

## **Medical sketches of the expedition to China / by Alexander Grant.**

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MEDICAL SKETCHES  
OF THE  
EXPEDITION TO CHINA,  
BY  
ALEXANDER GRANT, B. M. S.

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[From the India Journal of Medical and Physical Science.]

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MY DEAR SIR,

I beg to send you the first of a series of papers which are intended to give a brief sketch of the Medical affairs of the Expedition to China.

The desire which I have heard so many of my professional friends express, to know something of the prevailing sickness and its fluctuating causes, and the hope that an inquiry into these subjects might not be without some small benefit to science and to humanity, form my only apology for intruding myself on the public notice.

My position, doing duty with Queen's Troops in China, rarely entitled me to make reports to the Board; I may, however, be permitted to state that the papers I purpose placing at your disposal are not the vague recollections of a period of active service, but are taken from an ample collection of almost daily recorded facts. The topographical notes were drawn up on the spot, and the cases are duplicates of those which it was my duty to enter in the Hospital records.

To my friend, Dr. Shanks, the excellent Surgeon of H. M.'s 55th Regiment, I am under professional obligations, which if judged of by their permanent advantages are alto-

gether invaluable. For three years that I was associated with him as a colleague I enjoyed in common with several officers of this establishment, the highest professional opportunities, through his admirable system of conducting the heavy medical duties of the corps, and it is with the greatest pleasure that I avail myself of this public opportunity of tendering him my grateful acknowledgments.

I am, &c. &c.

ALEXANDER GRANT.

*Bhaugulpore, 15th March, 1845.*

I wished to present these sketches in a more cumulative shape than the limits of your monthly issue will permit: I shall endeavour, however, to make each paper as complete in itself as possible, and the following is the general division I intend to adopt:

*First series.*

The active operations of the Expedition with Topographical notices of the several stations occupied by the Troops, and a review of the causes which have influenced their health in the field and in garrison.

*Second series.*

A Topographical sketch of the island of Hong-Kong, its Medical history and that of Chusan, and Kulongsoo, during the last three years of their occupation.



*Third series.*

The endemic and epidemic diseases of the east coast of China, their varieties, the causes which influence their mortality, with a record of cases and post mortem examinations.

*Fourth series.*

Practical notes on Military Surgery, and on the best sites for the location of troops, illustrated by cases derived from personal observation.

I shall notice incidentally the social condition of the people, when it appears to bear upon the public health, and I will add such particulars of the natural resources of China as I have been able to glean. The mere sojourner for a few years in a foreign land can ill-judge of the causes of public prosperity or depression, and more particularly if he be ignorant of the language and the institutions of the country visited. The most humble observer may, however, judge of effects, and unless my sight has been greatly perverted, the Chinese government works admirably for the common good. We see a country in the highest condition of cultivation, having great cities, populous villages, and the millions of isolated farm-houses are the best indications of the security of property. An overwhelming respectable middle class point out the diffusion of wealth, and the best protection against intestine war. Houses substantially built, and well furnished, mark an advanced degree of civilization; while a population generally well clothed, physically strong, and presenting all the outward semblances of happiness and contentment, have been observed not in one favored district but at every point we visited along 500 miles of her extensive coast,—but I am anticipating the proper narrative.

*General Introductory Remarks.*

The military and naval operations of the expedition to China were carried on along the eastern or maritime boundaries of the four provinces

Quantung, Fokien, Chekiang, and Kiang-su, which extend from the 22d to the 35th degree of north latitude; the three first of these provinces abound in ranges of mountains of igneous origin that run nearly due north and south, and give variety to their climate and their productions, whilst the last is nearly one extensive alluvial plain traversed by the great river Yang-tse-kiang, which forms a natural partition of the empire into a northern and southern division. The level grounds are artificially irrigated, and during the spring and summer months are almost wholly under rice cultivation. These extensive districts are traversed by large rivers, which are navigable for a considerable part of their course, and afford passage for a naval force to within a few yards of fortified cities of great extent, and important by reason of their commercial relations with the interior and the seaboard. The rivers and canals are indeed the high roads of the kingdom, and no force could penetrate far, unless by boats, into a country where with few exceptions the public thoroughfares are mere footpaths, where men serve the part of beasts of burthen, and cattle are only sustained in sufficient number to plough the soil: the expedition was therefore, what it only could be, a combined naval and military one. The Chinese people are of the Mongolian race, and continue to present those features which distinguish that race in its purest form. The olive skin, the long black straight hair, the paucity of beard, the high cheek-bones, the flat face and nose, and the small narrow and oblique eye. They are above the middle height, many of them tall, and well proportioned, their limbs handsome and firmly knit, and their capacity for labour or privation perhaps unequalled. They are good agriculturists and ingenious workmen, and are withal sober, industrious and prudent, although the national passion for gain has induced a prone-



ness to gambling, and the sedentary habits of the city population have led to that most destructive of sensual indulgences opium-smoking. As soldiers the Chinese are without repute. Among them the profession of arms is held as the least respectable of all other means of gaining a livelihood, and out of the many millions of sturdy labourers and artizans, it is singular how feeble were the utmost efforts of the government to assemble a great force, and how few of that force did willingly lay down their lives in the defence of their country and of their homes. It was the universal complaint of the Chinese people, and of the Chinese soldiers, that they had no confidence in their officers, that they were deserted by them in the hour of danger, and heartlessly sacrificed to their want of spirit, and of military foresight. But their easy discomfiture was occasioned more by the want of discipline than by the want of skilful leaders, the one produces unity and effectuality of action, the other gives confidence to the vulgar mind, and it is only where both are combined that success can follow the standards of an army.

Many were the instances of individual courage which the common Chinese soldiers evinced; and were their ranks well armed, disciplined, and well officered, they would form no unequal match to the best troops of Europe. "Give me strong men," said Frederick the Great, and "I will make them brave." Under such an emperor the hardy millions of China might a second time shake to its centre all civilized Europe, and carry their arms into the midst of Hindustan. But whatever may be the course of future events, this great people, who form no less than a third of the human family, are now brought within the pale of nations, and they cannot fail henceforth to exert a powerful influence on the political relations of India, and of the West.

*Country, Towns and Villages.*—

The country is interspersed with large fortified towns which look somewhat formidable by the immense thickness and height of the walls: they are, however, ill protected from escalade, and are in general capable of being commanded and stormed. The walls in almost every instance are old and in bad repair; two hundred years of peace have thrown them into neglect, and peopled the surrounding country with thriving and populous villages, and the isolated homes of industrious farmers.

The houses are of one story, built of excellent olive brick, with a long sloping tiled roof, and divided into ranges of rooms which look into a court that is surrounded by a lofty wall; spacious temples are numerous in the towns and throughout the country, and being frequented as much by travellers as by worshippers, they may be occupied by an invading force without offence to the religious prejudices of the natives; they form therefore desirable barracks, the roofs being good and the apartments lofty.

*Food.*—The staple food of the people is rice, of which two and three crops are annually raised from the same piece of ground. As we proceed northward, wheat, barley, buckwheat and Indian corn, millet and various kinds of pulse are all found in great abundance. Vegetables are very plentiful, and much used; of these the most common are sweet-potatoe, turnip, cabbage, onion, carrots, brinjal, pumpkins, and melons, water chestnut, and lettuce; and in a country so populous and so open a supply can always be commanded were the enemy even more active than is their wont. Of the various fruits, the orange is the best; pears, apples and pine-apples, grapes, nectarines, peaches and several kinds of nuts are each to be had in season. The seas, rivers, and lakes swarm with fish of every variety, and of excellent quality. The common labouring bullock of the country is tolerably good eating, but



the more respectable of the people view it as a sin to eat the flesh of an animal so useful in agriculture; the favorite meats are pork, goat, ducks, and fowls, their dishes are all stewed, and in general very rich. It is only the most wretched part of the population that eat rats, dogs, and horses, and in the north I have never observed even the poorest make use of these, although in Shantung there is a species of dog that is kept and fed up for the purpose of making hams which are considered a delicacy, and often sent as presents.

Rice savoured with a small portion of salt-fish or salted vegetable, forms the food of the labouring class of Chinese, as much as rice with curry forms that of the natives of India. The facilities for intoxication are very great, there being in daily, but very moderate use among the people, a spirituous liquor called shamshoo, distilled from rice, and occasionally from millet, it is of a clear colour, and tastes not unlike weak whisky and water; the people take about a wine-glassful of it warmed before each meal, and there being large stores of it in every town and village, it affords a most dangerous temptation to European soldiers.\*

The Chinese have a strong and perhaps well founded prejudice against drinking cold or unboiled water; a very weak infusion of green tea is their common beverage; visitors are always presented with this, and a pipe of tobacco, the latter being universally used by both sexes.

In the large tract of country traversed by the expeditionary force, no forests have been observed, but the isolated trees among the fields, (generally the useful tallow tree, *Stillingia sebifera*;) the groups of yews around the tombs, the bamboo plantations in the background of every cottage, and the dwarfish firs that line the steep hill sides, give to the

\* I have never seen but one native Chinese in a state of drunkenness.

scenery a very wooded appearance. The hand of industry has long ago cleared the country of jungle, and even the rank wild grass and brushwood is annually cut for the purposes of firewood and manure. Almost the only marshes to be met with are those artificially formed for irrigation, and it is these that undoubtedly give to the autumnal months their notably unhealthy character. The water from the wells is good, that from the rivers is very muddy, but keeps well on board ship. The supply is very abundant, and is conveyed by canals to the remotest districts, fertilizing lands that had otherwise been sterile, and forming high roads for the conveyance of produce to the towns and provincial capitals. Famines are therefore very rare, the plenty of one district supplying the deficiency in another, and the variety of their crops securing to the farmer in the worst seasons, a sufficiency with which to support life. Locusts seldom if ever infest the eastern shores, their depredations being confined to the west.

The soil of the valleys, an alluvial deposit, or a light colored clay, is for the most part rich; notwithstanding perpetual cropping its returns are still very productive, through an excellent system of irrigation for which it is admirably fitted, being plastic and retentive of moisture. The loose stratum of soil on the hills is formed from the detritus of trap and other igneous rocks; it grows sweet-potatoe, barley, peas, and beans; it is often seen terraced and then admits of the growth of rice. The population is very dense, and there is not perhaps on the whole face of the globe an equal extent of country so rich in natural resources, nor where these are better developed by the hand of man, and its people rendered independent of all external supply.

The Government is an absolute despotism on the patriarchal model, but the popular voice has great influence over the imperial councils, and



there is here no paramount power to control it; hence the government has been declared weak, but if I may judge from frequent inquiry it is strong in the affections of the people who wish for no change, and it is very questionable if in their present stage they would benefit by any;—a population better fed, better clothed and housed, and more generally happy and contented I have no where observed; much of this I believe they owe to the institutions of their country, but much more to their own patient industry and prudence, which secure their independence despite many severe obstacles that had discouraged a people less energetic. The complaint of the most humble individual, should it reach the throne, will cause rigid inquiry, and should a public officer prove cruel, unjust, or avaricious, he will rarely escape the penalty of his crimes. It is true that if their punishments are summary, justice is accessible to all, being cheap and near at hand.

The sovereign is the universal landlord, the land though held at will, is, by long prescriptive right, still held in perpetuity, while the farmer continues to bestow due care on its cultivation, and instead of the ruinous subdivision of the land among the sons on the death of their parent, as followed by Hindoos and Mahomedans, the laws of China enjoin, that the united families shall live under the same roof and participate in the general proceeds of the paternal estate,—one and two hundred individuals of the same family may be seen thus living happy and comfortable together. The internal peace of the kingdom is maintained by this overwhelming middle class, whose capital is invested in the soil, and who have nothing to gain but much to lose by any change. The land tax is very moderate, and is invariably, I am told, remitted on occasions of failure when arising from drought locusts, or war.\*

\* After the cessation of hostilities in

All rank is derived from office under Government, and all office is open to every class of the educated; the first necessary step to rank is a degree similar to that of our Master of Arts, and there is scarce a family community, of however moderate means, that has not some one of its members in civil employ. Education is widely diffused, it is cheap but not comprehensive. Physical science is almost unknown. The four books of Confucius, the civil and criminal codes, and above all the inculcating implicit obedience to the government, and to the parent, that is to all in authority, may be said to embrace its chief details and its greatest labour is thus the mere exercise of the memory. Their system certainly fits each person for the discharge of the duties of life; there is much useful in it, but nothing elevating, and it tends rather to check than to encourage any enquiry into the laws of animate or inanimate nature. They have yet to learn the foundation of all true philosophy, experiment and induction. Such of their schools as I have seen are exceedingly well regulated; the boys are cheerful and diligent, cleanly and well dressed, each has a separate table and chair, and all of them are very observant to their masters in the outward tokens of respect. I have not observed any female children undergoing an educational course, and in this respect the Chinese are very much on a par with other Asiatics.

Surveying the social condition of this great nation, we find a people who possess advantages in their houses and furniture, in their dress 1842, the Emperor directed that considerable sums of money should be placed at the disposal of the local officers for the immediate relief of those suffering from the calamities of the late war. I was informed by a Missionary gentleman that the numbers being relieved by this considerate order were very great, particularly about Ningpo, where he resided. Drained as the imperial exchequer lately has been, this order shows much regard for the public peace, and the public health.



and food, and in the wide diffusion of a common education, that equal if they do not in some particulars surpass, the most civilized nations of Europe; moreover, being without prejudice, and possessing much kindly feeling, they are ready to meet us more than half way in that social communion from which we are almost completely debarred among our fellow-subjects in India. The Chinese are happy to see us in their homes, to sit at the same board, to partake of the same food, to pledge us in the wine cup; while the ease and grace of a Chinese gentleman fit him for whatever society into which he may be thrown.

*Climate.*—Like all great continents, China presents the extremes of heat and cold in their most trying forms. The winds obey the laws which regulate the monsoons, and the seasons are again much dependent upon these. In the southern parts the hot weather commences in May, when the days and nights become close and sultry, the atmosphere is loaded with moisture, and heavy rains are not unfrequent. During June, July, August, and September the heat is very oppressive, and unrelieved by either land or sea breezes, the thermometer attains in the shade to the height of 90° and 94°, while the nights are peculiarly close, and sleep is either difficult or unrefreshing. It is during these months that the hurricanes called typhoons do always occur; they are generally preceded by light easterly winds, and very hot weather, and set in with heavy squalls from the north-west, accompanied by thunder, lightning and rain; from the north-west, the wind moves round to the east, and in the course of 8 or 12 hours the gale begins to draw off as the wind reaches the west of the south point.

Two of these hurricanes occurred in July, 1841, and occasioned much destruction of life and property. Their motion has been proved by observa-

tions at several points, to be circular, and their influence very confined, they rarely if ever extend beyond the 30th degree of North Latitude. During the early part of October the nights begin to be cool, and northerly winds set in, frequently veering, however, to the south point, when the heat becomes much increased, and the variations are greatest, amounting often to 20 and 24 degrees in the course of a day. The month of November is less variable, and during December, January, and February the wind continues pretty steadily at north, with cool clear weather; and when the wind is high the temperature is cold and bracing, although it rarely if ever freezes. In the north again the hot weather commences early in July and terminates in September, extending over rather less than three months; the weather is rather humid than dry, heavy rains, morning fogs, and night dews are frequent, while there is an attendant languor and lassitude from which all Europeans suffer more or less. Northerly winds set in early in October, and during the five subsequent months the north of China possesses a climate even superior to that of a European winter; the sky is generally clear, the frost keen, the hills often covered with snow, and the canals frozen over. The thermometer falls occasionally as low as 18°, and even this degree of cold is not found disagreeable unless when the individual is exposed to the strong and penetrating northerly blasts which sweep down the valleys.

The months of April, May, and June are temperate, and exposure and exercise in the open air may be undergone with impunity. It is this long and grateful winter, followed by a temperate spring, which completely sets up the constitution after the relaxation and suffering of the short but unhealthy summer, and from this cause it was that the sick left at Chusan at the close of the



campaign of 1842 almost all recovered, while those who went with their regiments to Hong-Kong suffered frequent relapses and many casualties.

There is properly speaking no rainy season, but heavy rains fall in April and May, and in August and September. The south is the hot wind of summer, and the east wind the most disagreeable to the feelings, and most prejudicial in its influence upon the invalid.

*Diseases.*—Among a population so dense, and in a country covered throughout its length and breadth with artificial marshes, and possessing a climate so variable and severe, it would be expected that a large amount of sickness should prevail, still the great numbers of very hale and very old people of both sexes that are to be met with in the towns, and in the country, strike a stranger as somewhat remarkable; I have found few better criterions of a healthy locality than the outward appearance of its inhabitants, and if this be taken as a test the climate of China is certainly not extensively inimical to the native constitution. I have no where seen any people possessing more physical energy, nor any that exert it more actively or continuously while this capacity for labour and its accompanying healthful condition are not confined to manhood, much of both being observed in extreme youth and in old age, neither of which conditions are attended by those infirmities that so frequently characterize the same stages among the labouring poor of the nations of Europe. But, notwithstanding all the outward semblances of public health that an active and bustling population present, the careful inquirer will find that diseases both endemic and epidemic annually carry off large masses of the people, while the many that suffer from accidental injury, or malignant local disease linger out a miserable existence unrelieved by operative procedure.

The professions of Medicine and of Surgery are held in great respect, the members of both are numerous, and they possess a most copious literature. The practice of the physicians is confined to internal disease, their notions of which embrace much of theory, and a good deal derived from experience and observation. They reason somewhat as was the custom during the middle ages in Europe, upon the cold and the hot spirits, of debility and excitement, and the doctrine of the fluids and solids. They note most attentively the state of the pulse and from this they are expected to draw both their diagnosis and prognosis.

Surgery, which they style the “*Benivolent art*” is in a very low stage; their notions of anatomical structure are vague, and include chiefly the bones, the viscera, and a mere enumeration of the various regions of the body, which are subdivided, and named with tedious minuteness. The operation for acupuncture, that for entropion and the external application of filthy plasters embrace nearly the whole range of surgical practice. Their *Materia Medica* is most extensive, and their Apothecary’s shops rival in outward decoration those of England, they are gaily lit and neatly set out, and several of them are to be observed in every considerable street. Their medicines are derived chiefly from the vegetable kingdom, although they are not ignorant of the uses of many of our mineral preparations, such as mercury arsenic, and sulphur. The drugs held in most repute are Rhubarb, Ginseng, Cou-li-sung and Gentian, but medicines are rarely given in a simple form, and the efficacy of a prescription is generally reckoned upon according to the variety and complexity of its combinations. Decoction is the most common mode of administration.

The diseases most prevalent are fever of the intermittent form, bowel complaints and diseases of the eye,



and of the skin. In the south Quotidian Intermittent is very general throughout the summer and autumnal months; among the natives the fever often assumes a continued, but rarely a remittent form, it is then sometimes fatal but more usually it proves so from its sequences spleen, dropsy, or dysentery. In the north the type is purely intermittent, and its most common and most dangerous sequence is diarrhœa.

The greatest mortality arises from bowel complaints, in the treatment of which they are rarely successful. Notwithstanding the great and sudden variations in the temperature, diseases of the chest are not very prevalent, and I do not remember to have seen in the north a single case of active pneumonia either among the Europeans, the natives of India, or of China.

Pulmonary Pthisis is seldom met with, and those cases I observed appeared to have had their origin in neglected bronchitis, the form of pectoral affection which is by far the most common.

Of diseases of the skin. Itch of an inveterate form prevails to a great extent among all classes of the community, and is occasioned by a want of personal cleanliness, which is neither enjoined by their religion nor by custom. The practice of wearing clothes lined with skins or padded with cotton is also opposed to that frequent change of dress so necessary to health and comfort. Lepra, Psoriasis, and Elephantiasis are also common diseases, the latter affecting great numbers of the labouring population, who are accustomed from their earliest youth to carry heavy burthens. Most of the coolies in the north bandage the calf of the leg to give support to the veins and muscles, and when carefully done this appliance is said to prevent the formation both of varicose veins and of elephantiasis.

The epidemic diseases common in Europe are all of them occasionally to be met with, and small-pox is often

the occasion of great suffering and mortality. The discovery of vaccination is scarcely known beyond the precincts of Canton, but the Chinese have long practised inoculation after a manner peculiar to themselves; they introduce a small quantity of the virus into one of the nostrils which is then plugged up with fine carded cotton; the patient is kept warm, and in due course the disease develops itself, and in general it is said in a mild form. From some very interesting inquiries made by my friend the Rev. Mr. Milne, it would appear that cholera commenced its ravages in China much about the same period that it first appeared in India. It has not yet, however, become endemic in the country, and of late years its visitations, although frequent, have been very partial. Their physicians give ginseng, and to allay the spasms they use acupuncture over the lower extremities with a long needle. But of all other diseases there are none more common, and none which occasion more distress than diseases of the eye. These are believed to be occasioned by the cold northerly winds, and perhaps are still further spread by the practice of scooping out and washing the inner surface of the eyelids. One can never enter a village, or pass along a street or a highway, without seeing numbers who labour under catarrhal or purulent Ophthalmia, or one or other of their tedious consequences, granular lids, opacity of the cornea, staphyloma, entropion, and ectropion. The poor blind all labour for their bread, some work mills, others weave baskets, and others make straw sandals. Amaurosis, cataract, and pterygium are also very prevalent; the Chinese are most unsuccessful in their treatment of all these diseases, and quite ignorant of nice operative knowledge. I cannot close this subject without bestowing my meed of praise on the extensively useful labours of the medical missionaries:



and it redounds not a little to the generous character of Englishmen that they have been the first to send forth to the suffering millions of China, these apostles of humanity. The Chinese appreciate very highly our surgical skill, and are most desirous of acquiring the same degree of knowledge.\*

Unlike the people of India, and of Egypt, they have no prejudices to overcome, and native assistants view post mortem examinations rather with interest than with aversion. They are intelligent and inquiring, they possess considerable manual dexterity, and I hope the time is not far distant when the infant colony of England will have its medical college on the European model, and with European teachers. The success of such an institution would be certain, and I feel assured that there is no single measure that would be productive of more extensive good, none that would redound more to the credit of Christian benevolence, and none that would tend to bind more closely our friendly intercourse with this great and interesting nation.

#### 1. *Chusan.*

The campaign of 1840, the first of the series of our military operations in China, opened with the capture of Chusan on the 5th of July; at 1 P. M. of that day the troops took possession of the suburbs of Ting-hai, and on the 6th the city was entered and found deserted.

The force employed at this time consisted of the 18th, 26th and 49th Regiments of foot, the Bengal volunteers, and detachments of the Madras artillery, and sappers and miners, in all about 4,000 fighting men.

\* The High Commissioner, Eleepoo, personally thanked the Chief of our medical staff for his attention to the wounded Chinese at Chapoo; our kindness on that occasion was followed on the part of the Chinese by the release of several kidnapped British subjects, all of whom, through the mediation of Eleepoo, had been well treated during their imprisonment.

#### *Topography of Chusan.*

The groups of islands forming the Chusan Archipelago, extends from latitude  $29^{\circ} 21\frac{1}{2}'$  to  $29^{\circ} 28'$  north, and from longitude  $122^{\circ} 10'$  to  $122^{\circ} 16\frac{1}{2}'$  east. They are eleven in number, irregular, rocky, and some scarcely exceed half a mile in extent; deep, turbid, and rapid currents sweep round them, occasioning strong and dangerous eddies, and ships can only pass through these in safety when there is a strong and favorable breeze. Most of the islands are hilly and carefully cultivated in every accessible spot; their steep sides are covered with dwarfish firs, and in summer with a strong green grass, while the occasional glimpses we catch of snug-like cottages peeping out from the bamboo topes, give to the scenery a highly picturesque appearance.

The rocks are of igneous origin; the population is numerous, and engaged by times in fishing and in agriculture.

*Chusan.*—The island of Chusan is 51 miles in circumference,  $20\frac{1}{2}$  in extreme length, and 10 miles across at its broadest point; it presents throughout one beautiful alternation of hills and valleys; the former vary in height from 500 to 1800 feet, they occur in isolated ranges without any table-land, their sides are steep, and clothed with a rank herbage and a stunted species of fir and oak, while towards their base they are laid out in fields of wheat, barley, and vegetables, and in places surrounded by a low hedge of the far-famed tea plant, or interspersed towards the sunny south with groves of every variety of bamboo, and of the deep green-leaved kum-quat.

The valleys commence in narrow gorges which sink rapidly to an uniform level, gradually widen out, and by the several springs from the hills there is formed in each a main stream of clear and excellent water; when they gain their utmost width they are



often below the level of the sea, and its encroachments are only prevented by the massive embankments which almost surround the Island. Canals of varied size, and raised footpaths covered with rough slabs, form a network of passages that divide, and afford access to the well laid out rice fields.

Scattered over the surface of the country are populous villages, numerous substantial farm-houses, and here and there temples with long sloping roofs, and near to which are old forest trees or groups of the sombre yew surrounding some massive tomb. These are the most striking objects in the scenery of the north, and are in most particulars peculiar to China.

Troops have been located at three points on the Island. At Ting-hai the capital town on the southern shore, at Sin-kea-mun a considerable place of shipping trade due east from Ting-hai about 17 miles, and at Sin-kong a small village on the north-western shore, and all of these have proved about equally healthy while the men were placed under favorable circumstances.

*Ting-hai.*—Ting-hai is a walled city of the 3d class; it lies about 1 mile distant from the shore at the western extremity of the Yung-tung valley, one of the largest on the island, being a continued flat of 4 miles in breadth. A canal 33 feet wide, and from 3 to 5 feet deep, encircles the city unless at the north-west point, where the Cameronian hill intervenes, this canal has an entrance towards the south by a water-gate through which small flat-bottomed boats may be seen at early dawn passing to and fro for the removal of the city night soil and the transport of heavy goods. The massive wall of Ting-hai measures about 2 miles in circumference, is 30 feet broad at its base, 20 feet high, surmounted by a brick parapet, having embrasures and loop-holes, and furnished with four strong double arched

gateways, one at each of the cardinal points. About two thirds of the enclosed space is covered by houses, the remaining third is partly waste, and partly under rice or garden cultivation. The situation is low, the streets narrow and irregular, and the numerous lanes that branch from them are still more close and crowded. The houses are almost all of one story.

They have three sides built of brick or stone, while the front is run up with thin boards, and has large latticed sliding windows, which are covered with a thin white paper instead of glass. Those occupied by the more wealthy families comprise extensive ranges of houses built in the form of a square connected with each other, and looking into a court yard surrounded by a lofty wall.

This arrangement is adopted as much for excluding the cold northerly blasts of winter as for the sake of privacy and security.

By far, however, the most extensive buildings are the temples, or Joss houses, but of these some are in ruins while others were condemned for the purposes of fire-wood.\*

A few still remain, and in the best one of these the images which are of a superior character have been carefully protected. Ting-hai has been compared to Venice: it is certainly traversed by stagnant and muddy canals, and its main street is crossed by a stone bridge with an ascent by a flight of steps, but therein consists the only resemblance, and to carry it further is a stretch of the imagination.

*Harbour and suburbs.*—The harbour, or rather the anchorage of Ting-

\* The people certainly attach no degree of sanctity to these edifices, and the priests are equally indifferent, they having after the peace voluntarily given over the use of a temple for a monthly rent of 18 rupees to be paid by the officers of the garrison, who converted the abode of Budah into a theatre for the British drama.



hai, extends about one mile from east to west, is well sheltered from every wind, being enclosed by several beautiful islands of which Macclesfield and tea island bound it on the south; it is, however, at times difficult of access on account of the narrow passages, and the strong irregular tides, the ordinary rise and fall of which may be about eight feet, while the currents have a velocity of seven knots an hour.

To the east and overlooking the harbour is the Joss house hill, this is an isolated trap rock, 122 feet high, and surmounted by a range of temples which have been converted into barracks, and afford accommodation for 200 men. From the foot of this hill extended the line of houses which formed the suburb, but the most of these have now been removed, and the space partly cleared for a parade ground, partly for barracks; extending in the same direction westward, for about a mile and a half, is the broad line of mud batteries which was raised by the Chinese during the summer of 1841, this forms the northern boundary of the harbour, is slightly concave, and terminates at Pagoda Hill, the base of which was occupied as an encamping ground by the 49th foot.

The population of Ting-hai previous to the late war, was estimated at 25,000 souls, but at the present time it does not amount to half that number. Most of the respectable people have never returned to their homes, while many branches of domestic trade have been checked, particularly the manufacture of a coarse spirit called *samshoo* which formed the chief export from the island.

Having examined with some care into the social condition of the labouring classes, a few remarks may not be considered out of place.

In persevering industry they are perhaps surpassed by no other people, not even the Swiss; day after day, and month after month, they labour from

the earliest dawn till darkness puts a termination to their out-door work, their only period of cessation from toil is during a few weeks of winter when vegetation is suspended by the piercing cold, and then their recreations are partly of a religious and partly of a sensual character, never I believe gross or indecent; theatrical shows, feasts and complimentary visits, forming the favorite channels of amusement. When you enter a village you see no men lounging about their doors, no idle, filthy, ragged women gossiping in the streets, but all active and busy, even the very children have their little works of usefulness to perform, tending a solitary bullock, or perhaps a flock of ducks, carrying grass for firewood, or weeding the vegetable beds; all look cheerful, and in general as neat and thriving as their nicely trimmed fields.

Happily strangers to all notions of caste as it maintains in India, there is hope for the very poorest and lowest to improve his position by industry and perseverance. This immunity from caste prejudices enables them also to apply to some useful purpose every animal in the land and in the sea, every tree, and every plant, even the very weeds, and by the careful storing up and application of the waste in the one kingdom, they are enabled in a great measure to prevent the deterioration that an undue cropping of the land would necessarily produce in the other.

Night soil, urine, farm-yard manure, bones, dead animals, blood and various sorts of refuse are carefully preserved, and these, with a plentiful supply of water and unsparing toil, are the great instruments in the hand of the agriculturist, and enable the government to inculcate on the people the most antimalthusian doctrines, the greatest efforts result, and here as almost everywhere in China, is indeed displayed the "*nobility of labour*." Age is everywhere looked



on with respect, learning and industry command it, and raise their possessors to office and rank, and frequently to fortune; the candidates being numerous, the disappointed are proportionally great, but talent and perseverance meet with their reward, despite the corrupt, or natural family influences that but too often prevail in the distribution of the offices of the state.

China presents many features having a common analogy with the unvarying economy of a bee hive, and her social condition is equally curious and interesting.

The physical aspect of the island has been already noticed, its geology presents little worthy of note, the hills are of volcanic origin, and consist chiefly of a hard trap, or greenstone, which in places assumes a columnar form: on one of the highest of these the magnetic needle varies so greatly as to indicate iron in large quantity. On the west coast there are quarries of a claystone porphyry, which is used for building purposes and worked into mill-stones, pillars and slabs for exportation.

*Resources of the Island.*—These are very considerable owing to the fertility and careful cultivation of the soil. The market supplies are abundant, well suited to the European taste, and comprise all the necessaries of life. The common barn-door fowls are large, and of excellent quality, the geese and ducks cheap, and the bullocks and pigs when supplied with good feeding are also of fair quality. After the conclusion of the war excellent sheep were procurable from the main land at a moderate price, and goats were generally to be had; the game, though scarce, is of good quality and the supply in market has often exceeded the demand, it comprises hog-deer, snipe, woodcock, pheasant, teal, wild duck, wild geese, and swans.

The fish is excellent and in great variety, soles, mullet, pomfret, seer

fish, mandarin fish, mackerel, and sea trout.

In the vegetable kingdom rice takes the precedence of all other grains, being here the staff of life.

Its quality is large and rather coarse, there is a white and red species, and the latter forms the food of the working classes. There are also good wheat, barley, millet, indian corn, and some oats. The vegetables are more varied than choice, and their quality might be much improved on, they are as follows: Sweet potatoe, greens, lettuce, brinjal, carrot, turnip, yams, radish, pumpkin, melon, water chestnut, and nelumbium root. There are also imported large cabbages; and of fruits, the orange, the lechee, walnuts, chestnuts, dates, pears, apples, pines, and loquats. The fuel used is wood or charcoal. The water for domestic use is procured from wells, is generally soft, clear and good, and has by no means, I think, been a cause of any of the prevailing sickness.

*Climate.*—The climate is variable, but the extremes of heat and cold are somewhat moderated by the vicinity of the sea, the following memoranda may convey some idea of its prevailing character:

*January, 1842.*—The keen, clear frosty weather which prevailed during the latter part of December continued till the 5th January, when heavy rains set in, this was followed by five days of sharp bracing weather, the thermometer being frequently as low as the freezing point; on the 14th the rains again commenced, and throughout the whole month the weather was of this nature, a fine period alternating with another of rain or fog.

#### THERMOMETER.

<i>Morning.</i>		<i>Noon.</i>	
Highest, ..	50°	Highest, ..	55°
Lowest, ..	23°	Lowest, ..	32°
Greatest range, 24°			

*February.*—There have been during this month eight rainy days accom-



panied with much uncomfortable and blowing weather, and often with fog or thick drizzling rain. On the 3rd, 20th, and 22nd the higher hills were capped with snow; on the 4th it blew a strong gale, and towards evening there was a light fall of snow. Within the last five days of the month the weather became milder and clearer, with much fewer variations of temperature than during the preceding period. The prevailing winds were easterly and northerly, but occasionally veering to the north-west, from whence it generally blew very fresh. There have been few admissions into Hospital.

## THERMOMETER.

<i>Morning.</i>		<i>Noon.</i>	
Highest, ..	54°	Highest, ..	58°
Lowest, ..	28°	Lowest, ..	38°
Greatest range, 17°			

*March.*—From the evening of the 1st till the morning of the 7th was a period of almost continued heavy rain. On the 23rd we experienced a thunder-storm, it blew fresh from the south, and the lightning was particularly vivid. With the exception of three or four days, on which there were slight showers, the remaining portion of the month, from the 7th, was fair, cool, and agreeable, and the health of the troops throughout the whole period most satisfactory. The winds have been very variable, from the north-east during 14 days, from south-east 10 days, from north-west four, and from east three days.

## THERMOMETER.

<i>Morning.</i>		<i>Noon.</i>	
Highest, ..	62°	Highest, ..	75°
Lowest, ..	42°	Lowest, ..	44°
Greatest range, 20°			

*April.*—This month has been particularly mild and fine, with the exception of a strong gale from the north-west on the 2d. In the shade the temperature has been delightfully cool, and during the last five days of the month alone was the atmosphere

rather close and oppressive. The prevailing winds have been southerly, or to the eastward or westward of that point, but upon the whole they have been nearly equally divided between the two opposing monsoons, alternating every other day from north-east to south-east, or south-west.

## THERMOMETER.

<i>Morning.</i>		<i>Noon.</i>	
Highest, ..	68°	Highest, ..	78°
Lowest, ..	47°	Lowest, ..	50°
Greatest range, 17°			

*May.*—The month of May has also been marked by varying winds and heavy rains, accompanied by great variations of temperature, but even up to its latest period the days have been occasionally fine, mild and cool. Rain on 11 days, thunder with vivid lightning on the 11th, prevailing winds easterly and northerly, with blowing and cloudy weather, when shifting to north-west.

## THERMOMETER.

Maxm. 70° Minm. 66° Medm. 68°

*June.*—The temperature of this month has been greatly moderated by heavy rains, and the summer monsoon having fairly set in, the majority of the days have been cool and agreeable. Thunder on the 11th and 13th. Rain on 13 days; prevailing winds south-east.

## THERMOMETER.

Maxm. 79° Minm. 66° Medm. 72°

*July.*—Early in this month the strength of the south-east wind died away, and the weather became sultry, oppressive and relaxing, the nights peculiarly close, with heavy dews and morning fog.

On the 4th, 9th, and 11th some relief was procured by the occurrence of thunder storms with heavy rain, but this was partial and only tended to make the succeeding heat the more insufferable. It is now, simultaneous with the activity of vegetable decomposition, that disease exten-



sively prevails, and the European feels an almost insurmountable aversion to any active bodily, or mental exertion.

#### THERMOMETER.

Maxm. 90° Minm. 76° Medm. 80°  
Light south-easterly winds and calms.

*August.*—The weather has been less oppressive, but the heat great, and sickness during this month attains its maximum.

Slight showers upon seven days, and a strong gale from south veering to north, and north-west on the 11th. Prevailing winds E. S. E.

#### THERMOMETER.

Maxm. 90° Minm. 78° Medm. 84°

*September.*—An unusually boisterous and rainy month. Northerly winds set in about the 5th, and have continued with few interruptions. The nights have been cool, the temperature equable and mild, but the atmosphere much loaded with moisture; a heavy typhoon on the 2nd, and a gale on the 5th and on the 25th; rain on 17 days, often very heavy, so that at the end of the month the country was quite flooded. In Sept. 1840 there were only four rainy days, and the month was generally fine, in these latitudes no two seasons are alike.

#### THERMOMETER.

Maxm. 86° Minm. 68° Medm. 76°

*October.*—First part squally with slight rain, but the remainder of the month has been either mild, or cool, clear and bracing. Winds northerly or to the eastward or westward of north, and the sickness now beginning to diminish.

#### THERMOMETER.

Maxm. 70° Minm. 52° Medm. 63°

*November.*—This month has been for the most part overcast with occasionally foggy mornings and sudden variations in the temperature. Rain on 11 days. Thunder and lighting on the 7th. Winds north-easterly and north-westerly.

#### THERMOMETER.

Maxm. 70° Minm. 50° Medm. 62°

*December.*—During this month rain fell five days only, but there were slight showers on three nights followed by clear days. On the 14th and 15th there was a heavy fall of snow; on the 16th and 17th it thawed, with showers of sleet and rain. From the 18th till the end of the month it was a steady frost with clear bracing weather, and fresh northerly winds, the loftier hills were capped with snow, the canals frozen over, and the ice-houses filled with ice from the shallow ponds prepared for its more easy formation. This weather was found conducive to the health of the European troops, there being no great variations of temperature unless at its immediate commencement.

#### THERMOMETER.

Maxm. 53° Minm. 22° Medm. 48°

Winds north-north-east and north-westerly.

For nearly half a century invalids from India have been in the habit of resorting to China in search of health; independent of interest and novelty, such a trip has now many additional recommendations. The invalid might leave Calcutta before the setting in of the rains, and proceeding via Penang, Singapore and Hong-kong, he would arrive at any of the Consular ports in the north of China about the commencement of the cold season in October; here he might remain for eight months, and then retrace his steps to Bengal by the same route, whereby during 12 months leave he would have four months at sea, and eight months of a winter and spring equal to those of England.

A sea trip is almost indispensable in most cases of protracted intermittent, and in many of the organic diseases of the liver and alimentary canal, and much valuable time is lost, much suffering and injury entailed, by the too general practice of sending to the



hill sanatoria, officers who labour under these affections. Many patients, after one and two years residence at these elevated stations, are obliged after all to proceed to sea for the recovery of their health. The climate of the north of China has much to recommend it to the European invalid.

Of Chusan, as a civil and military station, I officially recorded my opinion in 1841 in the following terms, and after a residence there of two years I found no occasion to alter it: "According to general experience, Chusan, from its insular situation, the physical aspect of the country, and its position on the globe, ought to be a healthy locality.

"For a European settlement it combines many advantages, some of which are its noble harbour, and its proximity to the mainland; and were the system of dry cultivation introduced there is every reason to believe that the island would be more healthy than most of our possessions in Asia. In the hottest months of summer a very moderate temperature might be enjoyed among the hills in the vicinity, some of which are above 1800 feet in height, and the long cold winter of this latitude enables the European constitution to recover completely from the relaxing effects of the preceding heat. Among the beautiful islands in the immediate neighbourhood, residents would have ample scope for locating themselves in situations which combine all the advantages of a country residence and an insular climate within a short distance of the seat of their business."\*

\* There was an English Factory established at Chusan in 1700 and abandoned in 1703, on account, it is said, of the oppression of the officers, and the Company's neglect of sending money sufficient to carry on their trade. The Tea here is much inferior to that on the opposite mainland, and the silk manufacture has ceased since the period of the Tartar conquest, at which time a portion of their force laid the island waste, and destroyed all the mulberry trees.

Against the city of Ting-hai, as a military cantonment, the following objections were offered, and they are nearly common to all Chinese towns:

1. Its low situation in a broad valley, which during the summer months is one artificial swamp.

2. The narrow, and ill-ventilated streets and lanes.

3. The stagnant filthy canals within the city, and the neglected condition of the common sewers.

4. The accumulations of decomposing night soil retained in large earthen jars for the purposes of agriculture; this branch of national economy which necessity and its approved utility have imposed on the people, occasions a most disagreeable odour to pervade their public thoroughfares.

5. The cultivation of rice, both within and without the city, and the amount of malaria thus generated.

6. The great rise and fall of the tides, and the surface of mud exposed to evaporation on these occasions.

The manner in which one and all of these acted, and the causes which tended to heighten or to modify their action will form the subject of future consideration.

#### *First occupation of Chusan.*

The health condition of the military force when it arrived off Chusan, was highly satisfactory.

Each Presidency furnished its moiety of troops to make up the gallant band which was to dictate terms to the largest and most populous empire on the globe. Bengal gave the 26th and 49th Foot, and the volunteers; Madras, the 37th N. I., artillery, and sappers and miners, and Bombay the 18th or Royal Irish; these several contingents arrived in safety at the common rendezvous off the southern shores of China after a voyage of about three months, during which time, although they were much crowded on board the transports, they



nevertheless enjoyed a comparative immunity from disease.

Another fortnight saw the fleet at anchor off Chusan in the month of July; this unfortunately is the most unhealthy period of the year, when the climate is peculiarly relaxing, and exposure cannot be undergone with impunity; the weather was unsettled, sultry, and wet, and only a few days after landing the troops began to suffer from chronic diarrhoea.

The regiments were variously located; some, as the 18th and 49th Foot, returned for a time on board ship, while the 26th was on the 13th July placed under convass on the steep hill which commands the city on its North-west side, and is distant from the beach about a mile and a half. Early in August the 49th was also encamped on a rugged slope which juts into the bay, and forms the extremity of the western range of hills. The men had to clear the ground, to bring up, and to pitch their tents, as the inhabitants had deserted the town and neighbourhood, and coolies could not be procured. European soldiers were here called upon to perform all the general duties required of them on service in Europe, while they had to contend against a noxious climate, and an innutritious diet. The consequences soon became manifest, and the 26th regiment having suffered in the greatest proportion, it may be taken as the best example for elucidating the progress of the sickness. When this corps landed on the 5th of July they left but 15 sick on board their transports; exactly one month afterwards, on the 4th of August, the sick amounted to 151; on 5th September to 371 with 14 deaths; on 5th October to 563 with 30 deaths; on 5th November to 513 with *ninety deaths*.

In the tents the Thermometer stood at 90 and 95°, and both the sick and the healthy had alike only the damp ground to rest upon. On

the 1st October, the 26th and 49th regiments were removed from tents and took up their quarters in the deserted temples and houses; here they were sheltered from the inclemency of the weather, but were deficient in much that could contribute to the comfort of the sick; there was a great want of attendants, medicines, medical comforts, and a fresh meat diet, and the construction of the buildings was exceedingly faulty for a Hospital. The sickness continued to make steady progress, and that the seeds of disease were now too deeply sown, and the constitutions of the men almost completely undermined, was too evident from the great increase in the mortality. At length, on the 30th November, the whole of the sick were re-embarked, but it was now too late and no improvement followed, about the same time a large portion of sick were sent on two transports to Manilla, in the hope that the voyage might be of advantage, but the result of this experiment was highly unfavourable, for out of 260 embarked at Chusan 134 died, and of 93 sent to Calcutta 43 died on the voyage; the mortality on board the Ship "William Wilson," was even greater, 30 having died out of 53 embarked. Diarrhoea and dysentery were the prevailing diseases, and as the sick were too weak to get into hammocks they had to lie on the deck, which in bad weather was quite wet from the leaky condition of some of the ships, these also were overcrowded and badly provisioned, and it is questionable whether there was not a sacrifice of life through the want of comfort and attendance alone, increased no doubt by the defective arrangement for the sick in all transport vessels.

At the end of 1840 the condition of the 26th Regiment is thus stated,\* "there were at head-quarters in

\* History of H. M.'s 26th Regiment  
"Canton Repository."



Chusan only 273 men, of whom 163 were sick, and the Regiment had to deplore the loss of 500 well behaved and well drilled soldiers who had either died at Chusan during this year, or whose deaths speedily followed from disease contracted there."

There has been much discussion on the subject of the sickness and mortality, some writers attaching all the blame to the climate, others to the provisions, and others not very sagely to the water, but it arose entirely from the adverse circumstances in which the troops were placed in respect to locality, accommodation, diet, and duty, or in other words to the operation of natural causes, many of which were avoidable, and the danger of others capable of being averted by precautionary measures. I shall consider each *seriatim*.

### 1. *Locality and Climate.*

The three months commencing with the 1st of July are the most unhealthy in the year, much fever and bowel complaint prevailing among the natives of the island. The ground made choice of for an encampment was the most unfit for that purpose, being steep, exposed, and distant from the ships, from which the supplies of provisions were brought; and to place European troops under canvass at this season was a measure fraught with the greatest danger; the extreme heat by day, the damp dews by night, and the frequent heavy rains were powerful instruments in the production of disease, more particularly when the surrounding country was an artificial swamp, and (from the extreme heat, and moisture), the generation of malaria peculiarly active.

*Duties.* The Bengal Troops were most scantily supplied with camp-followers, their ships, it was told them, were to be their homes during their service in China, and it was in vain to urge the necessity for a more

complete establishment; although Tinghai was deserted it was deemed necessary to surround it by a *cordon* of sentries, and as the sick list became heavy the men had often but one night in two in bed, and sometimes not even that, while during the intervals of duty they were certain to be employed on fatigue parties, carrying provisions and water, cooking and conveying to their comrades on guard their scanty meal. The Madras troops were better supplied with camp-followers, and suffered less on that account.

*Diet.* Among those who have been fed for many months on a salt ration diet there is engendered a great proclivity to bowel complaints, often of an intractable nature, and yielding rather to a change in diet than to medicine: this was the case with the force at Chusan, for in the first three months fresh beef was issued but on one day, and fresh pork on ten. The usual ration was admitted to be insufficient in quantity, and of inferior quality, consisting of two-thirds of a pound of salt beef or pork, half a pound of coarse bread, and half a pound of weavily biscuits, without the rice, peas, flour, raisins, and suet usually issued with a salt ration; a marked degree of deteriorated health soon became evident among the men, many of whom began to present themselves at the Hospital, their countenances bloated, their gums spongy, their legs swollen, and covered with petechiæ, evincing in fact all the worst symptoms of scurvy, and often dying suddenly of effusion into the cavities.

In October, fresh meat was served out once every third day, and one pound of rice daily to each of the sick and convalescents, and from this period some improvement in the strength of the men was observable, and it was remarked the diseases became more amenable to treatment.

The whole of the troops did not suffer equally in respect to diet, the



Madras and Bombay divisions having English beef, while the Bengal division had Calcutta cured meat, which soon became tainted, and the biscuit was so dry, weavily and uninviting that the men ceased to draw it from the end of September.

That an innutritious diet, producing a deteriorated state of health, was the great cause of the disease being so fatal is sufficiently proved by the small mortality *among* the officers who had opportunities of procuring a better diet; all of them were sick, but the forms of disease were with a few exceptions of a mild character. The same may be said regarding the seamen of the fleet;—there the sick lists were heavy, but the mortality was very light when compared with that among the troops on shore, the sailors had a good diet, a comfortable bed to sleep in, and were less harrassed by fatigue duties, or exposed to the influence of the night air.

It is also interesting to trace the causes which tended to decrease the mortality in the several corps, as it shows how much the healthy condition of a force depends on a due attention being given to the diet, accommodation, and working of the men. The 18th Foot had Europe beef and pork during their voyage, on landing they were quartered in houses near the beach, and their fatigue duties were thereby the less heavy, while they had natives of India to cook and wash for them.

This corps, and the artillery and sappers which were similarly circumstanced, and had no night duty, suffered the least.

The 49th Foot remained a month on board ship, but soon after landing the sickness made rapid progress, and as they underwent nearly the same privations as the 26th they died in nearly equal proportion.

The Bengal Volunteers, who were encamped to the eastward of the city, in a low damp situation, sunk rapidly

under the effects of the disease, their privations on board ship and on shore, and their suffering after the setting in of the cold weather, all tended to increase the mortality, but I have no knowledge of its actual amount.

The diseases, consisted almost entirely of bowel complaints, and intermittent fevers, the one alternating with the others, and so mixed up as to form but one disease, apparently originating from the same general causes, and fatal not so much from its acuteness or severity as from the broken down constitutions of the individuals on whom it acted.

During the first quarter under consideration the admissions in the 26th Foot were from "Fever 655, Dysentery 144, Diarrhœa 240, Total 1039, and for all other diseases only 79."\*

The exciting cause of so much fever and diarrhœa was undoubtedly the malaria generated in the neighbourhood, but much was dependent also on undue exposure to the noxious exhalations; and owing to the system of diet and duty, the men were so debilitated, their constitutions so completely undermined, as to sink immediately under a slight attack of illness or perhaps linger out for weeks, or months, and die at length of marasmus.

Those who recovered were wasted and weakly, without appetite, and susceptible to the slightest changes of temperature. The young men were the first to suffer, and soon sunk under the disease; of 200 recruits in the 26th Foot scarcely one survived.

The disease was marked in the beginning with frequent watery purging without other pain than occasionally a little griping, the patient said that his stools ran from him, and each evacuation afforded more and more relief from the feeling of distention in the bowels and oppression

\* This statement is taken from the very able report of Dr. Bell, Surgeon of H. M.'s 26th Regiment.



at the præcordia. Great debility soon followed, and the men would lie throughout the night close by the privies. In other cases the stools were copious, frothy, feculent, and clay-colored, or presented a yeasty appearance; under such circumstances flatulent distention was a common and painful symptom. The patient presented an exhausted, languid look, there was a general torpidity of the lymphatic system and enlargement of the mesenteric glands; a disposition to œdema of the feet, and tumid abdomen. The face was pale and puffy, the lips bloodless, the conjunctiva had a lurid hue, and the eye was sunk, the tongue pale, moist, and swollen, and indented by deep chaps. In the advanced stages the emaciation was extreme, the abdomen retracted, the enlarged masses of mesenteric glands easily felt, the tongue red like raw meat, the feet œdematous, the limbs, and sometimes the whole body covered with petechiæ, and the gums spongy and bleeding. The intellect remained clear, and digestion seemed still performed, but the chyle passed off by stool, and the sufferer evidently sunk from inanition and the worst forms of scurvy and cachexy.

To show how much the circumstances in which the troops were placed affected the extent and severity of the prevailing disease, it is sufficient to state that during subsequent seasons the sickness at Chusan only averaged about 12 per cent. on the whole strength, while the mortality has not amounted to a twentieth part of that which occurred in 1840.

On the second occupation of the island the following measures were adopted for the preservation of the health of the men:

1. Immediately after the capture of the city, the temples, public halls, and deserted houses were occupied, and subsequently, fitted up as temporary barracks for the troops.

2. Trestles and boards to sleep on were furnished for every barrack room.

3. The guard rooms were floored, and, where possible, elevated above the level of the surrounding canals and swamps.

4. The sentries posted so as to be protected by sentry boxes in all exposed situations.

5. Fresh meat issued five days in the week, and with the compensation of 80 cash per man in lieu of biscuit the soldier was enabled to purchase good fresh bread. The head cook of each company supplied a due proportion of vegetables, and the bazar supplies being cheap and plentiful, many other articles such as fish and eggs were bought to vary the diet.

6. The public drains were kept clear, the natives made responsible for the cleanliness of the streets, and all accumulations of night soil removed before 9 o'clock in the morning.

7. During the winter of 1842 fireplaces were built in the barrack and guard rooms. Commissariat bread, made from good English or American flour issued daily, and there was every encouragement to the men that a reduced price could hold out, to use beer and wine in stead of spirits.

8. The duty was upon the whole light, and during the summer months this is particularly requisite, the weather being relaxing and oppressive, the men had always two and sometimes three nights in bed. Bathing, parades in season, quoit, football and other games were established, all means bearing upon health in a situation particularly devoid of amusement.

Thus, by adopting only common precautions, Chusan, which was viewed as the Walcheren of the East, has become the sanatorium of China, the same spot which was the graveyard of the first expeditionary force from Hong-Kong and Amoy has been since receiving the sick and



convalescents for their restoration to health. The evils of a system of labor, privation, and exposure out of season and in a noxious climate, have been once more fatally realized, perhaps only to be forgotten and again re-enacted.

"History," it has been well observed, "is experience teaching by examples," these latter, however, have as yet been almost lost upon us. "In the beginning of each war," says the historian of the peninsula, "England has to seek in plood for the knowledge necessary to insure success, and like the fiend's progress towards Eden, her conquering course is through chaos followed by death."

Our knowledge of climate has been in most instances equally dearly brought, and other examples besides that of Chusan will be hereafter noticed in the course of these papers, were want of information and precaution has occasioned much subsequent misery. It may be laid down as an axiom that the mortality in an army serving in an unhealthy district will depend almost entirely upon the favorable or unfavorable circumstances in which it is placed; no precautions can avert a large amount of sickness, but due precaution can greatly affect the violence and danger of the diseases. When the comforts of the men are studied, and their duty made as light as the public safety will permit, the form of disease will in general be mild, but when all sanitary precautions are neglected, the same disease differing only in degree will be found scarcely amenable to treatment, and the Medical Officers will have daily experience of the inefficiency of their art and the uselessness of their most zealous efforts. Whatever form of treatment they may adopt, their patients will die around them, medicine is indeed almost inert, and theirs is the disheartening duty to watch the painful progress of those ailments which they cannot cure, and which they often fail even to alleviate.

### *Campaign of 1841.*

1841.—The cool weather which sets in about October combined with the shelter of a roof, the more general use of fresh provisions, and the employment of coolies in fatigue duties, began gradually to produce some amelioration in the condition of the force at Chusan, and in February the joyful tidings arrived that the troops were to be totally withdrawn from the island: these orders were almost immediately carried into effect, and the monsoon being favorable the fleets arrived off the mouth of the Canton river during the first week of March.

### *Operations in the Canton river.*

The combined military and naval operations in the Canton river commenced this year with the capture of the forts and batteries at Chuenpi on the 7th January, a truce followed, and the fleet returned to the anchorage off Hong-kong. Hostilities were recommenced in the latter part of February, and terminated in a few days by the capture of the Bogue Forts, and the renewal of negotiations. The weather was now cool and healthy, and favorable for service in the field, but the opportunity was lost, and the movement on Canton did not commence until the 21st of May, when the heat of summer had set fairly in. About two thousand troops, composed chiefly of the remnant of the force which had occupied Chusan, were employed on this arduous undertaking. Both arms of the service suffered from fever and dysentery while in occupation of the heights which command the city, and some casualties occurred in the field from Coup-de soleil.

During June, July and up to the 21st August, the European Troops were on board ships anchored in Hong-kong bay. On their return from Canton their sick lists were very heavy, but their duty being now light, the supplies of fresh provisions regular, and the men neither exposed to the heat nor to malaria, the sickness gra-



dually abated, and their condition as to health and comfort became more favorable than during any previous period.

The 37th Madras N. I. stationed at this time on the north side of Hong-kong suffered much from fever, dysentery, and malignant ulcers on the lower extremities. They were then in tents, and mat huts, and these being completely levelled to the ground by a hurricane on the 21st July, the Regiment was removed on board transports.

This was the *first* evidence of the unhealthy situation of the modern town of "Victoria," since so fatal to European life, and it happened then, as it has almost always happened since, that the troops on board ship suffered comparatively little from disease, while those on shore were completely prostrated.

In all July and August, the force was augmented by the arrival of Her Majesty's 55th regiment, large drafts of recruits, and the rifle company of the 36th M. N. I.

The fleet sailed for the northward on the 21st August, and anchored in Amoy bay on the evening of the 25th. The head-quarters 6 companies of Her Majesty's 26th foot were left at Hong-kong, and all men incapacitated for active service by age or infirmity, and such of the sick as were not likely soon to recover were also directed to remain behind.

The city of Amoy was captured on the afternoon of the 26th after a brisk cannonade during three hours by the ships of war. Such of the land forces as were disembarked bivouacked for the night on the surrounding heights, the others slept on the decks of the steamers, and joined the division on shore early on the next day. The whole were afterwards quartered in such public offices and temples as best suited the purpose, and these, although close and confined, always afforded the shelter of a good roof.

The island of Haimun, or Amoy,

lies on the eastern shores of the province of Fokien. It is of small extent, its features are bold and rugged, the hills being steep and rocky, and here and there interspersed with immense rounded blocks of granite. In the distance are seen high ranges of mountains stretching in a direction north and south, they are of bleak and diversified appearance, and are the seat of a valuable product, the black teas of the country.

The cultivation on the island is chiefly rice, and on the rising grounds sweet potatoe and esculent roots, on the north side there is a broad mud flat, which at each reflux of the tide becomes exposed to the action of the sun; with the exception of this there is nothing in or around Amoy that would lead the observer to consider it unhealthy.

The city is surrounded by a wall of solid masonry, and varying in height from 25 to 30 feet: it has four gates each flanked by an outwork and outer gate at right angles to the inner; the houses are nearly all of one story, and built of wood and brick, the streets are narrow and irregular with a covered sewer in the centre of each, and here, as at Tinghai, are to be met with at every turn extensive collections of night soil that taint the surrounding air. Outside the city, and lining the bleak sides of the hills as far as Quemoy, is the public burial ground where tens of thousands of graves may be numbered.

The people had an unhealthy pale look, and presented an unfavorable contrast with the athletic coolies from Canton; many seemed suffering from spleen disease and dropsy, sequences of the endemic fever of the island, which in the native assumes an intermittent or continued, and in the European an active remittent form.

During the fortnight we remained on shore the weather was hot and oppressive, and although at times it blew fresh in the bay we scarcely ever experienced the mildest current of air



in our confined quarters, while the thermometer ranged from 80 to 90° in the shade. Both officers and men exposed themselves here very unnecessarily, and the cases of fever which occurred arose entirely from this cause. With the exception of five men of Her Majesty's 55th, who were drowned by the upsetting of a boat at the debarkation, scarce any other casualties occurred at Amoy, a strong proof of how unskilled were the Chinese in all the modern tactics of war, seeing that they had about 500 guns of various calibre mounted in their batteries, redoubts, and war junks.

Amoy was evacuated on the 5th September, a garrison consisting of 400 men of Her Majesty's 18th and 26th regiment, with a few artillery men and sappers having been left to retain possession of Kulansoo; this is an island forming the western side of the harbour of Amoy, which it completely commands, the intermediate passage being scarcely half a mile in breadth. The island is four miles in circumference, and one and a half in extreme length, having the open bay to the eastward, the harbour of Amoy on the one side, and the estuary of the river Min on the other. It presents a bold, steep, and rocky coast, on which several batteries are mounted seaward, these with large boulders of granite, temples and barracks are conspicuous in the offing. There are several villages densely inhabited; rice is cultivated on every available patch of ground, and excellent vegetables have been since raised from European seed. The water is good, and the supply abundant, depending on the retentive soil and rocky subsoil, but the supply of provisions is necessarily drawn from the mainland.

During August the greatest number of admissions in the 55th regiment was from continued fever and dysentery, there being (in a strength of 819) of the former eleven and of the latter

fifteen, none of which, however, proved fatal. Of intermittent fever there was but one case, and in the following month only four. Of the two deaths one occurred at Hong-kong from Gastritis, brought on by excessive indulgence in an ardent spirit called samshoo, the other was a case of acute Hepatitis which ran its course in eight days. The average daily sick was only  $37 \frac{20}{31}$ .

There were three deaths during September, two from chronic hepatic disease in old soldiers, and one from dysentery; the mean average daily sick was  $46 \frac{2}{3}$ —the average strength 800.

From the 6th to the 30th September the troops were on boardship, and in passage from Amoy to Chusan, a distance of 300 miles in a direction nearly due north, the weather was fine up to the 13th, when the wind set in dead-ahead with rain, and heavy squalls increasing to a gale, and causing the ships to part company. During the last week of the month, the whole of the ships, with only two exceptions, had gained an outer anchorage near Chusan, and here we were detained for some days on account of the continued hazy state of the weather. The force continued in an efficient state, and numbered about 2,300 fighting men. Through the healthful influence of the open sea, the absence of any severe duty by day, or by night, and of all opportunities of excess, our sick list which at Amoy had somewhat increased began gradually to diminish, and during the latter part of September the detachment of which I had charge had only two per cent. of sick in hospital. These breaks in the line of operations were found of great advantage to the troops, particularly when they were able to move from one distant point to another by sea, the sick recovered more speedily, and fresh vigour was conveyed to the constitutions of the healthy.

The necessary dispositions having been made, the troops were landed on



the island of Chusan early on the morning of the 1st of October, and on the same day the city of Tinghai fell for the second time to H. M.'s arms. The enemy defended with unwonted courage the long line of heights that lie to the west of the city, and as their ranks were mowed down, they slowly retreated to an intrenched camp in a saddle of the hills, from which also they were speedily dislodged. Of the 55th regiment one officer was killed, and twelve men wounded in gaining the first height, and three other wounds were received under the walls at the point of escalade. One man, while ascending the ladder, was accidentally shot in the left arm by a comrade, the cock of whose musket being down on the nipple, and striking against the ladder the piece went off. Such accidents are not unfrequent since the more general introduction of the percussion principle. The brachial artery was wounded, and the humerus so badly fractured as to demand immediate amputation. The day was cloudy, and rather warm with occasional showers, and as all opposition ceased with the escalade of the walls, and the capture of the batteries, the men after a short halt were immediately marched into quarters—deserted public offices and temples—which although possessing few advantages had all the valuable advantage of a good roof, and this was found no small comfort on the following day when it rained most heavily throughout; had we then been in worn out tents, on an exposed situation, and with only the damp ground to rest on, our condition would have been miserable in the extreme, and the effects on health most prejudicial even at this favorable season of the year.

On the 3rd, armed parties of two and three hundred men were sent out to Sing-kong and Sin-kea-mun at opposite extremes of the island where the enemy were said to have entrenched themselves.

On the following day both detach-

ments returned without firing a shot, the enemy having taken to their boats on the first intelligence of our approach and we all found shelter in the very quarters they had vacated.

We passed through a beautiful country of hill and dale, and the rice fields were groaning under a rich crop of paddy fit for the sickle; not a peasant fled from his home, and few evinced either astonishment or displeasure at our appearance. Some of the small road side shops were open, at which eatables were being purchased and samshoo sold in abundance. The weather was fair, and rather hot, but the sun in this latitude in October has lost all power of proving injurious under any degree of exposure. Both officers and men suffered much from blisters and abrasions on the feet, occasioned by their hard leather boots and the rough stone footpaths they had to march over. A long residence on board of ship also tends not a little to incapacitate soldiers from marching, and many were so crippled as to require their being carried back by coolies to their quarters. The party I accompanied marched 18 miles on a stretch to Sin-kea-mun, and returned by the same route the following day, each man carrying 60 rounds of ammunition.

On the 8th, the head-quarters of the force re-embarked for further service, detachments from H. M.'s 49th and 55th regiments, with a few artillery men and sappers and miners being left to garrison Tinghai. The sick and wounded were accommodated on board two large transports with a medical officer in charge of each, and as an hospital could not be well established on shore this excellent arrangement was continued throughout the winter.

From Tinghai to the fortified city of Chinghai on the opposite mainland, is a distance by sea of about 18 miles, through a series of passages that look like inland lakes interspersed with picturesque islands. On the 10th the



town and citadel of Chinhai were stormed, and carried by the Naval force, while by a combined movement the land force engaged the main division of the Chinese army on the right bank of the river, and routed them with great slaughter; we suffered few casualties, and the exposure although long continued did not prove hurtful. Three days afterwards the force advanced on Ningpo, which was quietly occupied; the troops were placed in winter quarters, and the campaign of 1841 now closed.

*Chinhai*, where the head-quarters of H. M.'s 55th was stationed, is a walled town of the 3d class, situated on the mainland of Chekiang province, occupying a head-land to the north-east of Ningpo, at the mouth, and on the left bank of the Tapiah river, in Lat.  $30^{\circ}$  north, and Long.  $121^{\circ} 14'$  east. It may be described as forming the apex of a right-angled triangle, the sides of which are bounded on the north by the sea, on the south by the river and the base by a range of lofty hills about nine miles distant, which stretch from north to south in the direction of the town of Zyekee. The intervening ground presents an extensive plain thickly peopled, studded with villages, and traversed by extensive canals, which send off numerous minor branches for the irrigation of the fields, which are almost all under rice cultivation. As we approach Chinhai the ground appears in part to have been reclaimed from the sea by means of long mounds of earth, faced with massive stone slabs, and forming as a whole a most solid monument of Chinese industry and skill. The city wall forms nearly a square, unless at the points where it debuts towards the river; it is about  $2\frac{3}{4}$  miles in circumference; has 5 arched doubled gateways and a rampart 6 feet high, the wall itself being on an average 20 feet high and not less than 14 feet thick. A canal nearly surrounds it, running within a few feet of its base, and

forming one of the principal means of transit between the town and surrounding country. The streets are wider than those of Ting-hai, but equally irregular, and ill-paved, and all matters of internal police were found in a like wretched state. In the northern part of the town there are several large cultivated plats, with ponds of stagnant water for irrigation, these ponds have been further increased by the removal of earth for the purpose of strengthening the rampart. At the north-east angle, and extending from it, is the Joss-hill, or citadel, a steep spur of rock about 250 feet in height, it contains a range of temples, is surrounded by a loop-holed wall, and its guns command the city and entrance to the harbour, but it again can be commanded from the hills on the right bank of the river. There are extensive suburbs on the east, west and south sides of Chinhai, extending down close to the banks of the river. The people are chiefly engaged in commerce and fishing, an extensive cannon foundry was discovered here, and bows and arrows, and other rude instruments of warfare are manufactured, but only for the province, of which this is one of the strongest keys.

*Ningpo*.—The district city of Ningpo stands upon a neck of land at the confluence of two rivers, one of which runs from the north-west, the other from the south-west. From Chinhai it is distant about 15 miles, in Lat.  $29^{\circ} 55' 12''$  north, and Long.  $121^{\circ} 22' 19''$  east; there is excellent communication both by canals and the river, the latter being navigable for ships for more than 30 miles of its course; vessels of 5 and 600 tons may anchor under the walls of Ningpo, where there is from 14 to 16 feet water. The city is of great extent, being, independent of its immense suburbs, nearly  $4\frac{1}{2}$  miles in circumference, and calculated at  $\frac{2}{3}$ rd the size of Canton.



It has a tolerably entire wall and rampart, extensive and well laid out streets, with good houses and gardens, forming decidedly the most regular and clear town that has been visited during the progress of the expedition. The temples are spacious, and have afforded excellent quarters; supplies are abundant, the water good, the population healthy, active and peaceful, and the climate, as far as our experience went, most agreeable to the European constitution. Ningpo is a place of great commercial importance, being the centre of an extensive trade which is carried far into the interior by water communication: it is celebrated for its rich silks, satins, and green teas. There are extensive boat building yards, and many minor establishments for domestic manufactures.

The population is calculated at 600,000 souls. To those who have seen Ningpo only while occupied by British troops, this may appear a very exaggerated amount, but during a visit in 1843, the evidence of business and activity, the crowded streets and lanes, and the constantly renewed living masses that were passing to and fro by the bridge of boats which connects the suburbs with the city, led me to consider the numbers as not overrated. The surrounding country is rich and beautiful, and chiefly under rice cultivation, for which the nature of the soil and the admirable facilities for irrigation, peculiarly fit it. I have seldom witnessed a fairer, or richer scene, than that presented from the summit of the Ningpo Pagoda, the great plain below, the hills in the distance, the broad and winding rivers, the numerous villages, and that abundance of cultivation which is so pleasing to contemplate, bringing to the mind's eye so many pleasing associations of comfort and well requited labour.

Ningpo was occupied by the headquarters of the force from the middle of October, 1841, to the 7th May,

1842, during which time the climate approximates very nearly to that of England. The same measures to secure the health of the troops were adopted here as at Chusan, and with equal success. The diseases were of a mild form, and confined chiefly to relapses of intermittent fever among those who had previously suffered in this country, to attacks of rheumatism among old soldiers, and occasional cases of dysentery, catarrh and ophthalmia. On the 27th December about 700 men of all arms started in steamers for Yuyau, Tsi-ki, and Funghwa, distant respectively 40, 20, and 30 miles from Ningpo. They returned on the evening of the 31st, after encountering very severe weather, and driving the enemy before them in all directions; the snow was at this time knee-deep, and the Thermometer ranging  $13^{\circ}$  and  $10^{\circ}$  below the freezing point.

On the 10th January they started again for Funghwa, but the enemy having decamped the force returned early on the 12th. These operations occasioned no injurious effects, but acted rather as healthful stimulants, for at such a season the European can endure with impunity an amount of fatigue and exposure, under a tenth part of which he would inevitably sink during any month of the hot season.

On the evening of the 9th and morning of the 10th March, the Chinese made a simultaneous attack upon Ningpo and Chinhai, at both of which places they were repulsed with great loss, while on the side of the British there were no casualties.

These attacks were followed up by the pursuit of the Chinese grand army, and the battle of Tsi-ki on the 15th March, in which the land-force, amounting to 865 rank and file, with 350 seamen and marines, in all about 1,200 bayonets, completely routed an army of 7 or 10,000 men, the elite of the Chinese troops, who were strongly posted on the hills of Seg-



on. After a protracted pursuit of the enemy, the force returned to Ningpo on the 17th, having experienced a loss of only three *killed* and 22 wounded—one officer had an arm amputated on the field.

The town of Chinhai was occupied from the 10th October, 1841, to 8th May, 1842, and its citadel was held by two companies of H. M.'s 55th regiment, during the summer and autumnal months of 1842, being altogether a period of nearly 12 months, throughout the whole of which time the health of the garrison was highly favorable, more so indeed during the hot season than at Chusan, but this may have arisen from the more elevated position of the citadel, and the greater restrictions to excess and exposure, which could be enjoined by the narrow limits of this small garrison. Diarrhœa was the prevailing disease. Supplies of fresh meat and vegetables were procured with tolerable regularity.

From our experience of Ningpo and Chinhai in 1841 and 1842, combined with the favourable opinion of the natives, and their robust and healthy appearance, we are fully authorised in considering both these places as healthy locations where due precautions are taken. The Province is one of the finest in the empire, and contains all the requisites for the provision of an army, has excellent water communication with its remote parts, and possesses some of the finest bays and harbours on the coast. The following particulars of its population and productions, abridged from a paper in the 11th vol. of the Chinese Repository, are of interest. The province of Chekiang (which means the winding, or crooked river, or the country of the meandering stream) extends from Lat. 27° 20' to 31° 20' north, and from Long. 1° 40' to 6° 30' east of Pekin. On the north it is bounded by the province of Kiangsu, on the east by the sea, on the south by

Fukien, and on the west by Kiangsi, and Ain-hwui.

It was calculated by Macartney that the province contained 39,150 square miles, and 25,056,000 English acres, presenting an area one third larger than Scotland or Ireland.

By the last imperial census its population was estimated at 26,256,784 souls or 671 inhabitants to a square mile. It is subdivided into 11 departments and 78 districts. Both Tinghai and Chinhai, and the group of *islands* forming the Chusan Archipelago, are situated in the department of Ningpo.

*Productions of Chekiang.* Soil fertile and well watered, country mountainous with extensive vallies.

*Animals.* Antelope, ape, ass, chamois, deer, dog, fox, goat, hog, horse, leopard, otter, ox, porcupine, rabbit, sheep, squirrel, weasel, pangolin, hare, &c.

*Birds.* Fowls, ducks, geese, pheasants, quails, snipe, thrushes, cormorants, mandarin ducks, long-legged water fowl, kingfishers, passerine birds of various sorts, and many occipitrine birds.

*Forest trees.* Cypress, fir, willow, tallow tree, elm, ash, banian, fig, camphor, cassia tree, ebony, maple, dryandra, mulberry, palm, paper tree, pine, sandal-wood, varnish tree.

*Fruit trees.* Almond, arbutus, or strawberry tree, loquat, chestnut, grapes, dates, papaya, hazle nut, orange, peach, pear, apple, parsimon, plum, &c.

*Grains and vegetables.* These are barley, beans, cresses, gentian, ginger, hemp, millet, mustard, onions, pumpkins, rice, wheat, sesamum, melons of various sorts, carrots, turnips, brinjal.

*Ornamental flowers.* White lily, small peony montan (*Peonia montan*), cinnamon, rose, camellia, hibiscus, flowering prunus, day lily, daphne, ordora, narcissus, &c.



*Minerals.* Silver, iron, brass, tin, white lead, coal, and salt.

*Manufactures.* Silks, damasks, senshaws. The raw silk produced in the department of Huchaw is the finest in the empire, and the hams of kin-hwa are much prized. Green tea is the principal article of export. Salt is extensively manufactured along the coast.

*May, 1842.*—Ningpo was evacuated on the 7th May, 1842.—Chinhai on the 8th, and on the 9th the fleet of men-of-war and transports moved into a land-locked anchorage called "Just in the Way," where they remained until the 12th. On the 13th the fleet brought up in a fine bay between the south-west and north-west horns of a group called the Rugged islands, and where there is good shelter during the south-west monsoon. The weather was very wet and cloudy, and continued so during the two subsequent days; it cleared up on the 16th, when Chapoo and its environs were reconnoitred, and on the 17th we weighed and stood into the bay, several of the men-of-war passing immediately under the batteries, none of which appeared to be manned.

Early on the morning of the 18th the steamers were alongside the transports, and the disembarkation was effected without opposition. The enemy lay concealed behind the ridge of hills which here skirt the bay and command the city; on our advance a brisk running fire was opened, and kept up with much obstinacy, a portion of the retiring enemy now out-flanked taking refuge in a temple, and defending themselves until the building was in ruins and in flames. The city was taken by escalade, little resistance was met with, and its terrified defenders were pursued for about four miles in their flight towards Hang-chau, the provincial capital. The force employed on this occasion consisted of the head-quarters of H. M.'s 26th, 49th and 55th regiments, Rifle Company, 36th

Madras Native Infantry, with a proportion of artillery, sappers and miners, being with the exception of two companies, the same troops that had garrisoned Ningpo and Chinhai.

This small army was in a condition of rude health that could not possibly be exceeded, the effects no doubt of a long winter most congenial to the European constitution, and of their having been well fed and well sheltered. All cases of disease of a serious, and such as appeared likely to be of a tedious nature, had been previously sent to the garrison hospital established at Tinhai, Chusan; while old, worn out, or weakly men were left to perform garrison duty at that station.

Chapoo is a city of the 3d class, situated at the base of the western face of the hills forming the eastern point of the north side of Chapoo bay, and approaching to the extreme mouth of the eastern boundary of Chekiang, of the capital of which province it forms the seaport, and in the eyes of the Chinese their chief military defence from foreign invasion. The extent of the city and suburb exceeds that of Chinhai: it is divided by a lofty, but frail wall, into a Chinese and Tartar division, the former being about twice the size of the latter, and occupied by the civil portion of the community, composed chiefly of merchants and mechanics.

The Tartar division is inhabited solely by the military who compose the garrison; their houses, worthy only of the name of huts, are laid out in regular lines like an encampment; their interior is marked by a deficiency in most of the conveniences which characterize the civilized condition of the Chinese, seldom containing more furniture than a table and a few chairs or stools, the floor is of earth, and the walls hung round with bows and arrows, spears, matchlocks, and rude representations of the deities and patrons of



war; a bamboo enclosure surrounds each cottage, and a vine, a peach-tree, and a few evergreens of dwarfish size, and trained into curious forms, birds of rare plumage, and others reared to sing, or to fight, divide the care with their children, and their arms, of a people trained up in the indolence of asiatic soldiers. The men, or rather the few that we had an opportunity of seeing (for of those who escaped a noble death in the field the greater number committed suicide) were neither formidable in stature nor development, but the women were fairer, and more comely than the Chinese, and still exempt from the voluntary deforming of their feet, a mark of beauty that the latter do so much pride themselves upon. In their dress alone have they departed much from the severe simplicity of their ancestors, and the warmer climate of the south has perhaps contributed more to this change than any desire to rival the rich attire of the Chinese. The Emperor has wisely judged that their fidelity to the throne and the people, is better secured by an honorable poverty, and the rewards held out to high merit, and patriotism, than by enriching them, as a military class, that might subvert the civil authority and even dictate to their prince, hence the policy which has retained this people after two centuries of quiet possession of a rich country, in the practice of much of the rude manners, and simple habits of their nomadic forefathers.

Chapoo enjoys not only a considerable coasting trade, but is privileged to send several large junks annually to Japan.

We found abundant stores of grain, of sugar, tea, dried fruits, indigo and extensive wood yards. The anchorage is not well sheltered, and is dangerous on account of strong currents; the tide here rises as high as 30 feet, with a velocity of 7 and 12 knots an hour. The flood sets into the bay

with great force, and on its outer skirts, where there are extensive sands, this becomes a source of great danger—the Transport “Kite” was lost on one of these. In attempting to proceed up the bay the Phlegethon steamer continued to drift with her full power up, her sails set, and an anchor down, the attempt was fruitless, and the provincial capital escaped the terrors of foreign invasion. Chapoo was occupied from the 18th to the 27th May, the men were well housed, the water was found abundant and good, and fresh provisions were in general procurable. Notwithstanding the heat of the weather and frequent rains there was no increase of sickness, and at the end of the month the proportion of sick to strength per cent. was found to be little more than  $2\frac{1}{2}$ , while the average range of the thermometer was as low as  $66\frac{1}{4}^{\circ}$ . The majority of the cases were mild forms of ague, and catarrh. The loss sustained in the capture of Shapoo was one officer and eight rank and file killed, and 42 wounded, and the most serious of these were sent by steamer to the garrison hospital at Chusan.

The loss of the natives in the field, and by suicide, was very great; such of their wounded as came under our observation were carefully attended to, and in most instances were doing well when we left. The evidences of the increasing addiction of the soldiers to the use of opium were to be met with in almost every house, it was the favorite means of suicide particularly among the women, many of whom now become widowed, had put a termination to their own and their children's lives. Some few of these poor people were saved on the verge of death, but they regarded with little gratitude a return to consciousness, and generally repeated the dose in a more effectual manner.

The country around Chapoo is rich, occasionally elevated and wooded,



thickly peopled, and well watered by numerous canals, the largest of which communicates with and is the high road to the city of Hang-chau, distant only about 40 miles. Some extensive fields of wheat were observed, but rice is the staple of the country, and with tea and sugar its chief exports.

On the 27th May the troops were re-embarked, and on the 28th June the fleet moved out of the bay, and came to anchor the same day off the Seeshan islands, an inconsiderable group the westernmost of which lies in Lat.  $30^{\circ} 35'$  north and Long.  $121^{\circ} 31'$  east. Weighed next morning, and retracing our course we brought up on the evening of the same day in our former anchorage at the Rugged islands. Here the fleet remained until the 5th of June, tolerably good tank water was procurable and also supplies of vegetables, but these islands present only a scanty herbage; the quantity of land capable of cultivation is small, and domestic animals were consequently scarce.

The inhabitants are supported by the produce of their fisheries, which is exported to the main-land. Shrimps are very plentiful, and are preserved in large quantity by drying. The weather was very fine, the sea breezes cool and refreshing, with the thermometer ranging from  $65$  to  $70^{\circ}$ . Weighed on the 5th, and brought up off an islet called the "Hen and Chickens;" on the 6th arrived off "Gutzlaff island," a conical rock about 250 feet high, in Lat.  $30^{\circ} 48'$  north and Long.  $122^{\circ} 11'$  east, and on the 7th anchored off the dangerous rocks at the entrance of the Yang-tse-kiang. We remained at this exposed anchorage for six days, while the surveys were being completed. Weighed on the 13th, and with a fair and light breeze the fleet passed in safety the open yet intricate barrier of the Great river, and brought up in good anchorage about three miles off the extensive line of

batteries that protect the entrance to the Woosung river.

On the 15th, dispositions were made for the attack, and on the following morning as the steamers and ships of war were moving into their respective stations the batteries opened a brisk fire, which was immediately returned but not silenced until the marines, and after these the troops, were landed.

Paushan, a considerable walled town, situated at the western extreme of the batteries was taken possession of, and occupied by H. M.'s 26th and 55th regiments, while H. M.'s 18th Regt. the artillery and sappers took up their quarters in the deserted lines of the enemy and in the village of Woosung.

On the 19th, Paushan, whose unwarlike inhabitants had almost all fled, was evacuated, and on the same day a simultaneous movement by the river, and by land, was made on Shang-hai, distant about 15 miles. This great commercial city was taken possession of after the faintest efforts at resistance, the majority of its inhabitants kept to their houses, and their bearing seemed to show that our visit was neither unexpected nor feared.

*Topography of Woosung and Shang-hai.*—Woosung is a scattered and populous village that owes its importance to the long line of fortifications that extends between it and Paushan, a distance of more than four miles. It lies in Lat.  $31^{\circ} 23'$  north, and Long.  $121^{\circ} 30'$  east.

The anchorage is exposed to easterly and north-easterly gales. High water at full and change occurs about 1 h. 30 m. according to observations made by Captain Bethune in H. M.'s Ship Conway. The rise is uncertain, but was found to vary from 15 to 5 feet.

Shang-hai is situated on the right bank of the Woosung river, about 15 miles inland, at a point where the river retires for a short space, and thus leaves the vicinity of the city as it were surrounded on two sides by water. At the landing place there is



a mud battery and a dense suburb, the latter extending with short interruptions to the city, distant about two miles. It is surrounded by a regular wall of great thickness and strength, a rampart pierced with embrasures and loopholes, and having broad arched gateways at each of the cardinal points; the streets more broad, cleaner, and better paved than is usual in Chinese towns, and the houses more extensive and better furnished, disclose the prosperity of a city only second to Canton in commercial importance. The circuit of the walls is nearly five miles, but fully a third of the space enclosed is laid out in garden cultivation. The chief objects of curiosity to strangers are the tea gardens; these compose a series of temples, boarding and eating-houses, surrounded by winding paths amid artificial ponds, rocks, *partérrés* and shady groves laid out *a la chinois*:—they formed excellent quarters for the troops; the inhabitants brought abundance of fruits and vegetables, and fresh provisions were in general procurable. The country around Shang-hai is well watered, rich and level, the fields are laid out in a regular form, and being skirted by trees there is given to the distant landscape the appearance of a finely wooded country, and to the numerous cottages of the peasantry an air of much snugness and comfort.

During this month there was no marked increase of sickness in either the naval or military arm of the expedition, the duty was not severe, the provisions were good, and occasionally varied by issues of fresh meat and vegetables, and whether on shore or on board ship the men were little exposed to the vicissitudes of the weather. In H. M.'s 55th Regt. the mean average of sick to strength per cent. was only 8.53, and there was not a single death. The principal diseases were fevers, either in an intermittent or mild continued form, the latter being most generally occasioned

by intemperance or unnecessary exposure. The weather for the most part was fine and mild, but towards the latter half of the month there were some sultry days with heavy rains, occasionally accompanied with thunder and lightning.

*July.*—The 1st of July found the whole of the troops re-embarked on their respective transports, relieved from the weight of duty, the necessity of exposure, and again subjected to those regular habits, and that restraint which can be so effectually and so beneficially carried out on board ship. We were at this time joined by large reinforcements from England and India, and the only source of delay was the progress of the survey. On the 4th the Phlegethon steamer reported a clear passage as far as Golden island and the river entrance to the Grand Canal.

The squadron, which now numbered 70 sail and divided into five divisions, comprising one artillery, and three infantry brigades, weighed on the 6th and commenced their progress up the majestic stream of the Yang-tse-kiang. As we could only move by day our advance was necessarily slow and was dependent entirely upon the tides and the strength and direction of the wind. On the evening of the 8th anchored off Pagoda Hill; on the 11th the ships of war of the advanced squadron arrived off a range of hills on the right bank, where two small batteries that commanded the passage were dismantled; at this point the stream widens out considerably and affords a commodious anchorage, where we were detained by light or adverse winds for several days. On the 17th, 18th and 19th, the ships were able to move up by divisions, and on the evening of the 20th nearly the whole of them had come to anchor abreast of the city of Chinkiang-fau, and only a few yards below Golden island. On the evening of the same day a reconnoissance was effected and arrangements having been made for the attack, the



troops were disembarked early on the morning of the 21st of July.

The principal body of the enemy were observed to occupy high ground off to the south-west of the city, and about  $5\frac{1}{2}$  miles distant from the landing place; the 1st and 2nd brigades moved upon this encampment, and having speedily put the enemy to flight, they returned to the attack of the city which had been in the meantime assaulted by the 3rd brigade, who escaladed the walls at the north angle, and had carried at the point of the bayonet a long line of ramparts, when they were joined by the main division under his Excellency the Commander-in-Chief; the enemy surrounded on all sides betook themselves to the streets and houses where many continued to hold out a desperate resistance, but the greater number of the survivors committed themselves and their families to an inglorious and cruel self-destruction. The troops engaged on this day were under arms from an early hour in the morning until 3 P. M., and for the greater part of this time were exposed to the powerful rays of an unclouded burning sun, the heat and fatigue proved (in the form of *coup de soleil*) immediately fatal to two officers, and about 15 men, and became no doubt the remote cause of much of the sickness which followed. The earliest opportunity was embraced of putting the men under cover, and the wounded of each corps were sent off the same evening to the transports, where medical officers were in attendance to receive the sick of their respective regiments.\*

Chinkiang-fou is a city of the first

\* Abstract of killed, wounded and missing of H. M.'s combined forces in the assault on the city of Chin-kiang, and the enemy's entrenched camps, July 21st, 1842.

Land force.	
Killed, officers 3, Rank and file, &c. 30 . . . .	33
Wounded, do. 11. Ditto ditto, . . . .	98 . . . . 109
Missing, . . . . .	3
Naval force.	
Killed and wounded, . . . . .	24
Total, 169	

class, situate on the right, or southern bank of the Yang-tse-kiang in Lat.  $32^{\circ} 14'$  north. Long  $118^{\circ} 55'$  east, and distant about 150 miles from Woosung; it is bounded on the north by the river, on the west by an extensive suburb, and a broad and deep canal, on the south the ground becomes elevated and steep, while towards the east it is undulating and swampy. At the north angle there are two bluff hills which command the city; on the one overhanging the river there is a cast iron pagoda of great antiquity; on both there are temples and extensive ranges of buildings capable of accommodating a European regiment.

The walls, which are of great height and solidity, were found in an excellent state of repair, and are about four miles in circumference; the ramparts are pierced by great numbers of loopholes, intersected by cross walls and towers which long resisted the boldest efforts of the storming party.

The ground occupied by the buildings of the city and suburb, is low and swampy, the houses are crowded and ill ventilated, the streets for the most part narrow, and filthy. Chin-kiang, like Chapoo, is separated by a wall into a Chinese and Tartar division, where the families of each race are located. The Tartar garrison on the occasion of the assault fought in a manner worthy of their ancient name; their officers were foremost in the fight, and the men were conspicuously brave, and never shrunk from personal conflict with our officers or men. Chinkiang-fou owes its rise and importance to its close proximity to the grand canal, the facility of communication by the river, and its site in the heart of a most fertile province; it had long been held in great consideration by the Chinese government on account of the strength of its garrison, and the presumed invincibility of its defenders.

*Weather and diseases.*—During



the early part of the month the weather was wet and unsettled ; from the 2d to the 6th it rained every day, at times very heavily, and blew fresh ; during our progress up the river, which occupied 14 days, it was for the most part fine with light airs, and intense heat, but no unusual amount of sickness showed itself until after the landing of the troops. The memorable 21st was clear and hot, and the subsequent days close and oppressive ; on the 24th, 25th and 28th there was rain with thunder and lightning preceded by a very sultry state of the atmosphere, and followed by sudden changes of temperature.\* The thermometer ranged from 74 to 94°—the winds were southerly, or to the eastward or westward of south, and I had frequently occasion to observe that the continued prevalence of the wind from south for a few days occasioned a great increase of admissions into hospital on account of cholera and fever. This was a land wind, generally hot and oppressive ; while as the wind drew to the eastward or westward it reached us after passing over a considerable extent of the river. July is perhaps the hottest and most oppressive month in the year, and it was well for the efficiency of the troops, that they could be moved in ships and thus escape the hardships, the fatigue and exposure of a march through a district most fertile in all the recognized sources of malaria. But after the fall of Chinkiang-fou, the secret poison acted immediately on bodies exposed in the centre of its emanations and labouring under the debility and relaxation which in the majority of Europeans will invariably follow any considerable exertion during the hot months in this climate. The hospitals were almost immediately filled with cases of fever, diarrhœa,

dysentery and cholera. The last, the most terrible and depressing of these diseases, first showed itself in H. M.'s 98th and 49th regiments, and it increased with fearful rapidity until these corps were re-embarked, a measure that was speedily called for by the unhealthy situation of the town, aggravated no doubt by the pernicious stench from the unburied dead that lay concealed in almost every house and filled every well.

Transports were immediately given up for the accommodation of the sick, who thus enjoyed a greater degree of comfort than under existing circumstances they could have possibly procured on shore, while they became also further removed from the immediate emanations of the malarious poison : notwithstanding these favorable circumstances it is painful to record that the loss sustained from sickness during the last 11 days of July was ten times more destructive to the British force than had been the sword of the enemy.

*August.*—By the 1st August the only troops on shore were H. M.'s 55th regiment, one company H. M.'s 98th, and the 2nd and 6th M.N.I. with a detachment of artillery and sappers, all of whom were quartered in the outskirts, and suburbs of Chinkiang-fou ; their duty was not severe, they were not harrassed by an active enemy, they were close to their transports and thereby independent of the resources of the country.

The removal of the troops from the close and infected air of the city was attended by the best results, and although the seeds of disease which afterwards proved fatal were in too many cases already sown, still the admissions from cholera almost disappeared, while the occasional appearance of cases in the brigade left on shore, pointed out how very local were its causes, and how inexplicable its partial attacks. Subsequent inquiries have proved that cholera had been prevailing among the native Chinese

\* On the 8th there was an eclipse of the sun, almost total, and on the 22d an eclipse of the moon, signs viewed by the Chinese as of ominous import.



previous to and during the period of our occupation of Chinkiang-fou. H. M.'s 49th and 98th regiments suffered in by far the greatest proportion; the former lost three officers and about 20 men, and the deaths in the Hospitals of the latter were 6 and 8 a day. The native corps, singular to say, suffered very little from cholera, although similarly circumstanced as the European troops. On the 2nd of August ships began to move up the river towards Nankin, distant 40 miles west, 6 south, and on the 5th nearly the whole had come to anchor abreast of the provincial city. Some days were spent in reconnoitering the defences of this ancient and extensive capital, and it was not till the 11th and 12th that the right, or Lord Saltoun's brigade, was landed. His Lordship took up his head-quarters at a village distant about 7 miles from the fleet and lying on the south-east of the city, within sight of its walls. There were quartered within the limits of the village, one troop horse artillery, three companies Madras artillery, flank companies H. M.'s 55th regiment, and of 2nd, 6th and 41st M. N. I. and the Bengal volunteers. H. M.'s 28th regiment occupied another village, and high ground, distant about 4 miles to the eastward, in a very swampy situation, and H. M.'s 26th a range of temples on a rising ground about two miles to the westward of our position.

Nankin was invested for about a month, from (11th August till 7th September) but the display of the white flag from its towering walls, and the happy progress of negotiations precluded the necessity of any great exposure of the men either on duty or fatigue; nevertheless the progress of the sickness was unabated, and if the mortality decreased the efficiency of the force was materially affected by the loss of at least one-third of its numbers, who were on the sick list. The prevailing diseases were intermittent fever, diarrhoea and dysentery. Being then in charge of the flank

companies H. M.'s 55th, the following extracts from my medical report will perhaps illustrate the progress of disease at this period. "The village in which we are encamped occupies a low tract of ground stretching north and south, and situate about one mile from the walls of Nankin, it appears the reclaimed bed of a former marsh; the soil is a rich plastic clay, and the cultivation in the neighbourhood that of rice. The ground is undulating and broken, and taking the village as the central and lowest point, it rises gradually from this to the distance of two or three miles, where it terminates in lofty hills covered to their summit with a rank vegetation; the population is manufacturing and agricultural, but chiefly the latter, and on our arrival every house for miles around was found deserted. It followed from hence that the irrigation of the fields was totally neglected they became dried up, and the pernicious effects were soon observable in the very large increase of cases of intermittent fever. Again, when the rains set in, the fields were flooded, the long corn thrown down, and subjected thereafter to the same drying process; so powerful was the miasma that when walking among the fields at the close of a hot day the strong vegetable smell that issued from the heated, and cracking earth, occasioned a sickening sensation. The uneven nature of the ground has prevented the formation of canals, and to retain a supply of water, it has been necessary to dig large ponds close to every patch of cultivation and to pump the water from these into the fields is a work of daily labour. Now that the people have returned, the fields are kept irrigated and the disease is diminishing, probably from this cause, combined with the decrease in the temperature which has occurred towards the end of the month. On first landing we were furnished with quarters in a low range of private houses, in a narrow street at the south end



of the village; the rooms were floored with broad blue bricks, and the ground underneath so damp that the water oozed up, and covered the surface; the buildings were also so confined that the breeze however strong, and from whatever direction, could seldom be felt.

We soon removed to two very good houses in the back and main street of the same village, with a south-west exposure, upper-floored, airy and capacious rooms, and the open country immediately in the rear; the advantage of this change was soon observable among both officers and men.

The men were also supplied with boards and trestles to sleep upon, and every attention paid to the removal of all animal and vegetable collections about the premises.

The hospital is situate in the wing of a Joss house occupying a rising ground towards the south-east; the situation is the most dry and airy within the lines, and well fitted for its present purposes. It can accommodate from 60 to 70 patients, nearly all of whom may be furnished with hair-bottomed cots procured from the deserted houses.

*Duty.*—On account of the distance we have been placed from our ships, and some irregularity in forwarding supplies, fatigue parties have been often called for, and there being so many men in hospital, the duty has fallen hard upon the others. There is now some improvement in this particular, and they have generally two or three nights in bed, while they are rarely sent out during the heat of the day.

*Diet.*—With the exception of three days salt rations, we have had an abundant supply of good fresh meat, which has been boiled up into soup with rice and vegetables.

*Diseases.*—Return of sick of the flank companies H. M.'s 55th regiment, treated in hospital from 10th to 31st August, 1842.—1st September, 1842.

Strength 153.			Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.
Diseases.								
Feb :	Quot :	Interm :	"	45	45	17	1*	27
"	Tert :	"	"	30	30	14	"	16
"	Cont. comm.	"	"	5	5	4	"	1
Diarrhœa. ....			"	36	36	30	"	6
Ophthalmia. ....			"	1	1	"	"	1
Colica. ....			"	1	1	1	"	"
Cholera. ....			"	2	2	1	"	1
Dyspepsia. ....			"	1	1	1	"	"
Pleuritis. ....			"	1	1	1	"	"
Contusio. ....			"	2	2	2	"	"
Ulcer. ....			"	1	1	"	"	1
				125	125	71	1	53

Thus in the course of 21 days there were 125 admissions into hospital out of a strength of 153; it should be observed also that the sick and weakly men of both those companies were left at head-quarters previous to their embarkation for Naukin. To continue, "during the first period diarrhœa was the prevailing disease, but latterly the admissions have been exclusively cases of intermittent. Those men who laboured under bowel complaint presented a peculiarity of appearance that could not be mistaken, and by walking down the ranks it was easy to point out those who had suffered from the disease for only a few days, the features had become sharp, the eyes sunk, and the countenance expressive of a languor and debility which the whole bearing of the man fully corroborated. Of the 36 cases of diarrhœa all have recovered, and there has been no instance of re-admission; the six marked as remaining are cases of intermittent continued under their original entry, that of diarrhœa. Of the 75 cases of Intermittent only one presented any complication, and that seemed confined to the investing membrane of the spleen; three cases merged into a continued form with low muttering delirium, sordes on the teeth, and a black tongue; none have proved fatal, and the disease has in few instances been very obstinate. In 15 cases the fever followed upon the sup-

\* Committed suicide by drowning.



pression of diarrhœa, and in all it was ushered in by some days previous indisposition, the patient presenting himself with a loaded tongue, loss of appetite, and much depression of spirits. Those men who had been always the most healthy and robust seemed to be the most obnoxious to the influence of the miasma, and nearly two thirds of those attacked never had had the disease before nor suffered from any sickness during their previous service in China. A few had laboured under ague at Chinhai, and Hong-kong, and some others of the old soldiers in India many years before. The paroxysms of the Quotidian were the mildest but most difficult to check, those of the tertian the most severe, particularly in the hot stage, but yielding more readily to the specific influence of the Quinine. The weather was for the most part close and sultry, with a clouded sky, heavy dews during the night, and occasionally mist in the morning. Only 10 fair days out of the 21 embraced in the return. Thunder with vivid lightning on the 24th and 25th. The prevailing winds southerly or to the eastward of south, the range of the Thermometer from 90 to 78° but no very accurate observations could be made."

It was at this time favorable for us that there was no vigilant enemy to harass us, that we were well protected from the rains, that vegetables were abundant, fresh meat generally procurable, and the temperature decreasing, such things influence very powerfully the forms of disease and moderate its severity by retaining the constitution in a condition capable of resistance.

The other troops located around Nankin suffered in much the same proportion as the flank companies of the 55th, and although there was a great amount of disease the mortality was trifling compared with that experienced at Chinkiang-fau. The fevers were for the most part purely intermittent and the great majority of

the bowel complaints assumed the form of diarrhœa, but among the men of H. M.'s 98th and Royal artillery, who had been long confined on board ship, dysentery of a most untractable nature was very prevalent, and both at this time, and during their progress down the river very many casualties occurred from that disease.

*September.*—On the first of September the right brigade was still on shore at Nankin, and suffering much from fever, diarrhœa, and dysentery, while those regiments which had not been landed (H. M.'s 18th, 49th, and 14th M. N. I.) were more exempt from renewed attacks, but had still large sick lists. The condition of the 98th had not improved, the mortality arising from dysentery continued very great, and as they had the misfortune to be located in a very swampy spot they did not benefit much by the change from Chinkiang-fau.

The heavy rains occasioned a great rise in the river, and the extensive and populous suburb became inundated, the canals filled to overflowing, and their embankments were, in many places, carried away. By the 4th, however, negotiations were so far advanced that the troops were ordered to be re-embarked, and in the course of 3 or 4 days the whole were again on board ship. The rains had cooled the air very much, and during the 2nd week of September northerly winds set in, the transports began to drop down the river singly and by divisions, and the neighbourhood of Nankin was finally quitted.

On the 23rd Chinkiang-fau was evacuated; its aspect had in the interval considerably improved, many of the Chinese had returned to their homes, the scourge of war and of cholera had ceased, and order succeeded to plunder and rapine. But the voice of gladness was yet far from the desolate city, and the melancholy gait of its impoverished inhabitants, formed a painful contrast with the bustling active, and happy popula-



tion that we had just left in the western suburb of Nankin. The citizens of the ancient capital had escaped the dire misfortune of their neighbours, and although in the presence of a formidable foe, their country shaken to its very centre, and the ancient capital surrounded, the stimulus of necessity and the power of long habits of industry, seemed to confine every one to his own affairs; they were still busy during a doubtful truce, buying and selling with every evidence of unconcern as in a period of the utmost peace; there were no symptoms of popular feeling, and judging from the public exposure of delinquents under punishment, the majesty of the law was still maintained. All parties rejoiced that the progress of the war was here staid and that the bands of native robbers who followed in our route might now perhaps meet with their deserts.

Chusan was appointed as the common rendezvous for the fleet, and it was the 20th of October before the last of the ships had arrived there. The descent of the river was a work demanding some caution, and although many of the ships got aground, no serious damage was sustained, and in no instance did the troops suffer from such accidents.

The weather was exceedingly changeable; often rainy, and as we approached Woosung it became quite cold with fresh northerly winds. Our sick list continued very high throughout; relapses from fever were very frequent, but the chief mortality arose from dysentery of a low insidious form, succeeding to fever, little influenced by medicine, and in most cases fatal, the post mortems presented great disorganization of the colon.

This closes the narrative of the active operations of the expedition; subsequent events bearing on the health of the troops will be alluded to in the notices of the several stations, which will form the subject of

the next paper. It remains for me to notice very briefly the extent, population, and productions of this great province in which the late operations have been carried on and first of the Yang-tse-kiang. This majestic river, whose name, literally implies the child of the ocean, is said to take its rise among the mountains of Thibet, and pursuing a course of nearly 3,000 miles in a direction almost due east, empties itself into the ocean at Woosung.

The distance traversed by our ships in their passage to Nankin has been variously estimated, but may be taken at 175 miles, in a course nearly west. Of the further progress of the river we gained no information, and it was not considered advisable to pursue the enquiry after the Chinese government had made pacific advances. The waters are deep, and muddy, the banks for the most part low, and lined with tall sedge grass, and so steep that it was not unusual to see ships sailing within a few feet of the shore. The currents are very strong, and the sand banks numerous and shifting; the rise of the tide is considerable, and this both favors the navigation and enables ships when they run aground to get off more easily: the bottom is a soft mud and but one sunk rock was discovered in the centre of the stream about one mile above Golden island. Upon this the transport *Marian* grounded, and was with difficulty got off. The breadth of the river betwixt Woosung and the opposite island of Sunming is fully six miles, while in other parts of its course it is scarcely a mile broad, as at Pagoda hill, and off Sereng-shan, or Silver island. In every part of its course it gives off canals of more or less magnitude, which communicate with the interior, and subdivide into minute branches for the irrigation of the fields; the husbandman is thus made independent of local rains, and a crop is secured in the most adverse seasons.



Some of these creeks are of great magnitude and must have cost infinite labour, that which passes up near to one of the gates of what formed the boundary of the ancient capital, is navigable for ships of 500 tons, and was no doubt formed to bring the produce of distant provinces to the gates of the Imperial residence.

The grand canal does not forcibly strike the notice on passing, and but for the number of junks at its entrances it might have escaped observation. It has its northern communication with the river, about one mile and a half above the city of Chinkiang-fau, and is there about 100 yards in breadth with a good embankment and raised pathway.

The southern portion has three communications with the river, the greatest of these has been already noticed as skirting the western face of Chinkiang-fau; it there varies in breadth from 70 to 80 feet, but occasionally becomes narrowed to half that amount.

Nothing can exceed the rich and populous appearance of the great valley of the Yang-tse-kiang. On the northern bank a broad plain, scarce interrupted by a single hill, stretches as far as the eye can see, the southern bank is equally rich, and in places diversified by green hills, some of which are surmounted by Pagodas. The whole country is admirably cultivated and wooded.

Fleets of large junks traverse the open stream, while innumerable smaller craft are to be seen issuing from the numerous communications with the interior, freighted with the various produce of the country that finds a ready market in the great cities.

The province of Kiang-sú is bounded on the north by Shantung, on the south by Che-kiang already described, on the west by Anhuy and Honan, while the sea skirts its eastern boundaries. "Its extreme north is said to be in lat.  $35^{\circ} 10'$  north, and the

southern limit in lat.  $31^{\circ} 20'$  giving an extent of  $3^{\circ} 50'$  from north to south. In longitude it extends from  $5'$  to  $5^{\circ} 5'$  east from Pekin. Its shape on native maps is rhomboidal, with the largest sides running from the north-west to the south-east, and the shortest from east to west.

Its area has been estimated to contain 39,150 square miles, making 25,056,000 English acres. The population is very dense and is given at 37,843,501 souls. Kiang-sú is divided into 12 departments and 67 districts. The islands on the coast have been already noticed; the sea is discolored from the large body of fresh water that issues from the yellow river and Yang-tse-kiang. The coast is low, and ships are guided by the soundings alone among its dangerous shoals and intricate passages.

The great body of the population is agricultural; the farm houses are large and comfortable, furnished with most of the conveniences of civilized life, and present the evidences of plenty though not of wealth. The fields are more regularly laid out, and are larger than those observed in Che-kiang, while they are as well cultivated, and better watered, the soil being an alluvial deposit, retentive of moisture and exceedingly productive. Rice is of course the staple, but wheat, barley, Indian corn, millet, and beans are extensively cultivated.

Indigo, cotton, and tobacco are raised, in great quantity, and to these may be added green teas and sugar, both of most excellent quality. The other productions are much the same as those noticed as abounding in the neighbouring province of Che-kiang. The chief manufactures are porcelain, cotton goods, silks, velvets, and satins, all held in great repute as of the first quality, and fetching the highest prices in the markets.

Around Nankin some of the villages are peopled by silk weavers, but the majority of these cultivate a small piece of ground, thus combi-



ning both occupations with benefit to health and morals.

*Hong-Kong.*—Distant forty miles to the eastward of the Portuguese settlement of Macao, lie the island of Hong-Kong and its dependencies, between lat.  $22^{\circ} 9'$  and  $22^{\circ} 21'$  north, and in long.  $114^{\circ} 18'$  east from Greenwich.

Its shape is very irregular, but approaches nearly that of a right-angled triangle, and although its circumference is only twenty-six miles, yet by following the line of coast the distance becomes increased by nearly a half, owing to several fine bays that indent the coast.

The longest line from the north-west to the south-east is nine miles, while the breadth varies from one quarter to four miles; the channel which separates it from the mainland varies from half a mile to three miles, and is perfectly safe for ships of large size. The physical aspect of the island is mountainous and sterile; the hills (some of which attain a height of 2,000 feet), are covered by a rank herbage among which the fern predominates, they are of conical shape intersected by numerous passes and a few narrow valleys which are well watered, and carefully cultivated; their formation is primitive, and of igneous origin, consisting of a close-grained granite the components of which vary much in different localities, some containing so much hornblende as to appear quite dark while others, where the felspar is much in excess, are of a light clay color.

Skirting the base of the hills are a series of strata of decomposed granite and clay soil containing large boulders of primitive rock, these have undoubtedly been transported from a distance, their rounded edges and smooth surface being a result of the long continued action of water.

The greater number of them are in a rapid state of decomposition, and from their containing much oxide of iron, they have probably been disen-

gaged from a range fertile in that useful mineral.

Red sandstone and felspar rock are also to be met with, the latter particularly on the southern side of the island, where I have observed it interspersed with thin veins of quartz.

The hills are bare of trees and bleak, the few level spots of ground in the valleys available for cultivation are planted with rice. The population is estimated at 30,000 souls, but they are a migratory class of unsettled pursuits, and since our occupation of the island it has become the place of refuge of the most infamous among the natives of the southern provinces of China. The only large village is Check-Chu, on the southern shore, with a population of 2000, principally fishermen. Europeans are entirely dependent on the mainland for supplies of provisions, and these are all very high-priced, much exceeding the current rates in India, and even in England,—the station is in every respect a most expensive one for Government and its servants. Hog-deer, pheasants, partridge, quail, and snipe are occasionally to be seen among the least frequented parts of the interior.

There are no native manufactures, and no natural productions, but on the opposite mainland are several excellent granite quarries in active operation.

*Victoria.*—The modern capital of Hong-Kong extends in a straggling manner along the northern shore for nearly five miles from east to west, the ground is broken, irregular and steep, there being few level sites for building, unless on the verge of the sea beach, the houses are consequently much scattered and the ground greatly disturbed: hills levelled for sites, others cut through for roads and the red upturned soil viewed in contrast with the grey masses of granite, the green hill side, and the bare bleak hills, have so much the appearance of chaos that when first seen from a distance Victoria looks like the remnant of some great city whose fairer por-



tion had by some subterranean force been engulfed in the bay beneath.

Towards the south the town is immediately overlooked by a continued range of lofty hills, towards the north the view opens on the harbor, and the opposite mainland, while towards the east and west are the channels of the sea which form the entrances to the bay. The east and west points of this locality have proved the most unhealthy; commencing with the eastern part, we first observe the "Point," a bold semi-circular headland occupied by the buildings of Messrs. Jardine, Matheson, and Co. This forms the eastern boundary of the Happy Valley (since called the valley of death) which here extends about two miles into the interior, and is bounded on the west by Leighton's Hill and three other high points, on which are situated the Medical Missionary Hospital, the Morrison Education Institution, and the Merchant Seaman's Hospital.

Several most substantial houses have been built along the sides of the valley, but they are so shut out from the summer breezes, and have proved so unhealthy, that they remain uninhabited. The valley has been since drained, and vegetables cultivated instead of rice, much against the wishes of the natives, who here occupy a pretty village which is *thickly* surrounded by trees.

It is somewhat singular that the inhabitants of these mean-looking dwellings have continued comparatively healthy during seasons that the Europeans in this locality, and the Chinese at Victoria, were suffering from severe and fatal sickness. I can only suppose that the shelter afforded by the trees, and the attraction which green wood is said to have for malaria could have occasioned this exemption.

Passing along a spacious road which has in places been cut through considerable hills of disintegrated granite, we next come on the site of the European hospital, and the residence

of Messrs. Turner and Co. and other private dwellings situate near to the beach and shut in on three sides by closely over-hanging hills.

The European hospital is a range of godowns temporarily occupied for its present purpose, the upper story has been converted into one large ward, which accommodates sixty-five patients; the roof is low with merely a thin covering of tiles, and the circulation of air is very defective; during the day time the temperature rises to a great height, and even when the hospital is but moderately filled, the patients suffer much from the sultry and oppressive nights which are common throughout the summer months. Some amelioration will no doubt follow after the formation of mat verandahs, and the introduction of punkahs, but the site is highly objectionable, and admits not of remedy.

Continuing our progress to the westward we skirt the base of the hills which now approach so close to the sea beach as to leave barely sufficient space for the road; a few yards beyond on the bleak hill side is the European burial ground, it has already nearly attained its utmost limits, and serious objections may be urged against its situation in the midst of the cantonment. Passing a small ravine close by stands, on another eminence, the hospital for the native troops; it is a long low single-storied building, and affords accommodation for 100 patients.

Crossing another ravine, the hills open, out, and present a moderate slope which is occupied at its lower part by the barracks of the ordnance department, and higher up by the officers' quarters, a low damp range of small houses which have proved most unhealthy. The extremity of this locality projects into the bay, and this spot has been cleared as a site for a large general-hospital, but no progress has as yet been made in this important work—the last of the pub-



lic works to be commenced on. The road now winds round the base of the hill, the side of which has been deeply excavated, while along the beach are lines of houses occupied by Chinese, and others by mercantile firms, adjoining these last are the ordnance store yards and Commissariat, conveniently situated for land and sea carriage. On the opposite side to these is the Canton bazar, a reclaimed piece of ground, most of the house tops being on a level with the excavated side of the hill: crossing by a bridge over a mountain stream, we enter the ground of the new barracks, an excellent range of two-storied buildings of solid masonry; possessing this great advantage that it is open to the sea

on one side and clear of the hills on the other, the rooms are lofty and airy and surrounded by spacious verandahs; there is good accommodation for 500 men.

The ground for a mile and a quarter beyond this has been little built on, being reserved for Government. High on the brow of the hill is situate the Government House and offices, and below these the Post office, Surveyor's office, and the Colonial church, a temporary mat building. In the same neighbourhood, and scattered along the banks of the rivulet are the old huts, successively occupied by two or three native corps, all of whom suffered much sickness while located here.