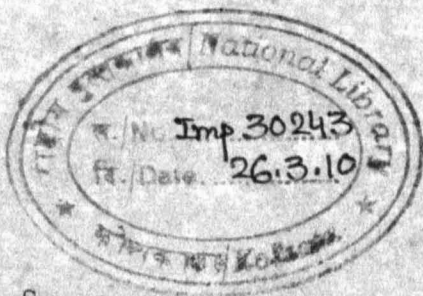


No. 875.

FROM S. O. B. RIDSDALE, Esq., c.s.,

Secretary to the Chief Commissioner of Assam,

TO THE SECRETARY TO THE FAMINE COMMISSION.



Shillong, $\left. \begin{array}{l} \text{dated 8th March,} \\ \text{issued March,} \end{array} \right\} 1879.$

SIR,

IN reply to your letter No. 28, dated 22nd June. 1878, forwarding copies of a Circular containing inquiries suggested by the Famine Commission on matters relating to famine prevention and relief, I am directed to submit the accompanying compilation, which contains answers to certain questions in Chapter I. of the above Circular. I am at the same time to express the Chief Commissioner's regret at the delay which has unavoidably occurred in its submission, owing to the want of accuracy and completeness in the information obtainable from district officials, defects which Sir Steuart Bayley fears have much impaired the value of the report.

2. In forwarding this compilation, I am desired by the Chief Commissioner to remark that none of the Assam officials having any experience of famine, and the probability of the country ever suffering from drought being so remote, it seemed to him useless to give hypothetical answers to the series of questions as to the best method of dealing with famine, and replies to these questions were, therefore, not called for from the District Officers.

3. In compiling the answers to the questions contained in Chapter I. of your Circular, an endeavour has been made to give such information as may enable the Commission to compare the agricultural and meteorological conditions of Assam with those of other provinces, and to estimate the prospects and probabilities of the country being subjected to famine,—nothing more than this has been attempted.

4. No minute by Sir Steuart Bayley accompanies this letter, as, having been examined personally before the Famine Commission, he presumes that no further answers from him are required.

5. A report by Mr. Livesay, Assistant Superintendent of Police, in which that officer records his own personal experience in the Madras famine, is appended.

I have the honour to be,

SIR,

Your most obedient Servant,

S. O. B. RIDSDALE.

Secretary to the Chief Commissioner of Assam.

2 1

ANSWERS to certain Questions in Chapter I. of the Circular dated 22nd June, 1878, issued by the Famine Commission, asking for information on matters connected with the relief and prevention of Famine, compiled by order of the Chief Commissioner of Assam.

PREFATORY REMARKS.

As Assam has never, within the memory of man, been visited by a famine, and as, therefore, the District Officers of the Province have had, with, perhaps, two exceptions, no experience in dealing with wide-spread distress, the reports called for from them were restricted to certain of the questions contained in Chapter I. of the Circular. A report, however, in manuscript, by Mr. Livesay, Assistant Superintendent of Police, who was deputed to Madras on famine relief duty, and which contains the views of that officer on matters in connection with the prevention and relief of famine, accompanies this compilation.

Many of the answers to the questions given below are, it must be admitted, incomplete, and none, perhaps, are as full as could be desired. The district reports received are very uneven, both as regards the quantity and the quality of the information given,—a result owing, doubtless, in a great measure, to the fact that the District Officers of this Province have rarely had their attention specially called to the many collateral questions indirectly connected with the main question of famine; and but little supplementary information could be obtained from the records of the Secretariat. Under these circumstances, it has appeared to the compiler preferable to submit incomplete and defective answers to the questions to adventuring statements and statistics not based upon reliable information.

CHAPTER I.—CONDITION OF THE COUNTRY AND PEOPLE.

QUESTION I.

This answer is mainly a reprint of a report submitted by the Meteorological Reporter to the Government of Bengal, a copy of which has already been forwarded to the Secretary to the Famine Commission.

Before proceeding to answer the questions regarding the normal system of rainfall in the Province, the physical features of the Province will be briefly enumerated, as to those features is mainly attributable its peculiar system of rainfall, and the average monthly wind directions will be noted.

The Province of Assam lies on the north-east border of Bengal, on the extreme frontier of the Indian Empire, with Bhutan and Thibet beyond it on the north, and Burmah on the east. It comprises the two valleys of the Brahmaputra and Surmá Rivers, and the central hill tracts, the Gáro, Khási and Jaintiá, and Nága Hills, which separate them. It lies between latitude $24^{\circ} 18'$ North and longitude $92^{\circ} 46'$ East, and comprises an area of 41,798 square miles.

Assam Proper, or the Valley of the Brahmaputra, is a long alluvial plain, about 450 miles long, and of an average width of 50 miles, shut in by mountains on the north, east, and south, with the Brahmaputra flowing through its entire length from east to west, and crossed by countless tributary streams of every magnitude, falling into the central channel from the bordering mountains on either side.

The valley of the Surmá, so called because it is intersected by the Surmá or Barák River, comprises the two districts of Sylhet and Cachar. On the north it is shut in by the Khási and Jaintiá Hills and the Nága Hills; on the east by the hills of Manipur, a continuation of the great mountain chain running north and south, which forms the watershed dividing the river system of Eastern Bengal from that of the Irrawaddy; on the south lie the Lushai and Tipperah Hills, offshoots westward from the same range.

The Nága Hills, Khási and Jaintiá Hills, and Gáro Hills are a continuation of the mountainous chain which sweeps round the head of the Brahmaputra Valley. Each range has marked physical features of its own.

In the north-eastern parts, in the neighbourhood of Jaipur, the Nága Hills consist of small broken ranges, running generally north-east and south-west, or long irregular spurs, leading down into the plains, usually steep on the northern side, with a more gradual slope on the south.

Further westward, the hills are more rugged and abrupt. The main ridge, named the Barrail, in the neighbourhood of Samaguting, is remarkably precipitous in character, and towers to the height of 10,000 feet.

The peculiar feature of the Khási and Jaintiá range of hills is the abruptness with which they rise almost perpendicularly from the Surmá Valley, on their southern face, attaining rapidly an altitude of over 4,000 feet, while on the north side the ascent from the Assam Valley is by a succession of gradual spurs and detached ridges.

Shillong, which is situated about the centre of this tract, stands at an elevation of 4,900 feet, while the ridge overlooking it, the highest of any part of the range, is 6,449 feet above the sea.

The Gáro Hills, the termination of this chain, present very similar characteristics, being steep and precipitous on the southern face, and sloping in gradual ridges to the plains on the northern and western sides. They are of rather lower general elevation,—the highest peak of the range, below which Tura, the head-quarters of the district, is situated, being not more than 4,700 feet above sea-level. Tura itself has an elevation of only 1,300 feet.

Easterly winds are prevalent throughout the year, having a southerly tendency during the rainy season, while from October to March a northerly tendency is apparent.

Wind directions.

The following table denotes the average monthly wind directions for the Assam stations. They are deduced from nine years' observations in the cases of Goálpára and Cachar, and four years in the case of Sibságar:—

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Goálpára.....	S. 89° E.	N. 86° E.	N. 80° E.	N. 87° E.	S. 86° E.	S. 76° E.	S. 55° E.	S. 15° E.	S. 67° E.	S. 55° E.	S. 87° E.	S. 87° E.
Cachar	S. 22° E.	S. 33° E.	S. 60° E.	S. 82° E.	N. 71° E.	N. 57° E.	N. 21° E.	S. 49° W.	S. 43° W.	S. 46° W.	S. 74° E.	S. 56° E.
Sibságar	N. 65° E.	N. 65° E.	N. 64° E.	N. 56° E.	N. 44° E.	N. 89° E.	S. 34° W.	N. 60° E.	N. 67° E.	N. 73° E.	N. 63° E.	N. 74° E.

The numbers which are here shown are obtained by classifying the observed wind directions to eight points of the compass, and are reduced to percentages of the entire number of the observations. The resultant direction in each month is computed by Lambert's formula, from the number of the observed winds, and the excess of the observations in the direction of the resultant is shown as a percentage.

In the twelve maps, which are appended to illustrate the divisional rainfall per mensem in comparison with wind directions, the arrows show the direction of the resultant, and by their respective length the percentage of the observations which expresses its value, five-eighths of an inch being equivalent to 100 per cent.

The returns of the rainfall in the Province are obtained from the accounts furnished by the Civil Surgeons at the several sudder stations, and the officers in medical charge of sub-divisions, and from registers kept by private gentlemen.

The annual average rainfall in Assam is 115·15 inches.

The amount of rainfall is at present determined at 23 stations; formerly the stations numbered 21, and the period of time over which the registration has extended varies from 4 to 20 years.

The average results of these records from the several sudder stations, as given in the following table, show that in the first three and last two months of the year the rainfall is comparatively slight, whilst from April to October (inclusive) the quantity is largely increased, the maximum amount being in July, when there is an average in the Province of 23·13 inches.

Names of Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Silchar	·49	2·92	7·51	12·17	14·92	19·84	22·65	17·04	14·03	7·51	·82	·50	120·40
Sibsagar	1·31	2·42	4·62	10·36	12·47	14·66	16·07	15·85	10·67	4·73	1·26	·63	95·05
Sylhet	·57	1·52	5·41	14·54	22·24	32·01	28·92	24·35	17·57	8·66	·63	·12	153·34
Goálpára	·38	·52	1·79	6·00	13·09	27·21	18·44	11·76	11·41	5·26	·27	·14	96·27
Tura	·71	1·18	1·43	5·29	15·11	23·84	23·60	15·50	20·63	8·32	·45	·09	116·15
Gauhati	·63	1·18	2·00	6·17	10·26	13·19	12·00	10·56	7·56	3·14	·57	·22	67·78
Tezpur	·65	·96	2·19	6·58	10·30	14·03	15·51	12·97	8·63	2·99	·95	·62	76·38
Nowgong	1·11	1·34	2·93	5·81	11·07	11·54	16·09	15·95	11·55	4·23	·29	·28	82·55
Dibrugarh	1·39	3·65	5·62	9·78	12·14	21·69	21·76	18·98	14·64	6·86	1·29	·47	117·27
Shillong	·29	·74	1·70	3·22	9·84	16·52	16·03	14·51	15·82	5·93	1·45	·23	86·25
Samaguting	·68	1·05	1·99	3·21	4·82	9·68	8·35	9·69	6·61	3·82	·15	·11	49·96
Average for the Province	·86	1·83	3·90	9·57	14·53	22·86	23·13	18·05	14·11	5·34	·68	·29	115·15

The rainfall in Assam is very unequally distributed, as is shown by the fact that at Cherra Poonjee* there is an average of about 499 inches annually, that at Sylhet the average fall is about 153·34 inches, and that at Samaguting, in the Naga Hills, the average is 49·96 inches.

The Province of Assam may, therefore, for meteorological purposes, be sub-divided into three parts: *first*, Assam Proper, with the stations, Dibrugarh, Sibsagar, Tezpur, Nowgong, Gauhati, and Goálpára; *second*, the Naga Hills, Khási and Jaintia Hills, and Gáo Hills, with the stations Samaguting, Cherra Poonjee, Shillong, and Tura; and *third*, Sylhet, with the stations Sylhet and Silchar.

The Assam group are situated in the narrow plain of the Brahmaputra, having an elevation at Goálpára of about 140 feet, and at Sibsagar of 500 feet above sea-level.

The tract to the south known as the Gáo, Khási and Jaintia, and Naga Hills, with an average elevation of about 5,000 feet, interrupts a large portion of the vapour which is brought by the south-west winds direct from the Bay of Bengal, and rain is discharged upon these hills and the surrounding plains from the commencement of the rains, in March until the termination of the south-west monsoon, in October.

The heaviest rainfalls are, therefore, at the two terminal portions of the district, the north-eastern division receiving the larger quantity. Thus, at Dibrugarh the average rainfall is 117·27 inches, at Sibsagar 95·05 inches, and at Goálpára 96·27 inches.

In Central Assam, the rainfall appears to range between 65 and 85 inches, and the amount will depend more or less on the position and altitude of the station.

The greatest amount of rain occurs in June and July, the months of August and May being marked by heavy rainfalls.

The Khási and Gáo Hills tract is represented by the stations Cherra Poonjee, Shillong, and Tura. In this tract a condition of affairs exists which is almost unequalled.

* NOTE.—The rainfall at Cherra Poonjee is not included in the above table.

The station of Cherra Poonjee, situated near to the summit of the southern escarpment of these hills, has an elevation of nearly 4,000 feet, and immediately below are the plains of Sylhet. The south-west monsoon here comes in contact with this abrupt escarpment, and the result is a rainfall, elsewhere, it is believed, unequalled. It is on record that in July, 1871, the rainfall reached the unparalleled amount of 336 inches. This enormous rainfall, being produced by a rare combination of circumstances, is more or less local, and the other stations in this district receive a moderate amount. Thus, at Tura the rainfall amounts to 116.15 inches, and Shillong has an average of 101.34 inches.*

* Average of 5 years, 1874-78.

The Sylhet tract contains the stations of Sylhet and Cachar, which may be taken to represent the rainfall in the alluvial plains of the Surma and its branches.

This tract is also exposed to the full force of the south-west monsoon, and, since there is no abruptly rising ground to facilitate the condensation of the vapour, the rainfall is much less than that recorded at Cherra Poonjee. These two stations differ to a certain extent: Silchar receives a diminished amount, and has an average rainfall of 120.4 inches, whilst at Sylhet the average is 153.34 inches. The Khási Hills district therefore receives the largest amount of rain; the Surma Valley and terminal portions of the Assam Valley somewhat less; whilst the smallest average rainfall is recorded in the central portions of the Assam Valley. The variations in rainfall in Assam range from 160 to 50 inches, exclusive of Cherra Poonjee, where the fall is exceptional.

From the fact that no wide-spread distress, owing either to drought or floods, has ever taken place in Assam, it is impossible to determine with any accuracy the limits within which the rainfall can vary without doing serious injury, or to state, judging from past experience, what amount of rainfall for each month, and for the whole year, is sufficient for agricultural necessities. No statistics based on actual experience can be given which would clear up either of these points.

Limits within which the rainfall can vary without doing serious injury, and the amount of rainfall sufficient for agricultural necessities.

It is probable that a variation of 10 or 15 per cent. above or below the average rainfall in each month (provided the fall is seasonably distributed) would not be attended with serious consequences, and that a variation of 25 or 30 per cent. would cause considerable damage, whether the variation was above or below the annual fall.

A rainfall of three-fourths of the average fall would, probably, if it were seasonably distributed, be sufficient for agricultural necessities.

The term "monsoon" is hardly applicable in the case of Assam, in which Province the rainy season may be said to extend from the middle of March to the end of October. Briefly, it may be said that upon the proper distribution of the early and middle rains depends the successful cultivation of the principal rice crops, and of tea, while the cold-weather crops, such as mustard, mung, dal, til, cotton, china, and linseed, depend for a good outturn on a seasonable fall of rain towards the end of October.

Agricultural operations.

The crops in Assam have never been seriously affected by the failure of the seasonal rains, and there has never been such a combination of circumstances as to cause anything more than very partial distress. With these remarks, this portion of the question may be dismissed.

Effect on the crops of the failure of the seasonal rains, and the combination of circumstances under which the worst results have been produced.

QUESTION 2.

Assam having had no experience, within the memory of man, of famine, whether caused by drought or inundation, or of any calamity producing distress amounting to famine, no answer to this question is either necessary or possible.

QUESTION 3.

No statistics giving all the information asked for in this question are available, and to compile from the district reports a statement for the whole Province, possessing, in the slightest degree, either completeness or accuracy has been found impossible. The following statements, which have been taken from the Appendix of the Administration Report

for 1877-78, supply to some degree the information required, but even approximate accuracy cannot be claimed for them.

Districts.	Area of rainy-season crops in acres.									Area of dry-season crops in acres.							Grand total.	Remarks.
	Rice.	Indian-corn.	Other food-grains.	Oil-seeds.	Fibres.	Cotton.	Sugar-cane.	Tea.	Potatoes.	Total.	Wheat.	Barley.	Rice.	Other food-grains.	Oil-seeds.	Others.		
Surma Valley.																		
Sylhet	957,444	..	198,500	63,575	780	1,025	45,010	200	...	1,266,534	..	..	400,724	..	16,238	...	416,962	1,683,496
Cachar	246,800	..	...	..	100	2,500	300	32,885	...	282,585	..	..	...	..	1,000	5,300	6,300	288,885
Brahmaputra Valley.																		
Goalpara	380,236	..	2,519	..	125,950	22,170	500	1,942	...	532,717	10,265	..	...	46,620	75,998	...	132,883	665,600
Kamrup	94,901	..	3,449	..	..	3,618	18,626	5,078	...	125,607	..	..	298,899	5,008	45,683	19,042	366,632	492,299
Darrang	8,202	125	302	140	473	715	2,606	12,470	1,400	26,333	..	..	125,851	400	6,074	300	132,625	150,158
Nowgong	79,030	1,700	7,000	1,910	500	8,500	1,750	6,000	300	106,690	..	..	46,110	24,050	73,000	1,850	145,010	251,700
Sibsagar	216,909	..	...	..	15	28	4,195	30,422	...	251,569	..	..	...	10,622	6,970	43,175	60,767	312,336
Lakhimpur	52,887	..	...	..	..	...	...	97,911	...	150,798	..	..	...	...	...	...	...	150,798
Hill districts.																		
Garo Hills* .....	...	...	...	..	..	...	...	...	...	...	..	..	...	..	...	...	...	...
Khási "†	59,880	9,460	48,360	..	..	1,076	...	...	33,880	152,656	..	..	...	..	...	...	...	152,656
Nága " .....	...	...	...	..	..	...	...	...	...	...	..	..	...	..	...	...	...	...

* The Deputy-Commissioners have reported their returns blank in the absence of any information on the subject.

† No crops during months of December, January, and February, 1878.

Districts.	Average produce of land per acre in pounds.										
	Rice.	Wheat.	Inferior grain.	Indigo and opium.	Cotton.	Oil-seeds.	Fibres.	Tea.	Sugar (gur).	Tobacco.	Jute.
Sylhet	1,147	...	716	...	175	327	...	...	2,233	...	140
Cachar	2,000	...	...	...	320	400	160	230	800	50	...
Goalpara	1,440	400	800	...	...	640	15	14	480	720	...
Kamrup	1,840	...	...	...	123	615	...	221	615	240	...
Darrang	960	...	180	...	240	730	20	345	860	720	...
Nowgong	1,120	...	640	...	240	320	240	224	250	160	...
Sibsagar	902	...	1,230	...	150	328	120	296	174	60	...
Lakhimpur	1,440	...	...	...	...	...	...	251	...	...	...
Khási Hills	640	...	240	...	160	...	...	...	...	4,400	...
Garo " .....	...	...	...	...	...	...	...	...	...	...	...
Nága "	2,112	...	...	...	...	...	...	...	...	...	...

QUESTION 4.

It is quite impossible to state, with any degree of accuracy, what area of the Province, and of its several districts, is protected from drought in an average year by irrigation, because irrigation is but rarely resorted to in average years. It is, however, quite safe to assert that, should a failure of the rains occur, a very large extent of country could be irrigated by utilizing the numerous streams which intersect the country. As a rule, irrigation is only resorted to by the inhabitants of the higher ranges of the Nága and Khási Hills and by the Cachari population of the Goalpara and Darrang districts residing at a distance from the Brahmaputra.

QUESTION 5.

Rice forms the staple-food of the people throughout the Province of Assam.

In Cachar there are three principal classes of rice, viz., the *áus*, the *sáil* or *áman*, and the *ásrá* or *ek-fasli*.

The *áus dhán*, with the varieties, *dumáhi*, *muráli*, and *khasálu*, is sown in April and May, and reaped in August and September. The *sáil* or *áman dhán*, which forms the most important of all the rice crops, is sown in June and July, transplanted in August and September, and reaped in December and January. The *ásrá*, or *ek-fasli dhán*, is sown broadcast about the same time as the *áus*, and is not reaped until December and January.

The principal rice crops in Sylhet are the *áman*, the *katarea*, the *sáil*, the *boro*, and the *áus dhán*.

The *áman* is sown in March and April, and reaped in December. The *katarea*, with two varieties, is sown in April and May, and reaped in October and November. The *sáil* is sown in June, and harvested in November and December. The *boro* is sown in December, transplanted in January, and reaped in April and June. The *áus* comprises two varieties, the first of which is sown in March and reaped in July and August, and the second variety is sown in May, transplanted in June, and reaped in September.

The principal rice crops in the Brahmaputra Valley are *sáli*, *láhi*, *báo*, and *dhú dhán*. The *sáli* and *láhi* are sown in May and June, and transplanted in August and

September. The *báo* (long-stemmed rice) is sown in May. The *sáhi*, *láhi*, and *báo* are reaped in November and December. The *áhu* is usually sown in January, February, and March, and reaped in May, June, and July. In those portions of the district of Nowgong where there is protection from inundation the seed is sown in May and June and reaped in August and September.

The other food-crops grown in the Assam Valley are *matikalai*, *múng*, *kolamah*, and *masúr-dál*. Wheat is grown to a limited quantity in Goálpára, but the extent of land under the cultivation of this product is not accurately known.

Matikalai and *múng* are planted in September and reaped in November. *Kolamah* and *masúr-dál* are sown in October and reaped in March.

In the Nága Hills the rice crop is cultivated at different seasons, according to the elevation of the land. In the higher ranges of the hills, the seed is sown in nurseries in April, transplanted in June and July, and harvested in September and October, while the low-land crop is sown in April and reaped in August. Frequent rain is required from April to September.

The principal food-crops grown in the Khási and Jaintiá Hills are rice, millets, Indian-corn, and potatoes.

In the high land the rice is sown in March and April, and harvested in November and December; in the low-lands it is sown in April and May and reaped in October and November. The crop of millets comprises four varieties,—*raisoh* (*Setaria Italica*), *raihadem* (*Elenisne Caracana*), *raishan* (*Digitaria sp.*), and job's-tears. *Raisoh* and job's-tears are sown in February and March; the former is reaped in June and July, and the latter in November and December. *Raihadem* and *raishan* are sown in June; the time of harvesting the former is November, while the latter is reaped in December and January.

Two crops of potatoes are produced during the year: The summer crop is planted in February and gathered in June and July; and the winter crop is planted in August and gathered in November and December. Indian-corn is sown in February and March and harvested in August and September.

The crops grown in the Gáro Hills are those ordinarily produced by jhúm cultivation, viz., rice, *makhai* (Indian-corn), *kawni* (millet), job's-tears, and potatoes. All kinds of seeds are planted in March and April. Indian-corn is the earliest crop, and is reaped in May and June. Rice is harvested in August and September, *kawni* in October and November, and job's-tears in December.

In regard to the question as to what are the critical times at which rain is essential to the principal food-grains, it may be stated that moderate rain is essential to the *sáhi* and *láhi dhán* during the months of July and August, and during the months of April, May, and June to the *áhu dhán*. *Báo dhán* grows proportionally to the increase of water on the land on which it is sown, and excessive rain cannot prove injurious to the crop after the plants have taken root.

Moderate rain is decidedly beneficial to pulses during the period of their growth.

Excessive rain at the time of harvesting would be ruinous to most crops, save in the hill tracts, where the drainage is effective.

QUESTION 6.

Manure is but partially used by the agriculturists in this Province. Rice land, which forms the bulk of the cultivated soil, is not manured, save incidentally in the hill tracts, where the ashes of the trees burnt down in jhúming operations fertilize for a time the soil. The only crop which is manured as a rule is sugarcane; the average weight of manure given to an acre of sugarcane is about 25 maunds. In Nowgong, tobacco is manured, receiving about 20 maunds of manure to the acre. In the Khási and Jaintiá Hills potatoes and Indian-corn are manured; the quantity of manure per acre given to these crops varies much.

As regards rotation of crops, the District Officers report that there is no customary rotation of crops, and that the same crop is generally produced annually from the same land. The Deputy-Commissioner of Nowgong states that in the *chaparies* (*churs* or low-lying plains subject to inundation), lands which have become temporarily exhausted are allowed to remain fallow for two or three years. He also states that mustard-seed is occasionally sown on *faringati* land after the paddy crop has been removed, but no regular rotation of crops or fallows obtains in this district.

QUESTION 7.

The only attempt made to improve agriculture in this Province has been the establishment by Government of the Shillong Model Farm.

The estates in this Province under the Court of Wards are too insignificant to permit of their being used for the object of making experiments, or of setting examples.

of improved agriculture. The Model Farm alluded to above has by no means proved a success, and, even were the experiment a successful one, it could hardly, owing to the situation of the farm, in a hill tract, result in any general improvement in agriculture. A very brief account of this Model Farm will therefore be given. The farm was established in 1873, on somewhat ambitious lines, but operations are now conducted on a very reduced scale. A few implements (ploughs, harrows, a chaff-cutter, an Indian-corn mill, &c.) were introduced, but little interest in them was evinced by the indigenous population. A new kind of potato was imported from England, but it was found not to be so well suited to the Khási Hills as the kind already acclimatized. Wheat, barley, and oats have been cultivated at the farm, and the seed has been distributed among the Khásias, but without good results. Heavy manuring and irrigation is required for the cultivation of these grains, and, as manure is not readily procurable in these hills, there is little probability that these grains will be cultivated by the Khásias to any great extent.

In 1876, an attempt was made to introduce a few English cattle, and thereby improve the breed of cattle in these hills. The cattle, however, died from rinderpest soon after their arrival at the farm.

In addition to the attempt, above described, made by Government to improve the breed of cattle, an attempt has lately been made by private individuals to import cattle from the North-West Provinces into the district of Lakhimpur, and there are grounds for hoping that the effort to improve the breed of cattle in that locality will be successful. In connection with this subject, it may be observed that in 1868 carts were almost unknown in Assam. Now carts are coming extensively into use all over the Assam Valley. The cart-bullocks are, generally, imported cattle. These cattle, unless well fed on grain, rapidly deteriorate, as they do not thrive on the coarse grass of the country. Buffaloes, however, which are imported from Bengal, improve in the Province. Considerable numbers of these animals are imported annually. Agricultural exhibitions have never been held in this Province.

The only material change which has taken place in agriculture during the last fifteen years is the extended cultivation of mustard-seed on the chur lands of the Brahmaputra. This remunerative branch of industry has been stimulated, it is said, by advances of seed and money made by the Marwari merchants in the principal stations of Assam.

The apathy of the people, and not the want of land or poverty of the soil, is the cause of the backward state of agriculture in Assam. A great extent of land lies waste, and a continuous harvest might be obtained from land that remains fallow, if cultivators systematically manured the soil. But, as a matter of fact, the Assamese cultivator is very well off, and does not, probably, work during the year two-thirds of the time that a Bengali or Behar cultivator will do.

No deterioration of the soil has ever been observed.

QUESTION 8.

With regard to the first portion of this question, the following table, compiled from the Bengal Census Report of 1872, supplies all available information :—

Districts.	Total population.	Male adult agriculturists.	Percentage of agriculturists to total population.
Sylhet	1,719,539	347,248	20.19
Cachar	205,027	40,462	19.73
Total	1,924,566	387,710	20.14
Goálpára	444,761*	103,662	23.30
Kámrúp	561,681	157,914	28.11
Darrang	236,009	74,908	31.74
Nowgong	256,390	79,243	30.90
Sibságar	296,589	77,480	26.12
Lakhimpur	121,267	32,877	27.11
Total	1,916,697	526,084	27.44
Nága Hills	68,918	.....	.....
Gáro "	80,000	.....	.....
Khási "	141,838	.....	.....
Total	290,756	.....	.....
Grand Total	4,132,019	.....	.....

* Inclusive of Eastern Duars.

The question as to what proportion of the agricultural population live entirely by the profits of the cultivation of their own land, and what proportion support themselves wholly or in part by field labour for others cannot be answered.

QUESTION 9.

The ordinary economic condition of the portion of the agricultural population directly engaged in the cultivation of the land is fairly good. There is little actual poverty in the Province, land is to be had in abundance, the seasons are generally favourable to agricultural operations, the revenue assessment is light, and prices of labour rule high. The wants of the people are few, and their habits are not extravagant, but they are, as a class, improvident, and the consumption of opium induces indolent habits. The cultivation of tea affords labour to a large number of agriculturists during the intervals in which they are not employed in tilling their own fields.

As to the question of debt, it may be said that the majority of the agriculturists are free from debt. Debts, when incurred, are generally to pay the Government revenue, or to meet the expenses of marriage ceremonies. As regards the disposal by the agriculturists of their surplus income, such surplus, if not expended on marriage ceremonies, is either lent out at interest, or invested in ornaments.

The following table, compiled from the reports from certain districts, gives statistics concerning the economic condition of certain typical cultivators, and shows the source from whence the information has been obtained. The figures are only approximate and of very doubtful value, and the statement is incomplete. The statistics given must be taken for what they are worth: it is impossible to obtain accurate information on some of the points.

District.	Name.	Mouzah.	Village.	Area of land held.		Number of family.		Amount of food-grains, &c., raised from land (maunds).	Amount of rent, &c., paid.	Expenses incurred for hired labour.	Description of dwelling house, number of rooms and out-houses.	Number of cattle, &c., possessed.	Expenses incurred for necessities not produced on land.	Value of other property possessed.	Amount of debts.	REMARKS. (Source of information, &c.)
				Total.		Male.	Female.									
Sylhet	Padu Ram Das.	Khitta.....	Pirizpur ..	10 3 0		4	4	60	Rs. 87 0 0	Nil.	{ Fairly good, 2 rooms }	5 bullocks ..	Rs. 50	Rs. 41	Nil.	Earns Rs. 72 per annum. Information supplied by Babu Jadu Nandan Das, Extra-Assistant-Commissioner, based on reports made by the villagers to the head mohurrir of his office. Figures approximate.
	Sheikh Chund	Ditto.....	Barakhata ..	6 7 3		4	4	42	2 0 0	Nil.	Ditto ..	Ditto ..	60	37	Nil.	Earns Rs. 90 per annum by exchanging gold and silver coins. Information received as above.
	Judai Maji.	Thalagul.....	Pugh Uttar Cuch.	15 0 0		2	3	76	15 0 0	Nil.	{ Fairly good, 3 rooms, 1 out-house }	10 bullocks ..	40	23	Nil.	Information supplied by Hamid Bakht, Extra-Assistant-Commissioner, based on reports submitted to him personally by the cultivators.
	Agon Ram ..	Tamaspur	Jontore	30 0 0		7	7	120	15 0 0	Nil.	{ 2 fairly good houses, 3 rooms, 3 out-houses. Bamboo and grass with reed walls, 3 rooms, 8 out-houses. }	15 bullocks ..	144	202	Nil.	Information supplied by Hamid Bakht, Extra-Assistant-Commissioner, based on reports made by the amlah in his office.
Nowgong	Bhog Ram Medhi.	.....	.....	48 7 8		12	..	{ 150 Other produce, value Rs. 80. }	27 12 3	15	{ 3 rooms, 8 out-houses. }	40 cattle bullocks-goats }	40	{ 300 (moveable property.) }	Nil.	Invests surplus in ornaments and marriage ceremonies. Information supplied by mouzahdars considered correct.
	Lakhi Pati ..	.....	.....	53 3 8		13	..	{ 120 Other produce, value Rs. 60. }	30 8 9	5	{ 3 rooms, 6 out-houses. }	35 cattle ..	30	{ 230 and 25 mds. of grain. }	Nil.	Ditto ditto.
	Mou Saikya	.....	.....	39 1 9		12	..	{ 300 Other produce, value Rs. 150. }	23 2 0	Nil.	{ Ditto 5 out-houses. }	27 cattle ..	20	{ 200 and 100 mds. of grain. }	Nil.	Disposes of surplus in ornaments and marriage ceremonies, by hoarding and lending.
	Nambari Surma.	.....	.....	36 14 4		12	..	{ 150 Other produce, value Rs. 60. }	17 4 0	80	{ Ditto 3 out-houses. Thatched, with reed walls, 3 rooms, 2 out-houses. }	52 cattle ..	15	{ 300 and 25 maunds. }	Nil.	Source of information as above. Ditto Ditto.
Lakhimpur	Ghinloya ..	Lakhimpur....	.....	11 2 10		2	3	.....	7 12 0	..	{ Thatched, with reed walls, 3 rooms, 2 out-houses. }	3 bullocks ..	Purchases one month's consumption of dhan, earns Rs. 3 by sale of vegetables, and labours as coolie and peon.	.....	.....	About Rs. 4 per head is spent on necessities not produced on land. Brass plates are plentiful. About 5 maunds of grain per head are possessed by the people.
	Sukura ..	Lakhimpur Sadia.	.....	9 0 0		2	2	.....	6 6 0	..	Ditto ..	{ 2 bullocks 4 cows }	Earns Rs. 30 by sale of potatoes, and labours as coolie or carrier.	.....	.....	The agriculturist buries the surplus income, lends a portion, spends a portion (about Rs. 70) on each marriage.
	Poali ..	Modukhat ....	.....	12 0 0		3	1	.....	7 8 0	..	Ditto ..	{ 1 bullock 1 cow }	Sells dhan to purchase necessities.	.....	.....	Debts are incurred for marriage ceremonies, and the purchase of bullocks.
	Murali ..	Tengakhat ....	.....	17 2 10		4	3	.....	11 0 0	..	Ditto ..	{ 4 bullocks 6 cows }	Rears silkworms and thereby earns Rs. 27-8. Labours as coolie or contractor.	.....	.....	Information supplied in special report (1878) of Deputy-Commissioner.
Sibsagar	Jogu Dom ..	Jogonia .....	.....	17 0 0		5	5	.....	10 13 0	193	{ 3 thatched houses, 3 rooms, 1 out-house. }	{ 4 buffaloes 2 bullocks 2 calves 1 pony }	..	.....	Nil.	Earns income by leasing opium mehals, fisheries, julker lands, &c. Lends surplus and spends about Rs. 11 per annum in feasts. Net profits Rs. 45.
	Puna Ram Gogoi.	Changmai	Cherekaper...	16 0 0		4	3	.....	10 6 0	..	{ 3 thatched houses, 3 rooms. }	{ 2 buffaloes 2 cows 1 calf }	30	.....	11	Spends Rs. 68-7 on opium per annum. Incurred debt to pay Government revenue.
	Kina Ram Ahom.	.....	.....	35 0 0		5	9	.....	24 8 0	Nil.	{ 3 thatched houses, 3 rooms, 1 out-house. }	{ 2 bullocks 2 cows 4 calves }	60	.....	Nil.	Spends surplus income on marriage ceremonies and Rs. 11 per annum in feasting his people.

QUESTION 10.

Land in Assam is held under various tenures. A full description of these various tenures will be found in the Report on the Administration of the Land Revenue in Assam for the year 1874-75, and they will be but briefly enumerated here.

Portions of the districts of Sylhet and Goálpára are permanently settled. The permanently-settled portion of Sylhet consists partly of those lands which were settled at the time of the decennial settlement of Bengal, and partly of lands which have been settled permanently since that date. In portions of Goálpára, at the time of the decennial settlement of Bengal, a nominal tribute, which had formerly been paid to the Mogul Emperors, was accepted as land revenue, and this recognition has subsequently been regarded as a permanent settlement.

The country temporarily settled comprises the districts of Cachar, Kámráp, Darrang, Nowgong, Sibságar, and Lakhimpur, and portions of the districts of Sylhet and Goálpára.

At the time of the decennial settlement of Bengal, only cultivated lands were included in the settlements made in Sylhet. In 1802, portions of the unassessed land (then and since known as ilam lands) were settled under hálábádi pottahs, in which no term of years was expressed, and the permanency of this tenure was subsequently (1869) recognised by Government. The full proprietary right of Government over the remaining ilam lands was determined in 1869, and settlements were made at rates based on the rents paid by the cultivators for the same class of land in other parts of the district. The term of settlement was fixed for 20 years, and leaseholders were declared to have a right of occupancy.

The larger portion of Cachar is held under 20 years' lease, and the cultivator's right of occupancy and transfer is distinctly recognised. The revenue is collected by tehsildars, who have power to distrain and sell the property of defaulters.

In Sylhet, the Jaintiá tract, comprising 459 square miles, and certain other estates, covering an area of about 60 square miles, are temporarily settled. After the annexation of Jaintiá, money rents were substituted for the rents formerly paid in kind and labour, and the lands were settled with the cultivators for a period of five years. The leaseholders have a right to re-settlement, subject to a revised settlement. Sub-tenures are rare, and the condition of the people is exceptionally good.

Throughout the Assam Valley the ryotwari tenure is almost universal. The country is divided into 392 tehsildari circles, each of which is presided over by a mouzahdar.

Rice lands are usually cultivated from year to year, and the higher lands in cycles of years. The ordinary rates of assessment are—

	Rs.	A.
Basti (or homestead lands)	3	0 per acre.
Rupit (or low rice lands)	1	14 „
Faringati (or high lands)	1	8 „

A considerable tract of land is held under la-kheraj and nisf-kheraj tenures.

La-kheraj lands were originally given by the Assam Rajahs as a gift to certain religious institutions; the proprietary right of the grantees in these lands has been recognized.

Nisf-kheraj lands pay half the rates above mentioned; the lessees of these lands are held to be Government ryots at favourable rates, and their tenures are heritable.

In addition to the above, there are certain large holdings, called *chamuas* and *kheraj khats*, the revenue of which are paid without the intervention of mouzahdars. The holders of these estates are merely large ryots having the privilege of paying the revenue direct.

The right of Government to dispose at will of all waste lands beyond the limits of cultivation, except in the permanently-settled portion of Goálpára, has been expressly or implicitly reserved. Portions of these waste lands have from time to time been granted (mainly for tea cultivation) under various rules. At the present time leases of such lands for a term of 30 years, on very favourable terms, are given. These leases are sold at public auction; they give a permanent, heritable, and transferable right of use and occupancy in the land leased.

In the hill districts there are but few revenue-paying tenures. There is one land revenue paying mouzah in the Nága Hills, and there are certain rice lands in the Jaintiá Hills settled under the Assam Settlement Rules. There is some land settled under hálábádi pottahs in the Khási and Jaintiá Hills district. There is a temporarily-settled estate in the Gáro Hills district. These are the only tenures in the hill districts paying ordinary land revenue. The rest of the land paying revenue to Government is held subject to payment of house-tax. Among border tribes, similarly, Government lands are leased for cultivation on payment of house-tax, hoe-tax, or poll-tax, at certain fixed rates. In regard to the question how far the character of the tenure appears to affect the economic condition of the person holding, it may be safely asserted that the tenures

prevalent in the Assam Valley districts are very favourable to the cultivators. No extra payments are demanded from the ryot, and his interest in the land is safe so long as the revenue is paid. In the Surma Valley the ryots are mainly peasant proprietors, who have to pay a very light assessment. Broadly, the economic condition of the ryot in this Province is favourably affected by the character of the land tenures. It is doubtful if there are any conditions of tenure which might be changed with advantage to the holder.

The following table, taken from the Appendix to the Administration Report for 1877-78, supplies all available information regarding the extent of land under the various tenures in the Province:-

Varieties of Tenure held direct from Government.

1	2	3	4	5	6	7	8	9
Nature of tenure.	Number of estates.	Number of villages.	Number of holders or shareholders.	Gross area in acres.	Average area of each estate in acres.	Average assessment of each estate.	Revenue rate per acre.	Supposed net profit per acre.
						Rs. A. P.	Rs. A. P.	
Great zemindaries, paying more than Rs 50,000 revenue.								
Large zemindaries, paying more than Rs. 5,000 revenue.								
Small zemindaries other than those of cultivating communities.	618		3,126	2,045,632	3,310	484 0 0	1 0 0	
Proprietary cultivating communities paying in common.	8,989		83,955	332,015	36	18 0 0	0 8 1	
Proprietary cultivators paying separately, including all small estates paying less than Rs. 100.	522,096		998,379	5,095,264	9	6 0 0	0 10 0	
Holders of revenue-free tenures.	455	No data.	368	60,524	111			
Grants held under the Rules of 1838 and 1854	522		2,341	24,953	47			
Landholders who have redeemed the revenue.	86		86	78,315	910			
Purchasers of waste lands.	1,778		2,098	276,045	154			
Total	327		293	192,254	588			
Total	534,871		1,090,646	8,105,002	15			

QUESTION 13.

The following table, taken from the Appendix to the Administration Report for 1877-78 supplies the only available information as to the general incidence of land revenue on the cultivated area. The statement is incomplete, but it has been found impossible to compile a statement at all approaching completeness or correctness from the district replies.

Surveyed and Assessed Area in Acres.

1	2	3	4	5	6	7	8	9	10	11	12	13
District.	CULTIVATED.			Total.	UNCULTIVATED.			Total area assessed.	ASSESSMENT.			
	Irrigated.	Unirrigated.			Grazing lands.	Culturable.	Unculturable waste.		Gross amount.	Rate per acre on cultivation.	Rate per acre on culturable land.	Rate per acre on total area of settlement.
	By Govern-ment works.	By private individuals.							Rs.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Cachar			257,285	257,285	15,000	92,230		364,605	1,74,028			0 7 6
Sylhet		11,386	1,560,363	1,571,749		474,390	579,811	2,925,944	4,85,217	0 2 9		0 6 6
Goalpara			665,600	665,600		1,371,520	800,000	2,837,120	80,294			0 6 6
Kamrup			534,866	534,866				534,866	8,83,374			
Darrang		35,989	186,444	222,433		1,600		224,033	3,94,949			
Nowgong		5,290	217,687	222,917		1,074		223,991	3,90,485	2 2 3		1 11 6
Sibsagar			813,875	813,875				813,875	5,55,594			
Lakhimpur			100,928	100,928				100,928	1,74,266			
Garo Hills			No data.						866			
Khasi and Jaintia Hills			395	395				395	290			0 11 9
Naga Hills			736	736				736	853	2 2 3		1 2 3
Total & average rates		52,599	4,138,179	4,190,778	15,000	1,340,904	1,379,811	7,526,493	21,50,446			

The proportion which the land revenue bears to the value of the gross produce cannot be given. As regards the distribution of the incidence of land revenue on the various classes of land, it is generally admitted that the incidence is fairly distributed.

The assessment of the permanently-settled portions of the Province was fixed at the time of the permanent settlement; in Assam Proper the assessment was fixed in 1868-69; and, as regards Jaintia, the other temporarily-settled estates in Sylhet, and the Eastern Duars in Goálpára, the assessment was last fixed in 1877-78.

In Cachar, the assessment was last fixed in 1859-60; this assessment will come under revision in the present year.

With the exception of Sylhet, no practical difficulty has been found in realizing the revenue as now assessed, and the difficulty in Sylhet has arisen not from over-assessment (the people are under-assessed), but from the unsuitability of the Sale Law to the peasant proprietary system prevailing in the district. In Assam Proper the land revenue is, as a rule, realized in full upon the due dates, and the extreme measures of the law for realizing arrears of revenue have rarely to be resorted to.

In Assam Proper, the revenue is payable in two instalments in the proportions of three-fifths and two-fifths: the first instalment is due on the 15th October, and the second on the 15th January. The same rule obtains in the Eastern Duars. In Sylhet and Cachar the revenue is due in July, October, and January, in equal instalments. In Goálpára the revenue of the permanently-settled lands is payable monthly.

As a rule, the several instalments do not bear a fair proportion to the value of the several harvests from which the revenue has to be made good, but, apparently, the ryot is not affected injuriously thereby.

Interest is not charged on land revenue in arrear.

QUESTION 14.

It is impossible to state with accuracy the average price of land per acre throughout the Province, or, indeed, in any one district. The price varies considerably from place to place, and even from time to time, owing to the position of land, the nature of the tenure under which it is held, and many other causes. In Assam Proper and in Cachar, where the proprietary right in the land belongs to Government, in regard to the ordinary tenure, sales of land are rare, and such sales are in reality not sales of the land itself, but merely transfers of the right to renewal of the pottah. No registers of these private transfers are maintained, and statistics as to the average price per acre cannot, therefore, be given. In regard to special tenures, conveying a proprietary or quasi-proprietary right, sales of land undoubtedly take place; but of these also there is no official record, and consequently there is no information available as to the average price paid per acre. As regards the districts of Sylhet and Goálpára, it may be broadly stated that the average price of land per acre is about twenty years' purchase of the annual rental; but on this point, in the absence of registration, detailed information is not forthcoming.

As regards the question as to the amount of land sold yearly for arrears of revenue, the answer is that, excepting Sylhet, sales of land for arrears of land revenue are extremely rare in this Province: and in Sylhet the district returns give no information as to the area of the estates sold.

QUESTION 15.

The following table, compiled from the most recent returns, gives the rates of wages for the principal kinds of labour, both skilled and unskilled.

DISTRICTS.	1		2		3		4		5		REMARKS.
	Able-bodied agri- cultural labourers.		Syces or horse- keepers.		Common masons.		Carpenters.		Blacksmiths.		
	Daily.	Monthly.	Daily.	Monthly.	Daily.	Monthly.	Daily.	Monthly.	Daily.	Monthly.	
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	
1 Sylhet	0 8 0	9 0 0	0 6 0	{ 6 0 0 to 7 0 0	0 5 0 to 0 6 0	8 0 0 to 10 0 0	0 7 0 to 0 10 0	12 0 0 to 15 0 0	0 10 0 to 0 12 0	12 0 0 to 20 0 0	
2 Cachar	0 5 0	7 8 0	0 5 0	8 0 0	0 8 0	14 0 0	0 8 0	15 0 0	0 10 0	15 0 0	
3 Goalpara	{ 0 4 0 to 0 6 0	{ 6 0 0 to 10 0 0	{ 0 4 0 to 0 6 0	{ 7 0 0 to 10 0 0	{ 0 7 0 to 0 10 0	{ 13 0 0 to 18 0 0	{ 0 10 0 to 0 12 0	{ 16 0 0 to 20 0 0	{ 0 8 0 to 0 10 0	{ 15 0 0 to 20 0 0	
4 Kamrup	0 4 0	6 0 0	0 4 0	7 0 0	0 8 0	12 0 0	0 8 0	12 0 0	0 8 0	12 0 0	
5 Darrang	0 4 0	{ 5 0 0 to 7 0 0	0 5 0	{ 8 0 0 to 10 0 0	0 8 0 to 0 12 0	15 0 0 to 20 0 0	0 6 0 to 0 12 0	12 0 0 to 20 0 0	{ 0 5 0 to 0 10 0	{ 8 0 0 to 10 0 0	
6 Nowgong ..	{ 0 4 0 to 0 4 6	{ 6 0 0 to 7 8 0	{ 0 4 0 to 0 5 0	{ 7 0 0 to 9 0 0	{ 0 6 0 to 0 10 0	{ 8 0 0 to 20 0 0	{ 0 8 0 to 1 0 0	{ 15 0 0 to 30 0 0	{ 0 10 0 to 1 0 0	{ 15 0 0 to 25 0 0	
7 Sibsagar	{ 0 3 0 to 0 4 0	{ 6 0 0 to 8 0 0	{ 0 4 0 to 0 5 0	{ 7 0 0 to 10 0 0	{ 0 7 0 to 0 10 0	{ 12 0 0 to 17 0 0	{ 0 7 0 to 0 10 0	{ 12 0 0 to 17 0 0	{ 0 7 0 to 0 10 0	{ 12 0 0 to 17 0 0	
8 Lakhimpur..	0 4 6	8 0 0	0 6 0	9 0 0	0 10 0	20 0 0	{ 0 8 0 to 0 10 0	{ 15 0 0 to 20 0 0	{ 0 10 0 to 0 12 0	{ 16 0 0 to 18 0 0	
9 Garo Hills ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 Khási " ..	{ 0 4 0 to 0 8 0	{ 7 0 0 to 15 0 0	.....	{ 8 0 0 to 10 0 0	{ 0 8 0 to 0 12 0	{ 15 0 0 to 20 0 0	{ 0 10 0 to 1 0 0	{ 15 0 0 to 30 0 0	.....	{ 15 0 0 to 30 0 0	
11 Nāga " ..	.....	{ 6 0 0 to 10 0 0	.....	{ 9 0 0 to 10 0 0	.....	*	.....	*	.....	*	* None procurable.

In most of the districts of this Province, the wages of field-labourers are paid both in money and kind.

In some districts hired field-labourers are almost unknown. In Darrang (the Deputy-Commissioner reports) the agriculturists commonly combine together to cultivate the land and gather the crops. In Nowgong agricultural day labourers are unknown, but engagements to serve for a month or for a year are entered into by the labourers.

In two districts, Goalpara and the Garo Hills, a kind of bond-service exists. In the former district persons in pecuniary difficulties commonly enter into an agreement to give their services, and sometimes the services of their wives and children, in payment of interest on money lent to them. In the latter district a defaulting debtor and his children become the bondsmen of the creditor until such time as the debt may be fully liquidated. The bondsman receives no pay, but is fed and housed, in fact, becomes one of the household, until the debt is paid off.

As regards the latter part of this question there is a good deal of difference of opinion, but the weight of evidence is in favour of the conclusion that the hired labourer is usually able to subsist with fair ease on the payments he receives, and that, as a rule, he is not forced to borrow or forestall future payments. Of course, when the labourer is addicted to the excessive use of opium, he often runs into debt and forestalls future payments.

QUESTION 16.

The following table gives the average price of rice, wheat, gram, matikalai, and salt (the chief staples of food in Assam) in each district of the Province for the year 1878, and this rate may be accepted as the normal average rate, the year having been a normal one:—

	Rice (common).		Wheat.		Gram.		Matikalai.		Salt.	
	per rupee.		per rupee.		per rupee.		per rupee.		per rupee.	
	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.
Sylhet	13	8	7	10	10	12	17	5	8	12
Cachar	13	5	9	2	9	3	12	3	8	3
Goálpára	14	5	11	0	8	10	15	10	8	0
Kámrúp	14	5	11	10	7	14	13	10	8	0
Darrang	10	3	6	5	3	1	11	10	6	8
Nowgong	13	0	Nil.		8	0	16	0	7	2
Sibságar	11	10	Nil.		6	5	9	5	6	5
Lakhimpur	9	10	8	0	7	2	10	8	6	0
Khási Hills	8	0	Nil.		6	10	9	13	5	5
Gáro Hills	9	0	Nil.		7	6	11	0	5	5
Nága Hills	7	10	Nil.		4	0	7	0	4	0

There is usually a variation of one-fourth between the prices at harvest-time and at other times of the year.

A rise of Rs. 2 per maund in the price of paddy would, perhaps, indicate the approach of local scarcity; but, though a general rise in prices is steadily at work, nothing like scarcity has of late years ever occurred in the Province.

QUESTION 17.

The indigenous population of Assam, with the exception of the inhabitants of the Khási and Jaintiá Hills, and the trading community in Sylhet and Cachar, are in the matter of trade neither enterprising nor energetic. The trade of the Assam Valley has therefore been almost monopolised by the Marwari or Kyah merchants, who have established trading depôts throughout the country. These Marwaris make advances of money and seed to the cultivators, and buy up the bulk of the surplus produce of the country. They import piece-goods, salt, metal-utensils, spice, iron, ghí, bell-metal, tobacco, dhal, oil, sugar, &c., and buy up for exportation wax, rubber, silk, seeds, cotton, ivory, and lac. In the Khási and Jaintiá Hills, however, the trade is almost entirely in the hands of the inhabitants themselves, who are keen traders. The exports from this district consist mainly of the produce of the hills, and the imports comprise piece-goods, fish, sugar, salt, &c. A considerable quantity of cotton and lac is annually exported from the Gáro Hills, and a fair trade is carried on between Sylhet and Calcutta, Dacca and Narayanganj. Cotton goods, hardware, earthenware, salt, ghí, sugar, and grain are imported into Sylhet; and rice, cotton, hides, buffalo-horns, sitalpáti, cane, lime, oranges, fish, tezpât, oil-seeds, and gúr are exported from that district. Piece-goods are imported into Cachar from Calcutta, and country-made stuffs from Dacca and Sylhet. Ponies, cows, and buffaloes are imported from Manipur into that district, and rice, timber, and cotton are exported. The bulk of the trade of the Province is carried by steamer along the Brahmaputra and Surmá Rivers, but a considerable quantity is exported in Bengali boats. Tea and oil-seeds are the principal articles of export carried by steamer, and they in return bring up the greater part of the goods and stores, which the development of the tea-industry has rendered necessary to planters, *viz.*, rice for imported labourers, machinery, tools, &c. Local fairs are held throughout the country, and act as a distributing agency in tracts destitute of commercial centres. The most notable are those held at Udalgúri, Kerkaria, Daimára, Datma, Sadiya, and Silchar, which are largely attended and are of considerable importance. The chief articles of import into Assam from non-British territories are rubber, wax, timber, ponies, salt, and blankets; and the chief articles of export are silk-cloth, betel-nuts, paddy, rice, and European cotton piece-goods.

With the exception of Sylhet, Cachar, Lakhimpur, and the Khási and Jaintiá Hills, the districts of this Province may be said to subsist mainly on their own resources, and trade in them is dull.

QUESTION 18.

The principal means of communication in the Province is by water.

In Assam Proper the Brahmaputra flows through the entire length of the valley, and is navigable by steamers throughout the year. The Sylhet and Cachar Valley is similarly traversed by the Rivers Surmá and Kusiara, which are navigable for steamers during

the rains, and for boats during the entire year. The population of the Province is chiefly collected on the banks of these rivers and tributary streams, and depend upon boats for their means of carriage. A further account of the water-communication in Assam is given in answer to Question 20 of the Report.

The Province is in most parts supplied with fair-weather roads, and on the south bank of the Brahmaputra the important centres of trade are connected by them. Speaking generally, however, the whole country to the north of the Brahmaputra (with the exception of the Darrang district), and, again, the greater portion of the Sylhet district, are absolutely without roads. In Sylhet, water-carriage supplies the place of roads to some extent, but on the north bank of the Brahmaputra the deficiency is fatal to enterprise, and would, in the case of famine (a case happily not likely to occur), render nugatory all measures of relief. The principal road in the Surma Valley is the Sylhet and Cachar Trunk Road. This road extends from Sylhet to the frontier of Manipur, a distance of 94 miles. The only other roads in this tract which are under the superintendence of the Department of Public Works are the Háilákándi and Therriaghat roads. The former of these extends from Panchgram to Háilákándi, a distance of 13 miles; and the latter leads from Companyganj to Therriaghat, a distance of 9 miles.

The Brahmaputra Valley is traversed by the Assam Trunk Road, which extends from Kherbari to Sadiya, a distance of 480 miles. This trunk line is crossed by seven branch roads, which have an aggregate length of 87½ miles.

In the hill districts there are the Shillong hill cart-road, 53¾ miles long; the Shillong hill bridle-road, leading from Shillong to Therriaghat, and from the Uiam River to the junction of the cart-road, 47 miles long; the Nága Hills road, leading from Golághát to Samaguting, 67 miles in length; and the Gáro Hills road, from Tura to Rohumári, 42½ miles long.

In addition to these roads, which are under the Department of Public Works, there are district roads with an aggregate length of 2,797 miles (in the Surma Valley 333 miles, in the Assam Valley 2,215½ miles, and in the hill districts 249 miles), and a considerable extent of roads which have been constructed by private individuals in the neighbourhood of tea plantations.

There are no metalled roads in the Province, excepting those in the immediate vicinity of some of the sudder stations. The Shillong hill cart-road, however, is being metalled along a considerable portion of its length.

The roads are generally in fair condition during the cold weather, and are sufficient for the traffic upon them, with the exception of those situated in the districts of Lakhimpur, Sibságar, and the Gáro Hills, but in the rains these roads become almost useless.

The ordinary means of conveyance is by porters and by boat. Cart-traffic has been extensively introduced during the past six years, and is used in the districts of Cachar, Kámrúp, Darrang, Sibságar, and Lakhimpur, especially by the tea-planters, for the conveyance of garden stores, &c. The use of carts is gradually extending among the rural population of the country.

In the Khási and Nága Hills pack bullocks are employed to some extent, and elephant carriage is an ordinary means used for the conveyance of heavy goods throughout the Province.

The following table supplies all available information regarding the ordinary rates of cart-hire throughout the Province. It shows the rate of daily hire for a cart drawn by a pair of bullocks, carrying from 5 to 10 maunds. The cost per mile for conveying a ton of merchandize by wheeled or by pack carriage cannot be given accurately, as carts for the conveyance of goods are not hired on this system; but, taking the average rate of daily hire from the table below to be Re. 1-8-6 per diem, the average weight carried 7 maunds, and the average daily distance travelled 15 miles, the result is a rate of 6 annas 3½ pie per ton per mile:—

	Cart per day.
	Rs. As. P.
Sylhet	•
Cachar	•
Goálpára	1 0 0
Kámrúp	2 0 0
Darrang	1 4 0
Nowgong	1 0 0
Sibságar	2 0 0
Lakhimpur	2 8 0
Khási Hills	1 8 0
Gáro "	1 0 0
Nága "	•

QUESTION 19.

There are no railways in Assam.

The nearest points to which railway communication has been opened are Rangpur, which is 52 miles by road from Dhubri, a station on the Brahmaputra, and Goalundo, which is 170 miles, as the crow flies, distant from Sylhet.

The formation of a line of railway between Dibrugarh and Sadiya is at present under consideration.

QUESTION 20.

There is water-communication throughout Assam, excepting the tract of country comprising the Gáro, Khási, and Jaintiá Hills. The Rivers Brahmaputra and Surmá, with their tributaries, traverse the entire Province, and the communication is complete or imperfect according to the season of the year. In the rains the smaller streams become accessible for moderate-sized boats, but during the dry season navigation is confined to the larger rivers.

In Sylhet and Cachar the external trade is mainly carried on by means of boats from Bengal. Canoes are used on the smaller rivers, and during the rains the entire country, with the exception of the hilly tracts, is navigable for this class of boats. The Rivers Barák, Khattakhall, and Surmá are navigable throughout the year.

The Assam Valley is supplied with water communication by the Brahmaputra and its tributaries. The principal rivers are navigable during eight months of the year, and the smaller streams are open to boat traffic during the rains, but there are no indigenous boats except dug-out canoes.

Water communication in the Naga Hills is limited. The Dhansiri is navigable to Dimapur during six months of the year. Boat traffic is conducted on the Doyang up to its junction with the Rengmapani, and the Jamuna is accessible as far as Helveta.

There is no water-communication in the Khási and Jaintiá Hills, and in the Gáro Hills boat traffic is confined to the few hill streams which traverse the district.

Navigation is conducted on the Brahmaputra and Surmá by means of steamers, large Bengali boats, native boats, and canoes.

Two Steam Navigation Companies have established a weekly service to Assam from Calcutta, and the formation of an additional line of steamers for the more rapid carriage of mails, passengers, &c., between Dhubri and Dibrugarh is at present under the consideration of the Government of India.

The surplus produce of the country is largely exported in Bengali and native boats. The usual cargo of the former is about 500 maunds, and that of the latter about 250 maunds.

Canoes and dug-outs traverse the small streams, and are used extensively on the larger rivers. In the Surmá Valley the canoes are short in length, broad in beam, flat-bottomed, decked fore and aft, and have a semi-circular covering of mats spread amidships.

In the Assam Valley dug-outs (or holongs) are used. They are formed from a single tree, hollowed out, and are not decked over. They vary in length from 20 to 40 feet, and in girth from 4 to 9 feet. Their average cargo ranges from 30 to 100 maunds, but occasionally two or three holongs are fastened together, forming a *már*, and a larger quantity of goods can by this means be carried. Country produce, such as paddy, mustard-seed, &c., is conveyed by these boats.

There are no canals in the Province, and navigation is conducted on natural channels.

The appended table supplies a list of the chief rivers in the several districts in the Province, those which are navigable throughout the year being distinguished from those which become inaccessible during certain seasons for moderate-sized boats, and gives all available information regarding the number of boats in the Province and the ordinary mileage rate of boat-carriage per ton:—

Districts.	Rivers navigable for boats exceeding four tons burden throughout the year.	Rivers navigable for boats exceeding four tons burden at certain seasons of the year.	Number of boats of all sizes.	Mileage rates per ton.			Cost of hire of boat per diem.	
				Rs. As. P.			Rs.	As.
Cachar	Barak, and Khatta Khail.	Ballesur, Gumrah, Larrang, Arrang, Jatingah, Doloo, Madnar, Cherri, Jherri, Dullesur, Tolar, Gogra, and Sunai, total mileage 261.	1,500	0	0	6	1	8
Sylhet	Surmá	Mileage of navigable rivers, 800	150,000	0	5	6	1	0
Goalpara	Brahmaputra	Gadadhar, Goropala, Saradhanga, Boro Bhur, Khanamukra, Pagla Manas, and Krishnai, total mileage 500.	5,700	....	....	....	1	8
Kámrúp	"	Chaulkha, Borolia Singra, and Kulsí, total mileage 595	6,299	....	....	....	0	5
Darrang	"	Nunai, Mangaldai, Dhansiri, Bheroli and Bargang, total mileage 150	840	0	5	0	0	4
Nowgong	"	Kalang and Kapili Rouli, Sonai, Jamuna, Kiling, Deopani and Barpani, Dhaneshwari and Leteri, total mileage 150.	....	0	4	0	0	8
Lakhimpur	" Dihing, Subansiri, Dibrú, Ranga and Dikrong.	Sessi and Dhol, total mileage 240 .....	....	0	1	0	0	8
Sibsagar	Brahmaputra	Dhansiri, Kahodonga, Dekhu, Desang, and Diman, total mileage 224	8,500	....	....	....	0	8
Naga Hills ....	.....	Dhansiri, Doyang, Jamuna, and Kopili, total mileage 4	50	....	....	....	0	10

Bengali boats.
Dug-out canoes.

QUESTION 21.

There is no area of Assam, with the exception of portions of the districts of Cachar, Sylhet, Nowgong, all the hill districts, and the portions of Goálpára, Kámrúp, and Lakhimpur which lie north of the Brahmaputra, into which it would be difficult for unassisted trade in time of scarcity to throw enough grain to feed one-quarter of the population.

In the northern division of Cachar there is a tract of country which is inhabited by about 30,000 hillmen, into which it would be difficult to throw grain in case of a scarcity. The special difficulties to be overcome are the habits of the people and the impracticable nature of the hills.

In Sylhet during four months of the year that portion of the district which is situated at a further distance than five miles from the Rivers Kusiara and Surmá would present difficulties to the import of grain. The area of this tract is about 1,500 square miles.

The Mikhir Hills, in Nowgong, in area about 648,038 acres, with a population of 26,173 souls, would be practically shut off from supplies from outside during a season of distress.

The entire district of the Nága Hills, excepting those portions which border on the plains, would be similarly situated.

A similar difficulty, in a less degree, exists in the Gáro and Khási Hills, and, as already explained, on the north bank of the Brahmaputra, from the absence of roads. Good roads and an improved mode of carriage are the chief means for removing the special difficulties noted above.

QUESTION 22.

Telegraphic communication has been established between Dhubri, Goálpára, Gauhati, Kaliabar, Shillong, Sylhet, Cachar, and Jorhát.

The extension of the telegraph-line to Tezpur, *via* Mangaldai, is now under consideration.

Any further extension of telegraphic communication is not, at present, considered absolutely necessary.

QUESTION 23.

The denudation of forests in Assam during the past 15 years has been very extensive, especially in the Gáro Hills, Khási and Jaintiá Hills, Mikhir Hills, Nága Hills, and the districts of Lakhimpur and Cachar, extending over an area of several hundred square miles.

The correctness of this statement is borne out by the complaints of the jhúming tribes (Kukies, Mikhirs, Doanias, Singphos, and Khampties) regarding the scarcity of forest land. The injurious effect, however, indicated in the question has not, apparently, been felt in Assam. In a Province where there is such an immense area covered with forest, the clearing of a few hundred square miles cannot sensibly affect the rainfall.

Artificial planting is a more certain, but more expensive, mode of reboisement than mere conservation or protection.

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