passed over large portions of the earth like a destroying angel, spreading from one desolated city to another affrighted place, with a certainty and force which nothing could withstand.

It first appeared in countries so different from our own, in every particular, that we could hardly expect its approach to the shores of England; but it has gradually come nearer to us, and, after spreading over almost every part of Asia, and a certain portion of Europe, has crossed the German ocean and landed among ourselves.

CHAPTER III.

CLIMATE AND HABITS OF INDIA.

BUT the reader, unaccustomed to medical details, is perhaps weary of descriptions not always fully understood, however plainly described, without more preparation in anatomy and physiology than he happens to possess.

Let us turn, then, aside from this strictly medical discussion, to consider the vast and peculiar country where the cholera first began to scourge the human race. With the reputed *wealth of the Indies*, no one is quite unacquainted. An inspection of the map will show the large extent of Hindostan, and its situation, with respect to China, to Arabia, and Persia, and to the great continent of Africa. Long before any nation had learnt to sail round that southern Cape or promontory of Africa, called and marked in the map as the Cape of Good Hope, the wealth of India, and its various produce of silk, of spices, and of precious stones, had caused it to be eagerly invaded by conquerors, and visited, over land, by merchants and traders. It was the scene of many of the conquests of Alexander the Great; it was the country from which the Romans often returned victorious, and laden

with rich and costly spoils; and it was the country, by intercourse with which the once proud city of Venice, built upon the Adriatic sea, became the first commercial city in the world, though now ruined and gradually falling into loneliness and decay. But about the time that Columbus made the discovery of America, a Portuguese admiral, whose name was Vasco de Gama, discovered that it was possible to sail round the south coast of Africa, and to reach India without crossing other lands. Before his discovery, it was believed that Africa stretched out to the west. The ancients knew too little of ship-building and the art of sailing, to venture so far, and the true shape of Africa had never been properly inquired into by any of the moderns; few of whom possessed sea-ports so conveniently situated for sailing out on voyages of mere discovery in that direction, as Portugal*.

When the Portuguese admiral arrived in India by sea, the king of that part of the coast on which he landed, greatly astonished by a visit from a new people, whose dresses, arms, and language, were equally strange to him, received his new visitors with pleasure, and treated them with hospitality. But soon, perhaps suspecting that they would try to get the mastery over him, and bring destruction and tyranny into his country, he treated them as his enemies. The Portuguese discoverers,

* Herodotus, a Greek historian, states that the Phœnicians sailed round the cape of Africa which we call the Cape of Good Hope; but the fact is doubted.

however, returned home in safety, and were not long before they led their countrymen back to a land, promising them all the advantages of a trade in the luxuries which European nations were desirous to possess, almost at any price. After many struggles, both with the Venetians, and with the Tartars and Arabians, who were already masters of part of India, the Portuguese succeeded in getting nearly the whole of the Indian trade to themselves, and they kept it unmolested for a hundred years. The nations of Europe were, for the most part, too busy in quarrels with one another to undertake any attempts on a country so distant.

The first people who disturbed the Portuguese in their Indian possessions were the Dutch, who were already an adventurous trading people, and now showed that the most difficult undertakings may be accomplished by a people who are industrious, courageous, and persevering.

The English soon followed the example of the Dutch, and, at the present day, they are almost the only nations who exercise government over any part of the vast population of Hindostan.

To maintain the wide dominion of England in India, it is necessary always to have many troops there. We have also a Governor of India, who resides at Calcutta. Commercial speculations, and various offices, civil and military, cause many people from this country to spend a part of their lives in an Indian climate. Most Europeans go to India at an

early age, and seldom return, unless driven back in bad health, until the prime of life is spent and gone. The number who die there, before the ordinary period of a man's life is accomplished, is extremely great; and of those who return, there are few whose pale or sallow complexions do not show that they have purchased riches at the price of health. This arises partly from their having been so long in a country possessing a climate so very different from that in which they were born, and partly from other causes.

Various circumstances exist in the climate and soil of the British possessions in India, which are thought by those who have passed many years in that quarter of the globe, sufficient to account for the greater prevalence and severer character of the fevers, the diseases of the liver, and the dysenteries of the East, and even of the cholera itself. In a country extending over thirty degrees of latitude*, the climate, of course, varies very greatly in different situations.

A general description of the climate of Bengal, the presidency in which Calcutta is situated, which is the seat of the government, is, that, as with us, the cold season commences in November; it ends in February. But the cold weather, being dry also, is the *fine* weather of the Indian climate. November, which is often with us so gloomy, is a delightful month

* An explanation of what is called latitude, and a description of a common thermometer, will be found at the end of the book.

in Bengal. They have an agreeable cold wind from the north, the air is dry, and the nights are clear; the thermometer ranges from 66° to 86°, so that the weather is often what we should call warm, and never perhaps what we should call cold, except when the wind blows strongly, for that makes a great difference in the sensation of cold. In December, the Indian weather is colder, the thermometer ranging from 56° to 78°. In January, it ranges from 47° to 75°; consequently, never so low as our freezing point, which is 32°; but still the air is described as 'piercingly cold.' But about the middle of February, those who are new to the climate begin to have some foretaste of its peculiarities. The wind changes to the south and east,—the middle of the day grows warm,—the clouds gather in the horizon, —thunder is heard from time to time, and indicates that the hot weather is approaching The thermometer now ranges from 65° to 82°. Up to this time, the health of those residing in India is well preserved; the dryness and bracing qualities of the air benefit those even who were invalids before. Even plants, which cannot live through an Indian summer, grow and flourish in the refreshing air of winter.

In March the hot season commences. About the middle, or towards the end of the month, distant thunder is heard in the evenings, and strong gusts of wind are felt. Soon after this, the storms called the 'north-westers,' come. "The boisterous morning wind settles into a dead

calm; the air is sultry, and the clouds gather thickly. Lightning and thunder approach nearer and nearer, until the calm is all at once broken in upon by a tremendous burst of wind, sending up clouds of dust which darken the very air. Torrents of rain generally succeed, or sometimes of hail, but sometimes neither; and the violence of the storm is soon passed. These storms rarely occur earlier than six in the afternoon, or later than midnight*." The thermometer during March ranges from 73° to 86°.

April and May are hot, and generally oppressive, but relief is often afforded by violent storms and rain. The thermometer, in April, ranges from 78° to 91°; and, in May, from 81° to 93°.

Some time in June, and commonly about the beginning, the regular rainy season commences. The wind veers to the east; there are evening thunders; and the atmosphere is continually cloudy. Then follow several days, perhaps, of such heavy rain, that the sun is never seen; and, for four months, there is a frequent return of such heavy rain for forty-eight hours or more at a time, with intervals of tolerably fair weather, often very suddenly interrupted. Lightning and violent thunder-storms, and terrible gusts of wind, are common during the whole of the rainy season; but as the atmosphere becomes cooled by the rains, it is more agreable than before. Now and then, however, there are sultry nights, with a dead calm, preceding a violent storm. The thermometer ranges from 77° to 88° or 90°.

* Jamieson's Report on the Epidemic Cholera.

About the middle of October, the rain and storms gradually cease; the mornings and evenings grow cool; the air becomes brighter and more elastic; the wind gets round to the west-north-west; the clouds and vapours disappear; the thermometer falls, and the cold season commences.

It appears, by the Medical Returns of the presidency division of the European army, that fever is most prevalent in the rainy and hot seasons; dysentery and diarrhœa in the rainy and cold seasons; and inflammation of the liver and *cholera* in the hot season.

The climate of the Indian *peninsula*, including the presidency of Madras, is visited by periodical winds called the *monsoons*, blowing from the north-east from the middle of October until the end of February, or beginning of March. All this period is a dry season, except on the east or Coromandel coast of the peninsula, where it is always attended with rain. The south-west monsoon blows over the peninsula from the end of May to the end of August; and this is the rainy season in the peninsula, except on the Coromandel coast, where it is dry; that coast differing in this particular from all the rest of India. The range of the thermometer at Madras is generally from 75° to 92°; but, in hot months, as high as 98°, or even 105°.

It may be understood from this imperfect

description of the Indian climate, that the two circumstances of *great heat*, and tracts of country liable to *occasional inundation, and then to a gradual process of drying*, are frequently conjoined. The broad-extending branches of the Ganges are seen to spread far over the map; and this river alone, after it has left the mountains, in which it pursues a course of several hundred miles, receives eleven rivers into its waters, none of them smaller than the river Thames. The difference between the wet and dry season is such, that a house may be on the banks of the Ganges at one time, and left, in the dry season, two miles away from it. The soil, too, is scattered and mingled thickly with the remains of a vegetation far more abundant than what we know in temperate climates, and also with the remains of innumerable insects and reptiles. We see, in our own climate, that whenever we have a certain degree of heat acting upon a rank luxuriance of soil, decayed vegetable matter, and the remains of the numerous insects which abound in damp places and seasons, we have agues produced, or other fevers, or dysenteries, or even cholera; in fact the very diseases of India, though less severe, less rapid in their course, and less fatal. We may imagine the extent of such effects under what has been called the 'hot and copper sky' of India. Sailing up the Hoogly river to Calcutta, Bishop Heber describes parts of the shore as presenting nothing to the eye but one unbroken line

of black wood and thicket, looking as if inhabited by every dangerous animal and disgusting reptile and insect, and the very seat of fever. Of such shores every sailor has a horror, for he knows them to be the grave of those who land upon them*.

Diamond harbour, about five-and-thirty miles from Calcutta, is notorious for unhealthiness. It is here that the Company's ships are unloaded, and thousands of English sailors have perished here.

Even *much* heat is not required to bring forth from marshy places the *miasmata*, or noxious vapours, which produce some of these forms of disease. Perhaps it may be found that when these hurtful vapours are produced in a low temperature, the general effect is the production of ague, or intermittent fever; and when raised by a higher temperature, then fevers of a more continued form, and dysentery, are the consequences; at least this may be the case in our climate. At all events, these causes of disease, heat, an inundated and drying soil, very luxuriant, are found, on the banks of the Ganges, the Jumna, the Burrampooter, and all the great rivers of India. The banks of these rivers are in many places low, and of a rich soil; and the same effects are seen to arise from the same causes, modified only by a different climate, on the banks of the Scheldt in the Netherlands, and nearer home, at the mouth of the Thames itself.

Besides this state of the banks of rivers,

* Heber's Journal, vol. i. p. 6.

every one who has read of India, and of tiger-shooting, has heard of what are called *jungles.* These are vast collections of low and dense brushwood, with reeds and an exuberant growth of succulent plants. They are the resort and hiding-places of the tiger and other wild beasts, as well as snakes and other reptiles; and no less the sources of diseases more destructive than these animals. The ground is so thickly covered, that the sun never reaches it, and thus the lower plants, and those that are decaying and decayed, and countless myriads of insects, become buried in a rich, moist soil; and the air of the jungle is full of moisture, and stagnant, and seldom disturbed or renewed.

It is consoling to know, that as civilization and cultivation advance, these jungles and wild beasts become rare, and diseases become fewer. The time will come, when the tiger will be as unknown in the East as it is in England; and when that time arrives many diseases will have ceased to harass the natives of eastern countries.

Calcutta itself stands on a level and marshy ground, which, little more than a hundred years ago, was covered with jungle and with stagnant pools. Generally speaking, India is a flat country, with a most fertile soil, producing maize, rice, the sugar-cane, and the cotton-plant. There are also extensive forests in India, and as in climates between the tropics the trees are never, as with us, quite stripped of leaves, the ground is kept so

shaded and covered, as never to be well ventilated, or, except in particular situations, wholly dry. The province of Bengal is three hundred miles in length, and as many in breadth, and almost without a hill. The many branches of the Ganges flow through almost every part of it; and there are innumerable tanks or ponds, the making of which is considered a religious duty, although, unfortunately, it is not considered a duty to keep them from drying up, and becoming overgrown with weeds. In the rainy season, nearly the whole country is under water, except the houses, which are built on artificial mounds: the farmers go to market in boats, and often carry their families with them, lest they should be drowned in their absence.

Many of the swamps are places which, in wet seasons, are quite covered with water, which gradually disappears in the dry season. Such a place is called a jeel. The grass grows in such places higher than a man's head. The partial and gradual drying of such swamps shows its effects on those living near them, who are often all affected with the marsh-fevers. Whole families being sick at the same time, and medical assistance not easily procured, many die for the want of it.

In sickly seasons, the tempests and tornadoes are observed to be the most frequent; and the changes in the air which produce the sickness are thought to be connected with those which produce the storms. In our country, this sickly summer and autumn of 1831, although

generally fair and beautiful, has been broken in upon by many thunder-storms, and latterly by gales of wind of unusual violence. Our storms, however, sink into insignificance when we read of the mighty storms of the Indian climate:—

"The dense, moist, hazy, and close atmosphere," says Mr. Annesley, "loaded with the exhalations of putrid insects and reptiles, and of the soil and its vegetable productions, after remaining for a time still and suffocating, enervating those who are destined to breathe it, and infecting their circulating fluids, suddenly becomes kindled into the most vivid commotion, sweeping before it whatever opposes its progress, and blazing out into one ocean of flame, which seems momentarily extinguished by the torrents of rain which rush furiously to the earth, and is immediately again lighted up to its greatest brilliancy and widest extent; so that the atmosphere presents the most extensive and the most sublime conflict between fire and water which the imagination can paint, whilst the irresistible force of the winds seems to sweep both combatants from the field *."

Awful, however, as these storms are, their effects are in every way beneficial. A great and favourable change is often produced by them on everything that grows. The grass and trees, never quite dried up, become fresher and greener, new flowers spring up out of the ground, the fruits increase rapidly in size, the young grass grows as high as the knees of the half-starved cattle, and numerous birds

* Researches on the Diseases of India, vol. i. p. 73.

rejoice in the freshness of the earth and of the air. There cannot be much doubt, also, that by these violent agitations of the air the causes of pestilential diseases are often swept away.

The inconveniences to which man is exposed always call forth his ingenuity. Various means are used to keep off the heat of so oppressive a climate as that of India. One is, the setting up of mattings made of a sweet-scented grass before the open windows of the house, and employing a man to keep them wet by sprinkling water over them. The man employed for this purpose sometimes falls aleep over his work, and then such a stream of hot air enters the house as can scarcely be borne. In all hot countries, and in our own country in very hot weather, it should always be remembered that the air is not *cooling*, but *heating*, and that if the windows are closed early in the morning, the house will be cooler by many degrees than the air on the outside of it. Both the air and the light should be excluded as much as can conveniently be allowed. In an Indian house, in hot weather, the temperature of the inside, with all this care, is not less than eighty-five degrees; but without this care it rises to a hundred degrees, a heat seldom felt in our English houses in any weather. But if you step out into the air in India, impatient of your confinement, you feel, says Bishop Heber, as if approaching one of the blast-furnaces in Colebrook Dale. The insects and reptiles are as troublesome as the heat. Scorpions and musquitoes are common

nuisances. Sometimes a snake is found coiled up under the pillows of the bed. To keep out all these annoyances, many English comforts are given up. The rooms are large, and white-washed, but have very little furniture in them, and no carpets. Nor can any one walk out so freely and carelessly as in England, where we dread neither snakes nor jungle-fevers. The heat alone produces in some persons the sensation of being pricked with red-hot pins and needles.

Another contrivance is what is called a punkah, an immense fan hung from the ceiling, and moved backwards and forwards. Frequent bathing is customary; and with thin clothing, quietness, and tolerable care, the health may sometimes be preserved, even in a hot climate, better than is generally imagined.

The climate of India being so full of the seeds of disease and premature death, one would suppose that those who resolve for a time to brave all its perils for some advantage to be gained there, would most anxiously study and most scrupulously adopt all such customs with respect to food and drink, exercise and rest, clothing, occupations and amusements, as would, if not protect them from these perils, at least not add to them. But the love of indulgence is so powerful, and the force of example so much stronger than the wisest resolutions, and the power of mere habit so much beyond the control even of danger itself, that, however prudent the previous resolves may be, it seldom happens that a European, parti-

cularly one in the prime of life, refrains from falling into customs singularly ill-adapted, it would seem, for the preservation of life in any climate, and least of all adapted to do it in a climate which at once tends to debilitate the nervous system, and to kindle the vascular system, or the blood-vessels, into inflammation, particularly affecting the stomach, intestines, and liver. Such is certainly the direct influence of the climate on European constitutions; for it is to be observed that there is no climate to which the human race may not, in the course of generations, become accustomed. Even those parts of the African coast which various European countries have tried to colonize without success, each deportation of white settlers being cut off by disease, is yet inhabited by negro and other races, who enjoy health, and live to a good old age.

To say that in the climate of India it is desirable to adopt a *low* system of diet, would be, we believe, to assert what the experience of all who have been much in that climate would discountenance. Even among the natives, those of the castes in which animal food is most sparingly employed soonest sink under disease; their diseases are less inflammatory than those of the castes which take animal food with less scruple, but they are still more fatal, the powers of life seeming unequal to endure them. It is, on the other hand, to be remembered, that the majority of Europeans who go to India are in the prime of life, have been brought up in a different and

more invigorating climate, and are more disposed, on passing into tropical regions, to all inflammatory and acute affections.

The military officers in India go to parade in the morning at six. Breakfast, taken at eight or nine, is nearly the same as that to which they are accustomed in England, including coffee, tea, fish, meat, eggs, &c. Between the hour of breakfast and that of luncheon, or, as it is called in India, *tiffen*, it is a very general custom to drink frequent draughts of wine and water, beer and water, or brandy and water. The nature of the breakfast and the heat of the morning make this custom agreeable, if not necessary; and it is precisely that kind of custom which is likely to become inveterate, and by degrees to be indulged in to excess.

At one o'clock, and consequently in the full blaze of day, tiffen is served up, which is, in fact, a substantial dinner of highly-seasoned food. Mulligatawny soup, which owes its agreeableness to *curry*, (a mixture of powdered vegetable substances, of a very pungent and stimulating nature,) fish, roast and boiled meats, beer, and various wines are freely partaken of. After this heating meal, some rest on a sofa until dinner-time, but many ride out in the heat of the sun; and some, by way of promoting digestion and securing an appetite for another meal at seven or half-past seven, exert themselves at cricket or fives. There is an evening parade before dinner, and at the dinner come the soups

again—fish, rich and hot curries, and every article of a meal combining the luxuries of the East with those of Europe. Coffee or tea are usually taken before going to bed.

Those who are not in the military service lead much the same kind of life. They ride to the counting-house instead of the parade; but, like the military officer, they partake freely of meat and stimulating food and drink three times a-day, besides occasional cooling draughts of wine and water or brandy and water. A cold bath is often taken by them before breakfast.

The peculiarity of the modes of living in the East becomes more remarkable when observed in the instance of the private soldiers. They are taken from the labourers and working manufacturers of England, accustomed, for the most part, to the moderate use of ale and spirits, and, in the instance of the labourer, not accustomed to any great or habitual warmth. When carried across the sea, into climes under a burning sun, they are put at once upon a diet closely resembling that to which the higher classes of England are accustomed to in their own country. Much pleased with this change, it is not to be expected that they should exhibit great prudence or forbearance. Going out to parade, in the chill morning air, before he has had any breakfast, the soldier is very glad to drink his allowance of 'two large glasses of undiluted arrack*,' (spirits). A man is al-

* A spirit made from a coarse sugar called jaggery, procured from the juice of a species of palm-tree.

lowed a pint, and a woman half a pint of rum every morning; and they drink it without water. At dinner he is served with hotly spiced soups and curries. It need hardly be added that, in proportion to his power of doing so, he allays his thirst by repeated draughts of any liquor which can be procured at the cheapest rate.

Those who know what effect that system of diet *alone* would produce, and does produce, where it is habitually persevered in, may imagine that it greatly adds to the evil influences of a climate in which so many thousands have died. It has been accordingly observed, by physicians experienced in the diseases of India*, that the luxurious living and the indolent habits of the higher classes dispose them to serious disorders of the stomach and liver,—whilst the common soldiers, less fully fed, but with equal stimulus, more accustomed to indulge in the intoxicating drinks of the country, and more exposed to the varieties of the weather, are very liable to fevers, to dysentery, and to the acutest form of liver disease. To produce these effects, several causes concur in India, connected with the climate; but those who inhabit a temperate climate cannot live like the English residents in the East, for any length of time, without paying the penalty of great discomfort, or incurring actual and even serious disease.

Few travellers have taken much trouble to describe the food and general habits of the na-

* Annesley, Sketches, &c., vol. i. p. 207.

tives of different classes. Generally speaking, they partake sparingly of animal food, and many of them never taste it. They live much upon rice, of which a large quantity seems required for the support of a man; their rice is seasoned with different vegetable preparations of a stimulating and agreeable kind, made into what is called *curry*. They have lately become acquainted with the potato, which grows best in those parts of the country where the rice is scarcest. Corpulency is much in honour with them. The *Brahmins* religiously adhere to a diet of rice, roots, fruits, and herbs, and their only drink is water or milk.

The dresses vary much in different ranks. The lower classes wear linen round the middle of the body, and a linen covering for the head, hanging down on the shoulders; the rest of the body being exposed to the weather. Others wear a cotton shirt and trowsers; and servants wear turbans, girdles, and other distinctions. The shawls and dresses of the upper classes are very rich and splendid. The ancient dress of the Hindoos was nearly that of the lowest order of their people at present; and the turban and trowsers have been supposed to be introduced by their early conquerors, the Mahometans. Their colour is olive, or bronze, of various depths of shade; and they are commonly well proportioned. Few people have changed so little in the course of ages as the Hindoos. They are described by those who accompanied Alexander the Great in his conquests, as a delicate and slender people,

of dark complexion, with black and uncurled hair, their dresses made of cotton, and their food almost wholly consisting of vegetables. Their division into several tribes or *castes* is also mentioned, each caste having particular duties, following particular trades only, and holding little communication with the rest. Even at that time, too, they had a custom among them which the English have not yet succeeded in getting the better of,—for the widow of a Hindoo yet burns herself to death over the dead body of her husband; or, if her husband is on a journey, and reported to be dead, she will burn herself in company with some part of his dress, sometimes with his slippers. As no one among them, save persons of the lowest caste, eats of the flesh of animals which they consider sacred, (as the cow,) or drinks of intoxicating liquors, it has been very difficult for Europeans, who do both these things, to gain much influence over them. The same customs have doubtless preserved them from some of the diseases which are so fatal to Europeans in India. Their cottages are of cane-work or mud. As their dresses are not scrupulously clean at all times, it is fortunate that they are all much addicted to bathing and washing the body. Some of them will bathe in the rivers more than once in the day, and the women walk home in their wet dresses without fear of catching cold. The good effects of keeping the skin perfectly clean in a climate which causes so much perspiration, may readily be imagined; and the natives are led to do it both

because washing the body is commanded by their religion, and very agreeable to their feelings. The poorer class are destitute of almost every comfort, inhabit miserable huts, sleep on the hard floor, and live poorly: they are dependent on good seasons even for the sparing food on which they live. If the annual rains do not fall, they are ruined. Sixty years since, no fewer than three millions of the people of Bengal died of famine, and the diseases produced by famine. The rice-crops failed, and rice became exceedingly dear: the people fled to the woods, and eagerly devoured the bark of trees*, to escape death from starvation.

* Kennedy on Cholera.