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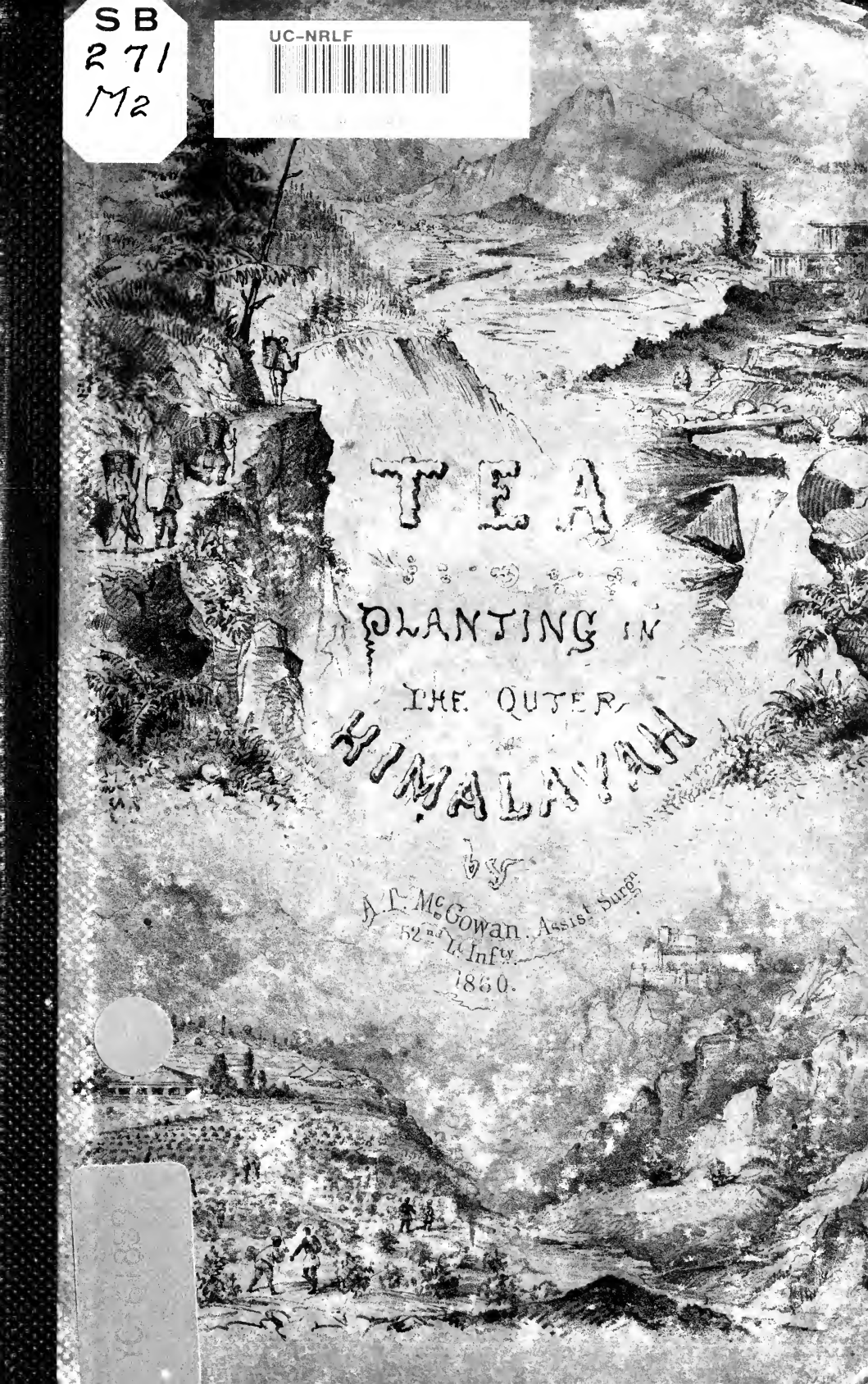
PLANTING IN

THE QUATER

HIMALAYAN

by

A. F. McGowan, Assist. Surgeon
52nd Regt. Infy.
1860.



outber had to face in his undertaking. Vessels entering the river from the sea must pass two bars, which they usually clear during flood time. Behind them is the outer anchorage, where the two ironclads had dropped their anchors, before the beginning of operations. The island of Wooloo covers the entrance to the river, and extends five miles from east to west, and $3\frac{1}{2}$ miles from north to south. Of the two passages, the southern one is impassable for European ships, and the northern one is, or was, protected by the Chinese fortifications. From the outer anchorage the Kinpai channel, 382 yards wide, but full of shallows, is reached. It is flanked on one side by the White Fort, and on the other by the Kinpai Fort, on the island of Wooloo. On the same island, but farther south, was also a battery of five guns. Beyond Kinpai the river widens to $1\frac{1}{2}$ miles; its depth varies between 20ft. and 40ft. during low water; but as the tide rises during flood time 18ft. warships can proceed up the channel as far as Mingai, where the river is 654 yards wide. Here begins the second group of forts, which, like those of Kinpai, were armed with 15 and 17 centimetre (5.85 and 6.63in.) guns. On the left bank was a battery cut into the rock, followed by two others up the stream; on the right bank there were six batteries, and further south two more. From Mingai to the anchorage of the Pagoda, at the southern end of the island of Wooloo, where Admiral Courbet placed his ships of lighter draught, $8\frac{1}{2}$ miles. The island is separated from either bank only by a narrow channel, the river flowing in a direction from south-west to north-east. At the northern end of the island the river divides, the arm coming down from the north-west being that in which Wooloo is situated, the other arm main- taining the direction (south-west to north-east) before it separates. The Arsenal of Wooloo is constructed at the bend of the river, two miles from Wooloo. It consequently faces the south end of the arm. Proclamations have been issued by the consular Body and the Tao tai of Shanghai, in- stituting the natives to remain and to fear nothing, as the French do not intend to operate against Shanghai or Woosung for the present. The Chinese authorities at Shanghai have received a very important telegram from Peking, and rumours are again current that China wishes to come to an arrangement with the French Government. A telegram from Shanghai, dated 3.55 p.m. to- day, announces that the French destroyed the re- maining forts in the Kinpai Channel yesterday evening. It is believed that Admiral Courbet's squadron left the Min river this morning. The telegram adds that its destination is uncertain, but probably Shanghai.

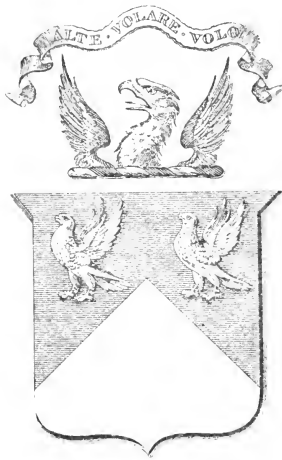
PARIS, August 29, Noon.

According to the Paris General Millot has tele- graphed to the Government that he has ascertained from reconnaissances that movements of the Chinese troops are going on near the frontiers of the province of Quangsi, but that, nevertheless, he does not expect any serious attack, and is prepared to meet it should such take place. The same journal says that the Foreign Powers have addressed no remark to the French Government.

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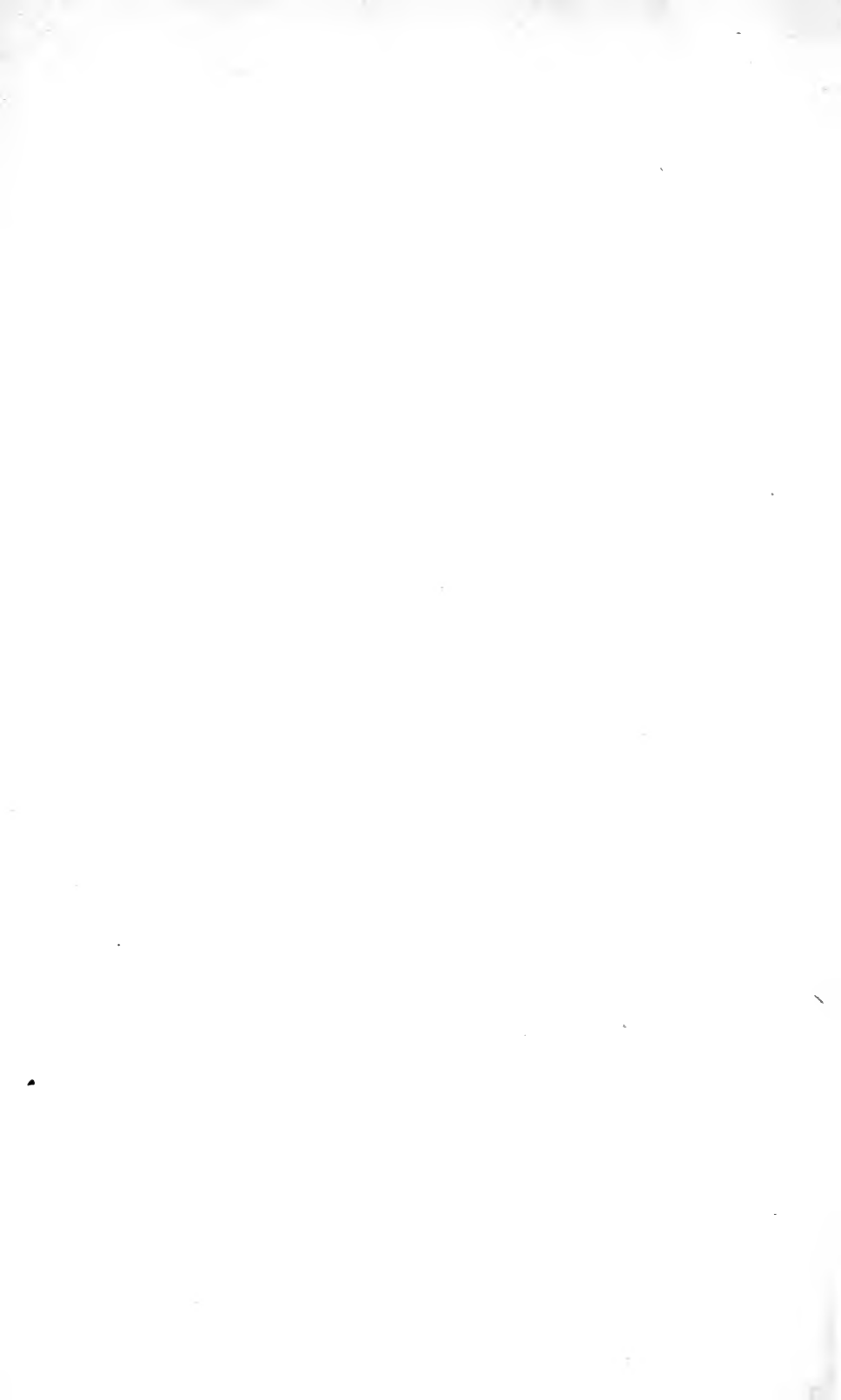
H. Morse Stephens.

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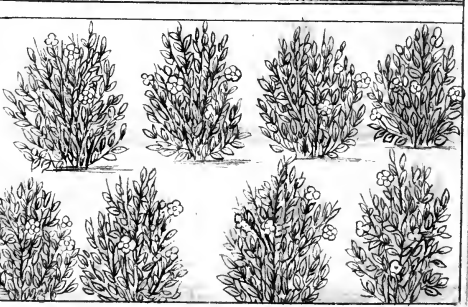
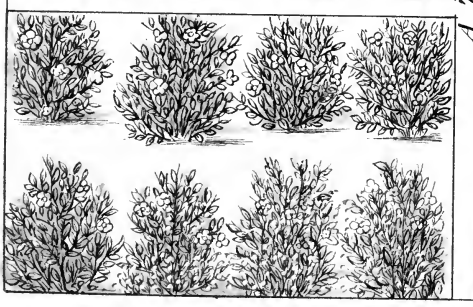
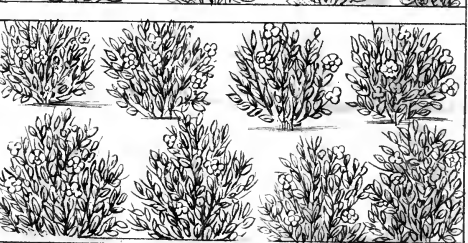
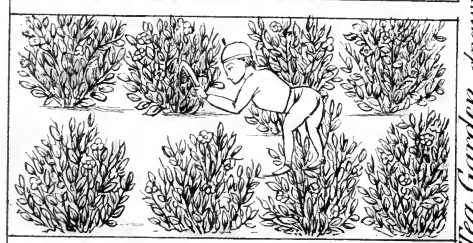
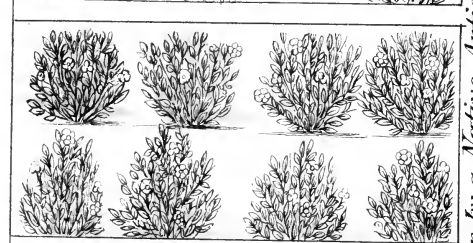
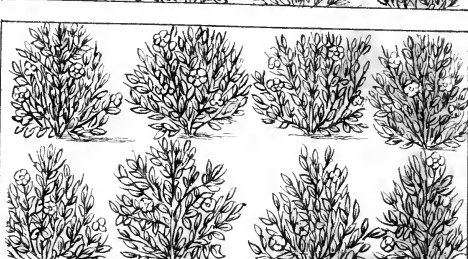
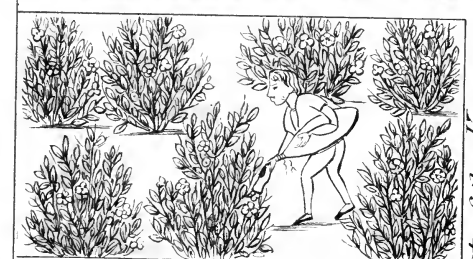
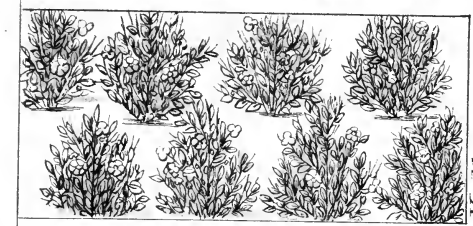
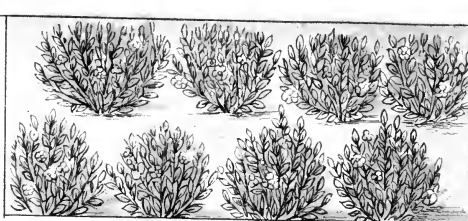
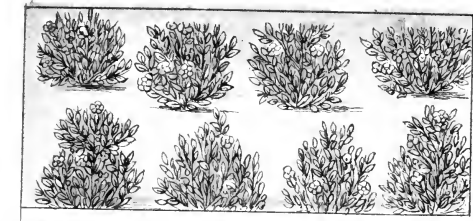
TEA PLANTING

IN THE

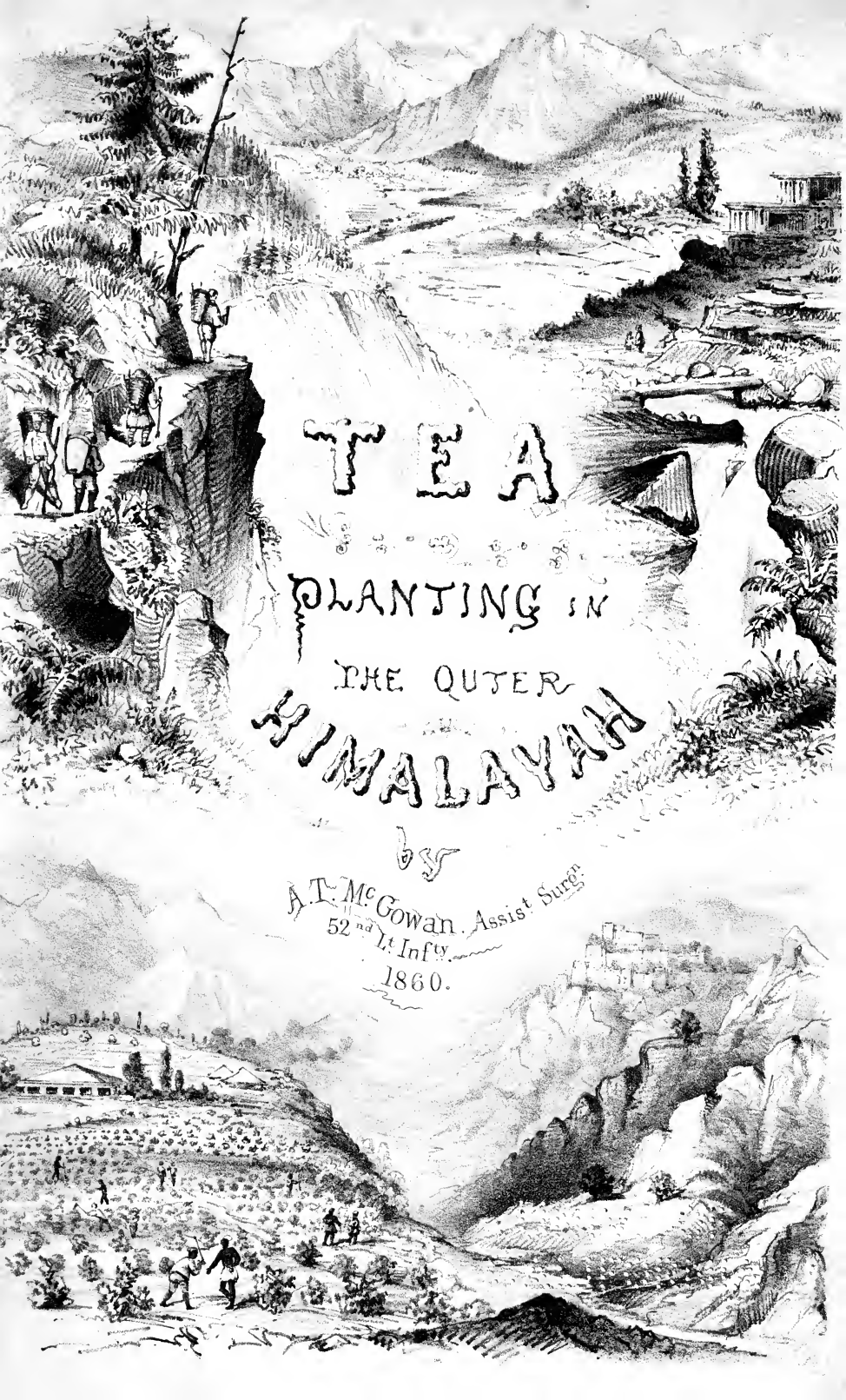
OUTER HIMALAYAH.



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A Tea Garden drawn by a Native Artist of the Kandy Valley.



TEA
PLANTING IN
THE OUTER
HIMALAYAN

by

A. T. McGowan, Assist. Surg.
52nd Lt. Infy.
1860.

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ANNOUNCED

TEA PLANTING

IN THE

OUTER HIMALAYAH.

“Tædet me vitæ.”—CIC.

“Tea-dat mihi vitam.”—DR. JOHNSON'S *reading of Cicero*.

——— “But Venus, goddess of the eternal smile,
Knowing that stormy brows but ill become
Fair patterns of her beauty, hath ordain'd
Celestial tea—a fountain that can cure
The ills of passion, and can free from frowns,
And sobs, and sighs, the disappointed fair.

To her, ye fair in adoration bow;
Whether at blushing morn, or dewy eve,
Her smoking cordials greet your fragrant board
With Hyson, or Bohea, or Congou crown'd
At midnight skies, ye mantua-makers! hail
The sacred offering.”—FERGUSSON.

UNIV. OF
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LONDON:

SMITH, ELDER AND CO., 65, CORNHILL.

M.DCCC.LXI.

STEPHEN

TEA PLANTING IN THE OUTER HIMALAYAH.

ALTHOUGH India has been brought so near home by means of the overland route and the electric telegraph, and has been successively described from almost every point of view, yet there is one subject connected with this vast peninsula which has hitherto attracted but little notice. At the present moment, when the resources of India are being carefully opened up and explored, in order that a system of future credits may secure the prosperity and advancement of this vast empire, the following brief sketch of a tea plantation in the Himalayahs may not be deemed inopportune.

Though a committee of the House of Commons has investigated the possibility of colonizing India, and a large amount of information is to be found in blue-books and newspapers, there are few persons, nevertheless, that can form a just idea of the insurmountable difficulties to be encountered by any one who, alone and unconnected with the "service," would attempt to win a home or carve out a fortune in this country, which, up to a recent period, has been jealously guarded against all innovation and extraneous influences.

When, therefore, during the recent mutiny, we first heard of this colonization scheme, we were disposed to look with feelings of wonderment upon any man who would voluntarily leave an English home for only a vague prospect of fortune, but with the grim certainty before him of leading in this country a fevered, restless, and unnatural existence. Such persons seemed to belong to that class who are said to “embark for India with reluctance, to remain in it with disgust, and eventually to quit it with eagerness.” Since that time, however, our ideas have somewhat changed; for although we should have been exceedingly offended had anybody questioned our ability to give an opinion on the subject at all, we must in truth acknowledge that we then had only seen the plains, and, with many more, wondered on what earthly grounds “gorgeous” had ever been applied to such an arid, hot, shifting waste.

After having wandered in the course of duty over a large tract of country, very pleasing to the eye when seen on the “Hall of all Nations” at Calcutta, and after having familiarized ourselves with Lucknow, the red walls of Delhi, the minarets of Lahore, and the valley of Peshawur, we eventually were lucky enough to be sent to the Fort of Kangra, where we enjoyed the bracing climate and grandeur of the mountains.

The tea-plant is cultivated in many portions of this district; a small Government tea plantation exists not more than eight miles from the fort, and twenty-four miles from it there is a very large one. This, myself and Lieut. W——, a brother officer, were most anxious to visit, and, through the kindness of Major S——, our

commanding officer, we received at various times for short periods during the last six months leave of absence for that purpose.

A short description of the various arrangements for one of these little trips to Holta may not prove tedious or uninteresting to persons not acquainted with these parts, and whose experiences of travelling have been confined to a small portmanteau with a few necessaries, a ticket at a railway station, and a comfortable seat in a first-class railway carriage, with the *Times* for a companion, in which newspaper on the morrow may appear some terrible denunciation should any untoward accident occur on the voyage.

A tent for ourselves and a smaller one for our servants, a camp-table, chairs, cooking utensils, plates, stores of food, &c., and various other odds and ends (for to be comfortable one entirely depends upon the forethought exercised on starting), were despatched on camels and mules under the charge of our khitmudgars,* bheesties,† and klassie,‡ the day before our projected departure. Two ponies with syces§ were also sent on, with instructions to proceed half way, and there to wait, in order to form a relay for us. Early the next morning our charpoys|| and bedding were despatched on coolies' heads under the care of our bearers or head servants, the latter mounted on mules; two sets of coolies sufficing in the present instance instead of the number of relays necessary for a long journey. Our heavy baggage having started the day before, halted for the night, so

* Cooks. † Carriers and drawers of water. ‡ Tent pitcher.
§ Horsekeepers. || A light bedstead made of string and bamboo.

that it did not reach Holta until a few hours before we ourselves arrived there.

About the middle of the day, after a hearty lunch, having threaded the steep winding path, often consisting of a series of stone steps, that leads from our lofty habitation in the citadel to the outer gate, where the ponies were in readiness, we mounted and rode off, gingerly at first, for the road was strewn with large round stones, that, impelled by monkeys and feeding goats, roll down from the hill-sides.

As the valley was reached, we mended our pace, and, in single file, galloped through the narrow winding paths, hedged in many places by the stubborn cactus or shaded by the plantain and tall bamboo. Now and then we passed through a village, and although we were evidently objects of curiosity, the inhabitants squatting in their doorways would only demonstrate their feelings by a prolonged draw at their hookahs. The women, mostly dressed in pegtop trousers, and wearing a large roll, usually of pink calico, that serves as head-dress, veil, and shawl, ran hastily away, often to the imminent danger of the pitchers of water on their heads, while others would sink into a heap on the ground in a manner most ungraceful to behold. Some, however, more bold, would pursue the even tenor of their way, taking particular care at the same time to cover their faces, but, with the curiosity that since the days of Bluebeard has been attributed to the softer sex, would leave their eyes unshrouded to watch the strange feringees. Now a brook had to be crossed; the hill ponies carefully picked their way over the smooth, worn stones, and

with straining heads attempted to drink the bright, black water. We hurried them through, and soon, high on a steep ascent, the rippling of the brook was lost in the sharp ringing of their hoofs on the hard road. We were now half way, and on the crest of a hill before us the white clothing of our syces was discernible. The steep ascent was soon gained, the saddles were quickly transferred from the tired to the fresh ponies, and we were ready for another start. The road now became steep and narrow, so we proceeded leisurely and had time to notice the surrounding scenery.

High in the front, the snow-capped mountains reared their heads, towering above the adjacent hills; their sides bare, rugged, and volcanic, but softened by the rosy tint from the setting sun, while the lower range, studded with the hardy fir and holly, where the sportsman finds the gooral,* bear, and leopard, with pheasants of the gayest plumage, were now deepened with a purple haze.† Behind us, the view stretched as far as

* The chamois of the Himalayah.

† In the hills around the Kangra Valley, game, both large and small, is to be met with in abundance. On the northern slope of the great range which separates the valley from Chumba (an independent State under a native prince), bears, both black and brown, leopards, tahir (a variety of the wild goat), and gooral (the Himalayan chamois), exist in great numbers; musk-deer are also found in the forests, with which these hills are, in many places, covered.

If the sportsman wishes to gain such a prize as the magnificent horns of the ibex, he must go some distance farther into the interior, as these animals are very shy, and live on hills of great elevation, where snow lies the greater part of the year. Pheasants, partridges, jungle fowl (the barn-door fowl in a state of nature), quail, wild duck, snipe, and hares, are to be found in the valley in great numbers, as also are gooral and kakar, or the barking deer. The rivers teem

we could see over numerous low hills. Hard by, a small stream, turned out of its course, impeded the road on its way to irrigate a terraced descent, down which the water trickled lazily, forming little muddy pools, which, overflowing gradually, caused others lower down.

The rapidly deepening hues warned us that night was closing in; the sun's rays now rested merely on the fantastic snow-clad peaks of the highest summits, gilding them with liquid amber light, which, gradually fading, left the cold pure snow a prey to darkness, until the moon tinted it with her frigid beams into phosphorescent splendour.

But the air was getting very chilly, and, notwithstanding our warm clothing, we were glad to canter quickly on. After many ups and downs, we saw in the distance a tent shining in the moonlight—glad sight! for our appetites had become considerably sharpened, and we knew that our faithful cooks had prepared a dinner for us.

Like the heroes of a novel, who before partaking of refreshment themselves are generally depicted as displaying a tender anxiety for the welfare of their steeds, we looked after the comfort of our ponies, although our concern arose, not from any participation in the self-denying virtue inherent in the hero of a circulating library, but from the fact that the servants were torpid with the unusual cold. Contrary to the manner of the prompt and submissive Hindostanee servant, who habi-

with fish; the one which affords the most sport to the angler, as it rises freely to a fly, is the "marseer." It is excellent eating, and runs to an enormous size.—H. A. G.

tually responds to a call, or obeys a direction with instant alacrity, our servants in this case, deafened with the cold, and shrinking into themselves, were all in the wonderful sitting posture natural to the race, huddled up near the cooking fires, toasting their bodies, and smoking that universal panacea, the hubble-bubble—regardless of their masters or their wants.

It required some vigorous language to set them agoing ; but at last duty prevailed over inclination, the greatest activity ensued, and a very fair dinner was served up. The doors of the tent were well secured, to prevent the entrance of the night air ; the candles shed a cheerful light around ; and having done justice to the repast, a tumbler of hot punch and a Manila rendered our position one of comfort, if not luxury. Every now and then the howling of jackals broke on the silent night, and my companion placed his gun in such a position, that if any leopard or jackal should disturb our slumbers by a too close proximity, he could with ease reach it, and render the visit of the intruder longer than he bargained for.

The comfortable regularity of the heavy breathing of the sleeping servants, who, coiled up in blankets and nestled in straw, were stowed away till the morrow, gradually infected us with drowsiness ; and, having turned in, we became oblivious even of the tea-gardens that lay so near.

Not being disturbed by the bugle that usually awakens the drowsy sub. and summonses him to duty, the entrance of the khitmudgars with a morning cup of tea

first aroused us from sleep, which the chattering of the natives outside, now engaged with their various duties, entirely dissipated. We were not long in making our way into the tea plantation, which was only separated from us by a road.

Stretching over nearly 1,000 acres, on undulating ground, gradually ascending towards the head of the valley, the tea-plants were distributed—little hardy-looking, dark green shrubs—at equal distances from each other, ranged in parallel lines with almost mathematical precision. In most parts the ground between the plants had been carefully hoed up, which rendered the contrast between the rows more striking than in other portions where as yet the hoe had not interfered with the lighter shaded grass against which the lines of plants stood out in less bold relief. The head of the plantation is bounded by the lower hills; behind these the high rocky range can be seen stretching from north-west to south-east. On the lower range the comfortable dwellings of the hill people are visible, while scattered here and there flocks of grazing sheep dot the hill-sides. At the higher end of the plantation, the pleasant bungalow of the Government overseer was discernible through the trees that surround it. Towards the middle of the plantation are the storehouses for the made tea and the factory for its preparation, while near to the latter is a small bungalow for the assistant overseer. Having thus taken a bird's-eye view of the whole, we went up towards the overseer's house, my companion, Lieutenant W——, not forgetting his sketch-book, to which the

frontispiece of this little book owes its origin.* On our way we passed a row of small houses, in which live the Chinamen who superintend the cultivation and manufacture of the tea, with their wives and children.

Their wives are, in this instance, natives of India and followers of the Prophet, and, as usual, our appearance was the signal to hide; so, laying violent hands on their younger children, they dragged them into concealment, where a little struggle between maternal authority and childish curiosity evidently took place, in which the latter conquered; a small head and little pigtail would gradually round the corner of a post, slowly and with manifest exertion, and a pair of wide staring eyes peer at us. The elder children were anxious to attract observation, and called out "Salaam sahib," in noisy tones. These lads had more the appearance of John Chinamen than East Indians, and a pigtail was, of course, prominent.

With Mr. R., the overseer of the Government tea plantation, we found Mr. M—k—n, who had lately settled in the district, and to whom we are indebted for much of the information we have gleaned about tea cultivation in India.

The Government tea plantation at Holtá has been in existence since the year of the Great Exhibition. Shrubs of various ages are to be seen, from the small seedling, just planted out into newly-cleared ground, to the eight-year old, of four feet high, and bushy width.

* From Lieut. W——'s rough sketch Capt. A——n, of the Trigonometrical Survey, was enabled to design the frontispiece of this book. The Kangra fort and the Holtá tea plantation are seen on it.

At a little distance, ground covered with three-year-old plants gave much the impression of a market gardener's cabbage-field, but this illusion vanished on a closer view. On a cursory inspection, the tea-plant is not unlike the box, so familiar in our English garden walks, except that the leaves of the former are much longer and serrated.

Tea-leaves vary in colour, according to age, from a dark boxy green to a lighter tint; long, narrow, and pointed, they vary in size from one to three inches long by one-third to one inch broad. Some plants attain the height of eight feet. At Holta I did not observe any, but Mr. M—k—n said that in Kumaon it is common enough. The flower bears a distant resemblance, in size and shape, to the dog-rose: the petals of the tea-flower are white; in the centre are an indefinite mass of yellow stamens. It diffuses a pleasant scent, unlike the camellia, to which it is allied. The seeds are globular, grayish brown, and shining, about the size of a Spanish nut. They are enveloped in a capsule, which may contain one seed only, but more frequently two, three, or more are contained in it.

When quite ripe, the valvular compartments open and disclose the seed, but this does not always happen. Inside the hard husk is the seed itself, a light yellow, nutty substance which has a clinging bitter taste, like an acorn; this internal matter is usually in contact with the surrounding husk, but if kept in a dry place, it shrinks and rattles on being shaken. As the tea-seed*

* Tea seed can be purchased for 30 rs. per maund of 80 lbs. I believe an acre of ground could yield 20 maunds of seed.

soon dies, it is important to plant it as quickly after gathering as possible. Seed is sown in October, either freed from the external capsule or not, according to the choice of the planter. I need scarcely say, that the husk of the seed itself is never taken off. It is scattered at about one-and-a-half inches below the surface in rows, in beds nicely worked up and manured for its reception, and around these beds, ridges are made to retain the moisture that is necessary and usual at this season of the year.

In about a year or sixteen months from the date of sowing the seed, a young tea-tree has sprung up. It is now planted out in parallel rows, a space of from three to five feet being allowed between each shrub, as elbow-room. Around each root a little manure is placed, and unless the season is very dry, there is no necessity to water the plant. It is necessary to keep the ground between the shrubs clear of weeds. After the young plant has fairly taken root, there is very little to be done; it only requires to be left alone, for naturally, if the leaves are too early picked, the plant will become stunted and sicken. In about four years from the date of a tea seed being sown, a plant has sprung up, which will bear picking; or about three years after transplantation. It is then in a condition to yield, in the three to five pickings that occupy a year, the amount of about three-fourths of a pound of raw leaves, or three ounces of prepared tea. As, however, the plant grows in size and strength, the yield of leaves becomes rapidly much larger, and a seven-year-old plant could give four pounds of raw leaves, or one pound of prepared tea. It

is a fact that the tea-plant will grow in a poor soil and where but a scanty supply of water is obtainable. This permits of the cultivation of tea in spots where water is difficult to obtain, and prevents the tea-plant from displacing, in the fruitful, well-irrigated valleys, the various cereals that are required for the subsistence of the inhabitants of the soil; thus, hitherto waste land has become of great value. But although the tea-plant will grow on a poor soil, and without much moisture, there is little doubt that in a rich soil, and with a reasonable amount of irrigation, the crop of leaves is much increased, and that a system of high cultivation is not incompatible with a highly-flavoured tea. A tea-plant in a very high situation, with little moisture, and an indifferent soil, does not grow with that luxuriance which characterizes a more favoured plant, lower down, in alluvial soil, and where no deficiency of water exists. The leaves of the former are not only less in quantity, but they are more bitter and harsher flavoured, and unless, like some wines, that growing in certain spots are much sought after by the public, these teas meet with particular favour, and thus command a higher price, growers will find it more profitable to ensure a large supply of leaves by procuring a moderately elevated and rich land, leaving the flavour to be brought out by careful manufacture.

A rich, light, and moderately deep soil (the plant has a tap root), in a sunny situation, about 10,000 feet above the level of the sea, not choked in or shaded by rank vegetation or surrounding trees, and where the necessary amount of moisture falling permeates equally

the ground, and does not form stagnant pools, is the position best calculated to yield a good supply of leaves. The mode of cultivation has been the subject of discussion, and it seems clear that in like manner the tea-plant will not thrive when flooded with water, so equally will it not grow when planted on a rock ; but with the difficulty that is found in preserving a happy medium, advocates are not wanting for either plan ; while others, with conciliating expediency, believe that tea will grow anywhere. It remains to be seen, in land where both cereals and tea can be grown, which of the two would be the most advantageous to the inhabitants. From the extended cultivation of the tea-plant by various individuals, whose interest will necessarily lead them to vie with each other in rearing and preparing it, numerous facts will be ascertained that in a non-competitive Government garden are less likely to be elicited. It is sufficient that the Government gardens should have prepared the way for private enterprise, and shown emphatically to the world the capabilities of the Himalayan range.

We were now close to the factory, which we forthwith entered.

About the building itself there is nothing remarkable ; it is a light, airy house, surrounded by an open verandah, the interior being commodious and lofty.

On entering, the odour of tea, such as one is accustomed to in the grocers' shops at home, was very perceptible—a most gratifying and convincing proof to our uninitiated minds of the reality of tea planting, for our olfactory nerves had now supplied the link which

hitherto had been wanting to connect the green shrub by our side with the black product, so familiar as occupying the leaden chamber of the domestic caddy. On this occasion (October, 1859) no tea was being actually cooked; the stoves were cold, and the horizontal pans for black tea and the oblique pans for green tea were inactive. The picking and cooking season was over, but, nevertheless, great activity prevailed, for sorting was going on. Heaps of tea, of various shades of colour and more or less perfectly rolled, were lying about on trays in various parts of the room. Three Chinamen, with a gravity becoming the responsible superintending of the various groups of natives busily engaged around, were sifting and sorting and inspecting the teas, carefully watching that no outsider, in the shape of a straggling Bohea leaf, should desecrate the box intended solely for that glorious product of their united labour, the aromatic, finely rolled, crisp, well-picked, first class, A 1, black tea, the Souchong. The manufacture of tea I had an opportunity of witnessing at a subsequent visit (April, 1860). It was the first picking of the season. If the process of sorting it presented an animated scene, the bustle attendant on its manufacture was yet more interesting and exciting.

The factory was a busy mass of moving life: around the stacks of green leaves, that the pickers from without were constantly increasing, were groups of lads engaged in withering the leaves; others were carrying in large baskets these leaves to the pans; some were fetching live charcoal for the drying fires; while others were heaping into the grates beneath the cooking pans logs

of wood to feed the flames, which caused the leaves to hiss and crackle, as the chop-sticks in the nimble hands of the Chinamen rattled their accompaniment on the sides. In one part the contortions of the tea rollers met your eye as they pressed the steaming leaves from which the warm green sap oozed, as if in torture. In another part the quiet bins, half filled, offered a temporary asylum to the finished tea. If seeking in the usually quiet garden around a rest from the confusion and noise within, scores of trays of half-made tea drying in the sun impeded your progress.

This turmoil seemed incompatible with the peaceful product whose grateful and refreshing qualities fortunately survive the rough usage that calls them forth, the process of which, as it may be interesting to some of my readers, I will briefly describe, noticing first the mode in which the black teas are manufactured. The newly-picked leaves are forthwith bruised and left in a heap for about twenty-four hours. That this process should cause discoloration of the leaves by rupture of the small sap vessels and cells, will not be a matter of surprise to any reflecting individual, who, having studied the intimate connection between the vegetable and animal kingdoms, may have observed the result of violent contact with a hard body upon his own economy. Portions of the mass of discoloured leaves are now gradually put into pans over a brisk fire, and are diligently mixed up to allow of an equal distribution of heat.

While still pliable, and when just beginning to shrivel in their novel position, they are extricated and

rolled between the expert palms of natives, set apart for the purpose, and a matting covering a table. It is now that the tea receives the curl or twist which through its various vicissitudes it never loses, until eventually macerated in the teapot. Having thus received the proper shape, it is laid in the sun on trays to dry and fix, after which, being again cooked in the pans, it is placed on sieves and thoroughly baked over a charcoal fire. Large boxes now receive it, where for several months it remains, until all the pickings and cookings are finished for the season. It is then recalled from obscurity, and the busy process of sorting, which we had the good fortune to witness, commences.

A winnowing machine and various sized sieves are used to separate the unsorted mass into the first leading divisions of small and large teas. Heaps of these kinds are placed on trays which are immediately surrounded by the workmen. Each well-rolled, compact, fragrant leaf is separately picked out, and gradually a goodly mass is accumulated, which, being added to many others, becomes a formidable whole. A semi-rolled, less firm, but still excellent tea forms the second quality; this rejoices in the name of Pouchong; and it is but little inferior to the celestial Souchong.* A third quality is collected from those dirty brown dingy-looking leaves, which have taken unkindly to the fire, and in which no artistic twist is discernible, either from natural incapacity in the leaf itself or inattention on the part of the maker.

To this last class belong the old stalks, the dust, and

* First quality.

the sweepings, and to it the name Bohea is given, as bearing no resemblance to the denominations bestowed on the more favoured kinds.

As yet the green tea in these unsophisticated regions does not receive the extraneous aids of gypsum and indigo, with which John Chinaman is supposed cunningly to adorn his damaged black teas, thus converting an unsaleable article, by an ingenious process, into the finest Gunpowder. For both green and black teas at Holta the leaves of the same plant are used, viz. the *Thea viridis*, and the young and tender crop of leaves, with the fresh and succulent topshoots are alone gathered. The leaves are best gathered when all dew or rain has evaporated. The green tea is prepared from the most tender, the youngest, and the lightest coloured leaves and buds. Some tea-makers allow them to remain on trays for a time previous to putting them into the cooking-pans, but others again carry them forthwith to the pans to secure the highest degree of bloom and aroma. They are not bruised previously to cooking, but in the pans the leaves are rolled and rubbed against the sides and between the palms of the hands, with considerable force. They are also rolled, while hot and moist, on the matting in the same manner as the black. But the cooking of the green tea is more quickly done, and the final heating of it in the baskets over the charcoal fires is so thorough that any rude pressure would cause the crisp and tightly rolled leaf to crumble into dust. It is then put into large boxes until the end of the season, when it is sifted

and winnowed, and sorted into Hyson and Hyson Skin, the first being the better of the two.

When the sorting of the teas is finished, appropriate leaden-lined boxes receive them, after a final heating over the fire has been given. The yet hot leaves are then either shaken into position, like the green, or firmly pressed down like the black, covered in, and nailed up.

It was with no small satisfaction that we viewed in the various airy rooms of the adjoining warehouse the piles of boxes reaching up to the ceiling, from the substantial plain chests that furnish to the commissariat the means of supplying to the British soldier his most innocuous stimulant, to the smaller and more artistically worked-up boxes, upon whose yellow papered sides, along with other devices, the well-known initials of the late Honourable John Company held a proud pre-eminence.

The comfortable sum of rupees that these chests represented particularly impressed us, and visions of a flourishing tea plantation, that should enable us to cut parade and eschew drill, floated through our minds. To the warehouse a workshop is attached, in which the various sieves and baskets, and the other wickerwork necessaries, are made. For these light purposes the bamboo is most serviceable. Here, also, the tea boxes are constructed. The coarse Indian paper receives its tawny yellow colour from the root of the barberry that grows wild in the district. After thanking Mr. R—g—rs, the Government overseer, for the trouble he had taken

with us, we accompanied Mr. M—k—n to his land, which lies at a little distance from the Government gardens. On the brow of a small slope his tent was pitched, and, all around, a scene of the greatest activity prevailed. Close to, a row of huts for the workpeople were being made, while, in different spots, gangs of men were hacking up the soil that, in native hands, had lain so long neglected and barren, but from which English capital and energy were about to reap a golden harvest. Considering the few months that Mr. M—k—n had been in the district, and the various difficulties incidental to the pioneer, as it were, of a new colony, which in these parts he certainly was, his progress was most creditable. His doings were regarded by the English local authorities with curiosity and interest; but the native community were not slow to betray their suspicion of a non-official individual, who wished to settle among them, with an apparently specious motive certainly, but which, with the innate roguery natural to a race of fanatical heathens, they believed must conceal some object injurious to their interests. It is, therefore, not astonishing that at first they were hostile to him. With but a limited knowledge of their language, his was an up-hill struggle; but by perseverance, patience, and kindness, their scruples were overcome, and he at last procured a lease of land. This was the small end of the wedge; and, on the inhabitants finding that money began to flow from the stranger, that numbers of unemployed labourers could easily get work and were fairly dealt with—being regularly paid, and not left to be ground down by native contractors—the popular

feeling changed; and, at the time of our visit, it was amusing to observe the respect shown to Mr. M—k—n, and the alacrity with which his wishes were complied with.

While we were in the tent, several natives crowded in, most bearing a present of game, or some such trifle, for which they received a certain amount in the coin of the realm. Others, with land for lease, were anxious for audience, and the mild and quiet manner in which Mr. M—k—n bore their importunity, was an example that many might find it difficult to follow. After an appropriate refreshment of tea—for in this out-of-the-way spot, at least twelve marches from that artery of civilization, the Grand Trunk Road, more stimulating supplies are not easily procurable at short notice—we wandered about the new plantation, and indulged in speculations regarding the future appearance of the valley when peopled by industrious settlers.

The next morning we set off for a ramble along the lower hills. Mr. M—k—n pointed out to us an elevated spot of land that he had been anxious to obtain as the site of a house. He entered into negotiations for its lease or purchase with the villagers to whom it belonged; and he was very sanguine of success, until a high-caste Brahmin, one of the community, protested against the transfer, on the plea that Mr. M—k—n's proposed house would overlook his own.

It is an article of their venerable faith, that no low-caste man shall occupy an eminence which may command a Brahmin's house. The terrible infringement

of this divine law by Mr. M—k—n was not to be allowed, (for what caste can be lower than an Englishman's?) and the domestic retirement of the Brahmin was not defiled. It seemed to us, however, that unless Mr. M—k—n's eyes had been of that peculiar construction to which millstones would form but an agreeable stimulus to exertion, he could scarcely have penetrated into the family secrets of his sacred fellow-subject. But, as the owners of the land had a right to do with it what they thought fit, nobody can blame them for not sacrificing their conscience to their interest; still it will be clear from the above instance what obstacles such individuals prove to the progress of civilization.

Some people gave the late Honourable Company the credit of cherishing the interests of the dark inhabitants of the soil and their ancient church, with the little innocent bigotries and time-honoured prejudices appertaining to it, somewhat at the expense of poor, good-natured John Bull and his peculiar and absurdly recent tenets. They also thought that the latter found it difficult to obtain the same freedom for his persuasion that was so gracefully conceded to the Hindoo mummeries. The rejoicings of these evil-tongued harpies over the at last prostrate body of old John Company fill me with horror, and I gladly revert to my subject.

Our path lay along a now disused watercourse, which had been built in old times by a rajah, as a work of great piety. It is formed of large stones built up against the hill-sides, where the solid rock has not been hewn out to form it; earth now covers the surface, so that it makes a pleasant grassy road, which winds

tortuously for about six miles, to reach a torrent that rushes down a mountain gorge.

In parts well preserved, in others the hand of time has caused gradual decay, while in some places the little rivulets, swollen by the rains, have caused sudden inroads, heaping the stones about in grotesque confusion. Now and then we came upon flocks of sheep, carefully tended by the hill-men, or "Gudees," as they are called; or we startled a family group of them as they were engaged about their dwellings. The Gudees are essentially shepherds, and from the wool of their sheep they manufacture a coarse, thick cloth, with which men, women, and children are clothed. The men wear a loosely-fitting, white garment, that opens at the throat, envelopes the arms and body nearly to the knee; at the waist, numerous coils of dark worsted cord confine it, from whence it hangs down like a Highland kilt. Their legs are usually bare, but in winter a tightly-fitting trouser of the same material is not uncommon. Around their necks is a string,* from which they suspend ornaments, or charms, of silver.

Short, but muscular, hardy, willing, and obedient, they are excellent servants, acting mostly as carriers of burdens. A peculiarly-shaped light basket, or kilter, which is carried on the back, is much used by them as a vehicle for the loads. They are useful to clear and hack up ground, and, when kindly dealt with, they become attached to their master, to whom they show great fidelity.

The Gudees are comparatively fair in colour, and the

* The string of caste.

women, many of whom are handsome, are clothed in a manner similar to the men, except that a long skirt takes the place of the kilt, and a shawl protects the head, whereas by the men a flannel cap is used. The women are fond of ornament, and the necklaces of red beads form a not unfavourable contrast with the hue of their tawny skins, which is not so dark as to prevent the glow of health from mantling in their cheeks. Though innocent and modest, they do not rush away on encountering an Englishman, nor hide their faces, but gaze unconcernedly with their bright dark eyes, and in the ease of their carriage, the picturesque character of their dress, and the natural grace of their muscular but femininely rounded arms, form a picture of rustic beauty, that those languid belles, whom the "city of palaces" produces, have reason to envy. The children, owing to the exact similarity in dress, laughably resemble their parents. The glee of their unrestrained gambols is refreshing to witness, being a pleasant contrast to the learned gravity of the little prigs that nowadays are not uncommonly met with in more civilized society.

The difficulties of the path prevented us from reaching the origin of the watercourse, so we contented ourselves with making for a neighbouring village, where a meal of walnuts and milk, if indigestible, was at any rate grateful and simple.

In a few days we returned to Kangra, and resumed our daily duty; but, visiting Holta at various periods, we have had great pleasure in watching the progress of the new plantation. Workmen's houses have sprung up; roads intersect the now cleared ground; bridges

cover the little streams ; warehouses are rapidly rising ; seeds are sown, and small transplanted shrubs are taking root. Near to the newly-rising buildings,* a little shed contains the busy blacksmith, hard by whom a brick-kiln, fed by the useless trees of the cleared ground, is baking steadily the bricks that in another place are being ground up, as an ingredient, with lime, hemp, and molasses, to make mortar, wherewith to cement together the stones that, heaped in piles, obstruct the way. Goodly stacks of slates abound, from many of which, under the active hands of the cutter, bits fly recklessly about, warning you to keep your distance.

† The warm sun shines steadily on the whole scene, squeezing tears of resin from the newly-cut fir planks, and browning at the same time the face and hands of the settler, who, protected by a heavy turban, braves its rays with impunity, and whose sturdy frame and hearty voice speak well of the healthy nature of the Kangra valley, proving the advantage, at the same time, that an enterprising, busy man, on the amount of whose daily toil his proportion of ultimate success depends, obtains over any one whose duties are insufficient to call forth all his various energies.

The tea-plant has been cultivated in India for upwards of twenty-five years. Brought, in the first instance, by Government from China, it has been since fostered with uncommon care. The late Dr. Royle was first instrumental in importing and cultivating it, and of late years

* I had the satisfaction of laying the first stone of the dwelling-house of the first British settler in the Punjab.

Dr. Jameson, the Superintendent of the Botanical Gardens of the North-West Provinces, has been indefatigable in his exertions to improve its culture and its subsequent manufacture, and to him the flourishing state of the various Government plantations in Gurhwal, Kumaon, Deyrah Dhoon, and the Kangra valley, are attributable. The researches of Mr. Fortune, who was sent to China by the Indian Government, are well known, and to any one desirous of engaging in, or of a thorough acquaintance with, tea planting in India, the possession of the various Reports* of Dr. Jameson and Mr. Fortune will be absolutely necessary. In the commencement, the cultivation of tea was not a subject of much interest to any but those engaged in the experiment, but at the present time, owing to the prominence given to the colonization of India, it is the theme of general conversation; for the desire to grow rich, or to participate in a lucrative speculation, is common to all; and as advantages seem greater in proportion to the difficulty or impossibility of possession, so tea-planting is peculiarly pleasing to those who are unable to follow it.

Although many people look merely to India itself, or to Central Asia, for a market, there is no doubt that the completion of the projected railways, the better state of many hill-roads, and the increased perfection of river navigation, will direct the tea produce of the Himalayah to the English market.

* Selections from the records of the Government (Home Department), No. 23. *Report upon the Present Condition and Future Prospects of Tea Cultivation in the North-West Provinces in the Punjab.* Published by authority. John Gray, Calcutta Gazette Office.

Already Mr. Wilson has taken off the Indian export duty on tea, among other important productions, and by the Himalayah tea in its infancy being admitted at a lower import duty into England than the Chinese article, some chance might be given of its eventually taking its place, for although to many people the Himalayan tea is at first not so grateful as the Chinese, it eventually so completely usurps the place of the former, that they would not drink Chinese tea if Himalayan were procurable. The present high prices that the Himalayan tea obtains in India is a sure proof of its popularity. As the Himalayan and Chinese plants are the same, any difference of flavour is merely that of manufacture, so that, when the variety most in demand is known, it will be easy to supply teas not only equal to the Chinese, but without their various adulterations. That India is able to produce sufficient tea to fully supply the English market is apparent from the estimate,* by Dr. Jameson, the Superintendent of the Government Botanical Gardens of the North-West Provinces, of the amount of the tea lands in the Himalayah, by which it will be seen that from these alone an amount can be

* Kumaon	350,000 acres =	35,000,000 lbs.
Eastern Gurhwal	180,000 "	18,000,000 "
Western Gurhwal... ..	180,000 "	18,000,000 "
Deyrah Dhoon	100,000 "	10,000,000 "
Jousar Barun	10,000 "	1,000,000 "
Kooloo	35,000 "	3,500,000 "
Kangra Valley	30,000 "	3,000,000 "

N.B.—The general return, when in full bearing, may be given as 100 pounds of tea per acre, and by this scale the above is calculated. —*Extracted from Dr. Jameson's work, "India," No. XXIII., before quoted.*

produced which would exceed the total exports from China! The former Government plantation at Assam is in the hands of a company; in Kumaon, Gurhwal, Deyrah Dhoon, and Kangra, the Government plantations are ripe to be handed over to private individuals. Already in Kumaon and Gurhwal numerous settlers are engaged, and in Deyrah Dhoon a large company is being established, and individual enterprise is also not wanting. In Kotgurh, too, there is a private plantation.

To the Commissioners of Kumaon and Gurhwal, Messrs. H. Ramsay and J. H. Batten, tea cultivation in those provinces owes its present perfection.

In Kangra valley alone, until lately, no independent settler was to be found; but thanks to the representations by Major Lake, Commissioner of the trans-Sutlej States, to the Punjaub Government, a special commissioner for the tea interests has been appointed to the Kangra district, and this beautiful valley now bids fair to be one of the most favourite resorts of the settler.

Applicants for lands are very numerous; not only private gentlemen, but officers of the civil and military services, are among them. It is as yet a question whether the Government will sell their tea plantations entire or in lots.* By some it is thought that to grant to a wealthy company large tracts of country suitable for tea cultivation, or entire existing plantations, would be the only sure way of extending the manufacture of tea. By

* Since writing the above it seems doubtful whether the Government will part with their existing plantations or not. To the settler Government plantations are a great boon, as from them he can obtain seeds and plants.

others this system is condemned as tending to the monopoly of the tea country, the profits on which would find their way into the pockets of wealthy absentee capitalists, while a small staff of officials to work the speculation would alone live in the tea districts ; whereas by placing a limit on the grants the prize might be shared by persons of moderate means, and a class of settlers thus be formed, who, living on the spot, would improve the condition of the natives of the soil, by spending among them a considerable portion of the competence realized by their labour, thus connecting by ties of interest a people hitherto kept in check by armed force.

These lots, again, ought not to be too limited or too rigorously bound down by conditions, for unless sufficient is granted to enable individuals to secure a good income, who would be found anxious to merely gain a subsistence in India, while the other colonies are open to them ?

It must be borne in mind, too, that property in India is not quite so safe as in other British possessions, and that, therefore, a larger profit will be expected to cover the risk ; moreover, each settler is of so much importance that Government will not suffer by adopting every possible means to facilitate his wishes or further his prospects, at the same time moulding, as far as possible, the self-interested views of individuals to the public welfare.

Major Lake, in his letter to the Punjaub Government,* attaches such importance to peopling the Hima-

* See *Delhi Gazette*, 21st January, 1860.

layahs with British settlers, that he advocates a higher rate of pension being awarded to such Government servants as remain in the country on the expiration of their term of service.

This step, though involving an apparent increase of expenditure, would, he considers, prove in the end a great gain, as thus these Indian pensions would benefit instead of helping to merely drain the country.

To those (and the class is numerous in England) who, possessing but a moderate sum of money, wish, nevertheless, to maintain the position in life to which they have been educated, to whom trade or the professions are obnoxious, who, having no military tastes or nautical tendencies, are still anxious to use that energy and enterprise which are said to belong to the British—to such, tea planting offers peculiar inducements.

An employment in itself agreeable, entailing no hard physical labour, but merely sufficient exercise for both body and mind as is essential to their healthy preservation, and eventually so lucrative as to amply repay the anxieties incidental on the earlier years; with a property safe against the many ills that other crops are liable to, and withal of such a nature, when in full bear, as to give ample time for recreation, or even to permit of a prolonged absence; and, lastly, when it is taken into consideration that the cultivation of tea can only be carried on in those districts eminently adapted for the European constitution, and that it does not entail a shortening or deterioration of life, as a

residence in the plains of India (notwithstanding occasional exceptions) undoubtedly occasions, in spite of the various means that opulence and ingenuity can devise—these facts are sufficient to prove that to many an occupation will be supplied by tea planting, the prospects of which, if equalled by some others, are at any rate scarcely to be excelled. For skilled workmen, and especially mechanics, there is a good prospect of success in India, but not a greater one than the colonies would afford. That the various planters find a want of good overseers, is a fact, and with the growth of the various lucrative enterprises that practical agriculturists have it in their power to pursue, this demand will increase, but not on such an extensive scale, as to materially affect the class by whom these situations would be filled.

Numbers eligible for the latter employments are already to be found in India in the ranks of the army, who, on completing their term of service, usually make for England.

Inured to war, and yet conversant with peaceful callings, these men, if receiving inducements to settle on waste lands, would greatly improve and strengthen the country, and might, by forming a species of “landwehr,” even tend to reduce the number of English regiments now required there.

Instances are not wanting in which such men have attained considerable success, the fruit of that steadiness and perseverance which in India are especially required.

But to the mass of unskilled labourers that yearly emigrate from England, to become the sinews of the colonies, India can offer no advantages. They could not compete with the teeming native population, for although a native workman cannot be compared with an English one, still the low rate of wages of the former allows an employer to make up by numbers the absence of the individual excellence and physical force so remarkable in the latter. And to any one to whom the bustle of town or the excitement of society, the discussion of politics or the participation in the various common interests of the day, are essential to happiness—to such a one, if of an age to prevent him from adapting himself to a new state of things, the life of an Indian settler might prove irksome, for as a rule there is a great deficiency of a general English public in India.

Divided into civil and military, each section governing itself, and therefore perfectly friendly with the other, both receiving more or less liberal allowances from a parental Government—each naturally considering that so long as its own special department remains intact, enough is guaranteed for the prosperity of India, while to the latter a so-called “Black Act” would create no uneasiness, as it could not any way affect it, so the former would rather patronize a scheme which, not interfering with its own superior importance, might benefit many native officials, whose zeal or plausibility had interested its generosity:—these two classes can have but little sympathy with settlers, upon whom alone the above scheme would bear; for while having no

voice in their own government, they would be constantly at the mercy of persons, if not adverse, certainly indifferent to their welfare.

The independent European public does not, however, wish to monopolize authority, to the exclusion of the many native gentlemen perfectly competent to look after the interests of their race and country; but they would rather that all classes have an opportunity of publicly stating their views and upholding their several interests, and that no injurious preponderance of any party should arise.

By granting to non-official individuals of standing, whether native or European, magisterial powers, and by forming in each province where individuals of both races, of sufficient intelligence, exist, committees of such, to examine into the various local interests, or to develop the commercial productions peculiar to the district, the civil authorities would not only receive great assistance, but the class of settlers become more influential.

The reports of these mixed committees being sent in to the principal civil authority of a province or district, his opinion could be appended, and the document would then be fit to be laid before the metropolitan or supreme authority, who would decide on the point at issue.

The amount of uncultivated land in India at the disposal of Government is very large, and in most instances adapted for one or other of the various products of the country. These lands may be divided into healthy and unhealthy, and although the latter quality

may not diminish their capacity for profitable enterprise, still to settlers the former can alone prove attractive. As regards companies this might be different, and it might not eventually be impracticable for a settler to live in a healthy position, while cultivating lands in an unhealthy situation. The amount of healthy land at the disposal of Government is large, but a larger proportion is in the hands of the natives of the country. The remarkable tenacity with which they cling to the habits and employment of their fathers, and the absence of any desire to rise beyond the sphere in which they were born, render them adverse to change or improvement; but by the cordial co-operation of the local civil authorities with an intending settler, and by working on their love of gain, which, with a taste for indolent indulgence, forms the leading feature of a native's character, they can certainly be induced to lease or sell as much land as may be required. No one, we conceive, can embark for India as a tea planter without at least 2,000*l.*, if intending to cultivate on his own account, although where partnership exists, each individual's share need not reach the above amount. It must be remembered that, in addition to buying, clearing, and planting the ground, for three years no profit can be expected, during which time, nevertheless, the cultivator will require to live, which, however, in the position of a settler in India need not cost more than from 10*l.* to 15*l.* per month. It is almost needless to state that upon the settler himself will depend whether success or the reverse attend his endeavours.

Fifty acres would be the very smallest amount of land that a settler could hope to live on, while to realize a fortune from one thousand to two thousand acres would be required. To clear and plant the latter amount at once, a very large sum would be needed; but this fact need not deter a settler from purchasing a good tract; for in the first instance laying out the balance of his money, after purchasing the ground, in the cultivation of a portion merely, he would be able, out of the profits, to gradually cultivate the whole. Government have hitherto generously supplied seeds and plants gratuitously to settlers, and in the event of a Government plantation being sold, it is probable that one of the conditions on the purchases will be the free distribution of a certain quantity of seeds and young plants yearly.

To illustrate the value of a tea-planter's property, we may mention that, on a rough calculation, the probable price that an acre of cultivated tea-plants of eight years old would fetch, may be estimated at from about 30*l.* to 40*l.* Adding to this sum the net profits from an acre from the third to the eighth year, which we roughly, and within the mark, reckon at about 90*l.*, and then deducting from 15*l.* to 25*l.* as the price of the buying, clearing, planting, and cultivating from the first to the third year inclusive, a surplus of from 95*l.* to 115*l.* per acre of clear gain would exist to the cultivator.

With a large number of acres, it will readily be seen that a large fortune would be the enviable result.

Each planter need not at first build warehouses or erect factories, which would thus sink his ready capital at a time when every penny would be required; but laying out all in the expenses of cultivation alone, his raw leaves would find a ready sale at the factory of some more advanced neighbour, until such time as he could manufacture for himself. In the beginning the interests of tea planters require the anxious protection of Government to enable them to take firm root, and then but a few years will suffice to render the tea planters not only independent of, but a support to, their former protector.*

In the Appendix will be found two Government Notifications regarding the mode of obtaining tea lands. It would be very difficult to strike a balance between the merits of the various eligible tea-planting districts in India; but in Thornton's *Gazetteer of India* so much information can be found regarding the districts of Assam, Gurhwal, Kumaon, Deyrah Dhoon, Kotgurh, &c., as to render any observations that I could make superfluous. It will be seen that near to the four last-mentioned districts most salubrious hill stations exist; and although, during the earlier labours of a tea planter, much time will not

* That the prospects of tea planters in the Himalayah receive consideration from the Indian Government is demonstrated by the fact that, in the recent viceregal progress through Bengal, the North-West Provinces, and the Punjaub, the tea districts of the Kangra Valley were carefully examined, at the expense of a considerable detour, by Lord Canning.

His predecessor, Lord Dalhousie, also took peculiar interest in tea cultivation in the Himalayah. He visited the Kangra districts, and by him the Government tea plantation at Holta was sanctioned.

remain to idle away in the various pleasing distractions of a hill station, yet it is as well to be able to resort quickly to the habitations of men, when an attack of spleen or *ennui* renders such a change desirable.

It may not be superfluous, however, to add a few observations regarding the Kangra districts. The hill station of the latter is Dhurmsala; it can be reached from most parts of the valley in a day or two.

A valuable report on the climate of Dhurmsala will be found in the Appendix, by Dr. T. Lawrence, civil surgeon of the station. It is the first that has been offered to the public, and it cannot fail to prove most interesting.

Beautiful, when viewed from the valley beneath, on reaching the height of the station a true idea can alone be obtained of its magnificent position. Here and there the white, airy, and picturesque houses can be seen jutting out on the various prominences, marking the distance in the rocky hills or in the undulating mass of foliage, sprinkled with blossoms of variegated hue, which surround them. Below, deep gorges, or more gradual ravines, meet the eye, whose shelving sides are covered with woods or terraced into cultivated patches, intersected by winding roads which reflect from their hardened surface the bright light, wherewith a warm Eastern sun, undimmed by clouds, animates the chequered scene of light and shade. The fruitful valley lies peacefully beneath, luxuriant with fresh green crops, while the numerous little hills, softened by the great distance, seem like the varied mounds left on the sea-shore by

the ebbing tide. On the one side, in the horizon, the Simla hills are visible ; while, on the other, the distant Ravee winds its silent course.

There is a pure, light, exhilarating air at all seasons of the year, which, at a time when the inhabitants of the plains, immured in darkened rooms, are gasping in the choking heat, permits to the happy fugitive in the Himalayah healthful exercise and refreshing sleep. The rosy cheeks of the children and the robust appearance of the elder people, who cram every available house; the wasted forms of the invalids gradually filling out, and their hollow eyes sparkling with renewing vigour ; the English soldiers, who carried to the station in litters from the hospitals of the plains, but now, active, merry, and hearty, as a British soldier delights to be ;—all this speaks well of the climate in the summer ; and in winter, when a fall of snow has rendered all rugged inequalities one soft, swelling mass of white—what can be more healthy or delightful ? A long ramble in the snow, that crackles crisply as you walk along, with the sharp clear air blowing in your face and rustling in the sombre oaks, helping the black-faced monkeys to shower down on you innumerable flakes, causes you to welcome the log fire, whose genial glow streams out on your returning form, encroaching with a ruddy warmth on the darkness which surrounds your house. And when, with curtains drawn and cheerful light, your slippered feet rest snugly on the fender, and you are lazily enjoying the pleasant warmth after your Indian Christmas dinner, you cannot help owning—debarred though you may be from the

family group or Christmas feast that “merrie England” would afford, and “exile” though you term yourself—that, notwithstanding all, your lot is one that not a few would envy.

I cannot end without quoting a few paragraphs from the *Settlement Report of the Kangra Valley*,* by Mr. G. Carnac Barne, of the Bengal Civil Service, as by so doing the reader, in a few eloquent words, will obtain not only a description worthy of the subject, but he may be induced to procure a book that, interesting to all, to colonists in the Kangra Valley is invaluable. In the Appendix is annexed a valuable table of the products of this valley from Mr. Barnes’ Report.

“The district of Kot Kangra, with nominal exceptions, comprises all the hill territory belonging to the British Government, situated between the Ravee and Sutlej. It extends from Shahpore, near the Ravee, on the west, in lat. $32^{\circ} 30'$, long. $75^{\circ} 45'$, to the borders of Chinese Tartary, in lat. 32° , long. $78^{\circ} 10'$. The northern extremity touches upon Ladakh, and the southern limits of the district rest upon the plains of the Barea and Jullundur Doabs. The area contained within these general confines can only be conjectured, since a great portion has not been, and may never be, surveyed. The entire space may be roughly estimated at 8,000 square miles. Three of the Punjab rivers,

* *Report on the Settlement in the District of Kangra in the Trans-Sutlej States*, by George Carnac Barnes, Bengal Civil Service (Printed by Authority). Lahore, 1855. Printed at the *Chronicle Press* by Mahomed Azum.

the Beas, the Ravee, and the Chenab, take their rise within this tract. Various races of men belonging to distinct types of the human family, and speaking different languages, are distributed over its surface. Here are hills, just raised above the level of the plain and mountain crests, higher than any peak of the Andes. Every zone of climate and variety of vegetation are here to be met with, from the scorching heat and exuberant growth of the tropics to barren heights capped with perpetual snow. This vast extent of country is too comprehensive to fall under any general description. It breaks naturally into two divisions, which, for the sake of clearness, I propose to follow.

“The first, which I shall designate Kangra Proper, comprises all the lower hills, and covers a surface equal to 2,700 square miles. The second division consists of a wild and mountainous region, including the provinces of Kooloo, Lahoul, and Spiti, and occupying an area not less than 5,000 square miles.
I know no spot in the Himalayah which, for beauty or grandeur, can compare with the Kangra Valley and these overshadowing hills. No scenery, in my opinion, presents such sublime and delightful contrasts. Below lies the plain, a picture of rural loveliness and repose. The surface is covered with the richest cultivation, irrigated by streams which descend from perennial snows, and interspersed with homesteads buried in the midst of groves and fruit trees. Turning from this scene of peaceful beauty, the stern and majestic hills confront us. Their sides are furrowed with precipitous

water-courses; forests of oaks clothe their flanks, and, higher up, give place to gloomy and funereal pines. Above all, are wastes of snow, or pyramidal masses of granite, too perpendicular for the snow to rest on." . . .

I believe it is the intention of Dr. Jameson, the superintendent of the Government Botanical Gardens of the North-West Provinces, shortly to publish a *Guide to Tea-planters in India*. The importance of this guide is self-evident, as it will supply a want that lately has been greatly felt, and in so complete a manner as to thoroughly exhaust the subject.

A P P E N D I C E S.

APPENDIX A.

Annual Sanitary Report on the Station of Dhurmsalla and Convalescent Depôt, with remarks on the Climate, &c., by Dr. J. J. T. Lawrence, Civil Surgeon of Dhurmsalla, for the year ending March 31st, 1860.

1. DHURMSALLA or Bhagsoo is situated on the southernmost of the main Himalayan chains, which rises to an altitude of more than 16,000 feet immediately above it. The spring of the mountains from the plain is very sudden and abrupt. Kangra, about twelve miles distant from the bottom of the station, is less than 2,500 feet above the sea, and the native lines at Dhurmsalla not more than 3,700 feet, so that there is a sheer rise of more than 12,000 feet from them to the highest peaks. There are no low ranges between Dhurmsalla and the plains until the hills round Kangra are reached, and the southern face of the chain is free and open. The station is built on two subsidiary spurs, which descend from the main range at right angles, and it occupies their crests and slopes, and so has somewhat of a horseshoe shape. The principal chain has a slight north-westerly direction, and its spurs run north and south, and slope east and west. On the eastern of the two are a majority of the houses of the station, at elevations varying from 3,700 feet to 6,100 feet above the sea; and on the western are the Convalescent Depôt buildings and a few houses.

The supply of water is derived from springs and streams fed by the drainage from the high range, and the melting snow on it. It is amply sufficient for domestic use, but not for gardens and irrigation, except at the bottom of the station. The best springs are of excellent quality; and although the water close to the barracks is not so good, they could easily be supplied from

the best source. The soil consists of grey and red clays, in some places covered by and mixed with black vegetable mould, and in others with disintegrated sandstone and granite. It lies over blue and grey sandstone rocks, which come to the surface here and there, and it contains a porphyritic granite, the former being of a slaty character, and the latter mostly waterworn. From its softness and the ease with which it is worked, the sandstone is used almost exclusively for building purposes, but its very porous texture renders "stucco" necessary to prevent the rain from penetrating. There are slate mines and limestone quarries for burning, of excellent quality, near the station.

The upper part of Dhurmsalla is well timbered, principally with the evergreen white oak (*Quercus incane*), the tree rhododendron (*R. arboreum*), and the long-leaved fir (*P. longifolia*). Varieties of many common English forest and garden trees grow in the neighbourhood, although not within the present limits of the station. Among them may be mentioned the horse-chestnut, walnut, elm, holly, plane, maple, yew, and hazel. The barberry, the wild peach and cherry, and the crab apple are also very common. The supposed anti-periodic properties of the barberry are well known. The peach gives an edible fruit of inferior quality, and the cherry is used to flavour brandy. The crab apple undergoes a sweet decomposition, like the medlar, and becomes edible. The deodar cedar is rarely found on the outer southern slopes of the Himalayas, and scarcely exists near Dhurmsalla. Besides the trees I have enumerated there are forests of evergreen red oak (*Quercus semi-carpifolia*) and silver fir (*P. Webbiana*) close to the station.

Timber for building purposes is obtained from the white and red oaks and the long-leaved fir. The first and last are abundant, and their wood is of good serviceable quality, when cut at the proper time and seasoned. For cabinet work—the red oak, the "kukker," the "toon," the "sissoo," and the maple are procurable in the neighbourhood, and their wood is of fine quality and appearance. At the lower part of the station, where water is available, English vegetables can be cultivated with great success. I have succeeded in growing the more delicate varieties in perfection. During the rainy season, the hills (in summer and winter brown and barren) become covered with a luxuriant undergrowth of ferns, grasses, arums, orchises, and flowers; and every tree stem is clothed with a delicate and beautiful garment of mosses, lichens, ferns, begonias, and other

epiphytes. I have, I believe, recognized the following species of alpine and garden flowers in and near the station:—

Achillea.	Chrysanthemum.	Gloriosa.	Ranunculus.
Aconitum.	Clematis.	Helleborus.	Rheum.
Anagallis.	Cypripedium.	Indigofera.	Rhododendron.
Androsace.	Daphne.	Iris.	Ribes.
Anemone.	Delphinium.	Lychnis.	Rosa.
Anthemis.	Engiron.	Narcissus.	Saxifraga.
Aquiligia.	Fragrasia.	Orchis.	Semperivium.
Arnica.	Gentian.	Oxycopus.	Valeriana.
Aster.	Geranium.	Pedicularis.	Veronica.
Astragalus.	Geum.	Potentilla.	Viola.
Campanula.	Gladiolus.	Primula.	

The poisonous Aconite (*A. ferox*), and the Antiperiodic (*A. Heterophyllum*) the "Attees" are both common. There are several varieties of the species enumerated, and very numerous flowers I am unacquainted with, besides. Orchideous plants are not uncommon at the bottom of the station, and I have recognized bunches of *œxides*, *saccolazium*, *dendrolium*, &c.

The vegetation of tropical and temperate regions is strangely combined in the Kangra Valley; and as an instance of this, I have seen near Dhurmsalla, five mangoe-trees, covered with most luxuriant ivy, and topped with orchideous plants, and growing by their side clusters of bamboos and of firs. The hill-sides in the station are terraced for cultivation, wherever the slope admits of it. Two white crops are nearly always taken from the same fields; one of barley in the spring, and one of maize in the autumn. Potatoes are planted in March, and gathered in November. They are cheap and of decent quality, but small and rapidly deteriorating. There is no rice cultivated above a height of 3,500 feet.

Mr. H. D. Macleod, of the Civil Service, has planted a considerable extent of land (5,800 feet above the level of the sea) with tea. The plantation is not, in my opinion, a success.*

The configuration of the surface, and the porous texture of the soil render the drainage excellent, and with a very little care the ground can be kept dry even in the wettest weather.

The year may be divided into five seasons, viz. :

WINTER.	{ December.	|	SPRING.	{ February.
	{ January.			{ March.
SUMMER.	{ May.			{ April.
	{ June.			{ July.
AUTUMN.	{ October.		MONSOON.	{ August.
	{ November.			{ September.

* It is too high above the sea, being nearly at the highest point that the tea-plant can thrive at all.—A. T. M. G.

In December and January the thermometer falls a few degrees below the freezing point, $25^{\circ} 5' \text{ F.}$, being the lowest temperature I have recorded four feet above the ground, and 15° F. the lowest on the grass. The air is cold and bracing, and though the amount of solar radiation is high, no inconvenience is felt from exposure to the sun. Rain and snow fell during these months, the latter to a depth that varies directly with the height above the sea. Towards the end of January, 1858, snow fell to a depth of two and a half feet at 6,000 feet, and the ground was whitened down to 3,000 feet; flakes having been seen at Kangra and Noorpore respectively 2,500 and 2,000 feet. This, however, was an unusually severe fall. In the winter of 1859-60, fifteen inches fell very early in December, and the same quantity fell in January, 1860. Snow accumulates on the high ranges during the winter, and is perpetual in its ravines, so that the station and the neighbourhood have an unfailing supply for cooling purposes throughout the year. When this is at its lowest a man can bring down a load of twenty to twenty-five seers by evening, if he starts at daybreak, and what falls as hail and snow becomes compressed into nearly solid ice. Loads are taken by dâk runners as far as Jullundur or Amritsur. The spring months are pleasant and healthy; the temperature is reduced by snow storms on the high ranges, which give rise to gales from the north-east, and are followed by cool or even cold weather. The effects of these storms are felt at Hosheypore, sixty miles off, and occasionally even at Lahore, 140 miles off. The south-west wind of the plains blows regularly in the day, during these months, but is cool and pleasant, although dry, and in the night a fresh breeze descends from the mountains. June is the only month that can ever be called hot, and in it the thermometer rises above 90° F. in the shade, but never exceeds a maximum of 80° to 85° F. in the house with all doors and windows open. The heat, however, is very rarely oppressive; towards the end of June the monsoon sets in, and it rains very frequently until about the middle of September. The total fall is heavy, and averages from 130 to 150 inches in the year, a large part of which occurs in July and August. During these months the temperature is very equable, and is agreeable, although somewhat close; but the rain is often incessant, and the station frequently enveloped in dense rain clouds. About the middle of September the weather becomes much clearer, and showers only fall towards the end of the month. The autumn months

are decidedly the finest, healthiest, and most pleasant in the year. In October and November rain very rarely falls, and the climate is as nearly perfect as any can be.

The close proximity to Dhurmsalla of the main outer Himalayan range affects its climate in all seasons. The vast quantity of snow which accumulates on it makes the winter severe, and acts as a reservoir of cold; while during the summer the immense mass of bare and dark-coloured rock increases the heat by radiation and reflection. During the rains the chain attracts and arrests clouds, and precipitates their contents over its southern slopes. It forms a complete barrier, beyond which rain-clouds of high specific gravity are unable to penetrate; and a few miles on the northern side of its crest no monsoon rain falls, beyond slight showers. The clouds invariably move parallel to the highest ridges. It frequently happens, to illustrate how powerfully the mountains attract clouds, that rain falls in inches at the upper part of the station, and not a drop at the lower. The rain-fall at Kangra (twelve miles off) is, I believe, less than half that at Dhurmsalla.

Annexed is a table (No. 1) showing the results of my meteorological observations during eighteen months, with remarks on the points of interest they contain.

On the whole, in my judgment, the climate is decidedly salubrious and suited to the European constitution. No climate is perfect, and the drawback to that of Dhurmsalla is the rainy season. In all of the Bengal sanatoria, however, with the exception of Murree, there is a very heavy rain-fall. The great change which accompanies the setting-in of the monsoon from extreme dryness to extreme humidity of the air, cannot fail to be unhealthy. The same causes which operate to render other hill stations in the north-west of Bengal unhealthy during the rains are at work to a less extent at Dhurmsalla, and produce like results. The moisture of the air, amounting at times to almost complete saturation, the difficulty of taking sufficient exercise, and the still, heavy state of the atmosphere, are felt by, and affect the whole system. The spirits are depressed, perspiration is checked, and the abdominal viscera are loaded and congested. I have seen numerous cases of hill diarrhœa, but they have all been of a mild and comparatively tractable type, although accompanied by the total suppression of the biliary secretion, characteristic of the disease.

The climate is, in my judgment, well suited to cases of fever

and debility resulting from it, of dysentery and diarrhoea dependent on malaria, and where the liver is scarcely affected, and generally to all cases of debility and cachexia, however caused, if the abdominal viscera are in a tolerably healthy condition. It is quite unsuited to rheumatic and arthritic affections generally, and to cases in which organic disease of the abdominal viscera has become established. In the latter, a temporary residence may not be, under certain circumstances, prejudicial. It is hardly necessary to observe, that to obtain the greatest benefit from a sanatorium, wherever situated, care and judgment must be exercised in the selection of cases to send to it.

In confidently affirming that healthy Europeans will thrive as well in the climate of Dhurmsalla as in that of England, I am convinced I am justified; and if proper care, self-denial, and persistence in taking exercise could be ensured, the rains would be innocuous. For children of European parentage, the climate may be recommended with the utmost confidence.

2. The convalescent depôt buildings occupy the point of the western spur described in sect. 1, and are about 5,750 feet above the sea. The site is clear, dry and open, the drainage excellent, and the position in all respects one of the most desirable in the station. The buildings consist of two barracks with the requisite cooking and other outhouses, a hospital with its various outhouses, an apothecary's house, a commissariat serjeant's house and godown,* and two houses for the commanding and medical officers.

The cook rooms, &c. &c. are of course detached from the main buildings, and from one another. The barracks and other buildings are of cut sandstone and lime, with slated and planked roofs and stone floors. As mentioned in sect. 1, the stone is porous to a degree, and as the external walls of the buildings are not lime plastered, the rain beats through them where exposed, and renders them damp in some parts. The barracks and the hospital face to the north and south. Each barrack consists of one long room, partly divided into three by curtain walls, and has accommodation for sixteen or eighteen men, and at the ends of each, there are two rooms for married couples, and for store-rooms. The whole accommodation they afford is therefore for thirty-six or forty men, and four women. The ventilation is good, by roof air-vents, chimneys, and doors and windows. There are fireplaces at both ends of the barrack-rooms, and in each of the married quarters. The buildings are

* Warehouse, store-room.

substantial, but dark, gloomy, and ill-planned. The hospital (which was opened for the reception of patients on September 1, 1859), consists of a dispensary and godown, and of two larger and two smaller wards, with accommodation for ten or twelve beds. It is well ventilated, but dark, and in my opinion, very badly planned.

3. The number of the men at the depôt has heretofore been so small, that rations have been generally sent up for them from Kangra, fourteen miles off. The meat has generally been of very inferior quality, because the contractor has used sheep from the plains, which will not thrive on the hills, instead of using those natural to the district. Vegetables are, with the exception of potatoes, procurable with great difficulty. There is a so-called soldier's garden recently laid out. The ration of liquor consists generally of rum; the water nearest the barracks is not, in my opinion, of good quality, but excellent springs exist at no great distance.

4. The men have no duty to do and no employment. There are a few books in the barracks, and there is a skittle-ground. Any amusement the men take interest in should of course be encouraged, such as gardening, collecting insects, &c.

5. The number of men has been so small, and the hospital open so short a time, that I have no remarks to offer under this heading.

6. The average strength of the depôt has been twelve. There have not been any deaths or any serious cases of illness.

7. It is impossible to generalize or form conclusions on the results obtainable from such small numbers as have hitherto been at this depôt; any opinions I have to offer under this heading are therefore based on my experience generally as civil surgeon of Dhurmsalla.

(A.) Though rice cultivation covers the Kangra Valley, it is not found higher than 3,500 feet above the sea in this neighbourhood. The station is, I believe, quite free from malarious fevers, although, at the lowest part, a few cases occur among the native troops.

(B.) Small-pox is always endemic in the valley, and sometimes rages epidemically. I have seen a few cases among natives, and there is no reason to suppose a hill station would not suffer as much as any other. There have been no cases of any other exanthematous fever since I have been in medical charge of the station.

(C.) Severe catarrhs and mild bronchial attacks are rather common at the setting in of the rains and of the cold weather, par-

ticularly. I have had a few cases of severe bronchitis, pleurisy, and pneumonia among natives, but none among Europeans.

(D.) Cholera was epidemic throughout the Kangra Valley in 1856 and 1857. In the autumn of the former year the disease was severe at Dhurmsalla and at several other hill stations. In 1857 there were but a few cases. That elevation above the sea confers no exemption from cholera is indisputable.

(E.) Diarrhœa of the form peculiar to the hills is not uncommon during the rains. I have treated several cases among Europeans, and in some have had considerable difficulty in checking the disease, although none have assumed the intractable and severe form stated to be common in the Simla hills. In my opinion the treatment of this complaint should be mainly dietetic. Hot baths, with persevering friction of the skin, especially over the liver, and mustard poultices or blisters to the right hypochondrium, are to be recommended. A purely farinaceous diet, in small quantities, should be insisted on at once, and meat, vegetables, and fermented liquor absolutely prohibited. Astringents, antacids, and opiates may be tried, but will very often be found to produce either no effect at all, or only a very temporary one. The treatment, in fact, should be directed to re-establishing the hepatic secretion.

The best prophylactic is to take regular exercise, notwithstanding the rain, and to be moderate in food and drink. I have not known a case of dysentery among the European population.

(F.) The climate is well suited to dyspeptic patients.

(G.) Although I have never had a case of rheumatism originate at the station, except among natives, I have known patients subject to it, to have their sufferings severely aggravated by coming to Dhurmsalla, and without doubt the climate is totally unfit to rheumatic patients.

(H.) For all cases of cachexia, whether syphilitic, scrofulous, scorbutic, or malarious, the climate is very well adapted.

(I.) Materials on which to found a comparison between the climate and salubrity of Dhurmsalla and of other stations on the outer Himalayan range are not available; but as far as three years' residence at this station and limited accounts of the other Bengal Sanataria enable me to judge, I consider it at least equal to any of them, and superior to several, and especially to the Simla group.

J. J. T. LAWRENCE, *Civil Assistant-Surgeon.*

Dhurmsalla, April 1, 1860.

TABLE 1.—Results of Meteorological Observations at Dhurmsalla from August 1, 1858, to January 31, 1860, i. e. for Eighteen Months.

YEARS AND MONTHS.	Mean height of barometer corrected for temperature of capillarity.	Adopted mean temperature of the air.	Mean temperature of the dew-point.	Degree of humidity of air; saturation with moisture = 100.	Monthly range of temperature.	Mean daily range of temperature.	Maximum temperature in the shade.	Minimum temperature in the shade.	Amount of rain in inches.	Number of wet days.	Mean amount of ozone. Scale, 0 to 10.	Mean temperature of the map-thermometer black ball in sun's rays.
1858.												
August	Inches. 24.105	Degrees. 68.6	Degrees. 64.9	Degrees. 91.0	Degrees. 19.1	Degrees. 11.6	Degrees. 81.0	Degrees. 61.9	Inches. 79.375	31	5.7	Degrees. 132.3
September	24.231	67.4	60.3	79.0	23.5	14.1	80.3	56.8	13.615	15	4.6	126.9
October	24.342	62.9	46.8	55.0	26.9	17.9	76.2	49.3	.810	2	1.2	116.2
November	24.425	55.0	33.2	42.0	28.6	18.4	69.2	40.6	.060	1	Trans.	169.7
December	24.346	46.5	35.8	68.0	30.0	17.9	62.5	32.5	4.845	9	do.	
1859.												
January	24.362	49.4	34.3	55.0	34.6	13.6	69.1	34.5	7.045	9	do.	109.2
February	24.336	47.3	34.9	63.0	31.8	15.1	64.8	33.0	8.665	13	{ Not ob- served.	
March	24.300	54.1	36.9	50.0	39.5	19.1	73.5	34.0	5.765	11	do.	132.4
April	24.322	63.8	48.6	55.0	38.3	18.2	81.8	43.5	5.790	12	do.	140.7
May	23.894	69.6	46.4	58.3	38.6	20.0	87.6	49.0	3.540	11	do.	Instrument broken.
June	23.784	70.0	65.7	79.5	29.8	13.3	90.0	60.2	19.345	23	6.3	
July	23.792	69.5	61.3	73.2	25.2	13.9	79.7	54.5	27.225	25	5.9	
August	23.906	66.7	64.8	87.0	17.0	9.4	76.0	59.0	39.555	31	6.6	
September	23.899	65.5	57.5	74.1	24.9	12.6	75.9	51.0	16.475	21	6.8	
October	23.985	64.2	54.7	46.2	28.5	17.5	79.0	50.5	0.315	3	5.7	
November	24.030	57.6	34.3	40.6	23.5	19.0	69.5	46.0	...	0	{ Not ob- served.	
December	24.006	46.7	30.4	54.3	31.5	14.5	61.8	30.3	4.190	3	5.1	
1860.												
January	23.967	43.8	30.8	59.9	31.8	15.5	60.3	28.5	5.925	10	7.1	
Means	24.112	59.3	46.7	62.8	29.0	15.6	74.3	45.2	Total. 242.540	Total. 230	4.0	123.9

J. J. T. LAWRENCE, Civil Assistant-Surgeon, in medical charge of Dhurmsalla, &c.

TABLE 2.—*The observations for 1859, taken by themselves, give the following results:—*

METEOROLOGY OF DHURMSALLA FOR 1859.

Mean pressure, corrected	...	...	...	24.052 inches.
Mean temperature of the air	...	...	...	60.2 degrees.
Mean temperature of the wet bulb	...	...	...	47.4 „
Mean daily range of temperature	...	...	...	15.4
Highest temperature in the year, on June 2nd	...	...	...	90. „
Lowest temperature in the year, on December 3rd	...	...	...	30.3 „
Range of temperature in the year...	...	...	...	59.7 „
Mean degree of humidity of air (saturation = 100)	...	...	...	61.3 „
Amount of rain in the year	...	...	...	137.91 inches.
Number of days rain fell...	...	...	...	162. „

REMARKS.—In 1859, snow fell in the station in January, February, March and December. The heaviest fall (December 3) averaging $14\frac{1}{2}$ inches. February was $2^{\circ} 1'$ colder than January. The spring and summer months were very unsettled, and thunder storms and hurricanes were of frequent occurrence. I consider the maximum temperature of the year (90° F.) somewhat below the average. On April 11, the black bulk thermometer in the sun's rays rose to $157^{\circ} 2'$. The power of solar radiation is known to increase with a rise above the sea level; and in August, on the Peak of Teneriffe, at an elevation of nearly 10,000 feet, Professor P. Smyth recorded an observation of the radiation thermometer at 212° , the temperature in the shade being 60° . A temperature of 157° in April would have given one of at least 180° in June, I believe, had not my instrument been broken in a storm. The rain-fall in 1859 was spread more equally over the whole year than is usual. In August, 1858, 79.375 inches of rain fell; in August, 1859, 39.555 inches, or about half. Of the eighteen months' observations in Table 1, the first nine months were taken at an elevation of 5,800 feet, and the second time of 6,100 feet, in a different part of the station. Their results may therefore be taken to represent the meteorology of the station generally with more accuracy than if they had been taken at one place.

(Signed)

J. J. T. LAWRENCE,

Civil Assistant-Surgeon of Dhurmsalla,

Dhurmsalla, April 1, 1860.

&c. &c. &c.

APPENDIX B.

Remarks on the Kangra Valley, in a Sanitary point of view.

AN average of about sixty-four men of the 52nd Light Infantry have been quartered at the Kangra Fort during the past two years and two-thirds. No diseases have occurred that can be considered peculiar to the Kangra Valley. The sick have ranged from about four to five per cent., and during the whole of the above period but two deaths have taken place; and but one death was caused by disease, the other being an accidental drowning while bathing.

The class of diseases that the men have suffered from has been trivial in character, and if a serious complaint did happen, it was mostly a remnant of disease contracted by the soldier during the hardships of the siege of Delhi, or from service in the plains.

In the above average of sick, several invalids who were sent up from head-quarters to Kangra and Dhurmsalla are included. Among the native population, which is very large, a considerable amount of malarious disease exists. Ophthalmia, also, is common. There are other diseases, also, to which filth and squalor give rise.

Rice is extensively cultivated, and forms to many their staple article of food. While the mode of cultivating rice may be considered as an exciting cause of the worst of their diseases (*Febris Intermittens*, &c.), the consumption of the same (to the exclusion of other food), from its less nourishing properties, predisposes to diseases of debility (of which goitre, which is very prevalent, may be taken as an example), and renders them less able to withstand the noxious influences of malaria, or the more sudden inroads of acute disease, than the well-fed and full-blooded Englishman. Natives, I think, usually recover more quickly from slight injuries than Englishmen, but where a long drain on the constitution (as in a severe compound fracture) is established, the Englishman, in my opinion, has the better of the native. The havoc that cholera makes among natives and the comparative immunity of Europeans is well known.

The scanty nature of the clothing of the poorer classes of natives during the winter months is a predisposing cause of

disease. Dog bites are not uncommon, from the numerous dogs that wander about, and assist the paid human scavengers in their duties. Hydrophobia, however, is not common; snake bites occur, but they are not common. A case happened, while I was at Kangra, which proved fatal. A snake charmer was bitten by a cobra with which he was playing, and died within two hours afterwards.*

Government keeps up a charitable dispensary for both out and in-patients at Kangra, and a regular system of out-door vaccination is carried on in the cold season of the year. The Rev. Mr. Merk, also, of the Kangra mission, distributes quinine largely to the natives, by whom it is much prized.

From the rice while in the husk, the natives prepare a fiery spirit of a pale straw colour, not unlike whisky. It is very cheap, and they are very fond of it.

A. J. MCGOWAN, *Assistant-Surgeon 52nd Light Infantry, late in Medical Charge of Kangra Fort and Government Charitable Dispensary.*

Sealkote, June 9, 1860.

APPENDIX C.

The Agricultural Produce of the Kangra District † may be classified according to the following arrangement, viz. :—

RUBEE CROP (SPRING).

VERNACULAR.	ENGLISH.	BOTANICAL.	REMARKS.
1. Kunuk	Wheat	<i>Triticum vulgare</i>	} Cereals.
2. Yoa	Barley	<i>Hordeum hexastichon</i>	
3. Chola	Gram	<i>Cicer arietinum</i>	} Pulses.
4. Mohr, or Musoor	Lentil	<i>Ervum lens</i>	
5. Mutur, Kulah ...	Pea	<i>Pisum arvense</i>	
6. Sein	Bean	<i>Faba vulgaris</i>	} Oil Seeds.
7. Suroon, or Sur- soon	} Rape seed	<i>Sinapis dictrotama</i>	
8. Ulsee		Flax ... ..		Linum usitatissimum ... ..
9. Koosombha	Safflower	<i>Carthamus tinctorius</i>	A dye.
10. Ora, Oree	Mustard	<i>Sinapis amboinicum</i>	

* The natives attributed the accident and the consequent death of the snake charmer to his having omitted on the day of his decease to wear the charm or amulet which, up to that date, he had always worn around the neck.

† Extracted from the Settlement Report of the Kangra Valley, by G. C. Barnes, Esq., B.C.S.

KHUREEF CROP (AUTUMN).

VERNACULAR.	ENGLISH.	BOTANICAL.	REMARKS.
1. Dhan	Rice	<i>Oryza sativa</i>	} Cereals.
2. Chulee, Kokree.	Maize... ..	<i>Zea mais</i>	
3. Mundul ...	} Millets ...	<i>Eleusine coracana</i> ...	
4. Soak		<i>Panicum frumentaceum</i> ...	
5. Kungnee ...		<i>Panicum Italicum</i> ...	
6. Kodra ...		<i>Paspalum scrobicalatum</i>	
7. Seyool, Batoo ...		Amaranth... ..		Amaranthus anardana
8. Bares, Katoo ...	Buckwheat .	<i>Fagopygium vulgare</i> ...	
9. Yoar	„	<i>Sorghum vulgare</i> ...	} These two Cereals are grown only towards the plains.
10. Bajra... ..	„	<i>Penicillaria spicatus</i> }	
11. Mah	„	<i>Phaseolus radiatus</i> ...	} Leguminous plants, the seeds of which are split for food, (Dall.)
12. Moongee	„	<i>Phaseolus aureus</i> ...	
13. Moth	„	<i>Phaseolus aconitifolius</i> ...	
14. Urhur, Koondée, } or Dheengra . }	„	<i>Cajanus bicolor</i>	
15. Rong	„	<i>Dolichos sinensis</i>	
16. Kooith	„	<i>Dolichos uniflorus</i> ...	} Ditto.
17. Kupah	Cotton	<i>Gossypium herbaceum</i>	
18. Khumandee ...	Sugar-cane .	<i>Saccharum officinarum</i>	Ditto.
19. Yill	„	<i>Sesamum orientale</i> ...	Oil seed.
20. Sunn	„	<i>Crotolaria juncea</i>	} Fibre used for cordage.
21. Sunn Kokra ...	„	<i>Hibiscus cannabina</i> ...	
22. Huldee	Turmeric ...	<i>Curcuma longa</i>	} These are three varieties of edible arums.
23. Kuchoor	„	<i>Curcuma sp.</i>	
24. Adra	Ginger	<i>Zinziber officinale</i> ...	
25. Shukurkundee... ..	„	<i>Batatas edulis</i>	
26. Kuchaloo, Gun- dialee, and Arbee }	„	<i>Colocasia himalensis</i>	

MISCELLANEOUS AND GARDEN PLANTS.

VERNACULAR.	ENGLISH.	BOTANICAL.	REMARKS.
1. Poshl, or Af- eem	} Poppy ...	<i>Papaver somniferum</i> ...	} Cultivated in a few plants, here and there, for home consumption
2. Tomakoo		Tobacco ...		Nicotiana tobacum ...
3. Duneea, or Been	Coriander ...	<i>Coriandrum sativum</i> }	} Seeds used for alteratives, seasoning, &c. &c.
4. Sounf... ..	Anise... ..	<i>Pimpinella anisum</i> }	
5. Kasnee	„	<i>Chicoreum sp.</i>	} Used as a pot-herb.
6. Sorva... ..	Fennel	<i>Fœniculum panmoicum</i> }	
7. Piplee	Peepsicum... ..	<i>Capsicum frutescens</i> ...	
8. Podeena	Mint	<i>Mentha viridis</i>	} Cucurbitaceous plants.
9. Elaichee	Cardamum .	<i>Alpinia cardamomum</i>	
10. Yoanee	„	<i>Ligusticum ajouan</i> ...	
11. Mithra	Fanu Greek }	<i>Trigonella fœnum græcum</i>	
12. Gharor Gundolee	„	<i>Luffa acutangala</i>	
13. Ghee Gundolee .	„	<i>Luffa pentandra</i>	
14. Dal Gundolee ...	„	<i>Luffa</i>	
15. Gadee Gundolee	„	<i>Luffa</i>	
16. Kurela	„	<i>Momordica charantia</i>	
17. Petha	„	<i>Cucurbita Pepo</i>	
18. Tookm Kudoo ...	„	<i>Cucurbita maxima</i> ...	
19. Kheera	Cucumber ...	<i>Cucumis sativus</i>	
20. Khurbooza	Melon... ..	<i>Cucumis Melo</i>	
21. Pundal	„	<i>Trichosanthes anguina</i> }	

MISCELLANEOUS AND GARDEN PLANTS (*continued*).

VERNACULAR.	ENGLISH.	BOTANICAL.	REMARKS.
22. Kukree	„	Cucumis utilissimus ...	} Cucurbitaceous plant.
23. Baingoon	„	Solanum melongena ...	
24. Aloo	„ Potatoe	Solanum tuberosum ...	
25. Moolce	„ Randish	Raphanus sativus ...	
26. Peeaz... ..	„ Onion... ..	Allium cepa... ..	
27. Chah... ..	„ Tea	Thea viridis	

APPENDIX D.

(No. 2109 A. of 1855.)

Revenue Department, North-Western Provinces, Headquarters, September 26, 1855.

NOTIFICATION.

1. GRANTS of land for tea cultivation in the Kumaon and Gurhwal districts of the Kumaon Province will be made on the following conditions, on application to the senior assistant commissioner of the district:—

2. Each grant will be of not less than 200, or more than 2,000 acres. More than one grant may be taken by one person or company, on the applicant satisfying the local authorities acting under the usual control in the revenue department, of their possessing sufficient means and capital to undertake an extended cultivation and manufacture of tea.

3. One-fourth of the land will be free from assessment in the grant, in perpetuity, on fulfilment of the conditions below stated.

4. The term of first lease will be for twenty years. For the first four years the grant will be rent free: in the fifth year, one anna per acre will be charged on three-fourths, or the assessable portion of the grant; two annas per acre in the sixth year; three annas per acre in the seventh year, and so on—one more anna per acre being added in each, till, in the last year, the maximum rate is reached of one rupee per acre. The full assessment on a grant of 2,000 acres will thus not exceed 1,500 rupees per annum.

5. The following are the prescribed conditions of clearance :—

At the close of the fifth year from the date of grant, a twentieth part of the assessable area; at the close of the tenth year, one-fifth of the assessable area; at the close of the fifteenth year, half of the assessable area; and at the close of the last year, three-fourths of the assessable area is to be cleared and well stocked with tea-plants.

6. In the twenty-first year, on the fulfilment of the above conditions, the proprietary right in the grant and the right of engagement with Government shall vest in the grantee, his heirs, executors, or assigns, under the conditions generally applicable to the owners of estates in Kumaon; and the rate of assessment on the lands in the grant, in whatever manner cultivated, shall never exceed the average rate on grain crop lands in the same locality.

7. On failure of payment of the prescribed assessment in any year, or of any of the above conditions (the fact of which failure shall, after local inquiry conducted by the Senior Assistant Commissioner, be finally determined by the Sudder Board of Revenue) the entire grant shall be liable to resumption, at the discretion of the Government, with exception to the portion of the assessable area which may be *bona fide* under tea cultivation, and to a further portion of land which shall be allowed in perpetuity, free of assessment, to the extent of one-fourth of such cultivated area. The portions so exempted will remain in the possession of the grantee, subject to the usual rates or rules of assessment in the district.

8. Grantees shall be bound to erect boundary pillars at convenient points round the circuit of a grant within six months from its date, failing which such pillars will be put up by the Government officers, and the cost thereof shall be recoverable from the grantee in the same manner as the regulated rate of assessment.

9. No claim to the right and interest in a grant on any transfer by the original grantee will be recognized as valid, unless on registry of the name of the transferee in the office of the Senior Assistant Commissioner.

10. So long as Government establishments for the experimental growth and manufacture of tea shall be maintained in the provinces, supplies of seeds and plants will be given gratis to grantees, on application to the Superintendent, Botanical

Gardens, North-Western Provinces, as far as may be in his power.

By order of the Honourable the Lieutenant-Governor of the North-Western Provinces.

(Signed) W. MUIR,
Secretary to the Government of the N. W. Provinces.

A P P E N D I X E.

NOTIFICATION.

Lahore, 28th December, 1859.

At the time of the regular settlement of the Kangra district, the waste lands were marked off and surveyed as belonging to different Mouzahs. No waste lands (except near Holta) were specially reserved as Government property; nor are any available for grant by Government to individuals.

Parties desirous of obtaining such lands must consequently apply to the village communities, in the area of whose villages they are included. Maps showing the situation of villages may be inspected in the office of the deputy commissioner of Kangra, and in the surveyor-general's office, Calcutta.

A list is also hereto appended, showing the names of villages in which the largest area of waste land is contained. Of the land described as barren, a considerable portion is well adapted for tea cultivation.

Similar statistics for every village are procurable in the district office.

Land can be obtained for lease or purchase only with the consent of the village communities, in whom the proprietary right is invested.

In one instance* a perpetual lease has been granted by a community on the agreement that four annas† is paid for twenty years (or until the termination of the settlement), and that at the next settlement the rent is not to exceed one rupee‡ per acre. The communities are generally averse to dispose of their proprietary right by sale. But it is calculated by the local authorities that the price of waste land will at present range from five to ten rupees. Where the proprietary right of waste land is

* Mr. M—k—n. A. T. M.

† Sixpence.

‡ Two shillings.

purchased, such land will be held free of revenue demands on the part of Government, until the next settlement in A.D. 1879, when it will be assessed at a rate not exceeding one rupee per acre!

An officer* will be immediately deputed on the part of Government, for the purpose of negotiating the conveyance of waste lands from the communities to parties wishing to bring them under cultivation.

He will be directed information regarding the tenure and situation of lands, and to facilitate their voluntary transfer.

(Signed) R. H. DAVIE,
Secretary to Government of Punjab.

* Lieut. Paske, Special Commissioner, Dhurmsala, Punjab, to whose kindness we owe the annexed list of villages in the Kangra Valley, within whose area waste lands exist.

APPENDIX F.

List of Villages in the Kangra District, showing their Waste Lands.

TAHSIL KANGRA.

NAME OF MOUZAIL.	Total Area in Acres.	District.			Assessable Land, whether Khalta or Sagir.						Proportion of Barren and Uncultivated Land to Total Area.
		Barren.	Lakhiraj.	Bahee Malgoozaree.	Uncultivated.		Cultivated.				
					Culturable, not Cultivated.	Recently thrown out of Cultivation.	Irrigated.	Not Irrigated.	Total Cultivation.		
Nirmanah	15,219	13,790	42	1,387	283	8	768	328	1,086	92.0	
Bunekah	10,819	9,583	167	1,069	245	45	543	236	779	91.0	
Feeza	12,120	11,161	...	959	253	158	417	131	548	95.0	
Kundee	12,196	10,972	3	1,221	868	24	168	221	329	97.0	
Dureinee.....	18,081	16,081	83	1,917	515	298	140	964	1,104	93.0	
Kureinee.....	21,107	20,683	1	423	...	...	6	417	423	98.0
Kunnyarah.....	15,442	12,832	101	2,509	610	141	1,669	89	1,758	88.0	
Sunch & Chuddur	11,459	9,184	1,851	424	129	...	35	260	295	81.0	
Lunoudh	12,282	11,471	12	799	98	168	229	304	533	95.0	
Central	19,592	17,621	29	1,942	740	174	593	435	1,028	94.0	
Kothee Sowor.....	21,463	20,215	24	1,224	432	175	...	617	617	92.0	
Kothee Kour	19,538	18,076	18	1,444	427	238	...	779	779	95.0	
Total.....	1,89,318	1,71,669	2,331	15,318	4,600	1,429	4,508	4,781	9,289		

TAHSIL NADOUN.

NAME OF MOUZAII.	Total Area in Acres.	District.		Bahee Malgozaree.	Assessable Land, whether Khalta or Sagir.						Proportion of Barren and Uncultivated Land to Total Area.
		Barren.	Lakhiraj.		Uncultivated.			Cultivated.			
					Culturable, not Cultivated.	Recently thrown out of Cultivation.	Irrigated.	Not Irrigated.	Total Cultivation.		
Dhutwal	30,309	21,712	214	8,383	1,919	...	84	6,380	6,464	78·0	
Thureh	18,815	16,411	108	2,296	142	...	...	2,154	2,154	88·0
Teereh	15,200	12,031	217	2,952	210	...	...	2,742	2,742	80·0
Munear Maroofa Chak.	10,200	8,269	109	1,822	203	...	...	1,619	1,619	83·0
Munear Maroofa Man.	11,380	9,854	39	1,487	135	...	...	1,352	1,352	87·0
Alumpoor	10,728	7,453	821	2,454	352	...	23	2,079	2,102	72·0	
Lugwatee	15,598	10,554	4,645	399	99	...	...	300	300	68·0
Oogyalta	10,867	2,585	608	7,674	1,320	...	...	6,354	6,354	36·0
Bunsun	12,378	6,482	338	7,358	262	...	50	7,046	7,096	39·0	
Maihutta	17,209	7,191	194	9,098	970	...	180	7,948	8,128	51·0	
Mewah	14,763	6,602	270	7,891	649	...	1,646	5,596	7,242	49·0	
Total.....	1,67,447	1,08,070	7,563	51,814	6,261	...	1,983	43,570	45,553		

TAHSIL NOORPOOR.

Shahpore or Shurret.	10,097	8,413	147	1,537	...	589	13	935	948	Per cent. 89·0
Kara	9,806	7,734	174	1,898	...	615	16	1,267	1,283	85·0
Futehpore	9,371	6,585	412	2,374	...	396	...	1,978	1,978	74·0
Rye	8,789	6,983	1,801	5	...	...	...	5	5	79·0
Muddola	10,071	8,381	293	1,397	...	278	12	1,107	1,119	86·0
Total.....	48,134	38,096	2,827	7,211	...	1,878	41	5,292	5,333	

TAHSIL HURREPOOR.

Lung	8,955	7,611	17	1,327	...	72	31	1,224	1,255	85·0
Kotleh.....	52,317	36,197	13,051	3,069	...	185	287	2,597	2,884	69·0
Gungot	10,865	7,137	341	3,387	...	...	448	2,939	3,387	65·0
Total.....	72,137	50,945	13,409	7,783	...	257	766	6,760	7,526	

TAHSIL KOOLLOO.

Moonalee	22,515	21,656	111	748	...	...	159	589	748	96·0
Toong.....	15,700	15,476	5	219	...	...	...	219	219	98·0
Shangurh	21,890	21,659	9	222	...	...	...	222	222	99·0
Total	60,105	58,791	125	1,189	...	...	159	1,030	1,189	

APPENDIX G.

(Taken from the "Mofussilite" * of the 25th May, 1860.)

IN a Notification by the Punjaub Government, dated the 28th December, 1859, it was intimated that of the extensive waste lands existing in the Kangra district, a considerable portion was well adapted for tea cultivation. Parties desirous of securing portions of waste lands were invited to negotiate with village communities, and were promised the aid of an officer, who would be deputed by Government to facilitate the transfer. Subsequently, in order to obviate the difficulties it was anticipated that settlers might experience in purchasing lands direct from the zemindars, the local authorities were authorized to purchase waste land for Government in view to its resale to settlers. It is hereby notified that about 10,000 acres of land in the Kangra and Palum valleys are now in the hands of Government. Of this quantity about 6,000 acres will be sold at Kangra on the 1st July next, by public auction, in lots not exceeding 200 acres each, at certain upset prices, which, together with a detail of the lots, will be advertised on or about the 1st of June next.

(Signed) EDWARD PASKE,
Assistant Commissioner on special duty.

Dhurmsalla, Kangra District,
May 8th, 1860.

APPENDIX H.

*Memorandum on the Colonization of India by
European Soldiers.†*

IN August, 1859, Colonel Cox, commanding the depôt at Murree, submitted an application to the Honourable the Lieutenant-Governor of the Punjaub, from two time-expired soldiers, for the grant of a piece of land at or near Murree, to be occupied by them permanently, and thus gain their livelihood. Every assistance was afforded these men towards furthering their views, and one of them has since located himself on an

* This paper is published at Meerut.

† The *Lahore Chronicle*, June 30, 1860.

eligible piece of land (two acres in extent) within the sanatorium. He has built a small house, and has established a piggery, and hopes, during this season, to supply pork, bacon, and poultry, &c., to the community. He does not, however, look to agriculture for a maintenance. The other man, not obtaining the land he desired, has changed his mind for the present.

The probability of similar applications being submitted by others of the great number of Europeans from time to time claiming their discharge, who, with a fair prospect of maintaining themselves and their families, would gladly stay in this country, in preference to returning to England, induced the Lieutenant-Governor to lose no time in setting on foot inquiries as to the feasibility of the scheme for establishing colonies of a class of independent, well-conducted, and industrious Europeans, which his Honour regarded as far from antagonistic to native interests, whilst to the British Government it would plainly constitute an element of strength.

It is much to be regretted that the result of these inquiries is by no means promising towards the carrying out of the measure, as will be seen on a perusal of the following epitomized opinions of the different officers who have been consulted in the matter:—

Mr. Barnes, commissioner of the Cis-Sutlej States, urges the great scarcity of land for such purposes in his division. All the good land about Simla, Kussowlee, and Subathoo, belonging to us, is already occupied, and the villagers derive a profitable trade by the sale of vegetables, milk, and other articles in our sanatoria. Almost all the land about the Simla hills is parcelled out among the independent hill chiefs.

Lord W. Hay, the deputy commissioner of Simla, draws attention to the three following points, as demanding consideration, in discussing the question at issue:—

First. The extent of land actually available for European settlers.

Second. The terms on which it should be granted them, and the aid which the Government would be expected to render to those wishing to become settlers.

Third. The prospects of a European soldier as a colonist in India.

In regard to the first point, the extent of land, he considers, is exceedingly limited; agriculture cannot be carried on at all above a certain elevation, and, to be profitable, it must include

rice and wheat producing lands. These crops, however, require irrigation, and as water can be obtained only at comparatively low elevations, and what little is available has in almost every instance been appropriated by the native zemindars, the lands on which a European could settle, with any prospect of success, become still more limited. Tea and potatoes, it is true, are unirrigated crops, but what European soldier possesses capital for the one, and with what chance of success could he compete in the market with the native producer in the other?

The only way in which Government could obtain any considerable quantity of land would be by asserting its right to unclaimed land, and by purchasing what might, from time to time, be in the market. This would be a cheap and certain process, but it would be slow; and the experiment itself is, he thinks, of very questionable utility.

With reference to the next point, the deputy commissioner is of opinion that the land should be given in fee-simple; that revenue should not be demanded; and, further, that, as few soldiers would, unassisted, have capital sufficient for a first attempt, the money, which would otherwise be spent by Government in reconveying the soldier to England, should be given him as gratuity, after certain probation, and under suitable limitations. An extension of the period in which a soldier can re-enlist in India is also considered allowable, on the ground that it would give the man an opportunity of trying the country, with some employment to fall back upon, in case of failure. He further advocates the introduction of a liberal leave system, so devised as to enable a few of the oldest and most deserving men in each regiment to make their first experiment in farming, even before the period of their discharge.

With regard to the third point, Lord W. Hay remarks that it is the "average" soldier whose prospects we have to consider. The man of no special qualifications, of slender means, somewhat addicted to drinking, not disposed to regard the natives of the country with a friendly eye—in India such a man is sure to fail. The accumulations of years expended, he finds himself a beggar, in a country where great obstacles exist to earning a livelihood. Again, to the European settler, marriage is almost impossible; for he has no opportunity of procuring a wife, and no prospect of providing for his children. Government, the deputy commissioner thinks, will be chargeable with a grave political error, if it go out of its way to induce European soldiers to settle in the

country as colonists. The duty lies rather in affording information and assistance to those who voluntarily come forward as settlers, in taking pains to secure as colonists men of approved good character, in inducing Englishwomen to come to the country, and in making provision for the rearing and education of their children.

Major Lake, commissioner of the Trans-Sutlej States, is of much the same opinion. He doubts whether, in a large majority of cases, European soldiers will make successful colonists. As a general rule, they have a great dislike for the natives of the country, and are imperfectly acquainted with their language and habits, and, from having had everything provided for them during a long course of years, they are quite at a loss when they have to depend on themselves. In regard, however, to the general question of providing lands suitable for European colonists, he thinks the three following courses open to Government:—

First. To hold the waste lands of the Kangra hills at the disposal of Government.

Second. To appropriate such lands on the terms prescribed for lands taken up for public purposes.

Third. That in every village, all surplus lands not required for grazing purposes should be separately marked off and divided into lots; that the district authorities determine what would be a fair Government demand on each lot, and that on these terms the land be made available to European settlers and others. This last method, the commissioner observes, has the advantage of maintaining the proprietary rights of the zemindars, while it enables European settlers to hold their lands at fixed rates, much like hereditary cultivators.

Mr. Melvill, the officiating commissioner of the Trans-Sutlej States, considers a large quantity of land in the Kangra district might be obtained on lease; but he, too, thinks that the real question is not whether land is available, but whether discharged soldiers would be successful in maintaining themselves. Capital is the main thing. While the capitalist has every chance of success, the prospect of the man who has nothing but his own energies to depend upon is hopelessly discouraging,

The scarcity of land in the vicinity of the Murree hills is urged by the deputy commissioner of Rawul Pindee (Captain Cracroft) as a great drawback towards giving effect to the proposed scheme to any large extent. Although the area of the

district is large, yet many tracts are totally unproductive, even of grass, for the cattle in the plains. The hilly tracts are those which contain pasturage necessary for the sustenance of their own cattle, as well as that of other tracts, whence, from time immemorial, flocks have been sent to graze in the mountains, during the hot months of the year.

Deprived of this resource, by the grant of land to European settlers, the cattle would not obtain sufficient pasturage in the district, and the result might be very injurious. The only way in which the increase, if authoritatively enforced, could be carried out, would be to fix such fair compensation as might be determined by a commission, composed of Government officers, zemindars, and other natives. Terms for rent might be more easily determined; but here again it is doubtful whether Europeans could deal with the zemindars without the intervention of Government.

Mr. Saunders, the commissioner, however, dissents from the opinion expressed by Captain Cracroft, that the location of a European colony would of necessity interfere with the privileges of the zemindars of the neighbourhood, by contracting their grazing grounds, although he gives no indication of the extent of land available. He believes that, by judicious management, this difficulty might be removed.

Lieutenant Paske, who is specially employed in buying land for European capitalists who wish to settle in the Kangra district as tea planters, is of opinion that a considerable extent of land might be made available at Kumaon, and in the neighbourhood of our hill sanatoria; but that for the present, owing to the dread which the natives of the interior entertain of European settlers, and European soldiers in particular, it would be advisable to confine the experiment to the immediate vicinity of Dhurmsalla. He believes that the now deserted cantonment of Dhurmsalla, together with a few sites in the neighbourhood, might be made available for the location of from twelve to twenty families of settlers, whom Government might also assist in the way of employment in the civil duties of the station, and by allowing them to cut timber for their own use, free of charge.

The officiating financial commissioner suggests that the Government should follow, and not lead, this movement. Land should be purchased for European soldiers applying for it, or Government land might be assigned to them, within five miles

of a sanatorium or head-quarters station, *but nowhere else*. Whatever it would have cost the State to transfer the soldier and his family to England should, in Mr. Cust's opinion, be spent in this way; and agreement should be taken from him to act as special constable under the magistrate, if called on so to do, and if he parted with his land to anybody but a European similarly situated as himself Government must have the pre-emption. This tenure must be a service tenure, though the services would not be onerous.

For reasons already given, it will be seen that the chances of success are very much against the European soldier. The financial commissioner would, therefore, always give him the option of making over his land to Government, if tired of it, and being shipped off to England with a free passage.

Sir Robert Montgomery, having taken into consideration the arguments above adduced, has expressed his willingness to render all the aid practicable to parties desirous of obtaining land for purposes of settlement, though he has, at the same time, stated that, unless such applicants are possessed of capital, and have sufficient acquaintance with the language and people, they are not likely to meet with success.

His Honour considers that Mr. Cust's suggestion, to the effect that the Government agree to give to European soldiers desirous of settling in India, as much money as would be required to send them to England after discharge, is a good one, and might be carried out, provided that commanding officers certified that the soldier was a man of steady, sober habits, and that his past character justified a belief that he would probably succeed as a settler.

APPENDIX I.

NOTICE.

IN continuation of the notice of this office, advertised on the 8th instant, it is hereby notified that the following lots of land will be sold by auction at the upset prices quoted in the annexed statement on the 2nd July, 1860, at the Government kutcherry at Dhurmsalla. The out-turn is not so large as was estimated.

The Government does not guarantee the accuracy of the measurements. They have been as correctly made as the character of the land and the machinery at disposal would admit of, and it is believed that each lot contains pretty near the quantity of land shown opposite it. Still Government does not vouch for the correctness of the measurements.

The following are the conditions of sale:—

1st. Half the price to be paid within two days and the remainder within one month.

2nd. Purchasers are to make a ditch or hedge round their lots in order to prevent the encroachment of cattle. If they fail to do so they will not be entitled to damages for cattle trespassing.

3rd. The boundary pillars of the lots are to be maintained in repair by the purchasers.

4th. No revenue will be demanded by Government on the land sold during the currency of the present settlement, which has yet nineteen years to run, and the assessment to be fixed on the expiry of the current settlement will not exceed one rupee per acre.

5th. All standing timber will be sold with the lot and will be at the absolute disposal of the purchaser. The local forest conservancy rules will not be enforced as regards the land sold.

6th. The right of Government to all minerals and to the control of streams is reserved.

Statement of Government Waste Lands in the Kangra District believed to be fit for Tea Cultivation, to be sold by Public Auction, on the 2nd of July next, at the Government Kutcherry.

Name of Village.	No. of Lot.	Area of Lot.	Aspect of Lot.	Detail of Timber on Lot.	Proximity of Water.	Upset price of Lot.	REMARKS.
Giroh	1	A. R. P. 249 2 20	Westerly	No large timber	Two or three hill streams in the immediate neighbourhood.	R. 312	A stony ridge, but the greater portion of the land well fit for tea cultivation.
Kuniarah ..	2	223 3 20	Southern	Has no timber ..	Has four springs of water in the estate, with streams in the neighbourhood.	279	Soil rich, the land easily brought under cultivation.
Kundee ..	3	284 2 5	S. and E...	Has about 3,000 fir trees, also small oak and rhododendron trees.	Has three springs of water and two nullahs.	356	Soil good, but in part very strong land somewhat difficult to clear. Included in this plot are about 12 acres of cultivated land.
Ditto	4	296 3 10	N. and S. .	Has about 4,000 fir trees, also small oak and rhododendron trees.	Has one spring and a nullah in the immediate neighbourhood.	371	Remarks as above. About 12 acres of cultivated land included in this plot.
Ditto	5	168 2 25	North	Has about 1,500 fir trees.	Has one spring and a nullah in the vicinity.	211	Remarks as above. About 6 acres of cultivated land included in this plot.
Raipore ..	6	152 2 25	S. and W.	Has about 1,500 fir trees.	Three nullahs in the immediate neighbourhood.	191	A light sandy soil, easily brought under cultivation.
Thundol ..	7	63 0 0	S. and W.	Has no timber ..	Nullah in the immediate neighbourhood.	79	Very rich soil, can be brought under cultivation at a very trifling cost.
Bhuttoo ..	8	114 0 30	Westerly	About 500 fir trees.	Three springs of water and nullah in the neighbourhood.	143	A light sandy soil, strong in some parts.
Sunsal....	9	194 2 0	Easterly ..	About 400 fir trees.	Has one spring of water and one nullah in the neighbourhood.	243	A light sandy soil, very strong in some parts.
Dewal....	10	146 2 10	Westerly	About 500 fir trees.	Has three springs	183	A light sandy soil, very strong in some parts.
Lunode ..	11	60 0 0	S. and E. .	About 50 fir trees	Has three springs	75	Rich soil, can be quickly brought under cultivation.
Ditto	12	190 0 0	S. and W.	About 300 fir trees.	Has four springs and three nullahs in the neighbourhood.	238	A light sandy soil, strong in some parts.
Ditto	13	200 0 0	S. and E. .	About 400 fir trees.	Has three springs and one nullah.	250	Ditto ditto.
Ditto	14	250 0 0	Easterly ..	No timber	Three springs of water.	313	Very strong indeed, can only be cultivated in patches, but the soil very rich, and when brought under cultivation will be highly productive.
Ditto	15	250 0 0	Easterly ..	No timber	Three springs of water and a nullah in the neighbourhood.	313	Ditto ditto.

*Dhurmsalla, Kangra District,
May 29, 1860.*

EDWARD PASKE,
Asst. Commr. on especial duty Kangra District.

APPENDIX K.

*Tea Planting in the Kangra Valley.**

A FRIEND from whom we hear occasionally, sends us the following regarding the tea-land sale at Dhurmsalla on the 2nd instant:—

“ I enclose you a tabular statement of the result of the sale of land held at the Dhurmsalla Court House this day, 2nd July, as it may interest many of your readers. The sale was conducted by Lieutenant Paske, the officer selected to obtain lands from the villagers. He advertised in May, that 6,000 acres (or about that number) would be put up for sale. In June the quantity was diminished to 2,835, and that day a whole lot, No. 15, was said to be *non inventus!* The quantity put up was consequently only 2,594 acres. The number of bidders was comparatively small, but the bidding tolerably spirited. The whole affair did not last more than three quarters of an hour. The very important announcement was made previous to the sale, that on the additional payment of 20 rupees per acre, the Government were willing to allow the purchaser to reduce the land rent in perpetuity. That is a very important point gained in the tenure of land. Let it be extended to all India, and European settlers will know what they have to look to. The rain continues to hold off in a most singular manner. We have had none since Thursday. A storm on the previous Tuesday (26th June) astonished us not a little, and seems to have been very general.

RETURN of SALE at DHURMSALLA.

No.	Name.	Area.	Unsold Price.	Sold for.	Purchaser.
1	Giroh	249	312	350	Captain Bracken.
2	Kunyara	223	279	1,000	Captain Younghusband.
3	Kundee	284	356	1,850	Captain Duff.
4	„	286	371	800	Captain Batt.
5	„	168	211	450	„
6	Raipoor	152	191	400	Mr. Ballard.
7	Thundeh	63	79	350	Mr. Judd.
8	Bhuttoo	114	143	143	Captain Croker.
9	Sansal	194	243	250	Dr. Crawford.
10	Dewul	146	183	200	„
11	Lunode	60	75	350	„
12	„	190	238	500	„
13	„	250	250	600	„
14	„	200	313	500	„

* From *Delhi Gazette*, 10th July, 1860.

REMARKS.

“The average of the sale is consequently 3-1-7 rupees per acre, but that average has been largely increased by biddings on No. 3. Captain Duff and his partner, Captain Souter, had previously selected this site and commenced building, and were consequently obliged to pay high to secure the lot. Again, Captain Younghusband had secured 180 acres of cultivated land at Kunyara, and particularly required the lot put up to complete his advertisement. The lots generally are not promising. The streams said to be ‘in the neighbourhood’ are some of them dry, some of them below the lots they should irrigate. The soil not generally good, but the spots will form nuclei on which to graft other and more advantageous plots. They give a footing to the intending planter.

“There are at present four planting concerns, the first the Kangra Tea Company, managed by an enterprising young gentleman, Mr. E. Meakin, on behalf of himself and others. The Kundee concern, of which Captain Duff and Captain Souter are owners, the Baijnath concern, owned by Captains Fitzgerald and Cooper and Dr. Frazer; and the Nassar Company, in which Captain Lees of Calcutta, Captain Elphinston of Jul-lundhur, and Captain Orr of Lucknow, are shareholders. Dr. Crawford has bought for himself and brothers.

“The prospects of tea cultivation are promising, but much capital will have to be laid out before any of the land but the best can be brought into suitable condition. Houses must be built, factories established, the villagers conciliated, roads constructed, &c. I will give you a few more memoranda on the subject when I have more leisure.”

APPENDIX I.

(From the “Delhi Gazette,” July 21st, 1860.)

THE following extract is from a letter from the Punjab:—
 “At the sale of waste lands at Kangra there were eight purchasers, and some of the lots brought seven rupees an acre; and had not the intended purchasers accommodated one another

as much as possible, different lots would have sold for much higher sums than they did. If seedlings and seeds were sufficiently plentiful, the progress of some of the above estates would be very rapid, and in four or five years' time there would be a vast amount of good tea sent from the Kangra estates. As it is, however, I hear that it will be slow work indeed with many of the planters. Does it not appear unjust on the part of Government, after inviting Europeans to purchase land and settle in the Hills, to give the enormous amount of seedlings and seeds it appears its intention to give the rajah of Cashmere? Surely the European settlers, who are perhaps risking their all, should have more consideration shown them. A petition has been, I believe, signed and sent up to Government on the subject."

[It is palpably evident, from the acts of Government, that, whatever may be its professions, it is desirous of throwing every possible obstacle in the way of Europeans settling in any part of India. The Arms Bill is sufficient to drive away all who can go.—*Ed. D. G.*]

THE END.

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