

an, where he amused himself in making excavations, and has succeeded in finding several idols. At *Cabul*, he has been engaged in the same kind of pursuit, and has been rewarded here also by his discovery of several idols quite entire. Among his discoveries is an inscription on a piece of paper made of the leaf of a tree, but which unhappily is so worm eaten and injured by the lapse of time as not to be legible.

The recommendatory letter which you wrote to SYED KERAMET ALI, respecting me, has been delivered to him ; he frequently visits me, and shews me every attention in his power. A *kifla* from *Bokhara* is expected here either to-day or to-morrow. Nawab JABBAR KHAN is very anxious to procure some platina, for making experiments in alchemy ; the mysteries of which, the credulous natives of this country labour in vain to discover.

I send you herewith a rough map of the country lying between *Cabul* and *Díra Ghízi-Khán*, which we traversed, and hope that it will be acceptable, notwithstanding its imperfect execution from my want of skill as a draughtsman. (See the accompanying Plate.)

III.—On the Aptitude of the *Himálayan Range* for the Culture of the Tea Plant. By Dr. H. Falconer, Supt. of the H. C. Bot. Garden, *Seharunpur*.

[Extracted from a Letter to G. J. Gordon, Esq. Secretary to Committee of Tea Culture.]

The most productive tea districts in China, according to all accounts, lie in the maritime provinces of *Fokien*, *Kyanti*, and *Kyang-nau*, chiefly between 27° 30' and 31° N. lat. and long. 112° to 117°. One kind, *Lungau-cha* (a superior sort of Hyson) is said by the Jesuit missionaries to be produced so high north as 38° and E. long 100°, and another, *Paeul-cha*, brought from the province of *Yunnan*, is said to be procured from mountains in the lat. of 25° on the frontiers of *Ava* and *Pegu*. The tea plant is grown on the sloping sides of mountains or in valleys, but chiefly at the foot of mountains. It is also produced in level tracts, but less advantageously. Besides the explicit information given by Dr. ABEL, from actual examination of one district, it is sufficiently certain that the rock formations in most of the tea districts, are chiefly primary, from their being productive of metals which are only found in such formations. The best tea soils are said to be light, gravelly, sandy, and whitish (*blanchatre* in DUHALDE, probably calcareous), with little accumulation of vegetable mould. LE COMTE says, the best Tea is produced in a gravelly soil, the next best in a light or sandy soil, and the inferior in a yellow (*jaune*, probably clayey) soil. It is admitted on all hands that the teaplant thrives best with an open exposure to the south.

Sketch of a Route
 from
DERA GHAZEE KHAN to CABUL
 BY
 Derabend and Ghuznee.



The climate of the whole of China is remarkable in respect of temperature, and it must be duly weighed when the acclimatization of any of its peculiar vegetable productions in another country is concerned. Latitude alone is here no guide, the mean annual heat being much under what is observed in most other countries at an equal distance from the equator. Peking, lat. $39^{\circ} 54'$, nearly at the level of the sea, has a mean annual temperature of 54.86 ; calculated for the latitude theoretically by a formula* of very general application for the distribution of heat according to latitude without reference to other modifying causes, we get $62^{\circ} 5'$;—a difference of about $7^{\circ}.5$ above the observed mean temperature of the year. But it is in the excesses of the summer and winter seasons that the climate is most remarkable. It has a winter temperature of $26^{\circ}.42$, or nearly that of Upsal in lat. $59^{\circ} 51'$ (20° further north) and a summer heat of $82^{\circ}.58$. Its winter climate is that of Copenhagen, and its summer heats are as scorching as at Cairo. Between the mean temperature of the hottest month in summer and the coldest of winter, there is a difference of not less than 59° of Fahr., a climate of excesses almost without parallel in any part of the globe except Quebec in Canada. This condition, which is owing to the vast accumulation of land, extending from the arctic pole on through eastern Asia to China, is not confined to the northern provinces. It extends to Canton within the tropic, but modified there by the equalizing effect of a now tropical ocean about it. The mean annual heat of Canton, lat. $22^{\circ} 10'$, calculated theoretically for this latitude, gives $75^{\circ}.5$, Fahr.; reduced from a register in the Transactions of the Medical Society of Calcutta, the observed mean temperature is 73° nearly. The mean of the coldest winter month is 54° ; of the hottest summer month $85^{\circ}.5$. I am not aware that any determination has been made of the climate in the provinces between Peking and Canton, and I have not access to the later writers on China. But an approximation may be made to the temperature of the tea districts from the facts known regarding Peking and Canton. Assuming that the most productive tea districts extend from 27° to 31° N. lat. and taking 29° as the central tract, by calculation for this latitude we get 71° Fahr. for the mean annual heat at the level of the sea. Assuming further, that the refrigerating influences on the climate of China, which have been seen to be $7^{\circ}.5$ at Peking and $2^{\circ}.5$ at Canton, amount to 5° Fahr. in the parallel of 29° lat., and deducting this from 71° , we get 66° for the mean annual temperature. The elevation of the tracts of tea cultivation above the sea will form another abatement on this sum. But on this point I have no grounds to form any thing like a precise

* Mean temperature = $81 \cos. Lat.$

† Vol 6th, by Mr. PHANSON.

conclusion. It is stated by DUHALDE that the tract from which one of the finest green teas, *Seng-lo-cha*, is brought is a mountain in the district of *Whey-choo-foo* of the province *Kyang-nau*, of no great height or extent (*peu de hauteur et d'étendue*). Supposing that the Tea cultivation reaches the height of 3000 feet above the sea, and making a reduction for this altitude, the resulting mean temperature might be a range of 56° to 64°. What the range of temperature between the cold of winter and the heat of summer is, it may be difficult to say. The heat of summer cannot be less than at Peking, which is 10° higher north : and it has been seen that the difference between a summer and a winter month at Canton within the tropic is 30°, while at Peking N. lat. 40°, it is 59° Fahr. ; it may therefore be assumed that in the lat. of 28° the range of the thermometer from the mean of summer to that of winter is not less than 40° Fahr.

In regard to the moisture of the climate, there is little precise information, and what is known is chiefly as confined to Canton. The rains are not regularly periodical, as is the case on this side of the continent of Asia, within the same parallels ; rain seems to fall all months of the year, although heaviest from August till October. The mean fall of rain, as entered in the above quoted Canton register, is for 1829, 42 inches ; 1830, 50 inches ; 1831, 70 inches. Average of the three years 56 inches. In the tea districts the quantity must be less, excepting at the greater elevations. At the northern limit, snow falls abundantly during the winter. At the southern limit, in the province of Canton, where large quantities of the inferior teas are produced, snow is never seen. It is probable that it falls occasionally in the centre districts on the higher elevations.

The circumstances of climate therefore, in regard of temperature and moisture, under which the tea plant is cultivated in China, may be stated thus : that the tea is produced, over an extent of country where the mean annual heat ranges from 73° to 54° 5' Fahr. : where the heat of summer does not descend below 80°, and the cold of winter ranges from 54° to 26° ; where the difference between summer and winter heat is on the northern limit 59°, and on the southern 30° Fahr. ; that it is cultivated in highest perfection where the mean annual heat ranges from 56° to 64°. That rain falls in all months of the year, and that the moisture of the climate is on the whole moderate.

The foregoing remarks will apply in a great measure to Japan, in some parts of which excellent teas are produced. Without entering on details, it may be sufficient to say, that at *Nangosa-ki* the mean temperature of the year is 60°.8 ; the greatest observed heat in summer, 98° ; the temperature of January, the coldest month, 35° ; that rain falls

periodically about mid-summer; that in the higher parts of the country heavy snow falls in winter, with intense frost; that the mean temperature of the summer is 83°, and that of winter, 39°.

It may now be worth considering the countries into which the tea plant has been introduced and failed.

At Penang, close to the line, with a mean annual heat of 80°, and equable climate the whole year round, and an excessive fall of rain, amounting to nearly 80 inches for the year; the climate is in every respect so much in contrast with that of China, that the tea could not be expected to be grown. The same is the case with St. Helena, where although the mean heat for the year is 73°, the thermometer does not fall in winter below 55°, and the climate is moist and cloudy. Of the causes of failure in Java I am less able to judge, but they are likely to be found in its low latitude, 6° 9', the excessive moistness of the climate, and the great fall of rain during the year. At Rio Janeiro, tea was tried under a colony of Chinese, and failed, perhaps from being within the tropic, and its too great heat, with a moist and generally equable climate. It has been twice attempted by the French in the Carribeë Islands. The first occasion in Martinique was a failure. I do not know the result of the second, but a lat. any where between 11° and 19°, with the kind of climate consequently implied, gives little chance of success.

There is perhaps no part of the Company's territories in India which supplies all the conditions of the tea districts of China, in respect of climate. But there are situations which approach it so nearly, as strongly to bear out the conclusion, that tea may be so successfully produced in this country as to be an object of high commercial importance. It appears to me that this can be expected in no part of the plains of India. The mean annual heat of the climate from 30° N. down to the parallel of Calcutta, is much beyond that of the tea cultivation in China. We have in addition to an excessive summer heat, with either hot winds or a close scorching air during the day, a barely temperate winter cold, and heavy periodical rains. We certainly get some Chinese fruits, such as the lechee, the loquat, and the wampee to grow, but the tea plant appears to require a greater cold to thrive in. It has been seen that the annual heat of the southern limit of tea cultivation in China, assumed to extend to Canton, is 73°* Fahr. At Sehárunpur, which may be considered as at the *northern* limit nearly of the plains of Hindustan, 8° of lat. higher and 1000 ft. above the sea, the mean temperature of the year is 73° Fahr.; the temperature of June, is 90°, and of January, 52°.

* At the level of the sea.

As we go south towards Calcutta, the temperature increases, although not uniformly, as may be seen from the observed heat of

Futtygurh,	Benares,	Ghazipur,	and Calcutta.
77°. 5	77°. 81	77°. 36	78°. 3

In the *Himálays* mountains, the case is widely different: excepting periodical rains, all the conditions of a temperate climate are here found, and, here above all parts of India, we may look for the successful cultivation of tea. Our not possessing mountain territory below 29° may alone exclude the consideration of the fitness of the southern tracts. My personal knowledge of the hills is chiefly confined to the tract between the Ganges and Jumna. In consequence of being tied to *Seháranpur*, from having the medical duties of the station to attend to, in addition to the Botanic Garden, I have not been able hitherto to see much of the mountains: but, as the rock formations and the configuration of the hills are the same along an immense tract, the remarks which I have to make will apply very generally to the hills.

The *Himálays* have a direction running from N. W. to S. E. They consist, on this side of the snowy range, chiefly of primary rocks, inclined at a considerable angle. The dip of the strata is to the E. of N. and their abutment to the W. of S. On the flank of the great range there is a line of low hills, the *Sewálik*, which commence at *Roopur*, on the *Satlej*, and run down a long way to the south, skirting the great chain. In some places they run up to, and rise upon, the *Himálays*; in others, as in this neighbourhood, they are separated by an intermediate valley. Between the *Jumna* and *Ganges* they attain their greatest height, which Captain *HERBERT* estimates at 2000 feet above the plains at their foot; or 3000 above the sea. *Seháranpur* is about 1000 feet above the sea. About 25 miles north are the *Sewálik* hills. They are here about six or seven miles wide. To the east of the *Ganges* and west of the *Jumna*, they gradually fall off. They have the same direction with the great chain, and agree generally in dip; their slope being towards the north and abutment to the south. They rise at once against the plains, with an abrupt mural front. They are serrated across their direction, forming a succession of scarcely parallel ridges, with a steep face on one side, and slope on the other. The strata are inclined at an angle of 25° to 30°. They are of recent tertiary or alluvial formation, and consist of friable sandstone or gravelly conglomerate, agglutinated by a calcareous cement, containing subordinate beds of clay: the upper strata are entirely gravel. Beyond these hills lies the valley of *Dehra*, 1200 or 1400 feet above the sea, and then the great chain of the *Himálays*. The following rude sketch will perhaps give you an idea of the whole better than description; the distances are not in proportion in the section.



(a) level of the sea at Calcutta ; (b) level of Seháranpur, 1000 feet above the sea ; (cc) the Sewálik hills ; (e'e') the strata of sandstone and conglomerate ; (e''e'') strata of gravel ; (dd) the valley of Déhra ; (ee) strata of the Sewálik hills, in some places rising on the Himálayas ; (ff) outer ridges of the Himálayas ; (gg) primary strata ; (A) the valleys or hollows between the ridges.

I regard these hills as an upheaved portion of the plains at the foot of the Himálayas, and that they are formed of the debris of the mountains washed down by streams, and other natural causes. They are covered with vast forests of saul, toon, and fir, and are uninhabited.

The soil of the Sewálik hills and of the valley of Dehra takes the character of the rocks. It is dry sandy or gravelly, with a considerable quantity of calcareous matter, and it appears to me to possess the character indicated for the tea districts in China.

The great chain of the Himálayas rises in a ridge with an abrupt steep face against the plains of about 6000 feet in height ; there is then a slope from the crest of the ridge towards the north. This is the general character of the Himálayas : the mountains on the side of the snowy range consist of a series of nearly parallel ridges, with intermediate valleys or hollows. They throw off spurs in all directions into the hollows, forming subordinate valleys. There is nothing like table-land (perhaps in the whole of the mountains, with the exception of Nípal), and the valleys are rather broad, wedge-shaped chasms, contracted at the bottom to a mere water-course, than any thing else ; in fact, the ridges and intermediate valleys, as a general law, form a series of salient and re-entrant angles, as seen in the sketch. In consequence the quantity of level or nearly level ground to be met with is most inconsiderable. From the dip or slope being towards the north, and the abutment to the south steep, the great mass of vegetation has a northern exposure, and the southern faces of the mountains are generally naked.

The formations are primary ; the first towards the plains consist of vast strata of limestone, lying on clay-slate, crowned by slate, greywacke, or sandstone. Beyond the limestone tract, gneiss, clay-slate, and other schistose rocks occur. Granite, so far as I know, is not found in the outer ridges. It occurs in the mountains nearer the snowy range. I have not gone that length, and have not yet seen granite in situ. The igneous rocks, which have been concerned in the upheavement of the outer tracts, are of the green-stone trap series, and are very generally met with in

dykes intersecting and rising through the regular strata. The formations have a remarkable feature:—the strata are in all directions fractured or comminuted: the slaty rocks are broken into small fragments, as if they had been crushed; and the limestone rocks are vesicular or cavernous, and broken up into masses.

The arrangement and nature of the soil take their character from the rocks. From the high angle at which the latter are inclined, and the northern direction of the slope, the soil is chiefly accumulated on the northern sides, where is also the vegetation. From the prevalence of schistose strata, and limestone; the soil underlying the vegetable mould is clayey and calcareous, or limestone gravel. There is little sandy soil, or sandy gravel. From the extreme richness of the vegetation undisturbed for ages, and the moisture of the climate, there is usually a great accumulation, on the northern slopes, of vegetable mould; on the southern faces, the great steepness leaves little room for the accumulation of soil; where it occurs, it is in patches, and consists of clays or limestone gravel, mixed up with vegetable mould. There is here also little sandy soil. Towards the crest of the slopes, the soil is usually dry, from the moisture running speedily off; but lower down, and wherever the ground is tolerably level, the soil is quite damp, and perhaps it is rarely dry in the most parching seasons.

Cultivation is laborious and difficult. From the absence of table-land, and the angular and contracted shape of the bottom of the valleys, there is little or no level ground. The most favorable slope is taken, and besides the usual tilling of the ground, it has to be divided into patches, which are built up into inconsiderable terraces, rising the one above the other like the steps of a stair. These circumstances might make the cultivation of tea scattered, and prevent it from being produced in any great quantity on one spot.

The climate of the *Himálayas* is decidedly damp. The periodical rains commence about the middle of June, and continue till the end of September. They are greatly heavier than in the neighbouring plains, and continue at times for many days without intermission; occasional rains occur in most months during the year. The mean annual fall has been estimated by Mr. TRAILL, Commissioner of Kemaon, at *Hewálbágh*, near *Almora*, about 4000 feet above the sea, and lat. $29^{\circ} 30'$, at from 40 to 50 inches. But this I imagine is too little. From the middle of November, till the end of February, occasional falls of heavy snow take place, down to the level of 6000 feet above the sea; on the outer ridge of the mountains, and lower down within the hills, perhaps to 3500 feet. It is a great cause of the richness of vegetation and dampness of soil. In the poorer tracts (such as the district of *Jounsar*) if snow does not fall during the winter, the subsequent crop invariably fails.

From the end of February till the middle of June, and from October till the middle of November, the sky is generally clear and unclouded. During these months, in consequence, very heavy dew is deposited during the night: so that as a general fact, it may be stated, what with rain, snow, and dew, that moisture in one shape or other falls abundantly, every unclouded day during the year: and the cloudy days without rain do not amount to a month in the year.

In respect of heat the climate of the Himálayas, lat. $29^{\circ} 30'$, at an altitude of 4000 feet above the sea, is temperate; the hot winds cease, and the vegetation takes on a European character. In those parts of the mountains, such as Masúri, where the outermost ridge rises at once from the plains to the height of 5000 or 6000 feet, the climate is perhaps equal to any thing known. About three hours after sun-rise, the heated air of the Dún or valley, particularly during the hot months, rises and establishes a current upwards. It gets rarefied, and consequently cooled, and causes a cool fresh breeze across the hills towards the interior, which diminishes the effects of intense solar radiation at this season. It is as regular as the sea-breeze of a tropical island. At Masúri, 6000 to 7000 feet above the sea, the mean annual heat is 57° ; the hottest months June and July, have a mean temperature of 67° ; the coldest months are December and January, the mean heat of January is 42° . At Hawulbagh, below Almora, nearly 4000 feet above the sea, the mean temperature for the year, deduced from Mr. TRAILL'S* register, is 60° ; that of January is 41° , and of July, 70° , giving a range of 39° between the coldest and hottest months of the year. Between the temperature at 7 A. M. in January and 2 P. M. in July, there is a difference of 53° . On one occasion, the thermometer stood at 18° , shewing a range of not less than 60° between the greatest observed extremes of summer and winter.

In the valley of Dehra, according to the Honorable Mr. SHORE, the mean temperature of the year is about $70^{\circ}.5$. The mean of the hottest month is 84° , and of the coldest $53^{\circ}.2$. The greatest observed heat was in June 101° , and the maximum cold was in January $37^{\circ}.7$. The greatest range of temperature in a month was in April, the maximum being 93° , and the minimum 53° , a difference of 40° ; the least range was in August, the maximum being 90° and the minimum 72° , a difference of 18° . The extreme difference for the year was $63^{\circ}.2$; shewing one of the most "excessive" climates known. Speaking generally, it may be stated of the Dún, that the cold weather commences earlier, and lasts longer than in the plains in the neighbourhood; and that the cold of winter is greater: that the hot winds of the plains are shut out by the Sewálik lower hills, on the S. W. of the valley. A partially hot wind is at times felt, but the European residents do not use tatties for

* Transactions, Asiatic Society, vol. xvi.

refrigeration. No register of the fall of rain, so far as I know, has been kept, but it may be said that more falls than on the plains near the Dún, and less than on the mountains above it. According to Mr. SHORE, the average of three years was 112 rainy days in 365. The climate is decidedly damp, and remarkably so in contrast with the plains. This is a necessary consequence, from its situation between the Himálayan mountains and the Sewálik Hills, and from the great quantity of jungle with which it is still covered. In the hot winds, on entering the Dún, after leaving the parched and withered aridity of the plains, the eye is filled with a refreshing vista of luxuriant verdure. Parasitical orchideæ or air plants, which require a combination of great moisture and heat to thrive in, cover the trees in the greatest profusion: while at Seháranpur, they are kept with difficulty alive, under a constant supply of artificially afforded moisture. Very rarely, perhaps once or twice in the memory of man, snow falls in the Dún. Mr. SHORE records an event of this kind as having occurred in Feb. 1814.

From what has been mentioned above, it appears to me that there is a great similarity between the climate of the tea districts of China, and that of the lower heights, or the outer ridges of the Himálayas, in the parallel of 29°30'. The chief difference is perhaps more moisture in this country. How extensive a range of temperature may be had will be seen by collating in a tabular form, the temperature of four places already given, as below:

	Annual mean heat.	Summer heat.	Winter heat
Seháranpur, 1000 feet above the sea, plains,	73°	90°	52°.
Dehra valley, 12 to 1400 feet do. Himalayas,	70°.5	84	53?
Hawulbagh, 3887 feet do.	do.	70	41
Masúri, 6500 feet do.	do.	57	42

By varying the altitude the temperature could be graduated to any point that might be desirable, and as temperature is the mean condition, I am of opinion that tea might successfully be cultivated in this part of India. It is an experiment which can be conducted properly only by a Government. On an extensive scale, the risk would be too great for private speculation, and on a small one, the advantage too inconsiderable. There remains now to consider what situation is best adapted for a trial. Besides fitness of climate, there are other circumstances to be taken into account as affecting a favorable experiment:—such as abundance and cost of labor, facility of communication, and distance from the plains.

Three stations in the mountains within the Company's territories might be thought of, Almora, Subáthu, and Masúri. The hills about Almora, although favorable enough in climate, are separated from the plains by a broad belt of Terái, which is only passable at certain seasons of the year: and it is so unhealthy as to be unsafe at all times to pass through. The population in the neighbouring hills is scanty, and a great portion of the Terái is uninhabited. Were the tea cultivated, be-

sides a permanent establishment, at the season of gathering, a number of additional hands would be required, which could only be advantageously provided where labour was plentiful and cheap. On these accounts, I am inclined to think, that Almora would not be an eligible district to make a trial in.

Of Subáthu I cannot speak from personal observation, but I imagine it would be a good situation. It is immediately over the plains. There is some level ground about it; there is no Terái jungle in front of it, and the country at the foot of the mountain is inhabited. The valley of Pinjór, in the neighbourhood, is populous. The climate is like that of corresponding heights on the hills north of the Dún.

I am inclined to think the best ground would be near Masúri on the hills north of the Dún. The district lies between the Jumna and Ganges, which are navigable till within a few marches from the foot of the hills. The communication with the plains is open almost all months of the year, and the valley of the Dún is inhabited. There might be had here within a short distance a great variety of situations in respect of soil, climate, and exposure. I imagine that the best position would be a tract on the southern face of the outermost ridge, situated from 3000 to 6000 feet above the sea, or where the hot winds cease, up to the limit of winter snow. On the northern slope, it should be at a lower level, and perhaps here the finer sorts of tea might be produced. The valley of the Dún has a gravelly or sandy soil, which appears closely to resemble what is described as best for the tea cultivation in China, and the climate is such that it is probable that the inferior kinds of tea, such as are grown in the province of Canton, forming perhaps a large proportion of the article exported to Europe, if not superior teas, might be produced in it. In some places, as at Nahu, the rocks and soil of the Sewálik hill formation rise upon the Himálayas to the height of 3000 feet, and in situations of this sort all the most favorable conditions of soil and climate are combined.

I shall conclude by stating compendiously the opinions in this letter:

1. That the tea plant may be successfully cultivated in India.
2. That this can be expected no where in the plains from 30° N. down to Calcutta.
3. That in the Himálaya mountains, near the parallel of 30° N. notwithstanding some circumstances of soil and moisture of climate, the tea plant may be cultivated with great prospect of success; that a climate here may be found similar in respect of temperature to the tea countries in China; that in the direction and great slope of the hills, the absence of table-land or elevated valleys, and the contracted figure of the existing valleys, are the chief difficulties in the way of cultivation, which may prevent tea from being produced in great quantity on any one spot.

4. That the most favourable ground for a trial is a tract on the outer ridges, extending from 3000 feet above the sea, or the point where the hot winds cease, up to the limit of winter snow.

5. That in the valley called the D h ra D n, if not the better, the inferior sorts of tea might be produced.

IV.—On the Efflorescence of *Kh r  N n*, or Sulphate of Soda, as found native in the soil of *Tirh t* and *Saran*, in the province of *Behar*. By Mr. J. Stephenson, Supt. H. C. Saltpetre Factories, &c.

The first time I had an opportunity of observing the efflorescence of this salt, took place in the month of January, 1831, between the villages of *Now* and *Jandaha*, in *Tirh t*. I was travelling between the first place and *Singha*, a distance of 40 miles. It being night time, and my bearers having stopped to refresh themselves, I looked around and was surprised to find the ground covered white in all directions. Being then a stranger to this part of the country, and the weather very cold, I thought the white appearance might be caused by frost rind*, or a shower of snow; but on further examination, I found it to be an efflorescence of saline matter, covering the earth to the depth (in some places) of a quarter of an inch. In a few minutes, I collected a sufficient quantity for future examination, and I subsequently subjected the same to analysis. The result I found as follows:

Examination by tests.

Litmus test paper,	No change.
Turmeric do.	Do. do.
Oxalic acid,	No precipitate.
Prussiate of potass,	No change.
Muriate of barytes,	Copious precipitate.
Nitrate of silver,	Precipitate not very copious.

The two last precipitates being carefully washed, dried, and weighed, gave on the scale of equivalents, a percentage of

Sulphate of soda,	58
Muriate of do.	22
Insoluble matter,	20

100

Several other samples, which I tried, varied in the quantity of insoluble earthy matter, but very little in the composition of the saline contents. Of course the insoluble matter will vary according to the care taken in collecting the article at the surface of the ground, the upper part of which is the purest.

I have during a three-years' residence had many opportunities of observing (in my frequent journeys in *Tirh t* and *Saran*) the efflores-

* A circumstance of no unusual appearance in Behar during the cold season.