidence from other parts of the coast to show that the commencement of a new epoch usually indicated the establishment of a new religious institution and need not refer to the formation of land itself.[106] It is hard to say whether either of these theories was correct, but in the late nineteenth century, it would be Bartolomeo's dramatic rendering of Cochin's formation that would gain popularity among European writers.[107]

Bartolomeo's influential account did not just provide details about coastal changes that had occurred in the port's past, it also described transformations that were unfolding in the present. The missionary claimed that in the eight years that he had spent living along the coast, he had himself witnessed the formation of new lands due to the force of water. Echoing theories that were becoming increasingly popular in Europe, Bartolomeo stated that moving water and fire were the two most important agents of geological change in the world, and he claimed that in India, the former was more dominant. The force of water in parts of the subcontinent was so great, he exclaimed, that those who had not witnessed it first-hand would be unable to 'form any idea' of such movements and their consequences.[108] By combining literary traditions and empirical observations, Bartolomeo provided an important and influential account of the incredible and enduring dynamism of the coastline around Cochin, one that would be cited repeatedly in the late nineteenth century.

[105] Ibid.

[106] Francis Day. *Land of the Permauls: Or Cochin, Its Past and Its Present*. Madras: Adelphi Press, 1863, 7–8.

[107] See, for instance, Logan, *Malabar Manual*, Appendix, XXI.

[108] Bartolomeo, *Voyage to the East Indies*, 129.

Such attempts at combining local lore with scientific investigations were becoming more common in this period, with mythology becoming entangled with various branches of science, especially geology.[109] As Pratik Chakrabarti and Joydeep Sen show, these entanglements were particularly strong in colonial India where scientists frequently utilized mythology to understand and explain the subcontinent's geological history.[110] Such traditions were also particularly popular with a powerful strand of geological thought that held that the earth was shaped by violent and dramatic upheavals.[111] These 'catastrophist' theories were usually associated with events in deep time, but since parts of Malabar were believed to be of very recent origin, a sudden and spectacular irruption of land in the fourteenth century would not have seemed improbable to many contemporary scientists who believed that more recent upheavals furnished evidence of volatility in the earth's deep past. Even the uniformists, including Charles Lyell himself, usually associated with theories of gradual geological change in contrast to the catastrophists, did not deny the force or importance of dramatic upheavals in the earth's past. As Martin Rudwick argues, what Lyell and his followers believed was that changes witnessed in the present or in historical time were sufficient to account for the transformations that had shaped the planet in deep time.[112] And as various scholars have pointed out, mythology could be an important source of information for the uniformists too. But with geologists increasingly utilizing literary and scientific evidence of recent geological changes to better understand the earth's deep past, there was also a growing concern that such historical transformations might also be indicative of

[109] See, for instance, Alain Corbin. *The Lure of the Sea: Discovery of the Seaside in the Western World 1750–1840*. London: Penguin, 1995, 5.

[110] Pratik Chakrabarti and Joydeep Sen. 'The World Rests on the Back of a Tortoise', *Modern Asian Studies*, Vol. 50, No. 3 (2016): 808–840.

[111] Sumathi Ramaswamy. *The Lost Land of Lemuria, Fabulous Geographies, Catastrophic Histories*. Berkeley: University of California Press, 2004, 100.

[112] Martin Rudwick. 'The Strategy of Lyell's Principles of Geology', *Isis*, Vol. 60, No. 1 (1970): 4–33.

changes still to come. In Cochin, this coming together of scientific fact and fable would generate acute anxieties among local administrators, who worried that if the port's very birth could be traced back to an almost unfathomable upheaval in the fourteenth century, then it might just be a matter of time before the whimsical sea came back to reclaim the harbour that it had helped create.

These rising concerns surrounding Cochin's natural environment also began to have a very real impact on its built environment. Already in the 1860s, schemes for harbour improvement at Cochin began to be adversely affected by these anxieties about coastal erosion. These schemes had so far been discussed in terms of commercial and technological factors. Whether the port's trade warranted a large-scale harbour improvement programme and if technological solutions could be found for the problems posed by its sandbar were the questions that had hitherto dominated discussions. But with its persistent yet unpredictable action, the 'ever-encroaching' sea forced its way into these discussions ensuring that the physical environment would also become a decisive factor in determining how the port and its infrastructure would develop. When, for instance, Cochin's growing prosperity following the rediscovery of the Narakkal mudbank stimulated demands for a railway line to the town, those involved with the proposed line were forced to reckon with the port's shaky surroundings.

Unlike on earlier occasions, this time, the Madras government appeared to be in favour of providing Cochin with a railway connection, and it asked the Madras railway company to conduct a survey to ascertain the line's viability. But just a short visit to Cochin was enough for the Company's agent to advise against the construction of such a line. The agent cited two reasons for this: one was his belief that extending the railways to Cochin could potentially damage the financial prospects of the existing line to Beypore. The other more significant reason for his conclusion, the agent claimed, was the threat posed to Cochin by the sea. He stated that from what he had witnessed himself and from the evidence he had gathered during

his visit, it was clear 'that the very existence of Cochin was on two occasions seriously jeopardized by the encroachments of the sea'.[113] In such circumstances, he asserted that the construction of a railway line could only be undertaken once the coast around Cochin had been fully secured from the sea. Since coast protection measures would entail a very heavy expenditure, the agent insisted that the cost of bringing the railways to Cochin was just too high. The Madras Railway Company, therefore, refused to build the line to Cochin despite an assurance of support from the Madras government and the princely state of Cochin. The railway line to Cochin ultimately only became a reality towards the end of the nineteenth century. While this was partly because of concerns about the line's profitability, the enduring anxieties surrounding Cochin's physical environment also contributed towards discouraging heavy investment around the port.

The investment of capital in Cochin was highly risky not only because the security of such investments could not be guaranteed, but also because there were very real concerns about the impact of construction along the dynamic and unpredictable coast. In 1870, the master attendant of Madras claimed that the construction of a small canal close to Vypeen point had in fact led to a significant increase in coastal erosion on that part of the coast. This ill-conceived canal, the master attendant stated, had in fact turned what was once the 'safest part of the island' into the 'most vulnerable point along the coast'.[114] The existence of the Cochin harbour seemed to hinge on the maintenance of a most precarious equilibrium, one that many feared could be easily upset. This shadow of doubt loomed large even over the emergency coast protection measures that had been undertaken around the harbour, with some experts suggesting that these measures were in fact contributing to the instability of the coast.[115]

[113] Letter from Agent and Manager of the Madras Railway Company to the Consulting Engineer for Railways, 7 December 1868, File No. 611, Correspondence File, KSA – K.
[114] File No. 74-A, Revenue Proceedings, KSA – K.
[115] Ibid.

The uncertainty about Cochin's physical environment did not put an end to demands for harbour development, but it did ensure that such demands would now have to seriously engage with the port's volatile coastline. As a local government official remarked, 'until some general system for the preservation of this decaying coast has been decided on and adopted, it would be useless to spend any more money on Cochin Harbour'.[116] Those lobbying for Cochin's development, therefore, recognized that the port would first have to be secured from further erosion, although they continued to insist that the expenditure incurred on these protective works could be partly offset if there was a significant expansion in the port's trade. The Madras government, however, made it clear that it was only interested in investing in 'productive' public works projects that could pay for themselves. It accordingly asked a range of experts to determine whether Cochin's harbour could be preserved and deepened at a cost that the port could bear. For the work to be considered productive, it would have to yield enough revenue to provide 4½ per cent interest on the total capital outlay. But the sandbar at the mouth of Cochin's harbour and the persistent coastal erosion had both ensured that developing the port would be an expensive proposition. Experts appointed by the government concluded that opening up Cochin's harbour and securing it from the sea would cost the government around 60–80 lakh rupees. Even the port's most optimistic supporters had to concede that Cochin's trade would not be able to provide 4½ per cent interest on such a large sum.[117] The Cochin Chamber of Commerce, therefore, urged the government of India to finance the project as an imperial work and claimed that the harbour could serve naval interests. The Chamber pointed out that in a recent minute, a senior government official had pressed the Government of India to create several 'harbours of refuge' along the coast 'to meet

[116] 'Cochin Harbour', *Madras Mail*, 17 October 1873.

[117] R. C. Bristow. *Cochin Harbour Development: History of Proposals*. Madras: Government Press, 1929, 125.

the exigencies of war', and the Chamber insisted that if developed, Cochin could emerge as one such harbour. A committee appointed by the government, however, reached the opposite conclusion, stating that it 'would be exceedingly difficult to render an open place like Cochin defensible against an enemy's vessels'.[118] With its utility for strategic purposes having been dismissed, harbour development at Cochin began to seem increasingly unlikely at the turn of the century.

CONCLUSION

Over the course of the nineteenth century, anxious about Cochin's volatile coastline and unwilling to incur heavy expenditure, the Madras government chose to largely remain passive as the 'encroaching' sea continued to make inroads around the port. During the same period, concerned about Cochin's future and the costs associated with its development, it also categorically rejected all demands for its development, despite the growing popularity of port development projects across the Indian Ocean. In 1889, the Port Officer of Madras, H.A. Street, stated that ecological, technological and financial considerations made a port development project at Cochin both unattractive and unviable.[119] 'I am of the opinion', he declared, 'that the scheme is not one which would prove of such advantage as to justify its adoption'.[120] Most of Street's colleagues in Madras shared this view, and at the turn of the century, it seemed like the colonial state's indifference to Cochin's eroding coastline and its commercial prospects would continue.

Within just a couple of decades, however, there would be a dramatic turnaround. After rejecting almost all appeals for intervention for decades, the Madras government would, in the first quarter of the twentieth century, almost unexpectedly, decide to embark on one of the most ambitious port development projects attempted in

[118] Ibid., 123.
[119] Letter from H.A. Street, 8 January 1889, File No. 908, Correspondence Files, KSA – K.
[120] Ibid.

British India. This project would end with Cochin's harbour being dredged and with Cochin making the rare transition from the status of a 'minor' to a 'major' port in the final years of British rule. How do we account for this sudden change? In order to address this question, we need to interrogate the factors that prompted the colonial state to suddenly embrace technological interventions around Cochin instead of treating these interventions as natural or inevitable. In Chapter 2, I turn to one of the factors that, I argue, played a crucial role in this transformation: the increasing involvement of the princely states of Malabar in the British port's affairs.