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"No man, who hath tasted learning, but will confess the many ways of profiting by those, who, not contented with stale receipts, are able to manage and set forth new positions to the world: and, were they but as the dust and cinders of our feet, so long, as in that notion, they may yet serve to polish and brighten the armoury of truth, even for that respect, they were not utterly to be cast away."—MILTON.

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1. China: being "The Times' " Special Correspondence from China in the Years 1857-58. Reprinted by permission. With corrections and additions by the Author, George Wingrove Cooke, Author of "The History of Party," etc. London: G. Routledge and Co., Farringdon Street. New York: 18, Beekman Street. 1858. 43
2. The Chinese and their Rebellions viewed in connection with their National Philosophy, Ethics, Legislation and Administration; to which is added an Essay on Civilization and its present State in the East and West. By Thomas Taylor Meadows, Chinese Interpreter in H. M.'s Civil Service. London: Smith, Elder and Co. 1856. *ib.*
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and limestone prevailed, and in this stratum the bore has been terminated."*

Mariners, when approaching the Sandheads, having no land in sight, not even the height of a span to guide them, are obliged to trust entirely to their lead to inform them of their position. The sand that is brought down by the rivers hardens under the surface of the sea into a concrete, nearly as hard as rock, to touch upon which is fatal to any craft; but as the waters descending the rivers cut a subaqueous channel through this sand, the lead informs the pilot at once, whether he is on a bank or in a channel. Government Pilots are always cruising a few miles from the land, and at night continually burn blue lights to inform ships of their position.

The segregation of the sand from the mud is as follows; the freshes or heavy rains bring down from up-country vast quantities of sand and earth calculated at 40,000 million cubic feet, or nearly one-third of a cubic mile, rendering the waters of all the rivers opaque or of a dull yellow color. This body of water rushing along with great impetuosity reaches the sea; a contest immediately takes place between the rushing water and the advancing tides, the effect is to cause the heavier sand to subside which is done on either side of the river channels, forming the Sandheads, the finer particles of mud are driven back or up the rivers, and deposited upon the ten thousand Islands over which the tide sweeps; but, as all the finer particles of sand and mud are not thus thrust back upon the Soonderbuns, some portion of the alluvion is carried out to sea for forty, fifty, and even for sixty miles, where silently and slowly it finds its way to the bottom of the ocean, forming the soft, impalpable purple mud so well known to pilots and others approaching the shores of India. At sixty miles from the Soonderbuns the ocean is free from any appearance of natant impurities, but nevertheless a certain amount of alluvial matter is subsiding to the bottom of the sea that number of miles from the land, that probably only commenced to sink at forty miles from the Soonderbuns.

Dr. Hooker alludes to the vast increase of the land on the Eastern flank of the Delta by the deposition of soil driven up by the waves; he says:—

"The mainland of Noacolly is gradually extending seawards, and has advanced four miles within twenty-three years: this seems sufficiently accounted for by the recession of the Megna. The elevation of the surface of the land is caused by the overwhelming tides and South-West hurricanes in May and October: these extend thirty miles North and South of Chittagong, and carry the waters of the Megna and Fenny back

* Journal of the Asiatic Society of Bengal. Vol. IX. page 686.

over the land, in a series of tremendous waves, that cover islands of many hundred acres, and roll three miles on to the main land. On these occasions the average earthy deposit of silt, separated by micaceous sand, is an eighth of an inch for every tide ; but in October, 1848, these tides covered Sundeeep island, deposited six inches on its level surface, and filled ditches several feet deep. These deposits become baked by a tropical sun, and resist to a considerable degree denudation by rain. Whether any further rise is caused by elevation from below is doubtful ; there is no direct evidence of it, though slight earthquakes annually occur ; and even when they have not been felt, the water of tanks has been seen to oscillate for three quarters of an hour without intermission, from no discernible cause."

The great tidal wave taking its origin in the Southern ocean, rushes with impetuosity up the Bay of Bengal, breaking in an angry surf all along the Coromandel coast, and at times cutting off all communication between the shipping and the shore. This wave, when aided by the South West monsoon, and by the full or change of the moon, rushes with great impetuosity up the rivers of the Delta, where it is opposed by the freshes that descend from the up-country during the prevalence of the South West monsoon. The following description of the bore, taken from the *Illustrated London News*, is from the pen of the writer of this article :—

"The South-West monsoon has set in, bringing with it the dangerous tidal bore, which for three or four days at the full and change of the moon is seen racing up the Hooghly river at the rate of twenty miles an hour, dashing from side to side of the river according as the bends, or reaches deflect it in its course. Upon the approach of this wave a distant murmur is heard which soon turns into the cry *bān ! bān ! bān !* from the mouths of thousands of people, boatmen, sailors, and others who are always on the look out for this much dreaded wave. This cry is the signal for all sorts of craft to push out into the centre of the river, the only spot where the wave does not curl over and break. Should any boat or larger craft be caught in that portion of wave that breaks, instant destruction is inevitable. Numerous boats from the up-country provinces are lost every year from the crews being ignorant either of the existence of the bore, or from not knowing the correct position to take up so as to meet it. Ships at anchor in Calcutta though not exposed to the breaking portion of the wave frequently part their cables when struck with the wave.

"Standing on the shore during the rapid, rushing passage of the bore, it is curious sight to see the lower portion of the river or that nearest to the sea, six or eight feet higher than the upper portion of the river, the tide rising that number of feet in an instant. The height of the bore in the Hooghly varies from five to twelve feet, it is exceedingly dangerous in some parts of the river, but more moderate in others ; it never breaks on both sides of the river at the same time.

Deep water destroys its force, but shallow water, or a sand bank, brings out all its power and fury." Dr. Hooker mentions, that at the mouth of the Megna river, "the great object in the navigation is to keep afloat, and to make progress towards the top of the tide and during its flood, and to ground during the ebb in creeks were the bore (tidal wave) is not violent; for where the channels are broad and open, the height and force of this wave rolls the largest coasting craft over and swamps them."

The bore in 1782 flowed as far as Nuddea in the Hooghly, but at the present day it falls short of that place by many miles, not ascending much beyond Sooksagor. It reaches Dacca on the Boree Gunga, and Custee on the Horinghatta branch.

Amongst the calamities that have overtaken the Soonderbuns we must not omit to mention the great inundations caused by cyclones or hurricanes. About 1584 the tract lying between the Horinghatta and the Ganges, known as the Backergunge or Burrisal District, was swept by an inundation, succeeded immediately afterwards by an incursion of Portuguese and Mugh pirates. In June 1822 this same tract was again inundated, 10,000 inhabitants perishing and many houses and property destroyed. In 1737 A. D. happened the great Calcutta storm before quoted. In 1763 A. D. the river Megna rose six feet above its usual level at Lukhipoor. In 1833 A. D. Saugor Island was submerged 10 feet; the whole of the population, between 3000 and 4000 souls, together with some of the European superintendents perished; at Kedgerree a building 18 feet high was completely submerged. The *Duke of York*, East Indiaman we saw high and dry in the rice fields near Fultah in the Hooghly. In 1848 A. D. the Island of Sundeep was submerged.

In addition to these dangers to which the Soonderbuns are subject, we may add the history of a dreadful malady, common to all the forest tracts in India, known as *Jungle Fever*, and which reigns in full power in the Soonderbuns. If a person from the effects of fatigue or from constitutional liability, or from an incautious exposure to the night air in a jungle tract of country, becomes obnoxious to *Jungle Fever*, he becomes aware of the fact upon the 8th or 10th day after inoculation by a severe headache attacking him; the pain of which not only gives the sufferer an unearthly and ghastly look, but even disturbs during its duration the features of the countenance, twisting the eye-balls out of position. The second or third day of the headache induces a fearful delirium lasting from five to seven whole days and nights with occasional but short lucid intervals, at the end of which period the brain being heavily effused the patient dies; or if he rallies, his life for many days hovers in an uncertain state between time and eternity. The slightest neglect or mis-

management of the patient's case proves fatal. We have known a fine young man die in the act of being raised in his bed by his nurse for the purpose of having his linen changed; this was done in kindness but against the strict injunctions of the medical man, who had ordered complete rest and no disturbance of the patient. The bad effects of Jungle Fever cling to a person for many years even after convalescence.

Major Rennell, the Surveyor General of India in 1788, says of the East India Company:—

“Whatever charges may be imputable to the managers for the Company, the neglect of useful science, however, is not among the number. The employing of geographers, and surveying pilots in India; and the providing of astronomical instruments, and the holding out of encouragement to such as should use them, indicate, at least, a spirit somewhat above the mere consideration of gain: but above all, the establishment of an office at home, for the improvement of hydrography and navigation, their judicious choice of a superintendent for it, reflects the highest honour on their administration; and ought to convince us, that in a free country, a body of subjects may accomplish what the state itself despairs even to attempt. For however surprising it may appear, it is nevertheless true, that the first maritime nation in the world has no good chart to direct its fleets towards its own coasts; nor even a criterion by which the public may be enable to judge of the merit of a hydrographical production whatsoever. So that the soundings on the coast of Bengal are better known than those in the British channel, of which, no tolerable chart exists, even at this day (1787). During the late war, an East India ship owed her safety to the knowledge obtained from a chart of the mouths of the Ganges (made and published by order of the Company) into one of which she escaped from two French cruisers, and afterwards came into the Hooghly river by the inland navigation. We had just become masters of the hydrography of America, when we lost the sovereignty of it. I hope no one will think ominously of our Indian possessions from this circumstance; but even if he does, he may make himself easy on the score of Great Britain.”

In the years 1812—1818, that portion of the Soonderbuns lying between the Hooghly river and the Bara Punga, was surveyed by two young brothers, Lieutenants in the Honorable Company's army. Their names were Hugh Morrieson of the 4th Regiment Native Infantry, who is supposed to have died of Jungle Fever at Jessore contracted whilst surveying in this unhealthy tract; and W. E. Morrieson in the Bengal Engineers, who was killed by a grape shot upon the 3rd of January 1815, at a place called Jeetghur, in an unsuccessful attack upon the Goorkhas. By the kindness of Major Henry Landor Thuillier, the courteous Deputy Surveyor General of India, we have had access to the field books of these adventurous officers, and from them we

shall freely quote ; and as we do so we shall be able to show the dangers and difficulties encountered and overcome by these two brave young men, who were frequently up to their knees in mud with no secure foundation for their theodolites. Perplexed beyond measure we find them carrying on their work, and when about to take an angle after having fixed their instrument, we find the following occurrence noted in the field book :—

“ Just as the Theodolite was rectified, and we were about to take the first angle, a tiger made a great spring from somewhere into a bush, about six yards from us, and there we lost sight of him.”

Again, in another river, it is recorded.

“ Went on shore to take a Latitude, and as the bank was very muddy the dandies (sailors) pulled the dingy (canoe) up to the jungle close to the only dry spot where we were observing the sun. Both of us were much annoyed by the trembling of the mercury and abused the people around us for moving and shaking the ground, but they said they were perfectly quiet. Having finished the observation, one of the sepoyas said there was a tiger close along side, that had been creeping up toward us, and for the last minute he and the animal had sat looking at each other ; we now heard a slight noise in the jungle, the two sepoyas fired, and out-sprang a tiger and ran off ; he was only about 4 yards from us, he on one side of a bush whilst we were on the other. Had the musket snapped or the fire been delayed he would have been amongst us.”

Their night operations were not undisturbed for we find that “ whilst weighing anchor, the Pansway joined me and gave the report that just at the time the first rocket was left off, a tiger made an attack, but being alarmed at the noise of the rocket he retired till about 4 hours afterwards he again swam to the boat—the people fired upon him, he then began making a great noise, on which they cut the cable and made the best of their way against the tide.”

After this entry, Hugh Morrieson naively remarks “ I can not corroborate one observation with another unless I give up a day ; for in the jungly parts I would not choose to go on shore for a star at night.” We should rather think not ; and yet in the most dangerous tigerish parts of the Soonderbuns, Lieutenant Morrieson met charcoal-burners and wood-cutters who had been located there for ten days in one place. Fuqueers or pseudo holy mendicants attend the wood-cutters to preserve them from the tigers, and the ceremony performed by these impostors is thus noted, but not described in the field book. “ I saw a company of wood-cutters performing a religious ceremony, asking the gods of the Soonderbuns at what place they might cut wood—they received for answer in another khal (creek) at some distance.”

It is evident our surveyors had no tiger charmers in their re-

time, for the entries in their field books of attacks made by these animals, either on the persons of their attendants or upon the boats, are very numerous; for instance, an entry dated 1812 runs as follows:—

“Whilst the people were cooking their dinners on the bank of Saugor Island, a tiger sprung upon an old dandie, (sailor) One of my sepoy advanced with a hatchet (with which he had been cutting wood) and is said to have hit the tiger on the head; the blow however was fatal to himself, for the tiger left the old man who was not much hurt and carried off the sepoy.” Again,

“Just as I was preparing to go on shore for a latitude, a dandee (boatman) was carried off by a tiger from a dingee (boat) which had gone near the shore to cut some wood.”

In the Roymungul river as night set in “the guards in the ‘pinnacle got hungry, they set off in a pansway (small boat) to join their boat, and just as they reached it, a tiger sprang from the shore and made for them; after however expending 21 cartridges they succeeded in missing him and he made his escape.”

At half past 3 in the morning “a tiger came on board a boat and killed my Jemadar after causing great alarm,” after this we find the following very natural remark;—“the manjees to-day protested against returning to the jungles, both on account of the tigers, and their boats being much damaged by worms.” The protest it appears had but little effect, for soon after, they were aroused in the night, “by a tiger making an attack upon one of the pansways. He had got his two fore paws on the side with his head and breast up in the boat, when the people set up a shout, he dropped and went off, several shots were fired by the different boats; we heard no more of him; he left the marks of his claws on the boat.”

These animals, although they claim the water as their territory, are not always successful in their attacks, but their land attacks are generally fatal, as we see in numberless cases recorded in the field books. Here is one. “This day a man of the name of Gunga Ram, manglee to one of the boats, was carried off by a tiger. The wind was high and the ebb having set in he could not reach the place he wished to anchor in, and as he was driven near the shore he went on the mud with the goon (tow-line) in his hand, all the other people on board advised him not to go; he had not been above a minute on shore when the tiger sprung upon him and carried him off.” The next day they “dropped down to the spot where the tiger seized the manglee but could see only a few feet marks.”

It is not only in the densest parts of the Soonderbuns that the tigers are so destructive and troublesome, but upon the outskirts of the forest where cattle or human beings can be obtain-

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ed do we also find these pests at full work, devouring all that comes in their way ; "The natives have a great dread of this 'part (Bussunpoor on the North and Western Soonderbuns) on account of the tigers, several people having been carried away from 'Bankra." "Frequent attempts have been made to re-establish 'the villages of Kosbas and Syacottee but without effect, the settlers being always driven away by those disagreeable neighbours." On the edge of the jungle on the Pussur river the country was formerly much more cultivated ; "but the tigers became so 'numerous the people left it ; it is now partially cultivated only 'at Diggerazabad. During all seasons of the year the people say 'they shut themselves up about 5 o'clock in the evening and stir 'not out till the sun be well up. But in the rains the tigers come 'in numbers and at all hours of the day. The people are constantly carried off."

Surely this catalogue of persecutions by the wild beasts upon the unhappy Bengali should close, but they have other enemies to deal with, for we find the following remark at Eksurra, Hogla khal, Banstullah, &c. on the edge of the forest. "In the rains all this country is under water, the only communication between village and markets is by boats, the people 'make muchans (stages) inside their houses to keep themselves 'dry, and in this manner they are carried away in great numbers 'by the alligators."

The industry of the Soonderbun Bengali must be sorely tried ; Lieutenant Morrieson makes the following entry to account for the abundance of handsome timber (Soondree) that he observed in the Kurhuria creek

"Where I found two wood boats who explained the reason why the wood in the Talka khal is so fine ;—there are so many tigers in it that the people cannot venture there, wood has been cut down and carried away, but a great deal that was cut they left ; thinking themselves lucky in getting away out of the Nullah any how,"—and yet to this moment Calcutta is entirely supplied with fire-wood from this dangerous locality ; again. "Found a great number of wood-cutters who informed me that five days ago they lost two men by tigers, exactly at the same time on each side of the river. The name of the uppermost khal (creek) of the two is Soona Mookee, but that of the lower one has not been revealed to them in any of their dreams, which is the usual way. This place is thick of tigers and fine Soondree wood, there must either be one tiger watching our fleet or else there must be one at every khal (creek) we enter, but I rather think it is the same one following us ; we have seen his feet marks on the bank of every creek we have remained one night in."

The surveyors also had several encounters with alligators, the fate of one of which will be read with pleasure ;—

"Observing a very large alligator on the bank we fired at him, he was wounded and after taking to the water he again came to the shore, we went in the pausway to him and put two balls into his head, on which he made a charge open mouthed at the boat but sunk from pain before he reached us, he was about 10 yards from us when he rose, we put two balls through his body aiming for his spine, he charged us again and got in below the boat apparently endeavoring to upset it, but not being able to succeed we lost him."

They however found the alligator dead on the shore on the morrow, "15 feet in length, very thick, and with a most enormous 'mouth,' on opening 'him we got the bangles, rings, and other 'ornaments of a woman out of him.'"

In the Roymungul river

"Having come to an anchor we saw a rhinoceros on the opposite side of the river drinking. I crossed in a pausway, he allowed me to approach to within 30 or 40 yards, I fired at his head and put the ball through his cheek, he ran off into the jungle before I could get a second aim at him. On reaching the pinnacle I learnt from the party I had sent on shore that they had been successful in finding a tank of good water under the cocoanut trees, it was however surrounded by long grass and other jungle, the haunts of many rhinoceroses, they had made a regular bed in it. Being anxious to save a trip all the way to Chandcalley (in the North) for fresh water, I went on shore with an armed party carrying fire-brands with which we soon set the whole place in a blaze. I left it to burn out meaning to return in a day or two to try and fill our casks."

It further appears that the country at the mouths of the Mollinchew and Roymungul rivers is infested by rhinoceroses and deer, the whole ground being cut up by their feet.

A region such as the Soonderbuns, crowded as it is with savage wild animals both on the land and in its waters, and possessing as it does a pestilential climate for many months in the year, could hardly escape being invested by the heathen natives with supernatural traditions and marvellous stories, and for one only can we find space; it is taken from the field books.

"The people up in the cultivation told us that down near the mouths of the Mollinchew and Juboona, there is a palace, but the spot they could not mention, indeed there is a degree of fable attached to it, for they believe it to be inhabited; during the stillness of night the great drums of the palace and the bells may be heard, but in the day time no such noise can be noticed."

Man in conjunction with the beasts of the field, the monsters of the deep, and the malaria of the forests, has assisted in rendering the Soonderbuns a place of bad repute; for we learn from the not nearly exhausted field books that

"About this time four very large dingees larger than the pinnace, each having about 50 men on board, passed us at a prodigious rate. We reckoned them Dacoits (pirates or robbers) from their appearance, and when we called to them they returned no answer, nor paid the least attention; it is very probable that may be a set of fellows going out to look for boats in distress, that have been separated from the regular fleets by stress of weather, and of course helpless against such a number of men."

The description of the wild beasts as extracted from the Field books of the brothers Morrieson, bearing date 1812—1818, is applicable to the state of the Soonderbuns in 1859; the line of cultivation may have been, since their day, pushed a few hundred yards further South, but the tigers to this day are as savage and as numerous as they were then; the alligators are as hungry and as cruel; and the rhinoceros as plentiful and as stupid; the deer still abound in herds, and pigs are found everywhere; but we are happy to say that all biped nuisances such as pirates, have been, under the continued and unceasing harrying of our Magistrates, completely cleared out of all the once pirate-infested rivers and creeks.

We take our leave of the Field books with regret, and in doing so we cannot refrain from giving the last entry made by Hugh Morrieson; it is dated the 28th February 1818 and is as follows:—

"I am now so ill that I can no longer carry on the survey, I have therefore got bearers to carry me by Dawk to the Station of Jessore."

There it is supposed he died; the deadly Jungle Fever had seized upon our bold surveyor.

The names of the rivers and creeks in the Soonderbuns are for the most part Sanscrit, Hindee or Bengalee extraction; the Mahomedans have named but few, the English none, unless the Hooghly, the most important but by no means the largest river, can be said to have been named by them. Most of the names allude to the Hindoo Gods and Goddesses, some to the trees most common on their banks, a few to the animals most numerous in their vicinity; all are named, well known and frequented. The following few names with their meanings will give an idea of the good taste or otherwise of the namers of these rivers.

Brahmapootra.—The Son of Brahma, the creator of the world.

Megna.—"*Meg*" a cloud "*na*" not; the advice given by boatmen not to attempt the passage of this dangerous river if the weather is cloudy or threatening.

Ganges.—"*Gunga*" The *River*, par excellence.

Horinghatta.—The deers' watering spot.

Deer abound along the banks of this river.

Arapungassva.—Manufactory of punga or salt.

Porikhal.—Fairy creek.

Juboonna.—The sister of Jum, Hindoo God of hell.

Bhuddur.—The gentle river.

Debeechur.—The alluvion or Island of Debee, the Goddess of hell.

Beeskhal.—The poisonous creek.

A slight glance at the fauna of the Soonderbuns may not be uninteresting. In the quotations from the Field books of the brothers Morrieson we have touched pretty freely upon the depredations caused by the tigers, we will now merely mention the names of the principal animals found in this tract, with a few interspersed anecdotes of some of the most remarkable ones. Of *Mammalia* we find the rhinoceros, hog, spotted deer, buffalo, bara singha or large stag, tiger, leopard, wild cat, otter, red monkey, jackal.

Ophidia;—Boa constrictors, cobra de capello, water-snakes, tree-snakes, kurait, sea serpents, and many others, besides, gosamp, lizards, scarlet crabs, shrimps and insects in abundance, not to forget mosquitoes that swarm in black clouds.

The rivers everywhere abound in delicious fish; amongst the curious fish may be mentioned the *Anabas Scandens* (Koece—Hindoostani) an ugly, voracious little fish about five inches in length, mottled brown and yellow. They may be seen hanging on to the mangrove stems by spines arranged along the margin of the gills, three and four feet above the level of the receding tide, from which elevated position they drop into the water by scores when disturbed by a boat or a steamer passing, or they may be seen floundering about upon the black mud where they lie in hundreds sunning their little ugly bodies.

The *Periophthalmus* is another ugly little mud fish found in great quantities on all the mud banks in company with the scarlet crab. Sharks are numerous in the Soonderbuns; the hammer headed shark, a frightful animal (*zygæna*), is also occasionally caught off the Sandheads.

Birds;—adjutants of two kinds, one the common *Ardea Gigantea*, the other the marabout adjutant, from which is obtained the beautiful feathers bearing that name. Fishing and other eagles, vultures, kites, hawks, owls, minahs, doves, parroquets, flycatchers, orioles, jungle fowl, woodpeckers, sandpipers, egrets, waders, small and large spoonbills, one kind not much larger than a small snipe, pelicans, storks, paddy birds, herons, snipe and many other birds are found in abundance. Crocodiles properly so called (*Hind-Mugger-Koomeer*) of enormous size are seen in every creek, in every river; they have a broad flattened muzzle with unequal teeth of a formidable size and shape, the

outline of the jaw, where the teeth are seen protruding interlocked with each other, is a waving line giving to this ugly animal a fierce and cruel aspect. These animals varying in size from a span in length to 18 and 23 feet, are usually seen lying on the surface of the black mud basking in the sun; they sleep very soundly for we have seen a steamer going at full speed and making the usual splash and noise pass within ten paces of a sleeping crocodile without disturbing its slumbers. To a casual observer they resemble mud-covered logs of wood, and it is not until the large square and glittering scales which are of exceeding strength and beauty when closely examined, and the elevated and doubly dentelated ridge or crest that runs along either side of the tail, become visible, or are seen to glisten in the sun, that the shapeless mass is found to be a fierce, carnivorous and dangerous animal.

We have never seen the Gangetic Garial in the Soonderbuns; he appears to love the sweeter and, comparatively speaking, quieter waters of the upper rivers and their clean sand banks, where they may be seen in scores, lying with their mouths wide open, but for what purpose it is difficult to divine, unless it is to get rid of numerous small red filamentous worms that cluster about their fauces. The lower jaw being prolonged backward beyond the skull occasions the upper jaw to appear moveable, which it is when accompanied by the whole of the skull, or entire head, but not otherwise. We have been informed by an eye-witness, and one in whom we place implicit confidence, that he has seen a small brown bird alight upon the tongue of an open mouthed alligator, and pick these worms from the throat as he lay upon a sand bank in the Ganges. It is generally believed that the crocodile, or as it is termed in India the snubbed-nose alligator, always remains in fresh water; this is not the case, as they are found all along the Chittagong and Arracan coast, never far from the shore it is true, but still in bonâ fide salt water, where they are as dangerous as sharks.

In the rivers of the Delta where they flow through the cultivated portions of the country, stakes are driven into the bed of the river at the watering places, or ghauts, opposite to the villages, where the inhabitants may bathe in security and draw water for domestic purposes; but even this precaution is not always sufficient to ward off the attacks of the fierce crocodiles. The crocodile being an amphibious animal finds no difficulty, when pinched by hunger, in turning the flank of the stakes, and taking up his post within the enclosure, where he silently awaits his prey. A friend of ours, whilst surveying on the banks of the Gorace, was witness to a shocking occurrence in connection with these enclosures. A young Hindoo girl about 14 years old,

came to get a pitcher of water, and had hardly put her feet into the water, when a crocodile, who had been lying in wait inside the enclosure, rushed at the poor girl, seized her in his formidable jaws, scrambled up the banks of the river, holding the shrieking, struggling girl well up in the air by the middle of her body, and plunged heavily into the river outside of the stake. A smothered scream, a ripple upon the water, a few bubbles, and the frightful scene was closed.

A more daring attack by a Soonderbun crocodile than even the above, is well known. It occurred a few years ago at Koolna: a gang of ironed convicts were being inspected by the Magistrate prior to their being sent off to another and a more distant jail; the men numbering with their guards about fifty were drawn up in line on the raised embankment or levee of the river; the examination was proceeding, when a crocodile rushed up the bank, seized a manacled prisoner by the legs, dragged him from the ranks, and in moment, and that before any assistance could possibly be rendered, had plunged into the river and disappeared.

It appears from some excellent tables prepared and printed by the Committee on the Drainage of Calcutta 1857, that the highest high water, being the highest rise of the river Hooghly spring tides during the freshes, or from July to September, from 1806 to 1835, was 20 feet 6 inches. In August 1856 neap tide rose 15 feet 6 inches, above the datum sill of the Kidderpore dock, and upon the 18th August 1856, spring tide rose to 22 feet 3 inches above the same datum.

In the dry season, the lowest fall of river spring tide at Calcutta, is to 1 foot 9 inches above the datum of Kidderpore dock; the neaps 2 feet 8 inches; whilst the tides in the Salt Lakes only fall to 7 feet 10 inches above datum.

Table Shewing the Relative height of the River Hooghly and the Salt Water Lakes.

		Dry weather springs.		Dry weather neaps.		Rainy sea- son springs		Rainy sea- son neaps.	
River tide at	{ Lowest	1	9	2	8	9	0	10	3
Calcutta.	{ Highest	17	3	9	0	23	4	15	11
Salt water	{ Lowest	7	10			11	0		
Lake Tides,	{ Highest,	11	6			12	0		

The greatest rise of the Hooghly at Calcutta being 23.4; average spring 17.41. The greatest rise of the Salt Lakes being 12 feet. This is on the Western side of the Delta; how different from what occurs on the Eastern side, where the tides rise from forty to eighty feet.

It has been asked, but no one has yet answered the question,

why the Soonderbuns should not be, as has been Holland, reclaimed from the sea and occupied by man. Holland and the Soonderbuns are about on the same level, that is, they are not above the level of spring tides; but Holland which has only 123 miles of sea front, to the Delta's 270 miles, is well protected all along the greater portion of the coast of the North sea by a line of broad sand hills and downs, in some parts so high as to shut out the view of the sea, even from the tops of the church spires; the inhabitants have therefore only to dam the banks of the rivers penetrating into the country through these bulwarks to preserve the country from inundation. The Soonderbuns on the contrary has no defence whatever to seaward, not even an inch in height, every spring tide and every cyclone wave dashes its waters over the land, deluging the country with waves, the impetuosity and volume of which are unknown and unheard of in Europe; waves 30, 40 and even 60 feet in height have been known to rise in the Bay of Bengal, to dash over the highest trees, and to deluge the whole country for miles inland. The Soonderbuns in their present state can never be inhabited, they are too exposed to the fury of the Tropical Hurricanes that arise in the Bay of Bengal, and their unhealthiness is so great, from the stagnated air and corrupting vegetable deposits, that no human beings can ever hope to struggle against such fearful odds; but should this tract ever share in the upheaval that is now going on near Arracan and on the Tenasserim coast, well and good; rich would be the soil that would be brought under the plough, and great would be the population that would be found to occupy the Seaboard tract. Until that time arrives, we must be content to know, that the Soonderbun tract only forms a great, an inaccessible, and an impregnable defence to India towards the sea.

The very mud at the foot of the jungle, that mud that has just been stirred up by a large striped crocodile as he lazily slipped into the water, starting in his passage shoals of bull-headed perioptalmi or mud fish that lay basking in the sun, offers a bar to invasion, and has an interest attached to it. To know from whence it was brought is impossible, but we may conjecture, we may give way to fancy, and imagine its having once formed a part and portion of the snow-clad gneiss summit of Kunchinjunga, that in ages long past was precipitated from an elevation of 28,000 feet or nearly five and a half perpendicular miles down its steep flanks to the glaciers at its feet, probably crumbled down by an earthquake to mingle with the moraines, where acted upon by snow, sharp frosts, rain and sunshine, its felspar and hornblende have been reduced to what we now see it, a black mud; its heavier particles of quartz reposing under

the ocean at the Sandheads, a part and portion of the hard and dangerous sand banks that stretch away from the Soonderbuns for many a weary mile. Or this mud may have travelled from the flanks of Deodhunga, the lately elected monarch of the Himalayahs, 29,002 feet in height; or it may have been swept from the source of the Ganges, or from the source of the T.' Sanpo or Brahmapooter, or from the high basaltic table land of Omurkuntuk, far South of the Gangetic valley; or it may have been a portion of an avalanche from the forked Donkia, in Tibet, the waters from which flow into the Teesta and so into the Brahmapooter. But wherever it has come from, let us be content to know that it has travelled far, and that it has undergone many a hard rub and many a hard blow, ere it was reduced to the soft black Soonderbun mud, upon which we just now saw the great Saurian reposing.
