Annual sanitary report of the Province of Assam.

ANNUAL PUBLIC HEALTH REPORT

OF THE

PROVINCE OF ASSAM

FOR THE YEAR

1929

BY

LIEUT.-COLONEL T. D. MURISON, D.P.H., I.M.S.,
DIRECTOR OF PUBLIC HEALTH, ASSAM.

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FROM

LIEUT.-COLONEL T. D. MURISON, D.P.H., I.M.S.,

DIRECTOR OF PUBLIC HEALTH, ASSAM,

To

THE SECRETARY TO THE GOVERNMENT OF ASSAM
IN THE TRANSFERRED DEPARTMENTS.

Shillong, the 7th July 1930.

SIR,

I HAVE the honour to submit herewith the Annual Public Health Report of the province of Assam for the year 1929.

Your obedient servant,

T. D. MURISON, *Lt.-Col., I.M.S.,*
Director of Public Health, Assam.

Enclosures :—
1 report.
5 charts.
20 statements.

[Maximum limit of narrative portion of the report, 30 pages.]

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ANNUAL PUBLIC HEALTH REPORT

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FOR THE YEAR

1929.

SECTION I.

METEOROLOGY.

The Meteorologist, Calcutta, has kindly supplied the following summary of the meteorological condition in Assam during the year 1929 :—

The cold weather period, January and February.—The western disturbances in the month of January were unusually active in Assam, and the month's fall was four times the normal. February on the other hand was almost dry, only an eighth of the normal amount being received. In January cloud amount was in excess and the maximum temperature below normal. With clearer skies in February, days were warmer and nights cooler than usual.

The hot weather period, March to May.—Widespread thundershowers associated with western disturbances occurred in the second and fourth weeks of March, but the month's rainfall was 2> per cent. below normal, and mean temperature was in slight excess. There was a marked improvement in April and thundershowers were fairly frequent in the first three weeks. During the last week the eastern half of the seasonal trough of low pressure over the Gangetic plain was active and helped an influx of moist winds from the Bay ; this caused nearly general rain with local heavy falls on all the days. Cherrapunji recorded 33″ between 27th and 30th, Silchar 14″ between 28th and 30th and Sibsagar 12″ between 27th and 29th. This unusual wet weather persisted during the first 11 days of May, when several local heavy falls were recorded. During the second half of the month also widespread rainfall was much more frequent than usual, with the result that the month's total was nearly twice the normal amount. Cloud proportion was in excess both in April and May and temperature was in slight defect in May.

The monsoon period, June to September.—In June the Bay current extended into Assam on the 1st and the monsoon was vigorous between 5th and 11th. Rainfall during the period was exceptionally heavy in the Sylhet and Cachar districts and the adjoining hills. The district averages below, summarise the heavy falls in this period—

District.	5th.	6th.	9th.	10th.	11th.
Sylhet	...	...	...	7″	6″
Cachar	...	...	...	8″	7″
Khasi and Jaintia Hills ...	7″	6″	...	4″	6″
North Cachar Hills ...	5″	...	5″	5″	...

This heavy rain was responsible for unprecedented floods in the Surma Valley and a complete breakdown of all means of communication between the Sylhet and Cachar districts, and the rest of India fo almost a week. It is reported that hundreds of people were rendered homeless and about 30 per cent. of the cattle perished. The total rainfall of the month was 45 per cent. above normal. In the months of July and August the monsoon was somewhat less active than usual, but gave the normal amount of rain in September. The other climatic elements were about normal throughout this season.

The retreating monsoon period, October to December.—Under the influence of depressions from the Bay of Bengal, there were two spells of wet weather: one in the first week and the other in the third week of October; the total rainfall of the month was consequently in moderate excess. November had only occasional falls

of rain which aggregated to the normal amount for that month. During the passage of western disturbances, thundershowers occurred at several stations in the province between the 15th and 17th and on 26th December, and the total rainfall of the month was in very large excess. In agreement with the precipitation during this period the cloudiness was in slight excess. Temperature and humidity were normal.

Prices of food-grains and their connections with vital occurrences.

The average price of common rice in plains districts varied from $7\frac{4}{16}$ seers to the rupee in Nowgong to $5\frac{3}{16}$ seers in Lakhimpur. In the majority of districts a little over six seers was sold per rupee.

The provincial death-rate fell from 22·16 in 1928 and 26·52, the decennial average, to 20·91 in 1929. The provincial birth-rate rose from 31·24 in 1928 and 29·42, the decennial average, to 32·77 in 1929.

SECTION II.

British Army.

(No remarks.)

SECTION III.

Indian Army.

(No remarks.)

SECTION IV.

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(No remarks.)

SECTION V.

General population.

Vital Statistics.

General census figures. Provincial birth and death-rates. Comparison with other provinces.

2. The total population of the plains districts of the province, according to the census of 1921, is 6,852,242 and this is the figure on which the ratios in this report have been calculated. Registration in those areas of the hill districts in which it is recorded is shown separately in paragraph 10 of this report.

The birth-rate for the province during the year 1929 was 32·77 per mille of population and is compared below with the rates recorded in other provinces in India :—

Provinces.	Birth-rate.		
	1923-27.	1928.	1929.
1	2	3	4
Assam	30·49	31·24	32·77
Bengal	28·81	29·57	29·26
Bihar and Orissa	36·6	38·27	35·6
Central Provinces	45·06	46·51	43·96
Madras	34·8	37·4	37·9
Burma	26·99	25·85	26·43
Bombay	35·25	38·17	38·18
United Provinces	34·88	38·24	34·33
Punjab	41·4	46·30	44·45
North-West Frontier Province	28·2	32·52	30·82

The birth-rate of Assam was higher than that of the provinces of Bengal, Burma, North-West Frontier Province but lower than that of the remaining provinces.

The death-rate for the province for the year 1929 was 20·91 per mille of population and is compared below with the rates recorded in other provinces in India :—

Provinces.	Death-rate.		
	1923-27.	1928.	1929.
1	2	3	4
Assam	23·70	22·16	20·91
Bengal	25·31	25·55	23·52
Bihar and Orissa	25·7	25·29	26·9
Central Provinces	31·21	33·66	34·13
Madras	24·2	26·4	25·3
Burma	20·33	21·28	22·06
Bombay	26·29	27·28	30·53
United Provinces	24·83	24·15	24·26
Punjab	33·7	24·72	28·75
North-West Frontier Province	23·7	19·31	23·66

The death-rate of Assam was lower than that of any other province in India.

Birth registration—general.

3. The total number of births registered during the year 1929 was 224,594, showing an increase of 10,537 over the number for 1928 and also of 15,675 on the quinquennial mean figure 208,919. The number of births recorded during the previous five years and the corresponding birth-rates were as follows :—

	Births.	Birth-rate.
1929	224,594	32·77
1928	214,057	31·24
1927	207,289	30·25
1926	211,233	30·82
1925	199,261	29·08
1924	212,755	31·04

The birth-rate for the year 1929 was higher than that for any year since 1919.

The highest birth-rates were in the districts of Goalpara (36·21), Sylhet (35·96) and Cachar (35·41). It has to be noted that Nowgong district maintained its progressive increase in its birth-rate, having reported a birth-rate of 24·72 in 1925, 26·80 in 1926, 27·97 in 1927, 30·62 in 1928 and 32·13 in 1929. The natural increase of population in this district during the year was 14·98 which was the highest in the province.

This satisfactory result is directly attributable to the complete control of *kala azar* in this district. This has been effected by the provision of a complete net-work of treatment centres in the district. The lowest birth-rate was recorded in Sibsagar (26·32). During the year under report births exceeded deaths by 81,311 or 11·86 per thousand of the population ; all districts contributing to the excess. The number of males born to every 100 females born was 107 which is the same as in the previous year.

Birth registration in urban areas.

4. The total number of births registered in urban areas in the province in 1929 was 4,633 or 30·49 per 1,000 of the population, as compared with 31·41 in the preceding year. The highest birth-rate was recorded in Palasbari (54·03), followed by Barpeta (47·48), Nowgong (46·91), Sunamganj (37·70), Gauripur (37·34) and Habiganj (37·01). The lowest rates were recorded in Hailakandi (17·51) and Tinsukia (17·54). These low rates are apparently due to defective registration in these small towns.

Birth registration in rural areas.

5. The total number of births registered in rural areas in 1929 was 219,961, as compared with 209,371 in 1928; the birth-rates per 1,000 of the population being 32·82 and 31·23 respectively. Considering rural circles individually, the Kalaigaon circle in the Darrang district reported the highest birth-rate, *viz.*, 55·24 per mille of population. The Barpeta circle in Kamrup; Fenchuganj, Habiganj, Rajnagar, Jaintapur and Bahubal in Sylhet; North Salmara and Dhubri in Goalpara; Hailakandi in Cachar; and Boha in Nowgong; all reported birth-rates varying from 40 to 48 per mille of population. Margherita (6·26) in the Lakhimpur district and Majuli (7·89) in the Sibsagar district reported the lowest birth-rates as in previous years. Other circles reporting low birth-rates were Tinsukia (13·13) in Lakhimpur, Dhekiajuli (15·41) in Darrang, Amguri (18·24) in Sibsagar and Boko (18·59) in Kamrup. These low rates are due to defective registration.

Death registration—general.

6. The total number of deaths recorded during the year 1929 was 143,283, as compared with 151,857 in 1928, showing a decrease of 8,574. It may be observed that the death-rate for the year was the lowest on record. The number of deaths recorded during the previous five years and the corresponding death-rates were as follows:—

	Deaths.	Death-rates.
1929	143,283	20·91
1928	151,857	22·16
1927	160,813	23·47
1926	157,787	23·02
1925	154,351	22·52
1924	187,127	27·30

The death-rates in all districts during the year under report were lower than those of the quinquennial average. The increased birth-rate and decreased death-rate indicate the healthiness of the year in the Province.

Compared with the preceding year, the mortality was higher only in the Kamrup district; its death-rate rising from 15·56 in 1928 to 17·11 in 1929. Cholera which prevailed, in epidemic form, in Barpeta subdivision was alone responsible for the increase. There were severe floods in Cachar, Sylhet and Nowgong districts during the year. Prompt measures were taken for the disinfection of water supplies and mass inoculation against cholera in those districts Villages from which cholera was reported were taken up first. In addition to the Public Health and Medical staff, local volunteers did useful work in purifying sources of drinking water. The general health of these districts was not unsatisfactory in spite of the unusually severe floods. Fortunately there was no serious epidemic of cholera in any of these districts as was to be expected under such circumstances.

Death registration in urban areas.

7. During the year 1929, the total number of deaths recorded in towns amounted to 3,102, representing a death-rate of 20·42, as compared with 3,221 and 21·59 in 1928 and 3,523 and 23·62, the quinquennial average. The highest rate was recorded in Tezpur (31·74) followed by Dhubri (26·54) and Mangaldai (24·44). In all, the highest mortality was attributed to diseases grouped under "Other Causes". Malaria, dysentery and phthisis contributed to the high death-rate in Tezpur. Cholera, malaria and dysentery were partly responsible for the high rate in Dhubri. Rates below 15 per mille were recorded in Goalpara (13·20) and Tinsukia (13·31).

Death registration in rural areas.

8. The total number of deaths registered in rural areas in 1929 was 140,181 or 20·92 per mille of population, as compared with 148,636 and 22·17 in 1928 and 158,804 and 23·70 the quinquennial average. Considering registration circles individually, the highest death-rate, *viz.*, 47·75 per 1,000 of population, was reported from the Kalaigaon circle in the Darrang district. The high mortality in this circle was due to malaria, *kala azar* and cholera, as in the previous year. Other high rates were at Panerihat circle (33·93) and Udalguri (31·53) in Darrang; Jaintapur (31·82) and Fenchuganj (30·71) in Sylhet; and Golakganj (30·05) in Goalpara. Fevers were responsible for the high death-rates in each of the above circles. Other contributory causes were cholera in Udalguri and Fenchuganj, small-pox in Jaintapur and dysentery and diarrhœa in Panerihat. The rates returned for Margherita circle (4·79) in Lakhimpur, Majuli (4·84) and Amguri (10·96) in Sibsagar, Boko (10·34) and Nalbari (10·87) in Kamrup are low

and are attributable to defective registration. The Civil Surgeons concerned will be asked to pay special attention to the verification of vital statistics in these circles.

Registration in compulsory areas —Prosecution under Act IV (B.C.) of 1873.

9. In municipal and small towns, where registration is compulsory, 326 omissions were detected by the Vaccination Inspecting staff in the course of checking the entries in birth and death registers. The total number of persons prosecuted was 274, of whom 153 were convicted. The total amount of fines inflicted was Rs. 139 or 14 annas 6 pies per person convicted. No omissions were detected in Silchar, Goalpara, Barpeta and Shillong. Sub-Inspectors of Vaccination failed deplorably to perform these duties in the first three, as, had they done so, it is quite evident that some omissions would have been detected by them. It is reported that the Health Officer in the Shillong Municipality verified vital statistical occurrences, but no record was maintained by him. In Golaghat on the other hand, the Inspector of Vaccination detected a large number of omissions.

The following table shows the results of enquiries conducted by the Vaccination Inspecting staff to test the accuracy of registration in compulsory areas:—

Municipalities.	Unregistered vital occurrences detected during the year 1929.		Recorded vital occurrences during the year 1929.		Percentage of omissions.	
	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
1	2	3	4	5	6	7
Silchar	...	...	187	162	...	...
Hailakandi	2	1	37	39	5·12	2·50
Sylhet	28	10	430	332	6·11	2·92
Karimganj	16	7	128	89	11·11	7·29
Maulvibazar	1	2	101	63	·98	3·08
Habiganj	9	2	210	128	4·11	1·54
Sunamganj	7	6	177	103	3·80	5·50
Dhubri	3	1	228	177	1·26	·56
Goalpara	...	...	128	82	...	...
Gauripur	9	9	152	92	5·59	8·91
Gauhati	10	1	436	278	2·24	·36
Barpeta	...	...	557	266	...	...
Polasbari	5	2	143	62	3·38	3·12
Tezpur	13	4	227	229	5·42	1·72
Mangaldai...	4	3	25	22	13·79	12·00
Nowgong	22	12	301	147	9·87	7·54
Jorhat	16	4	166	103	8·79	3·7
Sibsagar	17	8	121	67	12·32	10·67
Golaghat	33	19	83	42	28·44	31·15
Nazira	5	...	83	59	5·68	...
Dibrugarh	8	5	382	361	2·05	1·36
North Lakhimpur	5	2	42	33	10·64	5·71
Doom-Dooma	...	1	22	26	...	3·70
Tinsukia	14	...	40	41	2·59	...
Shillong	...	...	521	279	...	...
Total ...	227	99	4,927	3,282	4·40	2·93

Registration in hill districts.

10. The recorded birth and death-rates in hill districts in 1929, compared with those of the preceding year, are shown in the sub-joined table :—

Districts.	1929.		1928.	
	Birth-rate.	Death-rate.	Birth-rate.	Death-rate.
1	2	3	4	5
Khasi and Jaintia Hills	26·79	18·72	27·92	16·52
Naga Hills	20·05	17·63	20·87	23·09
Lushai Hills	53·45	28·38	52·52	27·88
Garo Hills	28·25	19·09	24·92	21·51

In the Khasi and Jaintia Hills there was less malaria during the year under report than in the previous year. In all, seven outbreaks of cholera, all of which were imported, were reported from this district. One was reported in the month of April, three in June, two in October and one in November. The total number of cases and deaths were 306 and 149, respectively. It is satisfactory to note that the outbreaks were reported expeditiously and in every instance medical aid was despatched promptly thus localising and bringing them rapidly under control. Inoculation was accepted voluntarily in all cases and this led to the speedy termination of the outbreaks. Cholera bacteriophage was also used. In one of these outbreaks the Director, Pasteur Institute and Medical Research Institute, deputed one of his staff to investigate and treat cases with bacteriophage. Three epidemics of small-pox were reported during the year and they were all promptly controlled. In Shillong, 521 births and 279 deaths were recorded in 1929 as compared with 462 and 212 in 1928. The birth and death-rates per 1,000 of the population in this municipality were 30.28 and 16·22, respectively, in 1929, as compared with 26·86 and 12·32, respectively, in 1928. The inclusion for the first time of deaths occurring in the Mission hospital, and which is located within the municipal area, accounts for the increase in the death rate of the town. Special precautions were taken to prevent the importation into Shillong of cholera and small-pox epidemics from infected villages with which it is in easy communication. Forty-two cases of enteric fever were reported in Shillong during the year by attending medical officers. Many cases were apparently not seen by medical practitioners. The correct figure for the year would possibly have been 20 per cent. higher. The disease occurred throughout the year, the greatest incidence being in October, when 13 cases were notified. There is no doubt that the rate of enteric infection in Shillong is very high and this is certain to continue until such times as a more satisfactory method of dealing with conservancy is evolved.

In the Naga Hills district, vital statistical occurrences are registered only in the towns of Kohima and Dimapur, among a population of 4,936. The birth and death-rates shown in the above statement do not therefore represent the health of the whole of this district. The mortality from malaria was less during the year. Anti-malaria measures, which have been carried out for some years in Kohima, are responsible for the lower mortality under this head.

In the Lushai Hills, general health was not as good as in the previous year, owing to the greater prevalence of malaria and to a fairly severe outbreak of dysentery of mixed type which broke out in epidemic form in some villages in the Aijal subdivision. The two itinerating Sub-Assistant Surgeons, when touring in the interior of the district, make it their duty to inspect and report on the sanitary condition of the villages. They also advise the villagers on sanitary matters generally and especially on suitable methods of protection of water-supplies from contamination. Syphilitic cases, when detected by these itinerating Sub-Assistant Surgeons, were brought under treatment in the nearest centre hospital.

In the Garo Hills, the incidence of cholera and small-pox was less during the year, than in the previous year. This accounts for the fall in the mortality rates from 21·51 in 1928 to 19·09 in 1929. *Kala azar* and malaria were, as usual, prevalent throughout the district. *Kala azar* cases are being treated in special hospitals provided for the purpose Extensive surveys for the detection of this disease are being carried out with satisfactory results.

In the Sadiya Frontier Tract the total number of births and deaths registered during the year 1929 was 565 and 447, respectively, as compared with 609 and 312, respectively, in 1928. No death from cholera or small-pox was reported from this tract in 1929. An epidemic of dysentery was reported from two villages in October with 78 attacks. The itinerating Sub-Assistant Surgeons treated the cases in the villages.

Registration in tea gardens.

11. The following table shows the birth and death-rates reported from tea estates during the year 1929 :—

Districts.	Birth-rate.	Death-rate.
1	2	3
Cachar	35·13	20·55
Sylhet	33·02	20·34
Goalpara	41·10	23·56
Kamrup	21·81	17·48
Darrang	22·40	14·42
Nowgong	25·78	16·23
Sibsagar	30·37	17·92
Lakhimpur	26·87	20·94
Total ...	29·60	19·09

The birth and death-rates on tea estates were 29·60 and 19·09, respectively, in 1929, as compared with 28·11 and 18·01 in the preceding year. There was a natural increase of 10·51 per 1,000 of population in tea estates during the year 1929. The increase was marked in Cachar (14·58), Sylhet (12·68) and Sibsagar (12·45). A total of 86 deaths from *kala azar* were reported from certain tea estates in Assam, namely, in the district of Darrang (38), Sylhet (27), Sibsagar (14), Nowgong (6) and Goalpara (1). Tea gardens are now treating their *kala azar* patients with Urea Stibamine, which they obtain under special arrangements from the manufacturer at the concession rate of Re. 1-4-0 per gramme in all sizes of ampoules, this being the price at which it is supplied to the Government of Assam.

Registration on railways.

12. The total number of births and deaths recorded within railway limits during the year 1929 were 135 and 251, respectively, as compared with 140 and 352 in the preceding year. As usual, the bulk of these deaths was reported from the Lakhimpur district, mainly under heads "respiratory diseases" and "other causes".

Seasonal incidence of births and deaths.

13. The highest birth-rate (3·79) was recorded in December and the lowest (1·86) in June. Mortality was the highest (2·28) in December and the lowest (1·41) in March.

Mortality according to age, sex and class.

14. Statements II, IV and V, appended to this report, furnish details of registration of deaths according to sex, age and class. The rates of mortality among male and female sexes were 21·01 and 20·80 in 1929, as compared with 22·28 and 22·03 in the preceding year. The proportion of male deaths to female deaths was the same as in the previous year, *viz.*, 111 to 100. There were, as usual, some

differences in death-rates among different communities. These were in the following order :—

Other classes 29·03, Muhammadans 23·02, Buddhists 22·26, Christians 21·03 and Hindus 18·63. The infant mortality rate for the year 1929 was lower than that of any of the previous ten years as shown in the appended statement :—

Year.	Births.			Deaths of infants.			Death-rate of infants.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1	2	3	4	5	6	7	8	9	10
1919 ...	95,287	89,451	184,738	23,823	20,476	44,299	250·01	228·90	239·79
1920 ...	98,370	92,465	190,835	19,948	15,847	35,795	202·78	171·38	187·57
1921 ...	105,395	97,758	203,153	21,174	16,864	38,038	200·90	172·50	187·23
1922 ...	100,433	94,465	194,838	21,268	17,361	38,629	211·76	183·78	198·20
1923 ...	101,861	95,657	197,518	19,367	16,089	35,456	190·13	168·19	179·50
1924 ...	110,107	102,648	212,755	21,636	17,671	39,307	196·49	172·15	184·75
1925 ...	103.009	96,252	199,261	19,009	15,733	34,742	184·53	163·45	174·35
1926 ...	108,967	102,266	211,233	21,029	17,403	38,432	192·98	170·17	181·94
1927 ...	107,461	99,828	207,289	19,253	16,266	35,519	179·16	162·94	171·35
1928 ...	110,774	103,283	214,057	20,233	16,587	36,820	182·65	160·59	172·01
1929 ...	116,177	108,417	224,594	19,374	15,987	35,361	166·76	147·46	157·44

In the following table the infant mortality rate of Assam for the year 1929 is compared with that of other provinces :—

Assam	157·44
Bengal	179·87
Bihar and Orissa	135·00
Central Provinces	240·49
Madras	180·04
Burma	225·97
Bombay	189·39
United Provinces	168·61
Punjab	186·20
North-West Frontier Province	167·65

Magic lantern demonstrations on child-welfare were given regularly in villages as in the previous year. The Lady Superintendent, Lady Kerr Child-Welfare Centre in Shillong, attended a total of 1,446 cases during the year, which included anti-natal cases, confinements, post-natal cases, etc.

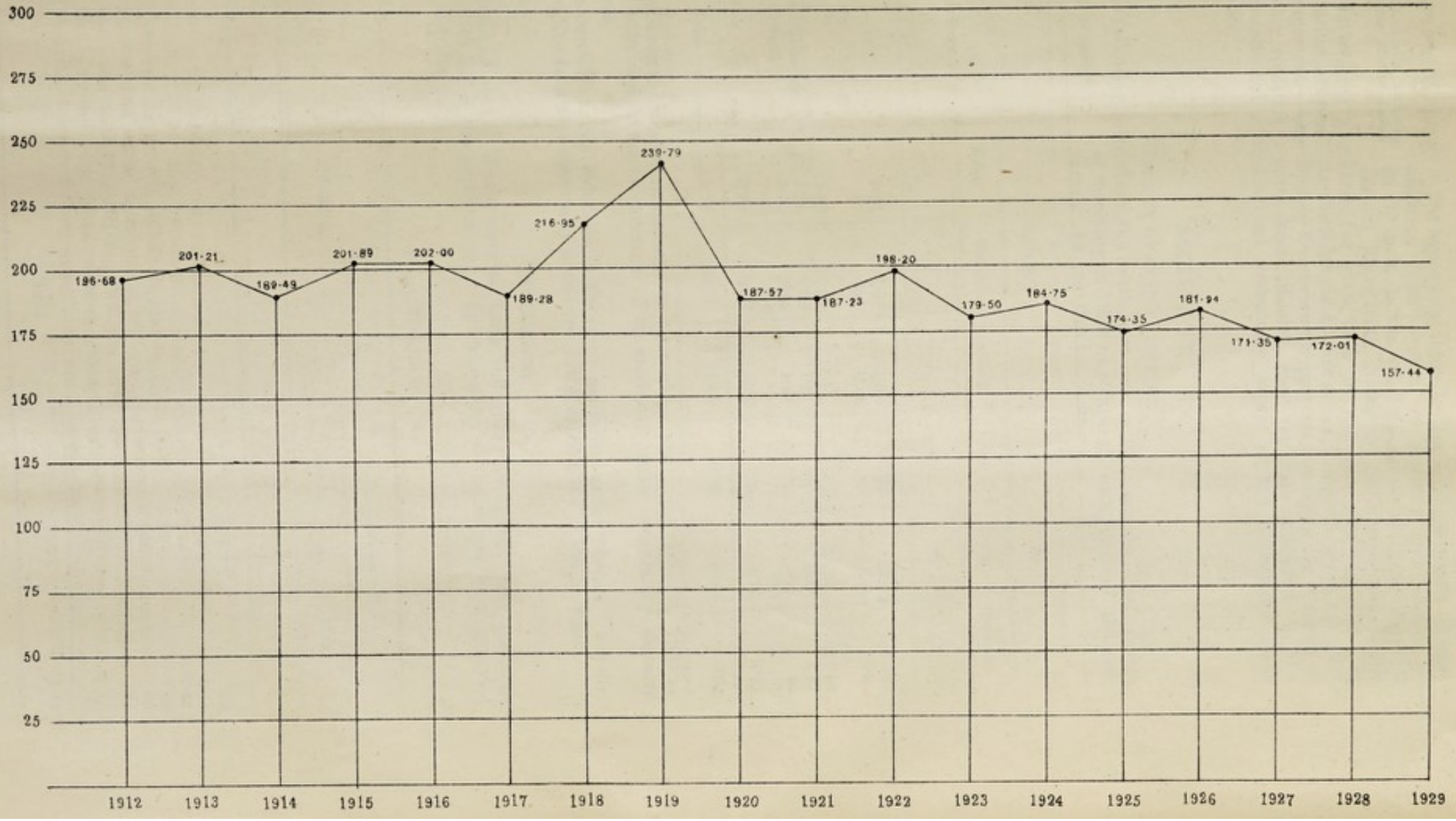
A chart showing the infantile mortality in Assam from 1912 to 1929 is attached.

Inspection of village register of vital statistics.

15. The total number of birth and death entries tested by the Vaccination Inspecting staff in 1929 was 71,354 (44,384 births and 26,970 deaths) as compared with 66,932 (43,411 births and 23,521 deaths) in 1928, showing an increase of 4,422. The percentage of omissions detected was 7·84 in respect of births and 4·90 in respect of deaths in 1929 as compared with 4·51 and 3·44 in 1928. Sylhet stood first with 37,611 entries tested, followed by Lakhimpur with 11,517 and Nowgong with 6,619. Among the districts reporting small number of entries tested were Goalpara (1,674) and Kamrup (2,946).

CHART NO. I

Infantile Mortality (per 1,000 of Births) in the Province of Assam from 1912 to 1929



General accuracy of vital statistics and improvements effected during the year.

16. There was no change in the agency for the collection and registration of vital statistics. The system of granting four rewards of Rs. 20 each, in the subdivisions of Gauhati, Barpeta, Tezpur, Mangaldai, Nowgong, Dibrugarh, and North Lakhimpur to selected gaonburas for good work in reporting vital statistics was continued during the year. In the Sibsagar district six gold rings are given annually as an encouragement. The Deputy Commissioner proposes increasing the number of rings. Weekly epidemic reports from districts were regularly published in the provincial gazette and in certain local vernacular papers for the information of the general public.

SECTION VI.

HISTORY OF CHIEF DISEASES.

Chief causes of mortality.

17. The following table shows the death-rates per mille from the chief causes of mortality in 1929 as compared with those of the average of the previous ten years :—

—	1919-28.			1929.		
	Urban.	Rural.	Combined.	Urban.	Rural.	Combined.
1	2	3	4	5	6	7
Cholera	1·16	1·87	1·86	1·04	1.13	1·13
Small-pox	·17	·51	·50	·03	·24	·24
Plague	...	...	...	...	...	...
Fevers	7·20	15·90	15·71	5·19	12·34	12·19
Dysentery and Diarrhœa...	3·39	1·59	1·63	3·11	1·37	1·41
Respiratory diseases ...	3·40	1·64	1·68	2·68	·80	·85
Injuries	·56	·28	·28	·71	·30	.31
All other causes ...	7·88	4.79	4·86	7·53	4·72	4·78
Total ...	23·76	26·58	26·52	20·42	20·92	20·91

Less cholera and small-pox prevailed in both urban and rural areas in 1929 as compared with the decennial average. The mortality under respiratory diseases was also less.

The progressive annual reduction in the rural mortality under "fevers" was due to the intensive *kala azar* operations which are being carried out in the province.

INFLUENZA.

The total number of deaths reported from influenza during the year was 80 as compared with 128 in the previous year. Sporadic cases of the disease were reported from two districts only.

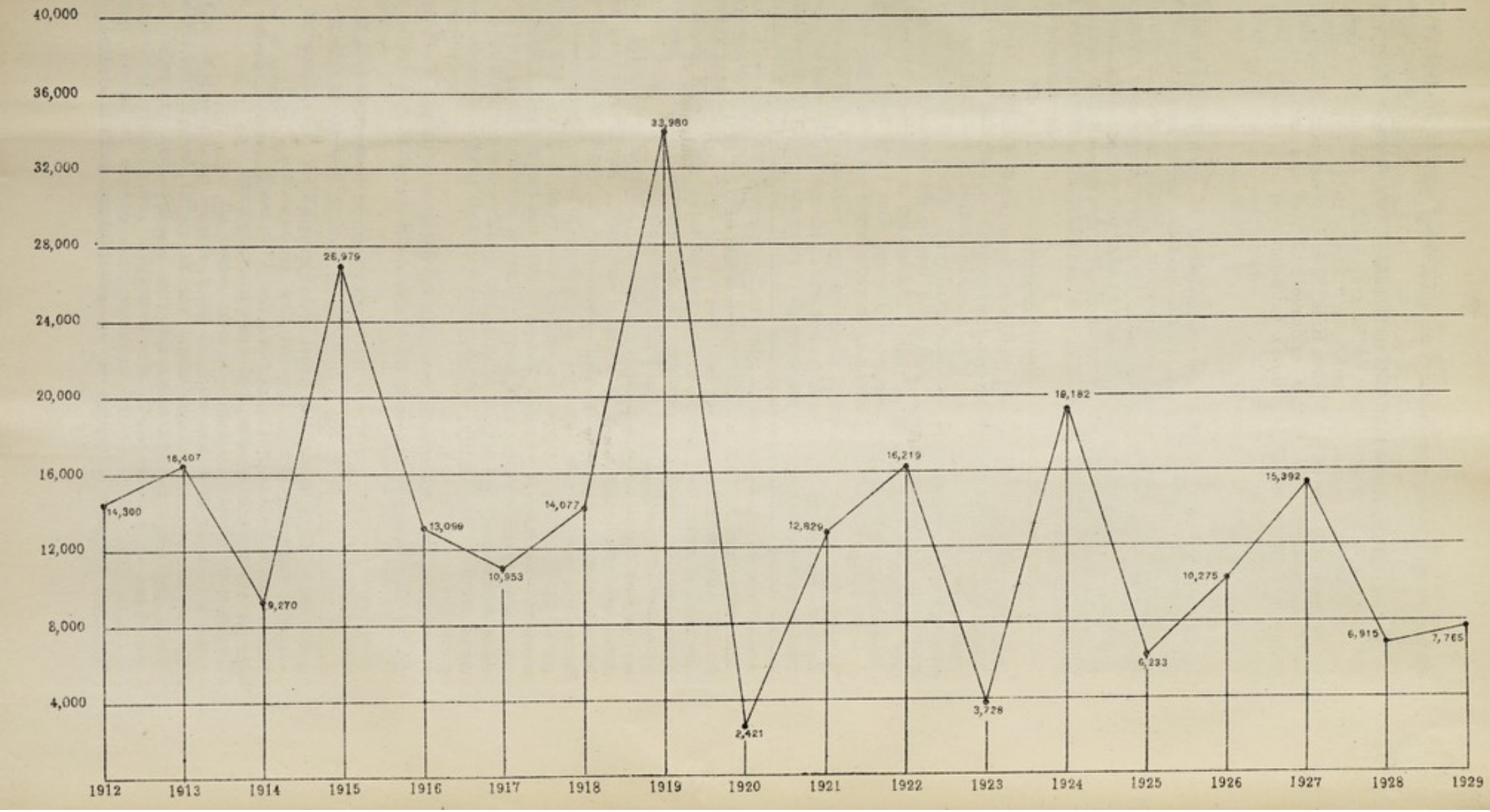
18.—CHOLERA.

District.	Death-rate per mille.	
	1919-28.	1929.
1	2	2
Cachar	2·07	·34
Sylhet	2 02	1·58
Goalpara	1·49	1·46
Kamrup	3·31	2·10
Darrang	2·29	·66
Nowgong	1·85	·94
Sibsagar	·93	·16
Lakhimpur	·49	·07
Total ...	1·86	1·13

The total number of deaths from cholera reported during the year was 7,765 as compared with 6,915 in 1928, the rates per 1,000 of population being 1·13 and 1.01 respectively. The decennial average was 1·86. The largest number of deaths (1,276) occurred in April and the lowest (145) in September. The highest death-rate (2·10) from this disease was reported from the Kamrup district. Cholera spread into various parts of this district from a fair called the "Bhutia Mela" which is held annually at Darranga at the foot of the Bhutan Hills. Two Sub-Assitstant Surgeons and four disinfectant carriers of the district epidemic unit staff were sent to the locality on receipt of the first report of the outbreak but before their arrival the infection spread to the Rangia circle. The whole of the Barpeta subdivision of this district was effected. The next highest rates 1·58 and 1·46 were reported from the Sylhet and Goalpara districts, respectively. There were unusually severe floods in the former district. As soon as these began, timely arrangements were made to provide all dispensaries (local board and *kala azar*) with vaccines, essential oils and disinfectants for water supplies. Mass inoculation against cholera and disinfection of water-supplies were carried out in villages in the effected flooded areas from which cholera was reported The results of these measures surpassed all expectations The epidemic unit staff of the district was strengthened by the provision of an additional temporary epidemic unit, consisting of three Sub-Assistant Surgeons and six disinfectant carriers. The Assistant Director of Public Health, Surma Valley and Hill Division and Assistant Surgeon on *kala azar* duty, Sylhet district, visited the cholera infected areas and supervised the work of Sub-Assistant Surgeons. In Goalpara district cholera was widespread. Two Sub-Assistant Surgeons and four disinfectant carriers from the epidemic units in Sylhet district were deputed to the Goalpara district when it was found that the disease was assuming widespread epidemic form and that the district epidemic staff was unable to cope with it. During the year 275,337 persons were inoculated against cholera in the above districts and in Cachar and Nowgong, which suffered severely from floods. Bacteriophage was also used extensively at time of epidemics as a prophylactic measure. The Officiating Director of Public Health, visited Silchar in June, taking with him an epidemic Sub-Assistant Surgeon and a supply of bleaching powder. The Assistant Director of Public Health, Surma Valley and Hill Division was also deputed with two Sub-Assistant Surgeons to this district, who also took with him disinfectants and vaccines that could be spared from the Sylhet district. An Assistant Surgeon and a laboratory attendant were deputed from the Pasteur Institute with a supply of cholera vaccine and bacteriophage,while three more Sub-Assistant Surgeons and six disinfectant carriers were also provided. The Assam Branch of the Indian Red Cross Society rendered prompt assistance by supplying bleaching powder and electrolytic chlorine for disinfection of water-supplies and allumenoferric for clarification of tanks. Many private tanks in the flood affected areas were disinfected with lime which was locally procured. In the Nowgong district the Civil Surgeon visited flooded areas and undertook precautionary measures against possible outbreaks of cholera. The Assistant Director of Public Health, Assam Valley Division, visited Nowgong and supervised the work of the epidemic staff. Conditions for a widespread epidemic of cholera were most favourable during and after the period of flood. But for the prompt measures taken under difficult circumstances, in arranging for mass inoculation and extensive disinfection of water-supplies, the mortality would have been much higher. It has to be stated that with the introduction of epidemic units in 1925, the popularity for inoculation against cholera has steadily increased. In a province like Assam, inoculation against this disease together with the prompt disinfection of water-supplies is our only reliable and satisfactory way of combating epidemics. Prompter measures are possible only after medical officers of health are provided in each plains district. Civil Surgeons are at present responsible for the control of epidemics in their districts in addition to their other duties. Epidemics cannot therefore receive that amount of attention at their hands which they deserve. Civil Surgeons are invariably precluded from carrying out investigations and organising a campaign against an outbreak of an epidemic disease on the spot, owing to their having to remain at headquarters in connection with their more legitimate duties. This results in much loss of time which is invaluable on these occasions, and the consequence is that outbreaks must persist for much longer than they would otherwise do. An unnecessarily high mortality under these circumstances is to be anticipated. The above and many other serious difficulties will, of necessity, be overcome, when District Health Officers are sanctioned for the plains districts. These Officers being whole-time Public Health Officers, and being specially qualified for the purpose, must immediately proceed to the scene of any outbreak and with the staff at their d'sposal organise prompt

CHART NO. II

Mortality from Cholera in Assam
from 1912 to 1929



measures to combat it, thereby preventing an unnecessary loss of life and much unhappiness and suffering.

The quantity of cholera vaccine issued since 1924 has been as follows :—

1924	...	...	...	...	...	79,295 c.c.
1925	...	...	...	...	...	103,930 „
1926	...	...	...	...	...	154,760 „
1927	...	...	..	...	...	419,880 „
1928	...	...	...	...	...	237,773 „
1929	...	...	...	...	...	356,047 „

A total of 130,839 doses of bacteriophage was issued in 1929. The goanburas in the Chhoygaon area of the Kamrup district and also to those living along the Kallong river in Nowgong district, where cholera usually breaks out in November and December, were supplied with stocks of bacteriophage in October, 1929 with the object of issuing it to the very first cases and thereby checking the spread of the disease. The epidemic unit Sub-Assistant Surgeons of the district concerned visited the villages and explained to the goanburas how and the circumstances under which it should be administered.

EPIDEMIC UNIT.

The Public Health Department entertains five mobile epidemic units, each consisting of three Sub-Assistant Surgeons and six disinfectant carriers. Two temporary additional units, one in Sylhet and the other in the Cachar district, were entertained at the time of the floods. They have been very instrumental in popularising cholera inoculation amongst the general population. Inoculation has for some time been extensively practised on tea gardens where its efficacy has been proved and appreciated, but little or no such preventive measures were undertaken amongst the general population before the introduction of these units in 1925 in the province.

These units have also assisted very materially in the more prompt reporting of epidemics, as information regarding them now reaches Civil Surgeons much earlier. The inhabitants of villages are aware of the existence of these units in their district and consequently apply immediately for aid when cases of epidemic disease arise or threaten. More units are necessary. Previously, a Sub-Assistant Surgeon from a dispensary had to be relieved for epidemic duty, which took time as arrangements for his relief had to be made. These units visited 1,826 villages during the year, inoculating contacts, disinfecting water-supplies and educating the people in preventative measures. Provincial arrangements for combating epidemics will be greatly strengthened when the Vaccination Inspecting Staff is put through a course of elementary hygiene and sanitation. Proposals in regard to this scheme are receiving the consideration of Government. When this is sanctioned, it is hoped to place one rural Sanitary Inspector in charge of each thana circle with special reference to the detection, reporting and control of epidemics in his area. In addition to the above duties, these offices will have many other most important ones allotted to them. I am confident that this is an urgent and most necessary measure and the province as a whole will very greatly benefit by the money spent on it. Information regarding outbreaks of epidemic diseases as well as other important matters will reach district headquarters much more promptly than they do at present. This will ensure more speedy action being taken.

Chart No. II shows the provincial mortality from cholera from 1912 to 1929.

The following epidemic unit Sub-Assistant Surgeons deserve special mention for their work :—

Maulvi Muhammad Danish Uddin.

Maulvi Muhammad Habibur Rahman.

High rates of mortality from cholera in individual towns and rural areas.

19. Barpeta town in the Kamrup district reported the highest death-rate from cholera, *viz.*, 6·65, followed by Sunamganj (2·87), Maulvibazar (2·70) and Karimganj (1·76). None of these towns has a protected water-supply and facilities for the spread of the disease, once infection is introduced, are therefore great. Cholera appeared in Barpeta town in April and persisted till August. The subdivisional Medical Officer of the subdivision, Sub-Assistant Surgeon of the local dispensary and epidemic unit Sub-Assistant Surgeons and disinfectant carriers inoculated contacts and disinfected wells. Instructions were issued for the prompt disposal of excreta and protection of food against contamination by flies, etc. Leaflets, in which detailed instruction as regards preventative measures

are given, were widely distributed. General apathy of the people towards inoculation accounted for the persistence of the epidemic. Sunamganj, Maulvibazar and Karimganj became infected from rural areas, as the subdivisions in which these towns are situated were flooded and heavily infected with the disease. Inoculation of contacts and disinfection of water-supplies were promptly carried out and the disease died out. No case of cholera was reported from thirteen towns. Among rural circles the highest rate of 8·30 per mille of population was reported from Sorbhog in the Kamrup district, followed by Barpeta (6·85) and Chhoygaon (3·81) in the same district, Derai (4·79), Sunamganj (4·32), Jogannathpur (3·80), Sulla (3·66), Rajnagar (3·41) and Chhatak (3·34) in Sylhet, North Salmara (3·13) in Goalpara and Jamunamukh (3·04) in Nowgong. In all of the above circles contacts were inoculated and water-supplies were disinfected by the epidemic unit staff, Sub-Assistant Surgeons and local board doctors in charge of local board and *kala azar* dispensaries, under the supervision of the Assistant Directors of Public Health, Assistant Surgeons on *kala azar* duty and subdivisional medical officers. Indents for cholera vaccine were promptly complied with by the Director of Pasteur Institute and Medical Research Institute. There was no shortage of vaccines at any time. Additional grants for the purchase of cholera vaccine and disinfectants were provided. Fifteen rural circles escaped infection from cholera.

Cholera in tea estates.

20. The total number of deaths from cholera reported from tea estates was 248 as compared with 381 in the preceding year. The ratios per mille of population being ·27 and ·42 respectively. The highest rate 2·78 was reported from Kamrup. In Cachar, Sylhet and Nowgong, where there were serious floods, the rates were ·20, ·43 and ·19 respectively. The garden authorities undertook adequate preventive measures.

21.—SMALL POX.

District.	Death-rate per mille.	
	1919-28.	1929.
1	2	3
Cachar	·19	·54
Sylhet	·42	·33
Goalpara	·65	·23
Kamrup	·70	·30
Darrang	·50	·07
Nowgong	·71	·01
Sibsagar	·82	·02
Lakhimpur	·15	·13
Total ...	·50	·24

The total number of deaths registered from small-pox during the year 1929 was 1,648, as compared with 8,461 in 1928, showing a decrease of 6,813. The death-rates for the two years were ·24 and 1·23, respectively and the decennial average was ·50. There was thus a substantial reduction in the mortality from small-pox during the year. Two hundred and seventy-six deaths occurred among children under one year and 422 between 1 and 10 years. The highest number of deaths (273) was recorded in March and the lowest (23) in November. The Sylhet district in which 3,862 deaths were reported in 1928, reported 842 deaths only in 1929. Vaccination was made compulsory in many small-pox infected villages in that district in 1927 and 1928 under special regulations framed under the Epidemic Diseases Act. The mortality in Cachar and Goalpara districts was lower than in the previous year. Small-pox did not prevail in a widespread epidemic form in any district during the year. The need for rural Sanitary Inspectors in thana circles is very real and urgent, as, through this agency, it will be possible in the future to very appreciably decrease the incidence and mortality from this disease.

High rates of mortality from small-pox in the individual towns and rural areas.

22. Mangaldai (·98), Dhubri (·30), Gauripur (·23) and Goalpara (·16) are towns in which a few sporadic cases occurred. All other towns were free from the disease. Among rural circles, Gowainghat (2·03), Jaintiapur (1·80) and Karimganj (1·16) in Sylhet district, Goalpara (1·38) and Silchar (1·22) and Lakhipur (1·11) in Cachar, reported somewhat higher rates, but in them cases were sporadic. Twenty-nine rural circles were free.

CHART NO. III

Mortality from Small-pox in Assam
from 1912 to 1929

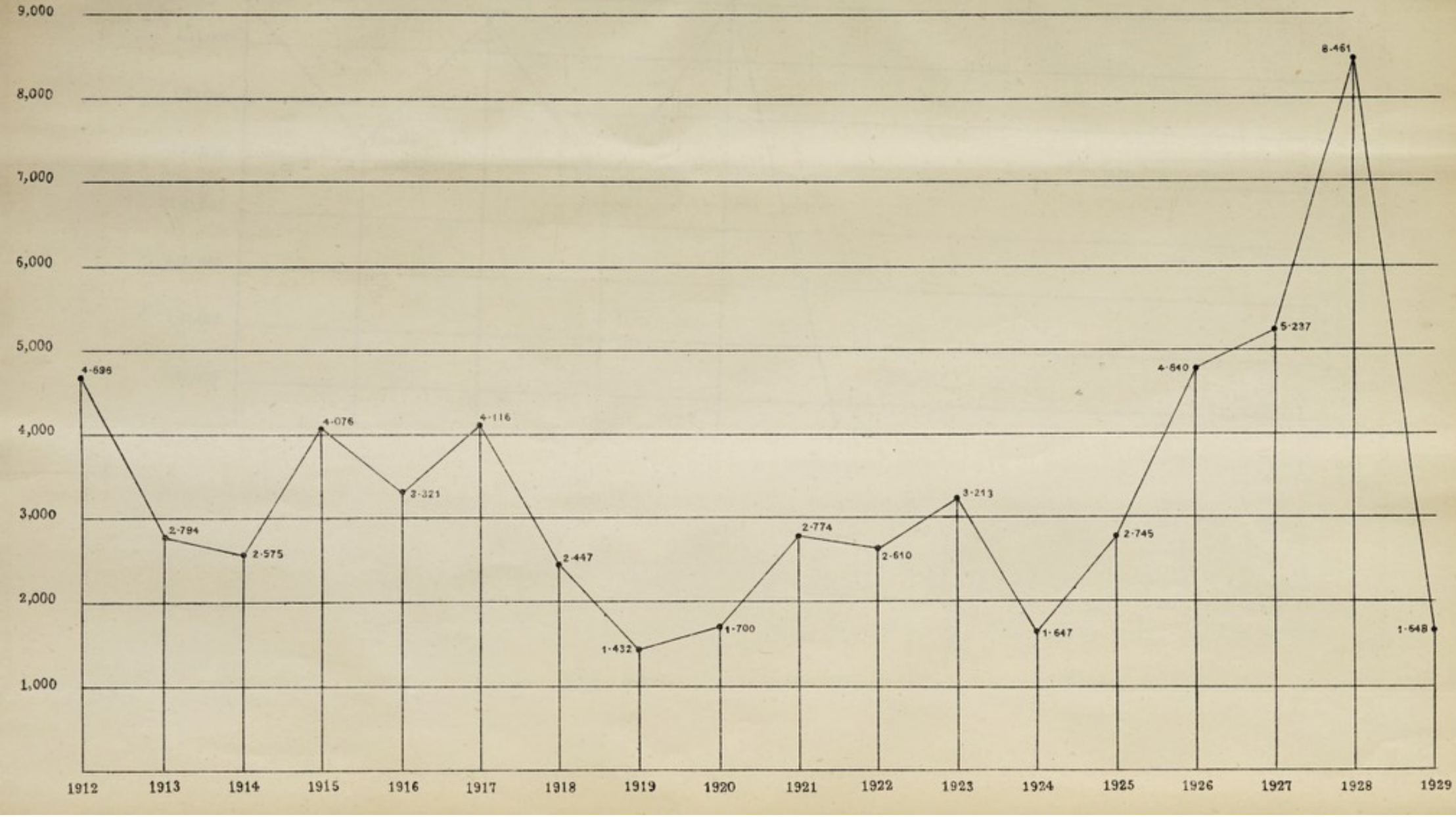
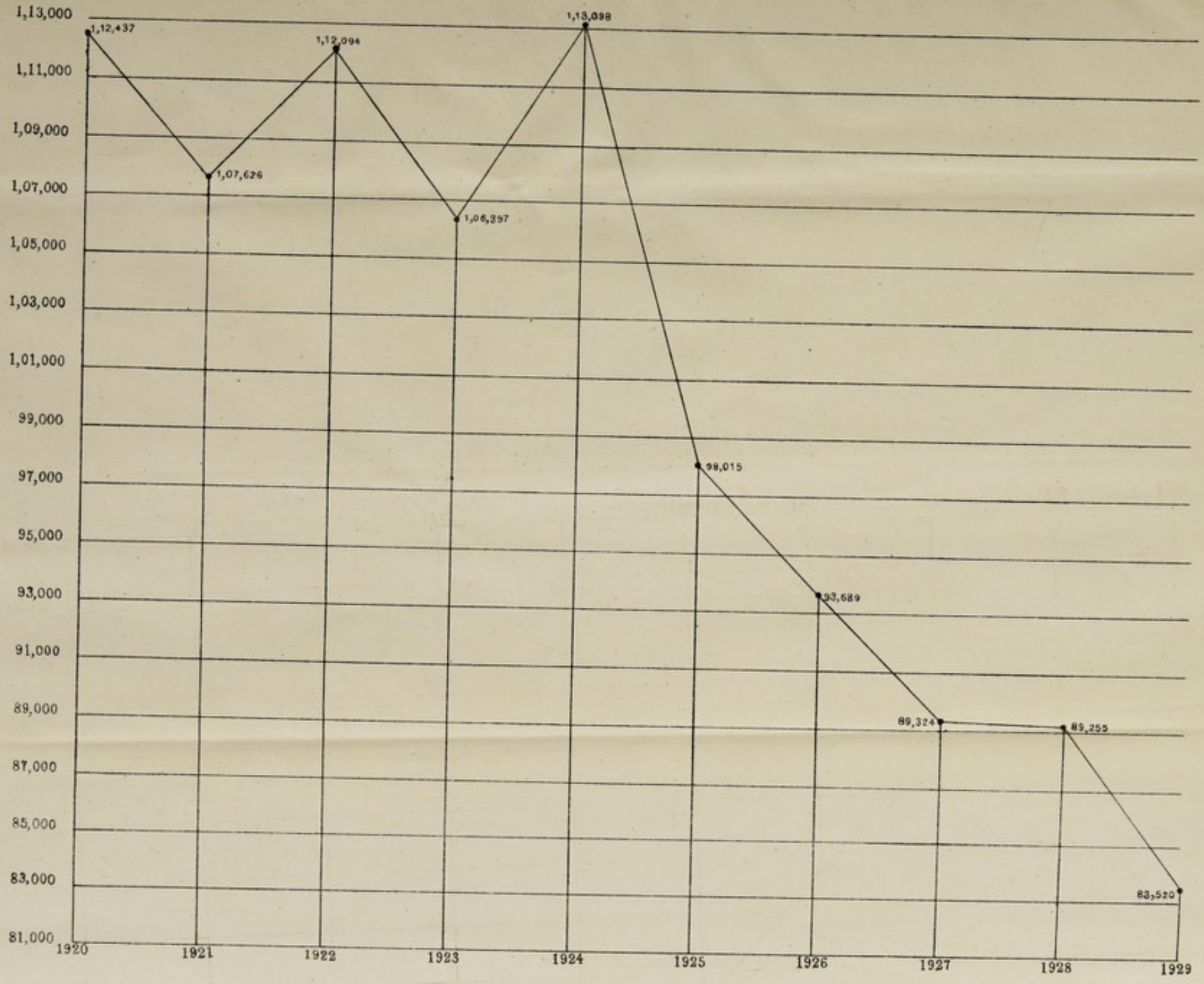
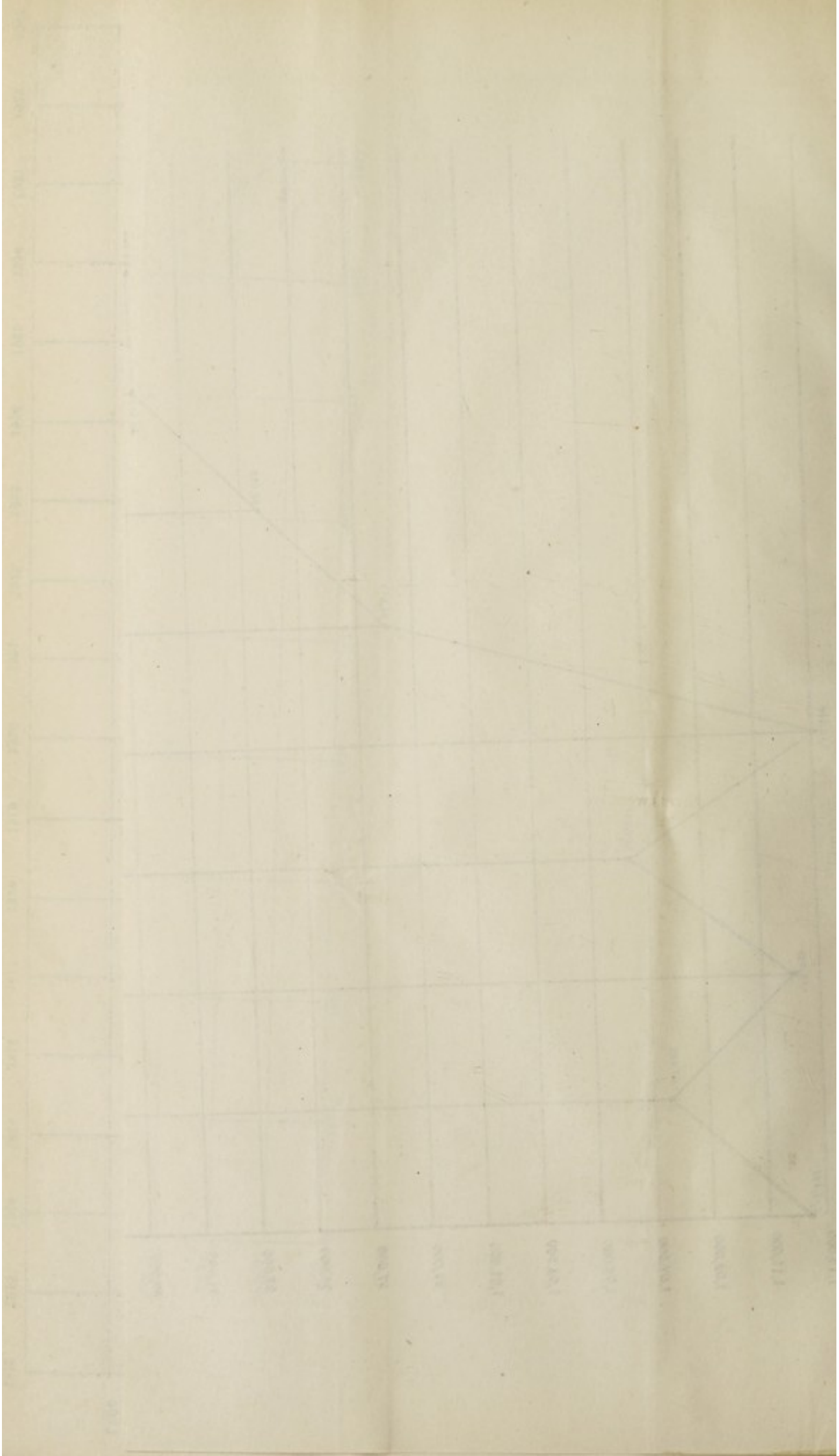


CHART NO. IV

Total number of deaths due to fevers





Information as to the number of patients treated in special isolation hospitals and their vaccinal condition is given below :—

Municipal towns.	Number of small-pox patients treated.	Vaccinated as evidenced by presence of one or more vaccination cicatrices.	Stated to have been successfully vaccinated, but no vaccination cicatrix presented.	Stated to be unvaccinated (or vaccinated unsuccessfully) and no vaccination cicatrix present.	Previously unvaccinated but vaccinated during incubation of small-pox.	Stated to have been successfully vaccinated.
1	2	3	4	5	6	7
Dhubri	2	1	...	1	...	...
Gauhati	6	3	2	...	1	...

Chart No. III shows the provincial mortality from small-pox from 1912 to 1929.

23.—FEVERS.

Districts.	Death rate per mille.	
	1919-28.	1929.
1	2	3
Cachar	13·51	10·67
Sylhet	16·10	11·65
Goalpara	25·75	20·45
Kamrup	15·23	11·16
Darrang	15·50	13·80
Nowgong	15·89	12·47
Sibsagar	10·77	8·58
Lakhimpur	10·42	9·99
Total	15·71	12·19

During 1929 fevers were responsible for 83,520 deaths as compared with 89,255 in 1928. This shows a decrease of 5,735. The rates per mille of population were 12·19 for 1929 and 13·03 for 1928 against a decennial average of 15·71. This head includes, in addition to mortality due to malaria and *kala azar*, deaths which were due to various diseases having fever as their symptom. The largest number of deaths (8,759) was recorded in December and the smallest (5,496) in March. The number of deaths recorded under "fevers" makes up 58·29 per cent. of the total deaths for the year. Chart No. IV shows the provincial mortality from fevers from 1920 to 1929.

MALARIA.

24. As a preventive measure against malaria, quinine is sold below cost price, at post offices throughout the province. Where these and dispensaries do not exist, it is sold by specially appointed agents. Detailed instructions as to employment are given with each treatment. A patient can avail himself of its benefit without medical aid. Patients are treated with this drug free of charge in all dispensaries. Illustrated pamphlets on malaria are read by students in all primary schools in the province. In them is explained in simple colloquial language, the cause of malaria, how it can be cured, and how it can be avoided. Magic lantern demonstrations with suitable slides and lectures on malaria are also given in villages by the *kala azar* Assistant Surgeons. The general public is thereby given graphic demonstrations as to methods of protection against the disease. The Assistant Directors of Public Health visit schools in the course of their tours in villages and give short lectures on malaria. Anti-malarial measures were carried out at Haflong, Kohima, Pasighat, Lumding and Kachugaon, the details of which are given below.

At Haflong a party consisting of one anti-malaria overseer and eight men work under the control of the Subdivisional Officer in accordance with the directions of the Civil Surgeon, Cachar. The Assistant Director of Public Health, Surma Valley and Hill Division, inspects the progress of work and submits reports. This squad was engaged in keeping the lakes and drains all over Haflong civil station free from

weeds and undergrowth. Suspected breeding places were treated with anti-larvæ oil Serious damage was done to the drains all over the station by heavy rains in May and June which caused a great many scourings in many of the *kutcha nullas*, where a few anopheline larvæ were detected by the Assistant Director of Public Health Prompt steps were taken to improve these places in accordance with his instructions. Several species of larvæ eating fish were reared in the lakes as well as in the wells according to the suggestion of the Assistant Director of Public Health.

At Kohima anti-malaria measures were taken up between May and November. Similar to last year, a staff of one sirdar, one assistant sirdar and 30 coolies were engaged in the operations. Their work lay principally in keeping down all scrub in the station from its western extremity near Kuki-picket to the outskirts of Kohima village. All trickling streams were bunded in order to get an expanse of water that could be treated with anti-larvæ oil. The station was completely cleared of all undergrowth three times during the year and pools and runnels of water were treated with oil. It is reported that there was almost a complete absence of mosquitoes in the station during the year. The admissions for malaria in the charitable dispensary and third Assam Rifles Hospital show a slight increase during the year. This is attributed to new recruits in the battalion and the importation of foreign labour for the construction of the new military lines. These men were infected with malaria prior to their arrival at Kohima and had to be treated.

At Pasighat, the clearing of jungle was restricted to the secondary jungle in the station area already opened up. No extension of jungle clearing was carried out during the year. Attempts at eradicating the jungle were carried out by uprooting and destruction of the secondary jungle within the station area as it was found that merely simple cutting gives very temporary results. The Moralali stream was, as in previous years, oiled by means of drip-cans and sprayers and all collections of water within the station were sprayed. Prophylatic quinine was issued to the Assam Rifles personnel and cinchona to the men of the permanent coolie corps during the rains. Mosquito nets were used by them. The incidence of malaria among the Assam Rifles and the station generally shows a considerable decrease as compared with last year.

In the Lumding railway area all known breeding places of anophelenes were regularly treated with a mixture of crude and castor oils, as in the previous year. Ten drip-cans were in use in different parts of the station. They were regularly inspected and overhauled by the oil gang mate. Anophelenes were found in rivers in January, in club *bheel* in May and June and in brickfield in July. On thirty-five different occasions various larvæ were found breeding in different places. The Medical Officer, Lumding, remarks "that most of our worst breeding places are in areas where the original drainage scheme was never completed by the Engineering Department for reasons unknown".

The anti-malaria measures which were carried out during the year in the forest area at Kachugaon in the Goalpara district included clearance of drains, construction of roads, purchase of a tractor for dealing with the grass jungle and filling in ditches and low-lying places and employment of certain medical and menial establishment. The number of patients treated for malaria in the local dispensary during the year was less than that treated in the preceding year, but this comparison is not reliable as the number of sawyers employed during the year under report was less and increase in the use of the dispensary by villagers. It is too early to express a definite opinion whether the work carried out has really benefited the health of the officers at Kachugaon.

There is urgent need for a much wider malaria investigation in the province. It will be undertaken as soon as funds which must necessarily be large, are forthcoming. All available Public Health Department resources have been utilised for some years past in measures designed against *kala azar*. This disease is now well under control and as funds are gradually released from this undertaking it will be recommended that they be diverted to measures aimed at the mitigation and prevention of malaria.

High rates of mortality from fevers in individual towns and rural areas.

25. Amongst towns, Nazira recorded the highest death-rate from fevers (14·82). Other high rates were Gauripur (10·44), Sibsagar (9·57), Doom Dooma (9·46) and North Lakhimpur (9·16). An urban health officer is not employed in any of the above named towns. It is therefore, possible that deaths caused by other diseases, of which fever is a symptom, may have been wrongly classified under fevers. Among rural circles, Kalaigaon in the Darrang district reported the highest rate, *viz.*, 37·05 per mille of population. Those of Lumding in Nowgong district, Golakganj, Dudnai, Mankachar and North Salmara in Goalpara and Panerihat and Udalguri in Darrang, reported rates varying from 21 to 27 per mille of

population, much reliance cannot be placed on the classification of the cause of death by the illiterate gaonburas and chowkidars who recorded these deaths in rural areas. Malaria and *kala azar* were no doubt mainly responsible for these high rates. Surveys for detecting *kala azar* cases are being carried out in these areas and cases found are brought under treatment. Doom Dooma in Lakhimpur district reported a rate of 21·27 per mille. As *kala azar* has not been traced in this area, the bulk of these deaths are perhaps due to malaria.

KALA AZAR.

26. The following table shows the number of deaths from *kala azar* from 1920 to 1929 :—

District.	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.
1	2	3	4	5	6	7	8	9	10	11
Cachar	5	1	...	4	2	3	9	12	2	3
Sylhet	26	183	275	841	1,874	2,109	1,320	798	482	429
Goalpara ...	602	557	253	442	309	453	297	226	166	135
Kamrup	931	765	450	976	1,152	1,120	714	475	241	180
Darrang	256	169	202	289	448	478	474	318	258	241
Nowgong ...	846	1,172	933	1,291	1,479	1,445	839	528	260	178
Sibsagar ...	114	121	128	289	235	200	170	143	86	87
Lakhimpur ...	...	3	4	13	13	8	1	5	5	1
Khasi and Jaintia Hills.	...	...	...	...	...	8	4	3	4	...
Naga Hills ...	...	...	...	...	...	1	...	...	...	1
Lushai Hills ...	...	...	...	...	...	...	1	...	1	...
Garo Hills ...	18	26	47	54	69	435	346	350	154	149
Sadiya Frontier Tract	...	...	...	2	4	3	1	1	1	1
Manipur State ...	...	...	...	...	...	2	...	...	...	...
Total ...	2,798	2,987	2,292	4,131	5,585	6,365	4,176	2,859	1,660	1,405

The following table shows the number of *kala azar* cases treated from 1920 to 1929 :—

District.	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.
1	2	3	4	5	6	7	8	9	10	11
Cachar	75	316	210	352	253	442	333	359	394	470
Sylhet	158	2,837	5,148	9,278	16,516	10,934	16,355	10,527	8,988	9,162
Goalpara ...	1,569	2,500	2,731	4,176	5,016	6,003	5,671	3,495	2,316	2,389
Kamrup ...	2,402	3,491	2,700	4,698	5,780	8,758	7,301	6,445	3,577	2,598
Darrang	387	1,360	1,229	2,416	3,286	5,262	4,414	4,053	2,228	1,390
Nowgong ...	1,816	4,343	5,934	1,847	13,625	13,895	9,586	5,008	2,614	2,433
Sibsagar	659	875	1,307	2,143	2,929	3,285	2,658	1,521	1,555	2,387
Lakhimpur ...	9	22	12	68	81	99	20	19	28	23
Khasi and Jaintia Hills.	54	52	59	120	274	213	198	120	6	...
Naga Hills ...	...	...	...	4	3	4	2	1	5	9
Lushai Hills ...	...	...	...	...	...	...	...	...	1	...
Garo Hills ...	43	84	329	589	985	1,952	2,812	1,828	1,690	2,905
Sadiya Frontier Tract	...	...	...	...	...	8	4	3	8	3
Manipur State ...	...	...	...	...	22	85	31	36	166	35
Total ...	7,118	15,880	19,659	35,071	48,770	60,940	49,385	33,415	23,576	23,804

There was a small decrease in the number of deaths reported from *kala azar* in 1929. Their number for the year being 1,405 against 1,660 in 1928. The total number of cases treated during the year, *i.e.*, balance from the previous year *plus* fresh cases during the year was 23,804. This was nearly equal to the number treated in 1928, namely, 23,576. The number of fresh cases brought under treatment during the year was 18,464 against 17,339 in 1928. This increase was due to the Garo Hills district in which more extensive surveys for *kala azar* were carried out. Repeated surveys have been carried out by Sub-Assistant Surgeons in charge of dispensaries within a radius of five miles of their dispensaries in *kala azar* infected districts. Special Sub-Assistant Surgeons were posted exclusively for survey work in areas where *kala azar* was suspected and which lay outside a radius of five miles of existing dispensaries and out-centres. Mass treatment with urea stibamine (brahmachari), which was introduced in 1926, was pursued during the year under report. Cases were diagnosed by means of the Formol-Gel test aided by clinical signs and symptoms, as in the previous years. Special attention is now being paid to detailed survey work which is a most important factor in the campaign against the disease. The *kala azar* Commission continued its researches into the problem of the transmission of the disease during the year for the complete eradication of the disease from the province. The present measures must be vigorously followed and this is the view expressed by the commission. A Special Sub-Assistant Surgeon surveyed the villages out side a radius of five miles of the dispensary which was suspected to be heavily infected in the Katigora thana of the Cachar district. The detected cases were brought under treatment. One in-door hospital and two dispensaries were closed and two new dispensaries were opened in Sylhet district. One new dispensary was opened in the Goalpara district. In the Kamrup distirct villages in the hills and at the foot of the hills were specially surveyed and a large number of cases were detected. One dispensary and six out-centres in this district were closed during the year. Two *kala azar* dispensaries in the Darrang district were closed and one of them was reopened as an ordinary dispensary by the Tezpur Local Board. A dispensary was opened at Namtiali in the Sibsagar district where a large number of cases were detected. Three Sub-Assistant Surgeons surveyed various parts of the Garo Hills district throughout the year and more Sub-Assistant Surgeons have been posted to this district for more extensive surveys. As a result of investigations, it was found that the campaign against the disease in this district has not been pushed on as satisfactorily as it might have been, owing chiefly to the want of efficient supervision by the Civil Surgeon. This has been remedied by drafting in extra staff for both surveys and treatment. In addition, more in-door hospitals and out-door dispensaries have been opened. All dispensaries in this district have been equipped for treating *kala azar* cases. In-door accommodation is being provided where considered necessary. My thanks are due to all district and Subdivisional Magistrates, Civil Surgeons, Assistant Directors of Public Health, Subdivisional Medical officers and the subordinate staff employed in *kala azar* infected districts for the energetic manner in which they have collaborated in the campaign against this disease. Had it not been for their zeal and interest, the campaign would certainly not have been so successful. My special thanks are due to Lieut.-Colonel J. W McCoy, I.M.S., for the excellent and most successful manner in which he has conducted operations in the Sylhet district, especially as it has to be realized that he has many very important duties to perform and there are endless calls on his time and energy. Municipal and local boards without exception also rendered valuable assistance. The following Sub-Assistant Surgeons deserve special mention for their work :—

Babu Nagendra Nath Deb.

„ Nepal Chandra Dey.

Maulavi Syed Muhammad Habibur Rahman.

„ Mohemmad Ali.

Srijut Subodh Chandra Gogoi.

Babu Suresh Chandra Majumdar.

„ Benode Behari Biswas.

Srijut Bhabanath Sarma.

27.—DYSENTERY AND DIARRHŒA.

Districts.	Death-rate per mille.	
	1919-28.	1929.
1	2	3
Cachar	2·36	2·44
Sylhet	1·51	1·41
Goalpara	·24	·33
Kamrup	·79	·85
Darrang	2·40	1·59
Nowgong	·91	·51
Sibsagar	2·44	2·17
Lakhimpur	2·95	2·15
Total ...	1·63	1·41

The total number of deaths registered from dysentery and diarrhœa during the year was 9,662, as compared with 8,501 in 1928. The corresponding death-rates for the two years were 1·24 and 1·41 respectively and the decennial average 1·63. The highest number of deaths (1,034) was recorded in November and the lowest (425) in March. The reported death-rates from this cause in Cachar and Sylhet districts were slightly higher than those of the preceding year. The want of good drinking water during and after the floods accounts for the higher mortality in these districts. With the Subsidence of the floods, steps were taken for the clarification and disinfection of tanks in urban and rural areas. Bacteriophage manufactured in the Pasteur Institute and Medical Research Institute in Shillong was supplied in affected areas and an Assistant Surgeon was deputed from the Institute for the supervision of its administration. The Assistant Director of Public Health visited the affected areas and reported that most of the cases were of simple colitis caused by the consumption of adulterated food articles. People were advised to use only boiled water.

The mortality from dysentery and diarrhœa on tea estates during the year was 3·81, as compared with 3·42 in 1928. The recorded death-rate on tea estates in Sylhet rose from 2·81 in 1928 to 4·25 in 1929. The flood conditions that prevailed during the year in some parts of this district have partly contributed to the increase. In other districts variations were small.

28. No case of plague was reported during the year.

OTHER CAUSES.

29. During the year 5,794 deaths were recorded from respiratory diseases, 2,111 deaths from injuries and 32,783 deaths from all other causes, as compared with 5,615, 1,821 and 31,289 respectively in the preceding year, the corresponding death-rates being ·85, ·31 and 4·78 respectively in 1929 and ·82, ·27 and 4·57 respectively in 1928. The variations are unimportant and need no explanation.

SECTION VII.

VACCINATION.

Introductory.

30. The vaccination work for the year 1929-30 is dealt with in this section.

Vaccination agencies.

31. The total number of vaccinators employed during the year 1929-30 was the same as in the year 1928-29, *viz.*, 464. Disinfectant carriers of epidemic units were employed, as in the previous year, as vaccinators when their services were not required for cholera duty. The

average number of persons vaccinated by each vaccinator was 1,390 as compared with 1,716 in 1928-29. Vaccination in tea gardens was, as usual, performed by garden medical officers and in hospitals and railways by their respective medical officers.

Total number of operations.

32. The total number of vaccination operations performed in Assam during the year 1929-30, was 694,117, of which 346,234 were primary and 347,883 revaccinations, as compared with 871,114, of which 399,838 were primary and 471,276 revaccinations, in 1928-29. This shows a decrease of 53,604 in primary operations and 123,393 in revaccinations. The vaccinal condition of the province is far from satisfactory and this must continue until such times as more vaccinators are appointed and a much larger staff of inspecting officers—inspectors and sub-inspectors of vaccination (rural sanitary inspectors)—are appointed. Vaccinators will continue to do unreliable and spurious work unless they are constantly and diligently supervised. I most strongly deprecate any transfer of vaccination work in districts from the control of Civil Surgeons to local boards.

In 1928-29 there were widespread epidemics of small-pox in the districts of Sylhet, Cachar and Goalpara. A larger number of persons were therefore vaccinated in these districts in that year than in 1929-30. In certain villages in these districts vaccination was made compulsory in 1928-29 under the provisions of the special regulations framed under the Epidemic Diseases Act, and all unprotected persons in them were vaccinated. The number of operations performed during the year 1929-30 by different agencies was as follows :—

644,758 operations by the departmental vaccinators and disinfectant carriers of epidemic units.

8,044 operations by dispensary staff.

34,629 operations by tea garden agencies.

4,871 by jail asylum, police and emigration hospital agencies.

1,815 operations by railway agency.

Deaths from small pox.

33. The provincial mortality from small-pox per 1,000 population in 1929-30 was ·14, as compared with ·86 in 1928-29. The decrease is due to a large number of vaccinations and revaccinations being performed during the preceding year. Cachar district reported the highest ratio of ·32. Each of the districts of Goalpara and Lakhimpur reported the next highest rate of ·26.

The ratio of mortality in Cachar fell from 1·61 in 1928-29 to ·32 in 1929-30 and that in Goalpara from 1·20 to ·26. There was also a marked fall in Sylhet from 1·79 in 1928-29 to ·15 in 1929-30. In Lakhimpur it rose from ·15 in 1928-29 to ·26 in 1929-30. The special regulations framed under the Epidemic Diseases Act have proved to be of immense value in dealing with epidemics of small-pox in the province. During the year 5 villages in Cachar and 6 thanas in Goalpara were notified as small-pox infected and vaccination was made compulsory in them. The diagram shows the death-rate from small-pox during the year 1929-30 and the proportion of the population protected against the disease by vaccination during the seven years 1923-24 to 1929-30.

Dispensary vaccination.

34. The total number of persons vaccinated in dispensaries was 8,044, as compared with 15,749 in 1928-29. There was less prevalence of small-pox during the year. The number of people attending dispensaries to be vaccinated was therefore less.

Percentage of successful operations.

35. The percentage of success in primary vaccinations was 95·14 and that of revaccinations 66·84, as compared with 95·95 and 69·20 in 1928-29. The percentage of success in primary operations reported from the Naga Hills district, *viz.*, 77·37 was much below that for other hill districts. The percentage of cases in which failure to record the results of operations performed, *viz.*, 16·70 in primary and 25·66 in revaccination in Goalpara district was very high. This discloses careless work on the part of the district vaccination staff. This will be brought to the notice of the Civil Surgeon.

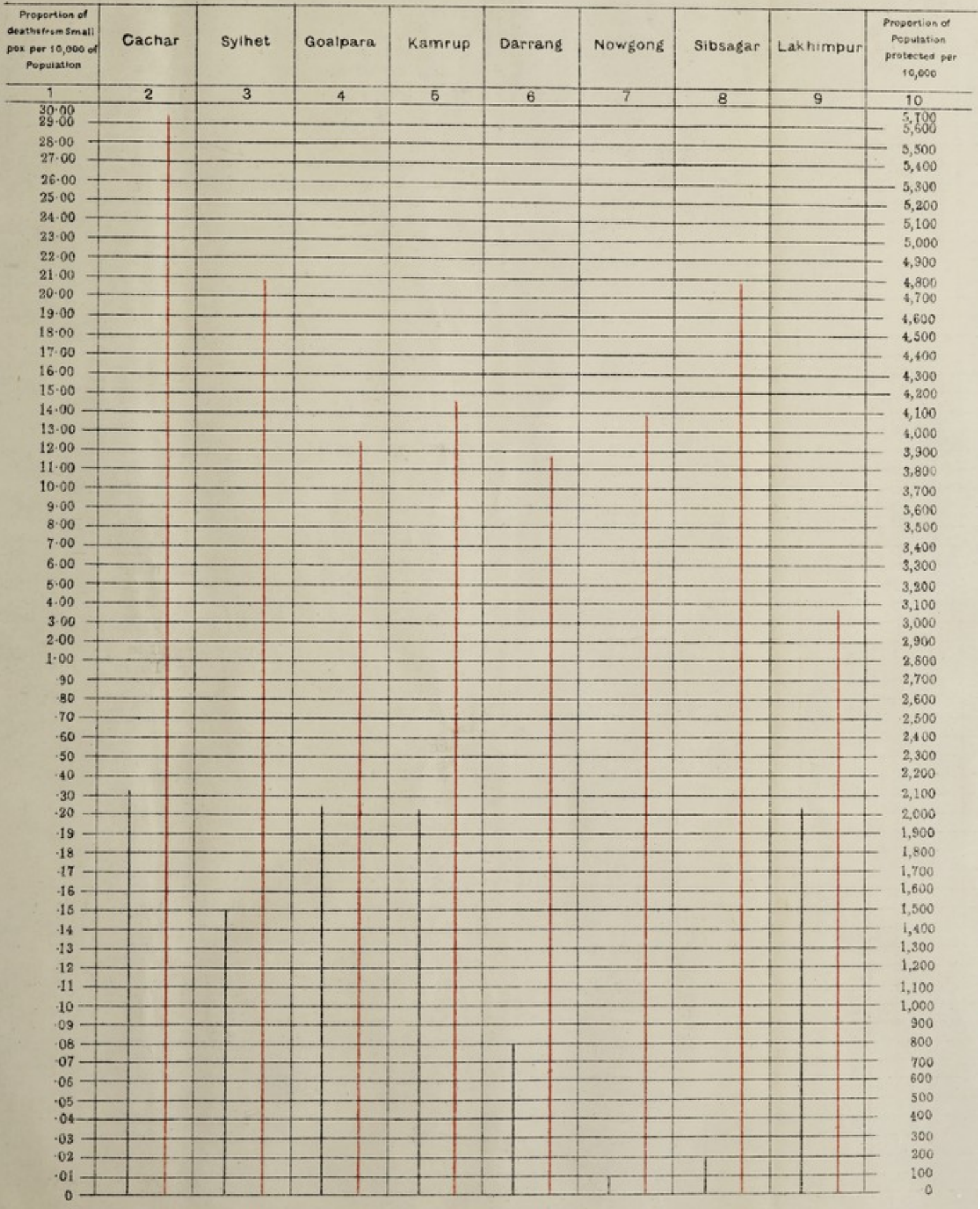
Different methods of vaccination.

36. All vaccinations were performed, as in previous years, with glycerinated calf lymph made in the Provincial Vaccine Depôt at Shillong.

Vaccination work in different districts.

37. Out of 14 districts, 8 show an increase in the number of operations performed in 1929-30, as compared with that in 1928-29. The highest increase, *viz.*, 24,488 was reported from the Goalpara district in which small-pox persisted during the year. Vaccination was made compulsory in certain thanas in this district. The decrease of

The following diagram illustrates the death rates from Smallpox in each District side by side with the proportion of the Population protected against the disease by Vaccination during the seven years 1923-24 to 1929-30.



NOTE_ Black lines indicate death rate from Smallpox.

Red lines indicate the proportion protected by Vaccination.

93,877 operations in the Sylhet district was most marked. There was an outbreak of small-pox in 1927-28 in this district and the epidemic continued into 1928-29. Twenty-six additional vaccinators were appointed by the North Sylhet and Sunamganj Local Boards. Sub-Assistant Surgeons, local board doctors and *kala azar* Sub-Assistant Surgeons were ordered to do vaccination work. There was a decrease of 24,546, 23,095 and 18,860 in Cachar, Khasi and Jaintia Hills and Manipur State, respectively, due to less prevalence of small-pox during the year.

Composition and strength of the inspecting staff.

38. The inspecting staff consisted of 9 inspectors, 20 permanent sub-inspectors, 10 temporary sub-inspectors and two sub-inspectors entertained by the Manipur State.

Verification by the inspecting staff.

39. Civil Surgeons, Assistant Directors of Public Health and Subdivisional Medical officers inspected 7·43 per cent. of the primary vaccinations and 4·37 of the revaccinations during the year 1929-30, as compared with 6·30 and 4·25 in 1928-29. More inspection by superior officers is certainly necessary to prevent falsification of registers by vaccinators. Much improvement in this respect must result when District Health officers are appointed to the plains districts, as then, these officers being whole-time, can devote their time, especially during the winter months to the much closer inspection of the work of vaccinators. This is not possible at the present time, by Civil Surgeons, who are much too preoccupied with their more legitimate duties in headquarters.

The district vaccination inspecting staff inspected 159,122 primary vaccinations and 118,159 revaccinations or 49·02 and 36·00 per cent. of the total number of operations performed during the year 1929-30, as compared with 171,352 primary vaccinations and 165,811 revaccinations or 46·04 and 37·66 per cent. respectively in 1928-29. The percentage of inspections done in Goalpara and Garo Hills was much below the percentage prescribed in departmental circulars. The Civil Surgeon, Garo Hills, has warned the sub-inspector to improve his work. The biennial increment of the sub-inspector of the Goalpara Subdivision has been withheld for his careless work.

Vaccination in compulsory areas.

40. In towns in which vaccination is compulsory, 4,358 infants were available for vaccination during the year. Out of this number, 2,020 or 46·35 per cent. were successfully vaccinated. In Nazira all available infants were vaccinated. In Dhubri, Habiganj, Mangaldai, Goalpara and Nowgong, 92·11, 84·37, 83·33, 72·27 and 72·08 per cent. of the available infants were vaccinated. Absurdly low rates were returned from Doom Dooma (3·70), Golaghat (6·42) and Hailakandi (7·89). The sub-inspectors in charge of Doom Dooma, Golaghat and Hailakandi towns should take more interest in this branch of their duties. In rural compulsory areas (village authorities) in the Sylhet and Sibsagar districts, 3,723 and 1,871 operations respectively were performed during the year, as compared with 3,835 and 1,249 respectively in the previous year.

Vaccine Depôt.

41. The total number of capillary tubes loaded for issue during the year 1929-30 was 966,717, as compared with 1,282,776 in 1928-29. The demand for vaccine lymph during the year 1929-30 was less than that for the preceding year, due to the less prevalence of small-pox during the year under report, as compared with the preceding year. The total cost of working the vaccine depôt during the year was Rs. 21,305 (of which Rs. 5,982 was on establishment, Rs. 6,338 on purchase of calves, Rs. 617 on feed of calves, Rs. 5,632 on capillary tubes, Rs. 251 on medical stores and Rs. 2,485 on miscellaneous contingencies) as against Rs. 22,292 in 1928-29. During the year, 804 calves were purchased and 805 were inoculated and lymph was taken from 712. Failure of operations accounted for 30 rejections, illness for 52 and ulceration and unsatisfactory vesicles for 11, as compared with 24, 36 and 14 respectively. Calves were supplied at Rs. 7-11-0 each from April to August and at Rs. 8 each from September to the end of the year.

The charge of the depôt was held by Lieut-Colonel D. L. Graham, O.B.E., I.M.S, with Senior grade Sub-Assistant Surgeon, Narendra Nath Dam, in subordinate charge. My thanks are due to both for the able administration of the vaccine depôt.

Cost of the Department.

42. The total cost of the department amounted to Rs. 1,19,818-1-0 during the year 1929-30 as compared with Rs. 1,25,378-14-7 in 1928-29 showing a decrease of Rs. 5,560-13-7. This decrease was mainly under the heads "Vaccinators" and "Cost of Vaccine". In 1928-29, vaccinators had to be entertained in the non-vaccination season in certain districts

to deal with small-pox epidemics. In that year the Manipur State had to obtain more vaccine lymph to deal with small-pox epidemics in the State. The cost of each successful vaccination was annas 4 in 1929-30, as compared with annas 3-4 in the preceding year.

General. 43. Primary vaccinations and revaccinations performed by tea garden agencies were 20,945 and 13,684, by jail, mental hospital, police hospital and infectious diseases hospital agencies 348 and 4,523 and by railway agencies 322 and 1,493.

Their successful percentages were 96·15 and 77·63, 86·09 and 63·39 and 91·40 and 56·64 respectively.

SECTION VIII.

Sanitary Works—Military.

(No remarks.)

SECTION IX.

Sanitary Works—Civil.

General. 44. The number of municipal boards and town committees during the year under report was the same as in the previous year; *viz.*, seventeen municipal boards and eight town committees.

Municipal expenditure on sanitation. 45. The aggregate income including the opening balance of the seventeen municipal boards and eight town committees amounted to Rs. 12,26,502 in 1929, as compared with Rs. 13,35,686 in 1928. A sum of Rs. 5,58,333 or 45·52 per cent. of the total income was expended on sanitary works, original and recurring, as compared with Rs. 5,32,528 and 40·94 respectively in 1928.

The table below shows the percentage of income spent on public health by each muncipal board and town committee :—

1.	Palashbari Town Committee	67·22
2.	Gauhati Municipl Board	67·20
3.	Dibrugarh ditto	60·05
4.	Jorhat ditto	55·73
5.	Habiganj ditto	52·99
6.	Tezpur ditto	49·74
7.	Silchar ditto	46·63
8.	Sylhet ditto	44·84
9.	Dhubri ditto	42·91
10.	Shillong ditto	41·89
11.	Nowgong ditto	41·01
12.	Nazira Town Committee	40·06
13.	Hailakandi Town Committee...	38·64
14.	Goalpara Municipal Board	36·34
15.	Maulvi Bazar Municipal Board	34·60
16.	Gauripur Town Committee	34·04
17.	Karimganj Municipal Board...	33·55
18.	Sunamganj ditto	33·41
19.	Sibsagar ditto	32·69
20.	Golaghat ditto	32·22
21.	Tinsukia Town Committee	31·60
22.	Doom Dooma Town Committee	25·24
23.	Mangaldai ditto	24·15
24.	Barpeta Municipal Board	21·88
25.	North Lakhimpur Town Committee	18·00

The percentage of expenditure incurred on public health by the Palashbari Town Committee was the highest in the year under report as in the previous year. This town committee has been constituted only very recently. Its expenditure on the improvements to water-supply and conservancy will therefore necessarily be high.

The following statement shows the expenditure for public health purposes during the year 1929, as compared with that in 1928 :—

Heads of expenditure.	Total expenditure.		Difference.	
	1929.	1928.	Increase.	Decrease.
1	2	3	4	5
	Rs.	Rs.	Rs.	Rs.
1. Conservancy including establishment, road watering, latrine, etc.	2,86,793	2,93,461	...	6,668
2. Drainage	29,567	27,146	2,421	...
3. Water-supply	1,73,099	1,54,693	18,406	...
4. Disposal of the dead	698	779	...	81
5. Markets and slaughter houses	24,589	20,839	3,750	...
6. Vaccination	5,370	5,264	106	...
7. Pay of Health Officers and Sanitary Inspectors	9,328	5,373	3,955	...
8. Epidemic charges including up-keep of contagious and infectious diseases hospitals.	14,775	12,036	2,739	...
9. Other sanitary works	14,114	12,937	1,177	...
Total ...	5,58,333	5,32,528	25,805	...
10. Construction and maintenance of roads ...	1,86,879	1,98,556	...	11,677
Total including roads ...	7,45,212	7,31,084	14,128	...

The decrease of Rs. 6,668 under the head "Conservancy" was mainly due of a much smaller expenditure having been incurred during the year by the Maulvi Bazar and Karimganj Municipal Boards than in the previous year, *viz.*, Rs. 4,149 and Rs. 7,971 respectively against Rs. 11,129 and Rs. 14,515 respectively in 1928. The Dibrugarh Municipality incurred an expenditure of Rs. 14,203 in the year under report on the improvements of its water-supply against Rs. 532 in 1928. This accounted mainly for the increase under the head "water-supply".

Sanitary works.

46. As usual the Director of Public Health and Assistant Directors of Public Health inspected municipalities and small towns and offered their advice on public health matters. The most pressing need in most towns in the province is a good type of sanitary private latrine which will allow easy access to sweepers and at the same time can be kept reasonably clean.

Surma Valley Division.—The condition of the surface drains in Silchar town is most unsatisfactory. A proper drainage scheme has been suggested. In the meantime the board should stop private persons dumping rubbish into the drains and insist on private drains being made *pucca*. An isolation hospital was constructed during the year in this town. Certain lengths of a drain in the Hailakandi town were made *pucca*. The tanks in this town are being protected from contamination by the provision of fencing and jetty platforms. An extension of filtered water-supply in Sylhet town should be taken up as early as possible, as cases of cholera, typhoid and other water-borne diseases are frequently reported. With the appointment of a Public Health Engineer, the question of an efficient drainage system for Sylhet town should receive attention. Model bye-laws for exercising control and strict supervision over its market, bakeries, sweetmeat shop and hotels should be adopted early. The conservancy arrangements generally of the Sunamganj Municipality are very defective mainly for want of proper supervision. The board should appoint a qualified sanitary inspector. The water-supply of the Habiganj Municipality has been improved by the provision of seven tube-wells. The construction of more wells is under consideration. A new trenching ground or a septic tank at a reasonable

distance from the residential quarters of the town is an urgent necessity. The water-supply of the Maulvi Bazar Municipality is being augmented by the provision of tube-wells in addition to reserved tanks. In this municipality too there is urgent need for the appointment of a qualified sanitary inspector for the proper supervision of its conservancy arrangements. The question of the improvement of water-supply and drainage of the Karimganj Municipality is receiving the attention of the board. The number of public latrines in this municipality should be increased in order to meet demands and those existing should be gradually replaced by ones of newer pattern.

Assam Valley Division.—A four-seated public latrine was constructed in the Dhubri Municipality and nine additional dust bins were purchased. The water-supply of the Goalpara Municipality requires improvement as cases of cholera frequently occur among the people who drink river water. If the board cannot finance a water works scheme it should provide more wells. Its existing wells should be provided with covers and suitable water-lifts. The existing public latrines with *kutcha* plinths should be replaced by ones of a more sanitary type. The present conservancy inspector of the municipality has no training. This municipality should appoint a qualified sanitary inspector as soon as possible, as there is no immediate possibility of Government posting a health officer to this town. There is need for more public latrines in Gauripur town. The construction of one is under the contemplation of the town committee. Public wells in this town should be provided with suitable apparatus for drawing water in order to protect them from contamination. In the Gauhati town, two public latrines, one having two seats and another with three seats were constructed as well as two urinals. Fourteen tube-wells at a total cost of Rs. 1,923, were provided by the municipality in suitable places during the year. The most important requirement in this town is an efficient drainage system with proper levels as some parts of the town become water-logged during the rainy season. The Barpeta Municipal Board is reconstructing its shed for the isolation of cholera cases. Barpeta is highly congested. A scheme is maturing for developing land for residential purposes which is for the first time becoming suitable. In Palasbari, eight tube-wells were sunk at a cost of Rs. 1,739, one bullock was purchased and sites for two public latrines were acquired. The Tezpur Municipal Board constructed a public latrine and provided *pucca* platforms for twenty-five dust bins. One *pucca* well was constructed and eight ring wells were in course of construction in the Mangaldai town. The pipe water supply scheme for this town has not matured. The Jorhat Municipal Board purchased some bullocks for its conservancy carts, some dust bins and a night-soil cart. It also purchased an oil engine for its water-works at a cost of Rs. 3,763. The Sibsagar Municipal Board constructed a sweeper's shed and purchased two night-soil carts. The pipe water supply scheme for the Golaghat Municipality has not matured. This board improved its market by constructing a tin shed and it also constructed a slaughter house. In Dibrugarh Municipality, both the water-supply and drainage are in urgent need of improvement. The present water-supply of the town consists of open, and in most cases, *kutcha* surface wells which are liable to constant contamination. Lorries which have been provided for conservancy purposes have improved the condition of refuse and night-soil removal to a great extent. To improve surface cleanliness two dozen additional dust bins were provided in the Nowgong Municipality. The municipal board are considering a proposal for purchasing a motor lorry for the removal of rubbish. The drainage of this town is most defective and requires remodelling. A complete drainage scheme should be prepared. No sanitary improvements have been carried out in the important and growing town of Tinsukia. Its general sanitation and conservancy are much below the average standard and are due to want of supervision and apathy of the local authority in public health matters. The town committees of Doom-Dooma and North Lakhimpur have effected sanitary improvements in accordance with their financial capabilities.

Hill Districts.—In Shillong an incinerator was constructed and certain length of drains was made *pucca* in various parts of the town. An expenditure of Rs. 13,284 was incurred on the remodelling of the water-works at Tura in the Garo Hills. Special repairs to the catchment areas of the water-works at Aijal and Kohima in the Lushai and Naga Hills respectively were carried out at a cost of Rs. 6,389 and Rs, 3,433. A slaughter house was constructed and certain drains were improved in Haflong in the North Cachar Hills. The Chairman, Bazar Fund, North Cachar Hills, incurred an expenditure of Rs. 10,089 on sanitary improvements including an expenditure of Rs. 2,307 on anti-malaria at Halflong.

A total expenditure of Rs. 31,391 was incurred by the Public Works Department on the maintenance of water-supply, drainage and town improvements in 1929 as compared with Rs. 8,879 in 1928.

SECTION X.

General Remarks.

Village sanitation.

47. The total expenditure of 19 local boards on public health during the year 1929 amounted Rs. 2,55,676. The largest sum *viz.*, Rs. 1,39,642 was spent on improvements to water-supplies by providing new tanks and wells in areas in which the existing supplies were inadequate and maintaining existing ones. The following are the other items on which expenditure was incurred :—

	Rs.
Vaccination	50,646
Control of epidemics	40,880
Markets	11,179
Health Officers and Sanitary Inspectors	813
Drainage	86
Other sanitary works	12,430

The following statement shows the expenditure incurred by each local board on public health during the year 1929 :—

	Rs.
1. Nowgong Local Board	30,400
2. Barpeta ditto	23,170
3. Habiganj ditto	19,348
4. Sylhet ditto	18,064
5. Karimganj ditto	17,660
6. Gauhati ditto	16,214
7. Sunamganj ditto	16,126
8. Jorhat ditto	15,403
9. Dibrugarh ditto	14,928
10. Dhubri ditto	13,903
11. Maulvibazar Local Board	11,880
12. Golaghat ditto	11,680
13. Silchar ditto	10,522
14. North Lakhimpur ditto	8,563
15. Mangaldai ditto	7,583
16. Sibsagar ditto	5,328
17. Goalpara ditto	5,298
18. Hailakandi ditto	5,078
19. Tezpur ditto	4,517

Local boards are alive to the urgent need for the provision of adequate water supples in village under their charge. They are gradually providing new tanks and wells every year as far as their funds permit. Vaccination and inoculation against cholera are the next most important items in the administration of public health in rural areas. Vaccination and revaccination is practised extensively in rural areas throughout the cold weather months and at other seasons during epidemics. Vaccination is made compulsory in villages in which, owing to superstition or ignorance, opposition is offered. Immediately on receipt of information of an outbreak of cholera in a village, an epidemic unit Sub-Assistant surgeon or a local board epidemic doctor is immediately deputed for duty in that village. Disinfectant carriers, who accompany them, are employed on disinfecting water-supplies. It may be mentioned here that inoculation is steadily gaining in popularity in villages. Epidemics of cholera are now localised more rapidly than previously, when inoculation was not appreciated. Easy facilities in the form of dispensaries and out-centres for the treatment of *kala azar* exist in the neighbourhood of all *kala azar* infected villages. For the treatment of malarial fevers cheap and pure quinine is available at all Post Offices. Its price has been so fixed that poor people and cultivators can easily afford to pay for it. Health propaganda work is carried out in villages throughout the province through the agency of the Assistant Surgeons on *kala azar* duty. These officers explain by means of magic lantern demonstrations, the causation of diseases and the precautions necessary to avoid them. Simply illustrated pamphlets on the prevalent diseases in Assam are read by young boys in primary schools throughout the province. Pictorial posters on *kala azar*, cholera, small-pox and the fly are exhibited in all public places. By these means an elementary knowledge in hygiene and public health generally is being slowly, but surely diffused throughout the masses.

Village authorities, where they have been established, constructed tanks, wells, drains and roads, cleansed village sites and carried out miscellaneous sanitary improvements according to their financial capabilities.

Sale of quinine.

48. The following statement shows the amount of quinine sold during 1929 and 1928 :—

Districts.	Treatment parcels sold in—		Difference.	
	1929	1928	Increase.	Decrease.
1	2	3	4	5
Cachar	817	575	242	...
Sylhet	1,405	1,616	...	211
Goalpara	629	868	...	239
Kamrup	598	624	...	26
Darrang	528	523	5	...
Nowgong	305	360	...	55
Sibsagar	422	826	...	404
Lakhimpur	297	293	4	...
Khasi and Jaintia Hills	317	335	...	18
Naga Hills...	50	48	2	...
Lushai Hills...	1,823	1,609	214	...
Garo Hills	51	50	1	...
Sadiya Frontier Tract	55	52	3	...
Manipur State	41	62	...	21
Total	7,338	7,841	...	503

The total number of parcels of quinine treatments sold during the year 1929 was 7,338, as compared with 7,841 in the previous year, showing a decrease of 503. Malaria was less prevalent in Sibsagar in 1929 than in the previous year. This accounts for a reduction of sales in that district by 404 parcels. In other districts variations were small and need no explanation. Quinine was sold by 495 post offices in Assam. A treatment of 20 tablets of quinine sulphate, which is sufficient to cure an ordinary attack of malaria is sold for four annas and six pies. The drug was sold below cost price during the year.

Public Health Propaganda.

49. Public health propaganda during the year 1929 was carried out on the same lines as in 1928. Propaganda amongst the general public consists in giving magic lantern demonstrations and lectures to the villagers. Assistant Surgeons on *kala azar* duty in the course of their tours of inspection of dispensaries, give demonstrations and lectures. These are confined to the diseases which are prevalent in Assam. New sets of slides on the commoner prevalent diseases in Assam as well as on maternity, child welfare and other public health matters were purchased and supplied to Civil Surgeons in 1927 and 1928. Gramophone entertainments are given before the commencement of these demonstrations and lectures and slides on famous places in India, as well as comical slides are shown in order to make the shows more attractive. During the year 1929, 776 demonstrations were given and which were attended approximately by 73,000 people. Public health propaganda in schools was maintained by means of supplying the Director of Public Instruction, Assam, with 2,500 copies of each of the illustrated pamphlets in Bengali and Assamese on cholera, small-pox, *kala azar* and malaria for distribution to primary schools in the province. Grants for prizes to pupils and teachers were as usual allotted to local boards and municipal boards

during the year. Public health propaganda will eventually produce far reaching effects and the time will come when every individual will acquire a knowledge of how to protect himself against the ravages of disease. With the spread of education and the gradual disappearance of illiteracy, it will be possible to bring about a steady uplift amongst the people in matters pertaining to the enjoyment of good health and good sanitation. There will then be a general awakening to the fact that in their own hands lies much of the power to prevent disease, to limit its spread and to alleviate its miseries. An essential part of any health policy is instruction in the principles and practice of hygiene. The activities of the Public Health Department are constantly concentrated in this direction.

Pilgrim traffic and fairs.

50. No important "Fair" or "Mela" is held in this province. Some detail of a few of any importance are given below :—

Sidheswar *mela*, a Hindu festival, was held in the Cachar district. About 10,000 people assembled. Bhuban Hill *mela* and Hailakandi Cattle show *mela* were also held in this district. The Sidheswar *mela* lasted for 14 days, Hailakandi Cattle show for 10 days and Bhuban Hill *melas* for 2 days. Necessary sanitary arrangements were made. A section of an epidemic unit was sent to each of these *melas* as a precautionary measure against any possible outbreak of epidemic disease. No outbreak was reported from any of them. Parasuram *mela* was held in Sadiya Frontier Tract. The *mela* which lasted for three days, was attended by about five hundred people. A Sub-Assistant Surgeon was in attendance during the days of the *mela*. There was a gathering of about ten thousand pilgrims at Dhubri town for a day only during Brahmaputra *snan* (bathing). Temporary latrines were constructed and arrangements were made for the supply of filtered water. The Assistant Surgeon, sadr subdivision, Sub-Assistant Surgeons and Urban Health Officer were deputed to look after sanitary arrangements.

Railway coolie camp.

51. During the year there were four coolie camps in connection with the Senchoa-Dhing railway construction of the Assam-Bengal Railway. The coolie population in these camps varied from 142 to 312. No epidemic was reported from any camp. Tube and *kutcha* wells were provided for water-supply. Trench latrines were provided and sweepers were engaged. There was no new construction undertaken by the Eastern Bengal Railway in Assam during the year. It is understood that the work on the Tangla-Belsiri-Rangapara line, sanctioned during the year, will probably be started in 1930.

Public Health Laboratory.

52. The following table shows the work done in the Public Health Laboratory in 1929, as compared with that of the previous year :—

—	1929	1928
1	2	3
Chemical analysis of water	78	99
„ „ milk	213	233
„ „ ghee	68	43
„ „ mustard oil	84	63
„ „ tea and tea dust	126	16
„ „ other food-stuffs	14	7
Miscellaneous chemical analysis	2	12
Bacteriological examination of water	257	325
„ „ of vaccine lymph	343	250
Miscellaneous microscopical examination of blood films, etc. ...	105	26
Antiseptics and larvicides	5	...
Total	1,295	1,074

A total of 78 samples of water were examined chemically and 257 samples bacteriologically during the year. These examinations were mostly of pipe water from municipalities. The practice of inoculating samples immediately they are taken was introduced during the year. This procedure gave much more satisfactory results. Out of 81 samples of Shillong water examined during the year, 27 samples showed signs of contamination on two occasions in each of the months of February, June, July, September and October and on three occasions in each of the months of April, May and August and on eight occasions in November. It thus appears that Shillong water did not maintain its usual high standard of purity. Waters from Dhubri, Tezpur, Jorhat and Sylhet were found to be consistently good throughout the whole year. Silchar and Gauhati waters collected in January and October, respectively, showed signs of contamination. Haflong water was examined four times during the year and on all occasions it was found to be contaminated This was due principally to defective chlorination. Murarichand College water was examined only once both bacteriologically and chemically and was found good. With regard to milk, 92 samples out of 213 examined were found sophisticated. 5 samples of mustard oil out of 84 examined and 51 samples of ghee out of 68 were found to have been adulterated. Out of 24 samples of other food-stuffs such as, tea, sugar, flour, etc., 7 were found to have been adulterated. A total of 116 samples of tea were examined with a view to fixing a standard, which has since been prescribed. Three samples of bleaching powder and a sample of larvicidal oil were examined during the year. Dr. S. S. Kundu, M.B., held charge of the Laboratory. My thanks are due to him for the zeal and energy with which he and his staff have worked. During his absence on short leave Dr. S. C. Datta, M.B., D.P.H., was in charge. A high standard of examination has been maintained in this Laboratory. The Laboratory continued to be utilized as a distributing depôt for the supply of urea stibamine, syringes and their spare parts, etc., for the treatment of *kala azar*.

Immigration.

53. The number of immigrants to Assam by different routes during the year was as follows:—

Via Naihati, Santahar and Amingaon by rail	...	...	74,114
Via Chandpur by rail to Assam Valley	...	...	5,177
Via Chandpur by rail to Cachar and Sylhet	...	...	13,346
Total	...	...	92,637

There were 25 cases of sickness *viz.*, cholera, chiken-pox, diarrhœa and other diseases amongst immigrants who entered Assam, *via* Naihati, Santahar, and Amingaon. They were admitted to the railway hospital at Naihati for treatment. Two deaths from cholera and 2 deaths from pneumonia occurred amongst them. There were 69 admissions from among immigrants to the Goalunda ghat hospital with 3 deaths, one from pneumonia, one from influenza and the other from the after effects of a fracture caused by a fall when detraining at Goalunda. The Embarkation Agent at Goalundo has remarked in his report that ladders are not usually provided and he suggests that the railway authorities be requested to arrange for these to be supplied to all carriages in which women and children are travelling. These remarks are being brought to the notice of the Secretaries to the Tea District Labour Association, Calcutta. Eight immigrants deserted, 4 at Naihati and 4 at Goalundo.

Sick coolies treated in the immigration hospitals at Gauhati and Tezpur were as follows:—

—	Gauhati.	Tezpur.
1	2	3
Cholera	3	...
Dysentery	...	1
Influenza	126	6
Small-pox	2	...
Chicken-pox	5	3
Measles	35	...
Pneumonia	...	4
Malaria	46	3
Conjunctivitis	166	...
Other diseases	78	7
Total	461	24

The number of cases of influenza and conjunctivitis admitted into the hospital at Gauhati was somewhat high. It has been suggested to the Tea Districts Labour Association that immigrants showing signs of conjunctivitis should be detained in the recruiting depôts. The question of inoculating immigrants with influenza vaccine, when influenza is prevalent in epidemic form, was also considered. Coolie carriages on the Assam-Bengal Railway were met and inspected at Kulaura station by the Sub-Assistant Surgeon, in charge of the Kulaura dispensary as in the previous year. Coolies travelling by the Eastern Bengal Railway route are examined at the Tea Districts Labour Association's depôt at Gauhati, by the Sub-Assistant Surgeon in charge of the immigration hospital at that place. The practice of sending leper sardars for recruiting purposes is to be deplored. The Tea Districts Labour Association has ruled that lepers must not be admitted to tea gardens without the previous approval of the Director of Public Health. Managers of tea gardens are advised to have such cases thoroughly treated before they are readmitted to the gardens. Such action is having a deterrant effect.

Personal Proceedings.

54. I held charge of the department from the beginning of the year to the 18th March, when I proceeded on furlough. Major S. L. Mitra, I.M.S., held charge during my absence from the 19th March to 20th November. On my return, I again held charge from 21st November to the end of the year. During January, I inspected *kala azar* operations and district vaccination work in the Nowgong and Sibsagar districts and inspected the Golaghat Municipality. In February, similar inspections were carried out in the Sibsagar and Sylhet districts and in addition I inspected Jorhat, Sibsagar, Nowgong, Habiganj and Maulvi Bazar Municipalities. In June Major Mitra visited Silchar in order to supervise the measures initiated against possible outbreaks of epidemic diseases owing to serious floods in the Surma Valley. In July and August he inspected *kala azar* operations and vaccinations in Kamrup, Goalpara and Nowgong districts. In addition he inspected Gauhati, Dhubri and Nowgong Municipalities. In October he visited Dibrugarh in connection with the Medical School examinations. In December I inspected *kala azar* operations and district vaccination work in Kamrup and Goalpara districts.

Dr. P. Gupta held the post of Assistant Director of Public Health, Assam Valley Division, during the entire year. In January he inspected vaccination and *kala azar* work in Kamrup, Nowgong and Goalpara districts. In February he inspected vaccination and *kala azar* work in Goalpara and Garo Hills districts. In March he inspected vaccination and *kala azar* work in Darrang, Kamrup, Sibsagar and Lakhimpur districts. He also attended the Darranga *mela* in the Kamrup district and organised and supervised measures initiated against any possible outbreak of epidemic disease during the period the *mela* was being held. In April he inspected vaccination work in the Lakhimpur, Sibsagar, Nowgong and Kamrup districts and in addition, initiated measures for the control of cholera in the Goalpara district. In May he organised and supervised *anti*-cholera measures in the Kamrup district. In June he inspected the North Lakhimpur, Mangaldai and Palashbari small towns. He also undertook a malaria survey of Abhoyapuri town in the Bijni Raj. In July he inspected Doom Dooma, Tinsukia and Nazira small towns and in addition went to Nowgong in order to supervise relief work in the flood affected areas of the district. In August he inspected the Dhamdhama boring in the district of Kamrup, Barpeta Municipality, Goalpara Municipality and Gauripur small town. He also inspected the flood affected areas of Cachar district and instructed the flood relief committee volunteers in the methods of clarification and disinfection of flood-water. In addition, he undertook *anti*-malaria work at Haflong and Maibong. In December he inspected vaccination and *kala azar* work in the district of Kamrup and inspected the cholera infected areas of the same district.

Dr. S. H. Paul held the post of the Assistant Director of Public Health, Surma Valley and Hill Division, during the entire year. In January he inspected 2 *kala azar* and 4 local board dispensaries in Sunamganj subdivision. He also inspected 1,301 vaccination operations in 30 villages of the sadar and Sunamganj subdivisions, visited 3 cholera infected villages in the Sunamganj subdivision and went from house to house giving useful instructions to the villagers. In February he inspected 3 *kala azar* and 3 local board dispensaries in Habiganj, sadar and Karimganj subdivisions, a bazar at Patharkandi in the Karimganj subdivision and 4,499 vaccination operations in 57 villages of sadar, Habiganj and Karimganj subdivisions. In March he inspected 3 *kala azar* and 11 local board dispensaries in sadar, Maulvi Bazar and Karimganj subdivisions,

1,114 vaccinations in 18 villages of the Maulvi Bazar subdivision, one *hát* at Tajpur in sadar subdivision, a bazar drain at Kulaura in Maulvi Bazar subdivision, 7 cholera infected villages in the sadar and Maulvi Bazar subdivisions, and 2,207 vaccinations in 21 villages of Silchar and Hailakandi subdivisions of Cachar district. In April he inspected 3 local board dispensaries in the sadar subdivision and 662 vaccination operations in 13 villages of sadar, Maulvi Bazar and Sunamganj subdivisions. He also inspected the *mela* area at Dhakadakshin and the Manumookh bazar. Later in this month he went to Dibrugarh and conducted the oral and practical examinations in hygiene and vaccination of the Assam Medical Examination Board. In May he inspected 2 *kala azar* and 2 local board dispensaries and one sub-centre in each of the Habiganj and Karimganj subdivisions. He also inspected the municipalities of Habiganj and Karimganj, one bazar at Fenchuganj of the sadar subdivision, and 416 vaccinations in 11 villages of Habiganj, sadar and Karimganj subdivisions. Further, during this month he visited two small-pox infected villages and gave useful instruction to all and also visited a cholera infected village in Habiganj subdivision and induced people to take inoculation. In June he inspected 2 *kala azar* and two local board dispensaries in the sadar and Maulvi Bazar subdivisions and 1 local board dispensary in the Hailakandi subdivision of Cachar district. He attended the flood relief meeting held at Sylhet and consulted with the Civil Surgeon and Deputy Commissioner, Sylhet, during the floods. He also went to Silchar and discussed measures in connection with the floods with the Civil Surgeon, Deputy Commissioner, Cachar, and Commissioner, Surma Valley and Hill Division. He arranged for the redisinfection of the tanks and wells of Silchar, and went round the town and gave necessary instructions regarding sanitation of the town accompanied by the Urban Health Officer. Preventive inoculations were given in the town. He also went to Hailakandi with a Sub-Assistant Surgeon and a volunteer medical officer and there consulted with the subdivisional medical officer and arranged to send cholera vaccine, etc., to various places in the subdivision. He visited 2 cholera infected villages under Hailakandi with a Sub-Assistant Surgeon and compounder and some people were given inoculations. He arranged for the inoculation of town people by beat of drum, accompanied by the subdivisional medical officer and a constable, he inspected two bazars and seized rotten fish and fruit and had them destroyed. He also visited one "*Hát*" at Badarpur of Sylhet district, and took delivery of disinfectants at Badarpur, which were supplied by the Civil Surgeon, Sylhet, for use in the Cachar district in flooded areas. In July he inspected *kala azar* work of 2 *kala azar* and 7 local board dispensaries in Maulvi Bazar subdivision. Reserved tanks in Maulvi Bazar and Karimganj subdivisions were disinfected. He also visited 9 cholera infected villages in Maulvi Bazar subdivision and many of the inhabitants of these villages were induced to take inoculations in his presence. Sub-Assistant Surgeons in charge of dispensaries and epidemic units were instructed to push on mass inoculation as far as possible. He visited Rajnagar and in consultation with the thana officer the affected area was divided up amongst the three available medical men on the spot. Accompanied by the Deputy Inspector of Schools and epidemic unit Sub-Assistant Surgeon he also visited the middle English school at Rajnagar where teacher and boys were given necessary instructions and 145 students were inoculated in his presence. The bazar of Maulvi Bazar town and Shamshernagar were also visited and rotten fish were seized and destroyed. Checked inoculation registers of Sub-Assistant Surgeons working at cholera-affected villages. At the request of the Chairman of the Maulvi Bazar Municipality inspected a disputed building accompanied by the vice-chairman and useful advice was given. He also inspected 135 vaccinations in 2 villages of Karimganj subdivision. In August he inspected 2 *kala azar* and 4 local board dispensaries and one sub-centre in each of the Karimganj sadar and Sunamganj subdivisions. Accompanied by a Sub-Assistant Surgeon he visited one cholera-infected village in Karimganj subdivision. Inspected the municipalities of Sunamganj and Sylhet and had discussion with the chairman of municipal boards about sanitary arrangements of these towns, inspected 175 vaccinations in Pagla village authority in Sunamganj subdivision and also examined the vaccinated and other available children and found 7 with palpable and enlarged spleens. In September he visited the dysentery-infected villages in the Karimganj subdivision and in consultation with the subdivisional medical officer made all possible arrangements for rendering medical aid to the people of these villages. Tanks were clarified with lime and repeatedly disinfected with bleaching powder. Inspected the water-supply and bazar area of the town. Inspected one *kala azar* dispensary and one local board dispensary in the Karimganj subdivision. Inspected the sanitation of the Hailakandi town. Went to Silchar and was there

informed that there was an epidemic of dysentery in the town. He visited the affected quarters and inspected the water-supply and drainage of the town as well as the bazar and sweepers houses. Inspected the sanitation of Haflong town. Inspected the *kala azar* work of one local board dispensary of Cachar district. In October, he was on malaria training at Karnal. In November he inspected 72 vaccinations in 9 villages of Sunamganj subdivision, 50 children were examined of whom 4 were found to have enlarged spleen. Inspected 4 village authorities in Sumamganj subdivision. Visited some cholera-infected villages in order to check inoculation work. Inspected 2 local board and one *kala azar* dispensary as well as one *kala azar* sub-centre in Sunamganj subdivision. Inspected one cholera-infected village in Sunamganj subdivision. Visited 2 middle English schools and one high school in Sunamganj subdivision and delivered short addresses on epidemic diseases and sanitation. In December he inspected 1,634 vaccination operations in 44 villages in Karimganj, Habiganj and Maulvi Bazar subdivisions. Went from house to house in cholera-infected villages of Karimganj and Habiganj subdivisions. Consulted with Civil Surgeon, Deputy Commissioner, subdivisional medical officer and chairmen of municipalities and made arrangements for a vigorous campaign to deal with the cholera outbreak. At Habiganj he was informed by the Assistant Surgeon that the villages of Durlavpur and Jallalabad in the subdivision refused inoculation. He visited the two villages and induced about 100 persons to get themselves inoculated. Visited the bazar of Habiganj town. Inspected 8 local board and 3 *kala azar* dispensaries in Karimganj, Habiganj and Maulvi Bazar subdivisions. Inspected the Maulvi Bazar Municipality. Examined 87 children in various villages and found seven with enlarged spleen. Visited 2 middle English schools in Karimganj and one high school in Habiganj subdivision and gave lectures on epidemic diseases and general hygiene.

I am indebted to both my Assistant Directors of Public Health for the energetic and zealous manner in which they have worked. They have been self-sacrificing in the execution of their duties, sometimes under most trying conditions.

In conclusion, I have to thank my entire office staff for the excellent manner in which they have carried out their duties, especially in view of the fact that they work short-handed. My special thanks are due to my Personal Assistant Babu Chandranath Haldar and my head clerk Babu Iswar Chandra Das. They have both been indefatigable in the performance of their duties and have proved themselves most realiable and able subordinates.

T. D. MURISON, *Lieut.-Colonel I.M.S.*,
Director of Public Health, Assam.

SECTION XI.

ANNUAL REPORT OF THE PUBLIC HEALTH BOARD, ASSAM, FOR THE YEAR 1929.

55. There was no meeting of this board during the year. The Health Board (Epidemics) functioned as in the previous year. During the year the post of the Public Health Engineer was filled in December 1929.

T. D. MURISON,
Lieut.-Colonel, I.M.S.,
Secretary, Public Health Board.

G. HUTCHESON,
Colonel I.M.S.,
President, Public Health Board.

STATEMENTS.

VITAL STATISTICS.

IMPERIAL STATEMENT No. I.—*Statement showing the births*

No.	Districts.	Population according to the Census of 1921.			Number of births registered.		
		Male.	Female.	Total.	Male.	Female.	Total.
1	2	3	4	5	6	7	8
	SURMA VALLEY.						
1	Cachar	261,594	238,890	500,484	9,107	8,617	17,724
2	Sylhet	1,308,734	1,232,607	2,541,341	47,486	43,883	91,369
	Total	1,570,328	1,471,497	3,041,825	56,593	52,500	109,093
	ASSAM VALLEY.						
3	Goalpara	406,628	355,895	762,523	14,283	13,329	27,612
4	Kamrup	397,267	365,404	762,671	11,782	10,809	22,591
5	Darrang	252,849	224,593	477,442	7,505	7,168	14,673
6	Nowgong	208,731	189,276	398,007	6,664	6,125	12,789
7	Sibsagar	433,913	389,284	823,197	11,187	10,478	21,665
8	Lakhimpur	312,843	273,734	586,577	8,163	8,008	16,171
	Total	2,012,231	1,798,186	3,810,417	59,584	55,917	115,501
	Total for the province ...	3,582,559	3,269,683	6,852,242	116,177	108,417	224,594

IMPERIAL STATEMENT No. II.—*Statement showing the births and deaths*

No.	Districts.	Area, in square miles.	Average population per square mile.	Population (Census of 1921).			Births.		Number of deaths registered.		
				Male.	Female.	Total.	Total number.	Births per 1,000 of population.	Male.	Female.	Total.
1	2	3	4	5	6	7	8	9	10	11	12
	SURMA VALLEY.										
1	Cachar	1,859	269	261,594	238,890	500,484	17,724	35·41	5,658	5,651	11,309
2	Sylhet	5,388	472	1,308,734	1,232,607	2,541,341	91,369	35·96	31,369	28,057	59,426
	Total ...	7,247	419	1,570,328	1,471,497	3,041,825	109,093	35·86	37,027	33,708	70,735
	ASSAM VALLEY.										
3	Goalpara ...	3,954	193	406,628	355,895	762,523	27,612	36·21	9,922	8,325	18,247
4	Kamrup	3,863	197	397,267	365,404	762,671	22,591	29·62	6,870	6,178	13,048
5	Darrang	2,916	164	252,849	224,593	477,442	14,673	30·73	5,157	5,052	10,209
6	Nowgong ...	3,699	108	208,731	189,276	398,007	12,789	32·13	3,598	3,228	6,826
7	Sibsagar ...	5,097	162	433,913	389,284	823,197	21,665	26·32	6,733	6,098	12,831
8	Lakhimpur ...	3,910	143	312,843	273,734	586,577	16,171	27·57	5,969	5,418	11,387
	Total	23,439	162	2,012,231	1,798,186	3,810,417	115,501	30·30	38,249	34,299	72,548
	Total for the province	30,686	223	3,582,559	3,269,683	6,852,242	224,594	32·77	75,276	68,007	143,283

registered in the districts of Assam during the year 1929.

Ratio of births per 1,000 of population.			Number of males born to every 100 females born.	Excess of births over deaths per 1,000 of population.	Excess of deaths over births per 1,000 of population.	Mean ratio of births per 1,000 during the previous five years.		
Male.	Female.	Total.				Male.	Female.	Total.
9	10	11	12	13	14	15	16	17
18·19	17·22	35·41	106	12·81	...	17·96	16·88	34·84
18·69	17·27	35·96	108	12·58	...	16·00	14·77	30·77
18·00	17·26	35·86	108	12·61	...	16·32	15·12	31·44
18·73	17·48	36·21	107	12·78	...	18·94	17·75	26·69
15·45	14·17	29·62	109	12·51	...	14·86	13·96	28·82
15·72	15·01	30·73	105	9·35	...	15·14	14·40	29·54
16·74	15·39	32·13	109	14·98	...	14·35	13·07	27·42
13·59	12·73	26·32	107	10·73	...	14·28	13·35	27·63
13·92	13·65	27·57	102	8·16	...	13·53	12·98	26·51
15·63	14·67	30·30	107	11·23	...	15·33	14·40	29·73
16·95	15·82	32·77	107	11·86	...	15·77	14·72	30·49

registered in the districts of Assam during the year 1929.

Number of deaths of males to every 100 deaths of females.	Deaths per 1,000 of population from—											Mean ratio of deaths per 1,000 during the previous five years.		
	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and Diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	All Causes.					
									Male.	Female.	Total.	Male.	Female.	Total.
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
100	·34	·54	...	10·67	2·44	1·78	·29	6·53	21·63	23·65	22·69	23·38	25·02	24·27
112	1·58	·33	...	11·65	1·41	·54	·37	7·51	23·97	22·76	23·38	25·96	24·66	25·33
110	1·38	·36	...	11·49	1·58	·74	·33	7·35	23·58	22·91	23·25	25·57	24·71	25·15
119	1·46	·23	...	20·45	·33	·20	·39	·87	24·40	23·39	23·93	30·12	27·65	28·97
111	2·10	·30	...	11·16	·85	·34	·24	2·13	17·29	16·91	17·11	22·08	21·80	21·95
102	·66	·07	...	13·80	1·50	1·19	·30	3·86	20·40	22·49	21·38	24·37	25·72	25·01
111	·94	·01	...	12·47	·51	·45	·23	2·54	17·24	17·05	17·15	20·79	19·96	20·40
110	·16	·02	...	8·38	2·17	1·30	·22	3·15	15·52	15·66	15·59	18·06	18·82	18·42
110	·07	·13	...	9·90	2·15	2·24	·23	4·39	19·08	19·79	19·41	20·07	20·24	20·15
101	·94	·74	...	12·75	1·28	·93	·27	2·74	19·01	19·07	19·04	22·68	22·37	22·54
111	1·13	·24	...	13·19	1·41	·85	·31	4·78	21·01	20·80	20·91	23·95	23·43	23·70

IMPERIAL STATEMENT No. III.—*Deaths registered in the*

No.	Districts.	January.	February.	March.	April.	May.
1	2	3	4	5	6	7
	SURMA VALLEY.					
1	Cachar	1,095	903	721	780	848
2	Sylhet	6,661	5,201	4,446	3,772	3,670
	Total	7,756	6,104	5,167	4,552	4,518
	ASSAM VALLEY.					
3	Goalpara	1,755	1,222	1,023	1,534	1,932
4	Kamrup	1,111	744	745	1,441	1,873
5	Darrang	798	617	752	726	1,064
6	Nowgong	866	427	479	789	674
7	Sibsagar	972	771	798	842	1,247
8	Lakhimpur	905	778	697	774	900
	Total	6,407	4,559	4,494	6,106	7,690
	Total for the province	14,163	10,663	9,661	10,658	12,208
	Ratio per 1,000	2·06	1·56	1·41	1·56	1·78

IMPERIAL STATEMENT No. IV.—*Deaths registered according to*

No.	Districts.	Under 1 year.												1 and under 5.	
		Not exceeding 1 month.			Over 1 month and not exceeding 6 months.			Over 6 months and not exceeding 12 months.			Total of male columns 3, 6 and 9.	Total of female columns 4, 7 and 10.	Total.	Male.	Female.
		Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	SURMA VALLEY.														
1	Cachar	821	679	1,500	408	377	785	257	202	459	1,486	1,258	2,744	794	804
2	Sylhet	5,880	4,629	10,509	2,306	1,717	4,023	901	802	1,703	9,087	7,148	16,235	3,545	3,160
	Total ...	6,701	5,308	12,009	2,714	2,094	4,808	1,158	1,004	2,162	10,573	8,406	18,979	4,339	3,964
	ASSAM VALLEY.														
3	Goalpara ...	1,387	1,130	2,517	849	696	1,545	462	354	816	2,698	2,180	4,878	1,386	1,197
4	Kamrup ...	919	727	1,646	446	460	906	283	242	525	1,648	1,429	3,077	1,197	1,198
5	Darrang ...	476	391	867	498	511	1,009	219	241	460	1,193	1,143	2,336	751	832
6	Nowgong ...	473	418	891	362	291	653	148	124	272	983	833	1,816	505	524
7	Sibsagar ...	598	480	1,078	491	373	774	272	247	519	1,271	1,100	2,371	1,171	1,069
8	Lakhimpur ...	468	438	906	347	279	626	193	179	372	1,008	896	1,904	1,019	915
	Total ...	4,321	3,584	7,905	2,993	2,610	5,513	1,577	1,387	2,964	8,801	7,581	16,382	6,029	5,735
	Total for the province.	11,022	8,892	19,914	5,617	4,704	10,321	2,735	2,391	5,126	19,374	15,987	35,361	10,363	9,699
	Population (according to the Census of 1921).	...	...	...	...	...	...	...	...	...	101,342	99,389	200,731	359,087	376,501
	Ratio per 1,000 ...	...	...	...	...	...	...	...	...	...	191·17	160·85	176·16	28·87	25·68

districts of Assam during each month of the year 1929.

June.	July.	August.	September.	October.	November.	December.	Total.
8	9	10	11	12	13	14	15
725	1,013	901	905	1,147	1,041	1,230	11,309
3,545	4,124	3,870	4,458	5,471	6,683	7,525	59,426
4,270	5,137	4,771	5,363	6,618	7,724	8,755	70,735
1,675	1,619	1,458	1,343	1,312	1,492	1,882	18,247
1,592	1,026	964	735	790	895	1,132	13,048
965	1,015	729	846	805	796	1,105	10,209
723	538	285	470	537	522	516	6,826
1,179	1,153	1,060	1,200	1,176	1,191	1,242	12,831
1,061	981	982	1,165	1,022	1,178	1,004	11,387
7,195	6,332	5,469	5,699	5,642	6,074	6,881	72,548
11,465	11,469	10,240	11,062	12,260	13,798	15,636	1,43,283
1·67	1·67	1·49	1·61	1·79	2·01	2·28	20·91

age in the districts of Assam during the year 1929.

5 and under 10.		10 and under 15.		15 and under 20.		20 and under 30.		30 and under 40.		40 and under 50.		50 and under 60.		60 and upwards.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
357	282	165	176	216	361	476	963	511	562	447	318	395	307	809	649
1,592	1,421	1,031	776	1,063	1,723	2,636	4,360	3,030	3,026	2,645	1,705	2,383	1,634	4,247	3,104
1,949	1,683	1,196	952	1,279	2,084	3,174	5,323	3,591	3,588	3,092	2,023	2,778	1,941	5,056	3,744
675	562	399	347	389	596	857	1,180	1,030	829	919	475	672	425	897	543
643	526	262	205	253	282	430	682	581	562	572	477	581	353	723	464
307	295	177	163	151	263	439	753	538	537	544	364	473	347	524	355
265	196	129	109	134	193	238	345	330	293	334	241	301	230	379	264
464	381	258	175	254	334	504	894	625	718	708	484	717	446	761	497
407	406	216	207	166	284	495	754	713	685	703	410	631	394	611	467
2,761	2,366	1,441	1,206	1,337	1,952	2,963	4,608	3,877	3,615	3,780	2,451	3,375	2,195	3,895	2,590
4,710	4,049	2,637	2,158	2,606	4,036	6,137	9,931	7,468	7,203	6,872	4,474	6,153	4,136	8,951	6,334
580,966	568,880	433,205	342,744	278,664	292,075	577,151	613,934	556,071	448,620	359,844	259,435	198,849	149,979	137,280	118,126
8·11	7·12	6·09	6·30	9·35	13·81	10·63	16·18	13·43	16·06	19·10	17·25	30·94	27·58	65·20	53·62

IMPERIAL STATEMENT No. V.—*Deaths registered according*

No.	Districts.	Population according								
		Christians.			Hindus.			Muhammadans.		
		Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
1	2	3	4	5	6	7	8	9	10	11
	SURMA VALLEY.									
1	Cachar	848	762	1,610	166,782	152,463	319,245	89,513	81,109	170,622
2	Sylhet...	970	786	1,756	565,443	534,302	1,099,745	738,916	694,474	1,433,390
	Total ...	1,818	1,548	3,366	732,225	686,765	1,418,990	828,429	775,583	1,604,012
	ASSAM VALLEY.									
3	Goalpara	5,434	4,878	10,312	198,904	170,488	369,392	167,765	148,725	316,490
4	Kamrup	1,926	1,735	3,661	283,554	261,085	544,639	59,986	51,560	111,546
5	Darrang	2,816	2,502	5,318	179,272	158,457	337,729	20,137	16,398	36,535
6	Nowgong	1,465	1,460	2,925	116,864	105,235	222,099	38,655	31,927	70,582
7	Sibsagar	4,557	3,823	8,380	365,885	329,131	695,016	19,370	15,624	34,994
8	Lakhimpur	4,216	3,515	7,731	244,852	214,283	459,135	9,485	5,961	15,446
	Total ...	20,414	17,913	38,327	1,389,331	1,238,679	2,628,010	315,398	270,195	585,593
	Total for the Province ...	22,232	19,461	41,693	2,121,556	1,925,444	4,047,000	1,143,827	1,045,778	2,189,605

IMPERIAL STATEMENT No. V.—*Deaths registered according*

No.	Districts.	Number of deaths registered—*concld.*								
		Buddhists.			Other classes.			Total.		
		Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
		30	31	32	33	34	35	36	37	38
	SURMA VALLEY.									
1	Cachar	...	...	...	204	165	369	5,658	5,651	11,309
2	Sylhet...	...	1	1	299	268	567	31,369	28,057	59,426
	Total	...	1	1	503	433	936	37,027	33,708	70,735
	ASSAM VALLEY.									
3	Goalpara	3	3	6	2,662	2,106	4,768	9,922	8,325	18,247
4	Kamrup	...	...	...	1,012	973	1,985	6,870	6,178	13,048
5	Darrang	6	4	10	1,517	1,382	2,899	5,157	5,052	10,209
6	Nowgong	...	...	...	974	951	1,925	3,598	3,228	6,826
7	Sibsagar	74	67	141	1,050	958	2,008	6,733	6,098	12,831
8	Lakhimpur	28	19	47	940	936	1,876	5,969	5,418	11,387
	Total ...	111	93	204	8,155	7,306	15,461	38,249	34,299	72,548
	Total for the Province	111	94	205	8,658	7,739	16,397	75,276	68,007	143,283

to class in the districts of Assam during the year 1929.

to the Census of 1921.									Number of deaths registered.								
Buddhists.			Other classes.			Total.			Christians.			Hindus.			Muhammadans.		
Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
33	2	35	4,418	4,554	8,972	261,594	238,890	500,484	5	7	12	3,251	3,171	6,422	2,198	2,308	4,506
34	9	43	3,371	3,036	6,407	1,308,734	1,232,607	2,541,341	55	100	155	12,924	11,466	24,390	18,091	16,222	34,313
67	11	78	7,789	7,590	15,379	1,570,328	1,471,497	3,041,825	60	107	167	16,175	14,637	30,812	20,289	18,530	38,819
547	375	922	33,978	31,429	65,407	406,628	355,895	762,523	91	93	184	3,559	3,080	6,639	3,607	3,043	6,650
286	113	399	51,515	50,911	102,426	397,267	365,404	762,671	18	18	36	4,714	4,269	8,983	1,126	918	2,044
466	244	710	50,158	46,992	97,150	252,849	224,593	477,442	111	130	241	3,052	3,058	6,110	471	478	949
24	6	30	51,723	50,648	102,371	208,731	189,276	398,007	24	21	45	1,897	1,714	3,611	703	542	1,245
1,389	1,055	2,444	42,712	39,651	82,363	433,913	389,284	823,197	67	42	109	5,306	4,812	10 118	236	219	455
2,516	2,110	4,626	51,774	47,865	99,639	312,843	273,734	586,577	44	51	95	4,813	4,313	9,126	144	99	243
5,228	3,903	9,131	281,860	267,496	549,356	2,012,231	1,798,186	3,810,417	355	355	710	23,341	21,246	44,587	6,787	5,299	11,586
5,295	3,914	9,209	289,649	275,086	564,735	3,582,559	2,69,683	6,852,242	415	462	877	39,516	35,883	75,399	26,576	23,829	50,405

to class in the districts of Assam during the year 1929—concld.

Ratio of deaths per 1,000 of population.																	
Christians.			Hindus.			Muhammadans.			Buddhists.			Other classes.			Total.		
Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
5·90	9·19	7·45	19·49	20·80	20·12	24·55	28·46	26·41	...	...	...	46·17	36·23	41·13	21·63	23·65	22·60
56·70	127·23	88·27	22·85	21·46	22·18	24·48	23·36	23·94	...	111·11	23·26	88·70	88·27	88·50	23·97	22·76	23·38
33·00	69·12	49·61	22·09	21·31	21·00	24·49	23·89	24·20	...	90·90	12·82	64·58	57·05	60·86	23·58	22·91	23·25
16·75	19·07	17·84	17·89	18·07	17·97	21·50	20·46	21·01	5·48	8·00	6·51	78·34	67·01	72·90	24·40	23·39	23·93
9·35	10·37	9·83	16·62	16·35	16 49	18·77	17·80	18·32	...	...	...	19·64	19·11	19·38	17·29	16·91	17·11
39·42	51·96	45·32	17·02	19·30	18·09	23·39	29·15	25·97	12·88	16·39	14·08	30·44	29·41	29·84	20·40	22·49	21·38
16·38	14·39	15·38	16·23	16·29	16·26	18·19	16 98	17·64	...	...	...	18·83	18·78	18·80	17·24	17·05	17·15
14·70	10·99	13·01	14·50	14·62	14·56	12·18	14·02	13·00	53·28	63·51	57·69	24·58	24·16	24·38	15·52	15·66	15·59
10·44	14·51	12·29	19·66	20·13	19·88	15·18	16·61	15·73	11·13	9·00	10·16	18·16	19·55	18·83	19·08	19·79	19·41
17·39	19·82	18·52	16·89	17·15	16·97	19·93	19·61	19·79	21·23	23·83	22·34	28·33	27·31	28·14	19·01	19·07	19·04
18·67	23·74	21·03	18·63	18·64	18·63	23·24	22·79	23·02	20·96	24·02	22·26	29·89	28·13	29·03	21·01	20·80	20·91

IMPERIAL STATEMENT No. VI.—*Deaths registered from different*

1	2	3	4			5	6	7	8	9	10
No.	Districts and towns.	Population according to Census of 1921.	Births.			Birth-rate.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and Diarrhœa.	Respiratory diseases.
			Male.	Female.	Total.							
	DISTRICTS EXCLUDING TOWNS.											
	SURMA VALLEY.											
1	Cachar	488,052	8,990	8,508	17,498	35·85	170	268	...	5,281	1,167	872
2	Sylhet	2,505,744	46,899	43,363	90,262	36·02	3,968	842	...	29,425	3,470	1,304
	Total	2,993,796	55,889	51,871	107,760	35·99	4,138	1,110	...	34,706	4,637	2,176
	ASSAM VALLEY.											
3	Goalpara	745,293	14,021	13,071	27,092	36·35	1,101	173	...	15,482	223	105
4	Kamrup	731,722	11,162	10,278	21,440	29·30	1,508	228	...	8,375	544	204
5	Darrang	469,078	7,360	7,044	14,404	30·71	316	32	...	6,538	679	518
6	Nowgong	391,122	6,508	5,958	12,466	31·87	373	4	...	4,949	181	124
7	Sibsagar	894,955	10,900	10,241	21,141	26·26	129	18	...	6,930	1,746	1,027
8	Lakhimpur	564,362	7,907	7,751	15,658	27·74	41	78	...	5,735	1,179	1,233
	Total	3,796,532	57,858	54,343	112,201	30·27	3,468	533	...	48,009	4,552	3,211
	Total of districts excluding towns.	6,790,328	113,747	106,214	219,961	32·82	7,606	1,643	...	82,715	9,189	5,387
	TOWNS.											
	SURMA VALLEY.											
1	Silchar	10,204	97	90	187	18·33	...	...	...	53	45	17
2	Hailakandi	2,228	20	19	39	17·51	2	...	...	8	9	2
3	Sylhet	16,912	243	215	458	27·08	14	...	...	64	53	41
4	Karimganj	4,552	76	68	144	31·64	8	...	...	15	12	7
5	Maulvi Bazar	3,334	56	46	102	30·60	9	...	...	29	18	4
6	Habiganj	5,918	110	109	219	37·01	7	...	...	36	16	11
7	Sunamganj	4,881	102	82	184	37·70	14	...	...	27	8	1
	Total	48,029	704	629	1,333	27·75	54	...	...	232	161	83

causes in the districts and towns of the province of Assam during the year 1929.

11						12	13	14										15
Injuries.								Ratio of deaths per 1,000 of population.										
Suicide.															From all causes.			
Male.	Female.	Wounds or accidents.	Babies.	Snakes and wild animals.	Total.	All other causes.	Total.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and Diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	For the year.	Mean of previous five years.	No.
2	3	119	...	15	139	3,210	11,107	·35	·55	...	10·82	2·39	1·79	·28	6·58	22·76	24·52	1
33	27	301	5	41	907	18,768	58,684	1·58	·34	...	11·74	1·38	·52	·36	7·49	23·42	25·36	2
35	30	920	5	56	1,046	21,978	69,791	1·38	·37	...	11·59	1·55	·73	·35	7·34	23·31	25·22	
18	18	180	1	71	288	514	17,886	1·48	·23	...	20·77	·30	·14	·39	·69	24·00	29·06	3
26	30	62	19	32	169	1,411	12,439	2·06	·31	...	11·45	·74	·28	·23	1·93	17·09	21·77	4
14	5	82	8	25	134	1,734	9,951	·67	·07	...	13·94	1·45	1·10	·29	3·70	21·21	24·92	5
4	4	52	13	11	84	952	6,667	·95	·01	...	12·65	·46	·32	·21	2·43	17·05	20·29	6
23	8	107	7	24	169	2,510	12,529	·16	·02	...	8·61	2·17	1·28	·21	3·12	15·56	18·37	7
14	9	63	4	22	112	2,540	10,918	·07	·14	...	10·16	2·09	2·18	·20	4·50	19·35	20·10	8
99	74	546	52	185	956	9,661	70,390	·93	·14	...	12·95	1·22	·86	·26	2·60	18·99	22·47	
134	104	1,466	57	241	2,002	31,639	140,181	1·13	·24	...	12·34	1·37	·80	·30	4·72	20·92	23·70	
...	...	4	...	2	6	41	162	...	...	...	5·19	4·41	1·67	·59	4·02	15·88	14·60	1
...	...	2	...	...	2	17	40	·90	...	...	3·59	4·04	·90	·90	7·63	17·95	13·46	2
...	...	5	...	...	5	165	342	·83	...	...	3·78	3·13	2·42	·30	9·76	20·22	22·65	3
...	...	4	1	...	5	49	96	1·76	...	...	3·29	2·64	1·54	1·10	10·76	21·09	20·21	4
3	...	...	...	...	3	2	65	2·70	...	...	8·70	5·40	1·20	·90	·60	19·50	11·70	5
...	...	4	...	1	5	55	130	1·18	...	...	6·08	2·70	1·86	·84	9·29	21·96	31·77	6
...	...	8	...	...	8	51	109	2·87	...	...	5·53	1·64	·20	1·64	10·45	22·33	24·18	7
3	...	27	1	3	34	359	944	1·12	...	...	4·83	3·35	1·73	71	7·91	19·65	20·79	

IMPERIAL STATEMENT No. VI.—*Deaths registered from different causes*

1	2	3	4				5	6	7	8	9	10
No.	Districts and towns.	Population according to Census of 1921.	Births.			Birth-rate.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhœa.	Respiratory diseases.
			Male.	Female.	Total.							
	TOWNS—*concld.* ASSAM VALLEY.											
8	Dhubri	6,707	110	121	231	34·44	8	2	...	24	14	22
9	Goalpara	6,212	69	59	128	20·61	...	1	...	45	6	16
10	Gauripur	4,311	83	78	161	37·34	1	1	...	45	7	6
11	Gauhati	16,480	231	215	446	27·06	15	...	...	70	49	17
12	Barpeta	11,730	300	257	557	47·48	78	...	...	50	45	33
13	Palasbari	2,739	89	59	148	54·03	...	...	...	18	8	5
14	Tezpur	7,341	129	111	240	32·69	...	...	...	43	36	50
15	Mangaldai	1,023	16	13	29	28·35	...	1	...	7	...	2
16	Nowgong	6,885	156	167	323	46·91	3	...	...	13	22	54
17	Jorhat	6,626	101	81	182	27·46	...	...	...	10	16	25
18	Sibsagar	5,329	77	61	138	25·90	...	...	...	51	11	1
19	Golaghat	3,655	61	55	116	31·74	...	...	...	32	1	9
20	Nazira...	2,632	48	40	88	33·43	...	...	...	39	13	2
21	Dibrugarh	16,007	199	200	399	24·36	...	...	...	79	62	71
22	North Lakhimpur ...	1,966	26	21	47	23·90	...	...	...	18	2	4
23	Doom Dooma	1,162	13	9	22	18·93	...	...	...	11	9	7
24	Tinsukia	3,080	27	27	54	17·54	...	...	...	18	11	...
	Total	103,885	1,726	1,574	3,300	31·76	105	5	...	573	312	324
	Total for the towns...	151,914	2,439	2,203	4,633	30·49	159	5	...	805	473	407
	Total for the Province ...	6,852,242	116,177	108,417	224,594	32·77	7,765	1,648	...	83,520	9,662	5,794

Supplementary (optional) Statement

Towns.	1		2		3		4		5		6	
	Malaria.		Enteric fever.		Measles.		Relapsing fever.		*Kala azar.*		Other fevers.	
	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.
Silchar	32	3·14	3	·29	...	...	...	...	1	·01	17	1·66
Sylhet	32	1·89	...	...	...	...	...	...	3	·18	29	1·71
Habiganj	3	·51	...	...	...	...	...	...	12	2·03	21	3·55
Karimganj	14	3·08	...	...	...	...	...	...	...	...	1	·22
Gauhati	6	·31	3	·18	2	·12	...	...	3	·18	56	3·40
Barpeta	11	·89	3	·26	1	·09	1	·09	1	·09	33	2·81
Dhubri	12	1·79	...	...	...	...	...	...	5	·75	7	1·04
Goalpara	20	3·22	...	...	...	...	...	...	...	...	·25	4·02
Tezpur	18	2·45	1	·14	...	...	...	...	6	·82	18	2·45
Nowgong	...	...	...	...	...	...	...	...	4	·58	9	1·31
Jorhat	1	·15	...	...	1	·15	...	...	1	·15	7	1·05
Dibrugarh	2	·12	6	·37	1	·06	...	...	...	...	70	4·37
Shillong	9	·52	8	·47	3	·17	...	...	...	...	16	·93

in the districts and towns of the province of Assam during the year 1929—concluded.

11						12	13	14										15
Injuries.								Ratio of deaths per 1,000 of population.										
Suicide.															From all causes.			
Male.	Female.	Wounds or accidents.	Rabies.	Snakes and wild animals.	Total.	All other causes.	Total.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	For the year.	Mean of previous five years.	Number.
...	...	8	...	1	9	99	178	1·19	·30	...	3·58	2·09	3·28	1·34	14·76	26·54	26·69	8
...	...	...	...	...	...	14	82	...	·16	...	7·24	·97	2·58	...	2·25	13·20	22·05	9
...	...	1	...	...	1	40	101	·23	·23	...	10·44	1·62	1·39	·23	9·28	23·43	26·44	10
...	...	3	...	...	3	125	279	·91	...	...	4·25	2·97	1·03	·18	7·58	16·93	27·43	11
...	...	3	...	...	3	57	266	6·65	...	...	4·26	3·84	2·81	·26	4·86	22·68	29·92	12
...	1	4	...	...	5	28	64	...	...	...	6·57	2·22	1·83	1·83	10·22	23·37	11·32	13
...	...	9	...	1	10	94	233	...	...	...	5·86	4·90	6·81	1·36	12·80	31·74	20·65	14
...	...	...	...	...	...	15	25	...	·98	...	6·84	...	1·96	...	14·66	24·44	25·42	15
...	...	8	...	...	8	59	159	·44	...	...	1·89	3·26	7·84	1·16	8·57	23·09	26·57	16
1	...	4	...	...	5	51	107	...	...	...	1·51	2·41	3·77	·75	7·70	16·15	21·13	17
...	...	1	...	1	2	10	75	...	...	...	9·57	2·06	·19	·38	1·38	14·07	18·20	18
...	1	3	...	...	4	15	61	...	...	...	8·75	·27	2·46	1·09	4·10	16·69	21·61	19
...	...	1	...	...	1	4	59	...	...	...	14·82	4·94	·76	·38	1·52	22·42	23·18	20
2	...	17	1	1	21	133	366	...	...	...	4·94	3·87	4·44	1·31	8·31	22·86	21·30	21
...	...	...	...	...	...	11	35	...	...	...	9·16	1·02	2·03	...	5·09	17·89	29·50	22
...	...	...	...	...	...	...	27	...	...	...	9·46	7·75	6·02	...	...	23·24	27·54	23
...	...	3	...	...	3	9	41	...	...	...	5·84	3·57	...	·97	2·92	13·31	13·96	24
3	2	65	1	4	75	764	2,158	1·01	·04	...	5·51	3·00	3·12	·72	7·35	20·77	24·95	
6	2	92	2	7	109	1,144	3,102	1·04	·03	...	5·29	5·11	2·68	·71	7·53	20·42	23·62	
140	106	1,558	59	248	2,111	32,783	143,283	1·13	·24	...	12·19	1·41	·85	·31	4·78	20·91	23·70	

VI(a) *for the year* 1929.

7		8		9		10		11		12	Deaths under one year.			Infant mortality rate.
Dysentery.		Diarrhœa.		Pneumonia.		Phthisis.		Other respiratory diseases.		Deaths from child-birth.				
Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.		Male.	Female.	Total.	
37	3·63	8	·78	8	·78	3	·29	6	·58	2	10	9	19	101·60
38	2·25	15	·89	...	...	...	...	41	2·42	21	40	48	88	192·14
10	1·69	6	1·01	...	...	...	...	11	1·86	2	21	17	38	173·52
6	1·32	6	1·32	...	...	...	...	7	1·54	5	8	16	24	166·66
39	2·37	10	·61	13	·79	2	·12	2	·12	3	40	30	70	156·95
12	1·02	33	2·81	28	2·39	1	·09	4	·34	3	27	20	47	84·38
11	1·64	3	·45	9	1·34	4	·60	9	1·34	6	19	21	40	173·16
5	·80	1	·16	13	2·09	1	·16	2	·32	4	7	2	9	70·31
27	3·8	9	1·23	15	2·04	25	3·41	10	1·36	10	18	22	40	166·67
22	3·20	...	...	...	...	...	...	54	7·84	6	19	18	37	114·55
10	1·51	6	·91	10	1·51	5	·75	10	1·51	...	13	8	21	115·38
58	3·62	4	·25	1	·06	1	·06	69	4·31	8	36	22	58	149·72
19	1·10	8	·47	44	2·56	12	·70	4	·23	3	32	25	57	109·40

IMPERIAL STATEMENT No. VII.—*Deaths registered from Cholera in the*

Number.	Districts.	Circles of Registration.		Villages.		January.	February.	March.	April.	May.
		Number in each district.	Number from which deaths from cholera were reported.	Number in each district.	Number from which deaths from cholera were reported.					
1	2	3	4	5	6	7	8	9	10	11
	SURMA VALLEY.									
1	Cachar	12	10	1,103	143	...	6	5	4	15
2	Sylhet	40	39	10,781	1,101	366	357	214	167	204
	Total	52	49	11,884	1,244	366	363	219	171	219
	ASSAM VALLEY.									
3	Goalpara	18	15	2,137	237	188	29	4	140	348
4	Kamrup	16	15	1,954	67	26	35	55	487	509
5	Darrang	13	8	1,406	88	14	1	44	9	111
6	Nowgong	10	8	1,495	19	4	19	62	154	68
7	Sibsagar	17	9	2,143	68	2	5	3	2	15
8	Lakhimpur	15	4	1,702	1	...	...	1	3	6
	Total	89	59	10,837	480	234	89	169	795	1,057
	Total for the Province	141	108	22,721	2,968	600	482	388	966	1,276

IMPERIAL STATEMENT No. VIII.—*Deaths registered from*

Number.	Districts.	Circles of Registration.		Villages.		January.	February.	March.	April.	May.	June.	July.
		Number in each district.	Number from which deaths from small-pox were reported.	Number in each district.	Number from which deaths from small-pox were reported.							
1	2	3	4	5	6	7	8	9	10	11	12	13
	SURMA VALLEY.											
1	Cachar	12	9	1,103	261	44	30	33	35	45	13	25
2	Sylhet	40	29	10,781	434	183	139	172	105	75	64	57
	Total	52	38	11,884	695	227	169	205	140	120	77	82
	ASSAM VALLEY.											
3	Goalpara	18	14	2,137	62	11	19	32	34	30	27	4
4	Kamrup	16	11	1,954	8	25	35	33	42	29	19	10
5	Darrang	13	10	1,406	27	3	2	3	...	7	2	10
6	Nowgong	10	3	1,495	3	...	...	...	...	...	1	3
7	Sibsagar	17	5	2,143	18	3	...	...	3	5	1	...
8	Lakhimpur	15	5	1,702	8	...	...	...	...	17	5	6
	Total	89	48	10,837	126	42	56	68	79	88	55	33
	Total for the Province ...	141	86	22,721	1,516	269	216	273	219	208	132	115

districts of Assam during each month of the year 1929.

June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of population.			Mean ratio per 1,000 of previous five years.	Number.
							Male.	Female.	Total.	Male.	Female.	Total.		
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
15	59	25	5	5	10	23	95	77	172	·36	·32	·34	1·88	1
110	167	162	100	475	581	1,087	2,124	1,896	4,020	1·62	1·54	1·58	1·85	2
125	226	187	105	480	591	1,110	2,219	1,973	4,192	1·41	1·34	1·38	1·85	
165	57	43	2	4	40	91	536	574	1,110	1·32	1·61	1·46	3·75	3
298	75	40	12	11	34	19	820	781	1,601	2·06	2·14	2·10	3·26	4
58	52	4	4	6	9	6	167	149	316	·66	·66	·66	1·28	5
54	...	...	11	2	2	...	209	167	376	1·00	·88	·94	1·91	6
50	15	14	5	4	6	8	79	50	129	·18	·13	·16	·65	7
7	3	7	6	7	1	...	22	19	41	·07	·07	·07	·38	8
632	202	167	40	34	92	124	1,833	1,740	3,573	·91	·97	·94	1·57	
757	428	294	145	514	683	1,234	4,052	3,713	7,765	1·14	1·11	1·13	1·69	

Small-pox in the districts of Assam during each month of the year 1929.

August.	September.	October.	November.	December.	Total.			Number of deaths among children.		Ratio of deaths per 1,000 of population.			Mean ratio per 1,000 of previous five years.	Number.
					Male.	Female.	Total.	Under 1 year.	One to 10 years.	Male.	Female.	Total.		
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
14	9	10	1	9	131	137	268	45	59	·50	·57	·54	·35	1
14	14	9	10	9	461	381	842	193	271	·35	·31	·33	·64	2
28	23	19	11	18	592	518	1,110	238	330	·37	·35	·36	·00	
3	...	1	1	15	102	75	177	2	6	·25	·21	·23	·78	3
4	1	6	2	22	117	111	228	33	80	·29	·30	·30	·83	4
2	...	2	1	1	19	14	33	2	2	·03	·05	·07	·34	5
...	...	...	...	...	4	...	4	...	...	·02	...	·01	·10	6
...	5	1	...	...	10	8	18	...	...	·02	·02	·02	1·46	7
16	8	11	8	7	41	37	78	1	4	·13	·14	·13	·25	8
25	14	21	12	45	293	245	538	38	92	·15	·14	·14	·73	
53	37	40	21	63	885	763	1,648	276	422	·25	·23	·24	·67	

IMPERIAL STATEMENT No. IX.—*Deaths registered from Fevers*

Number.	Districts.	Circles of Registration.		Villages.		January.	February.	March.	April.	May.
		Number in each district.	Number from which deaths from fevers were reported.	Number in each district.	Number from which deaths from were reported.					
1	2	3	4	5	6	7	8	9	10	11
	SURMA VALLEY.									
1	Cachar	12	11	1,103	4,864	496	377	288	343	427
2	Sylhet	40	40	10,781	8,930	3,100	2,344	2,156	1,931	1,967
	Total	52	51	11,884	13,794	3,596	2,721	2,444	2,274	2,394
	ASSAM VALLEY.									
3	Goalpara	18	17	2,137	3,038	1,459	1,089	912	1,264	1,440
4	Kamrup	16	16	1,954	648	806	507	514	708	1,036
5	Darrang	13	12	1,406	1,340	530	431	493	497	733
6	Nowgong	10	10	1,495	84	657	312	303	499	487
7	Sibsagar	17	17	2,143	1,197	514	422	476	475	730
8	Lakhimpur	15	15	1,702	1,262	470	396	354	385	472
	Total	89	87	10,837	7,569	4,436	3,157	3,052	3,828	4,898
	Total for the Province ...	141	138	22,721	35,157	8,032	5,878	5,496	6,102	7,292

IMPERIAL STATEMENT No. X.—*Deaths registered from*

Number.	Districts.	Circles of Registration.		Villages.		January.	February.	March.	April.	May.
		Number in each district.	Number from which deaths from dysentery and diarrhœa were reported.	Number in each district.	Number from which deaths from dysentery and diarrhœa were reported.					
1	2	3	4	5	6	7	8	9	10	11
	SURMA VALLEY.									
1	Cachar	12	11	1,103	629	60	68	53	74	60
2	Sylhet	40	39	10,781	1,449	291	261	214	195	215
	Total ...	52	50	11,884	2,078	371	329	269	269	275
	ASSAM VALLEY.									
3	Goalpara	18	17	2,137	123	12	6	3	12	33
4	Kamrup	16	15	1,954	91	36	21	19	51	125
5	Darrang	13	11	1,406	219	40	13	26	64	41
6	Nowgong	10	8	1,495	24	18	9	7	31	23
7	Sibsagar	17	16	2,143	444	111	73	67	92	175
8	Lakhimpur	15	15	1,702	155	65	51	34	68	111
	Total	89	82	10,837	1,056	282	173	156	318	508
	Total for the Province ...	141	132	22,721	5,212	653	502	425	587	783

in the districts of Assam during each month of the year 1929.

June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of population.			Mean ratio per 1,000 of previous five years.	Number.
							Male.	Female.	Total.	Male.	Female.	Total.		
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
365	535	434	444	545	503	585	2,705	2,637	5,342	10·34	11·04	10·67	11·01	1
2,023	2,357	2,133	2,551	2,655	3,093	3,286	16,055	13,541	29,596	12·27	10·99	11·65	13·63	2
2,388	2,892	2,567	2,995	3,200	3,596	3,871	18,760	16,178	34,938	11·95	10·99	11·49	13·20	
1,341	1,418	1,283	1,197	1,189	1,349	1,655	8,534	7,062	15,596	21·00	19·84	20·45	24·76	3
994	698	677	537	562	618	856	4,488	4,025	8,513	11·30	11·02	11·16	13·87	4
577	630	429	486	481	549	752	3,302	3,286	6,588	13·06	14·63	13·80	15·67	5
536	425	220	359	403	393	368	2,633	2,329	4,962	12·61	12·30	12·47	14·50	6
652	632	544	661	602	646	708	3,738	3,324	7,062	8·61	8·54	8·58	9·66	7
567	506	455	577	535	563	549	3,070	2,791	5,861	9·81	10·20	9·99	10·02	8
4,767	4,309	3,638	3,817	3,772	4,120	4,868	25,765	22,817	48,582	12·80	12·69	12·75	14·84	
7,155	7,201	6,205	6,812	6,972	7,716	8,739	44,525	38,995	83,520	12·71	11·92	12·19	14·11	

Dysentery and Diarrhœa in the districts of Assam during each month of the year 1929.

June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of population.			Mean ratio per 1,000 of previous five years.	Number.
							Male.	Female.	Total.	Male.	Female.	Total.		
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
74	106	119	133	164	145	143	601	620	1,221	2·30	2·59	2·44	2·45	1
235	245	311	283	363	464	500	1,848	1,729	3,577	1·41	1·40	1·41	1·44	2
309	351	430	416	527	609	643	2,449	2,349	4,798	1·56	1·60	1·58	1·61	
36	35	27	25	25	15	21	143	107	250	·35	·30	·33	·32	3
111	79	59	39	37	37	32	332	294	646	·89	·80	·85	·78	4
80	8 9	67	114	63	47	71	421	294	715	1·66	1·31	1·50	2·01	5
29	24	12	12	15	13	10	99	104	203	·47	·55	·51	·79	6
154	216	183	221	185	159	151	1,015	772	1,787	2·34	1·98	2·17	1·83	7
134	141	145	142	134	154	84	714	549	1,263	2·28	2·01	2·15	2·24	8
544	584	493	553	459	425	369	2,744	2,120	4,864	1·36	1·18	1·28	1·29	
853	935	923	969	986	1,034	1,012	5,193	4,469	9,662	1·45	1·37	1·41	1·43	

IMPERIAL STATEMENT No. XI.—*Deaths registered from*

Number.	Districts.	Circles of Registration.		Villages.		January.	February.	March.	April.	May.
		Number in each district.	Number from which deaths from respiratory diseases were reported.	Number in each district.	Number from which deaths from respiratory diseases were reported.					
1	2	3	4	5	6	7	8	9	10	11
	SURMA VALLEY.									
1	Cachar	12	12	1,103	230	87	79	99	87	67
2	Sylhet	40	40	10,781	611	120	132	133	160	96
	Total	52	52	11,884	841	207	211	232	247	163
	ASSAM VALLEY.									
3	Goalpara	18	17	2,137	68	14	16	14	13	12
4	Kamrup	16	16	1,954	28	24	20	22	20	14
5	Darrang	13	12	1,406	124	44	50	58	44	52
6	Nowgong	10	9	1,495	23	19	18	29	17	17
7	Sibsagar	17	14	2,143	125	112	97	92	103	105
8	Lakhimpur	15	13	1,702	52	114	137	134	127	109
	Total	89	81	10,837	420	327	338	349	324	309
	Total for the Province ...	141	133	22,721	2,102	534	549	581	571	472

IMPERIAL STATEMENT No. XII.—*Deaths registered from plague*

Number.	Districts.	Circles of Registration.		Villages.		January.	February.	March.	April.	May.
		Number in each district.	Number from which deaths from plague were reported.	Number in each district.	Number from which deaths from plague were reported.					
1	2	3	4	5	6	7	8	9	10	11
	SURMA VALLEY.									
1	Cachar	12	...	1,103	...	...	...	...	...	...
2	Sylhet	40	...	10,781	...	...	...	...	...	...
	Total	52	...	11,884	...	...	...	...	...	...
	ASSAM VALLEY.									
3	Goalpara	18	...	2,137	...	...	...	...	...	...
4	Kamrup	16	...	1,954	...	...	...	...	...	...
5	Darrang	13	...	1,406	...	...	...	...	...	...
6	Nowgong	10	...	1,495	...	...	...	...	...	...
7	Sibsagar	17	...	2,143	...	...	...	...	...	...
8	Lakhimpur	15	...	1,702	...	...	...	...	...	...
	Total	89	...	10,837	...	...	...	...	...	...
	Total for the Province ...	141	...	22,721	...	...	...	...	...	...

Respiratory diseases in the districts of Assam during each month of the year 1929.

June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of population.			Mean ratio per 1,000 of previous five years.	Number.
							Male.	Female.	Total.	Male.	Female.	Total.		
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
69	58	69	49	77	71	79	509	382	891	1·95	1·60	1·78	1·79	1
105	104	107	108	85	98	120	894	544	1,368	·63	·44	·54	·60	2
174	162	176	157	162	169	199	1,333	926	2,259	·85	·67	·74	·79	
12	15	8	10	12	13	10	105	44	149	·26	·12	·20	·17	3
28	18	19	18	23	23	30	144	115	259	·36	·31	·34	·35	4
47	45	38	37	50	26	69	346	224	570	1·37	1·00	1·19	1·18	5
20	10	6	9	10	12	11	110	68	178	·53	·36	·45	·37	6
96	81	65	75	76	80	82	589	475	1,064	1·36	1·22	1·30	1·16	7
120	90	94	101	92	108	89	754	561	1,315	2·41	2·05	2·24	2·19	8
323	259	230	250	263	272	291	2,048	1,487	3,535	1·02	·83	·93	·88	
497	421	406	407	425	441	490	3,381	2,413	5,794	·94	·74	·85	·84	

in the districts of Assam during each month of the year 1929.

June.	July.	August.	September.	October.	November.	December.	Total			Ratio of deaths per 1,000 of population.			Mean ratio per 1,000 of previous five years.	Number.
							Male.	Female.	Total.	Male.	Female.	Total.		
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
...	...	...	...	...	...	...	...	...	...	...	..	...	...	
...	...	...	...	...	...	...	...	...	...	...		...	...	

APPENDIX II.

PROVINCIAL.

Statement showing details of registration in compulsory areas.

Compulsory registration area.	Population according to Census of 1921.	Estimated births at 288 per 1,000 married women between the ages of 15 and 40.	Number of births registered during the year.	Estimated birth-rate per mille.	Registered birth-rate per mille.	Number of deaths registered during the year.		Death-rate per mille.		Number of prosecutions under Act IV (B.C.) of 1873.	Number of convictions.
						Including deaths in hospitals.	Excluding deaths in hospitals.	Including deaths in hospitals.	Excluding deaths in hospitals.		
1	2	3	4	5	6	7	8	9	10	11	12
Silchar	10,204		187		18·33	162	108	15·88	10·58	...	...
Hailakandi	2,228		39		17·51	40	29	17·95	13·02	2	1
Sylhet	16,912		458		27·08	342	299	20·22	17·68	38	28
Karimganj	4,552		144		31·64	96	77	21·09	16·92	23	19
Maulvi Bazar	3,334		102		30·60	65	53	19·50	15·90	3	2
Habiganj	5,918		219		37·01	130	124	21·97	20·95	11	8
Sunamganj	4,881		184		37·70	109	93	22·33	19·05	13	7
Dhubri	6,707		231		34·44	178	126	26·54	18·79	4	
Goalpara	6,212		128		20·61	82	51	13·20	8·21	...	...
Gauripur	4,311	Not available.	161	Not available.	37·34	101	101	23·43	23·43	...	...
Gauhati	16,480		446		27·06	279	155	16·93	9·41	10	10
Barpeta	11,730		557		47·48	266	256	22·68	21·82	...	...
Palasbari	2,738		148		54·03	64	64	23 37	23·37	7	7
Tezpur	7,341		240		32·69	233	175	31·74	23·84	14	12
Mangaldai	1,023		29		28·35	25	12	24·44	11·73	7	6
Nowgong	6,885		223		46·91	159	123	23·09	17·86	26	23
Sibsagar	5,329		138		25·90	75	62	14·07	11·63	25	7
Nazira	2,632		88		33·43	59	59	22·42	22·42	5	5
Jorhat	6,626		182		27·46	107	72	16·15	10·87	20	1
Golaghat	3,655		116		31·74	61	37	16·69	10·12	52	...
Dibrugarh	16,007		390		24 36	366	221	22·86	13·81	1	1
Doom Dooma	1,162		22		18·93	27	27	23·24	23·24	1	1
North Lakhimpur... ...	1,966		47		23·90	35	28	17·80	14·24	7	7
Tinsukia	3,080		54		17·54	41	41	13·31	13·31	5	5
Total ...	151,913		4,633		31·05	3,102	2,393	20·42	15·75	274	153

STATEMENTS.

VACCINATION.

A.—VACCINE

Statement No. I—Showing particulars of Vaccination in

No.	District.	Population of district according to the census of 1921.	Average population per square mile.	Average number of vaccinators employed throughout the season.	Total number of persons vaccinated.			Average number of persons vaccinated by each vaccinator.	Primary	
									Total.	Sec Under one year.
1	2	3	4	5	6			7	8	9
					Male.	Female.	Total.			
	SURMA VALLEY AND HILL DIVISION.									
1	Cachar	529,301	148	31	25,767	18,966	44,733	1,443	16,305	2,199
2	Sylhet	2,541,341	472	119	112,715	85,136	197,851	1,662	93,621	10,729
3	Khasi and Jaintia Hills	243,263	40	9	9,779	10,770	20,549	2,283	8,794	2,431
4	Naga Hills	158,801	52	6	4,977	3,382	8,359	1,393	6,139	839
5	Lushai Hills	98,406	14	8	8,492	6,734	15,226	1,903	6,677	335
	Total of Surma Valley and Hill Division	3,571,112	141	173	161,730	124,988	286,718	1,657	131,536	16,533
	ASSAM VALLEY DIVISION.									
6	Goalpara	762,523	193	48	50,510	34,874	85,384	1,779	21,407	2,680
7	Kamrup	762,671	197	59	33,597	25,824	59,421	1,007	44,643	9,347
8	Darrang	477,442	164	38	19,021	13,786	32,807	863	20,710	3,095
9	Nowgong	398,007	108	27	18,562	12,957	31,519	1,167	24,579	56,887
10	Sibsagar	823,197	162	55	30,182	23,796	53,978	981	33,811	3,576
11	Lakhimpur	586,577	143	36	15,668	12,224	27,892	775	15,777	1,904
12	Garo Hills	179,140	67	7	13,616	12,702	26,318	3,760	7,481	4,368
	Total of Assam Valley Division ...	3,989,557	149	270	181,156	136,163	317,319	1,175	168,408	81,857
13	Manipur State	384,016	45	17	19,672	16,299	35,971	2,116	18,240	9,206
14	Sadiya Frontier Tract	41,249	106	4	2,861	1,889	4,750	1,187	3,584	104
	Total Vaccine Department ...	*7,985,934*	*130*	*464*	*365,419*	*279,339*	*644,758*	*1,390*	*321,768*	*107,700*
	Total Dispensaries	...	...	...	...	...	8,044	...	2,851	465
	Total tea-gardens by garden agencies ...	...	...	...	18,418	16,211	34,629	...	20,945	10,019
	Total Jails, Mental hospital, Police hospitals and Infectious Diseases hospitals.	...	...	...	4,669	202	4,871	...	318	10
	Total Railways	...	...	...	1,197	318	1,815	...	322	70
	Grand Total ...	7,985,934	130	464	390,003	296,070	694,117	1,390	346,234	118,264

Sum

	Total number of persons vaccinated.		Total number of operations performed.	
	Primary.	Re-vaccination.	Primary.	Re-vaccination.
1	2	3	4	5
By special staff (Statement I)	321,768	323,990	321,768	322,990
By dispensary staff (Statement III)	2,851	5,193	2,851	5,193
By other agencies—Tea-gardens, Railways, Jail hospitals, Police hospital, Mental hospital and Infectious Diseases hospitals.	21,615	19,700	21,615	19,700
Total ...	346,234	347,883	346,234	347,883

DEPARTMENT.

the Province of Assam during the year 1929-30.

Vaccination.			Re-vaccination.			Percentage of successful cases in which the results were known.		Persons successfully vaccinated per 1,000 of population.	Percentage of unknown cases to total cases.		Average annual number of persons successfully vaccinated during previous five years.		Average annual number of death from small-pox during previous five years.	
Successful.														
Over one and under six years.	Total of all ages.	Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.		Primary.	Re-vaccination.	Number.	Ratio per 1,000.	Number.	Ratio per 1,000.
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9,962	15,532	220	28,428	15,080	1,472	96·56	55·94	57·83	1·35	5·18	34,622	65·41	207	·39
57,852	85,876	3,462	104,230	58,488	12,791	95·25	63·96	56·81	3·70	12·27	175,886	69·21	1,699	·67
3,760	8,780	...	11,755	4,744	140	99·84	40·84	55·59	...	1·19	27,234	111·95	21	·09
3,431	4,270	620	2,220	1,514	78	77·37	70·68	36·42	10·10	3·51	6,276	39·52	...	...
3,212	5,455	780	8,549	5,287	858	92·50	68·74	109·16	11·68	10·04	6,805	69·15	...	...
78,217	119,913	5,082	155,182	85,113	15,339	94·83	60·86	57·41	3·86	9·88	250,823	70·24	1,927	·54
10,164	16,574	3,574	63,977	38,416	16,414	92·94	80·77	72·12	16·70	25·66	43,237	56·70	603	·79
26,347	41,436	1,215	14,778	8,117	1,144	95·41	59·53	61·97	2·72	7·74	46,011	60·33	511	·67
14,205	19,089	351	12,067	7,470	1,147	93·76	68·22	55·63	1·69	9·48	22,225	46·55	89	·19
15,028	24,021	...	6,940	3,887	5	97·73	56·05	70·12	...	·07	22,950	57·66	10	·03
23,555	31,121	1,254	20,167	8,290	3,152	95·59	48·72	47·88	3·71	15·63	42,292	51·38	1,191	1·44
10,651	14,609	494	12,115	6,493	1,772	95·59	62·78	35·97	3·13	14·63	21,775	37·12	173	·29
1,791	6,460	240	18,837	14,267	1,137	89·21	80·60	115·70	3·21	6·04	20,039	111·86	48	·27
101,741	153,310	7,128	148,911	86,940	24,771	95·06	70·03	60·22	4·23	16·63	218,529	54·78	2,625	·66
6,965	16,171	1,631	17,731	13,197	2,643	97·36	87·47	76·48	8·94	14·91	22,785	59·33	...	...
944	3,216	307	1,166	1,051	...	99·05	90·14	104·17	8·57	...	2,371	57·48	1	·02
187,867	*292,640*	*14,148*	*322,990*	*186,301*	*42,753*	*95·13*	*66·48*	*59·97*	*4·40*	*13·24*	*494,508*	*61·92*	*4,670*	*·58*
1,429	2,231	362	5,193	2,770	919	89·63	64·81	...	12·70	17·70	6,731	...	...	...
8,850	20,098	43	13,684	9,612	1,302	96·15	77·63	...	·21	9·51	49,252	...	...	...
45	260	46	4,523	2,454	651	86·09	63·39	...	13·22	14·39	1,571	...	...	...
187	287	8	1,493	618	402	91·40	56·64	...	2·48	26·93	714	...	...	...
198,378	315,516	14,607	347,883	201,755	46,027	95·14	66·84	64·77	4·22	13·23	552,776	69·22	4,670	·58

mary.

Percentage of successful cases in which results were known.		Average number of persons vaccinated by each vaccinator.		Number of children successfully vaccinated.		Ratio of successful vaccination per 1,000 of population.	Total cost of Departments.	Average cost of each successful case.
Primary.	Re-vaccinations.	Vaccinators employed.	Persons vaccinated by each vaccinator.	Under one year.	One and under six years.			
6	7	8	9	10	11	12	13	14
95·13	66·48	464	1,390	107,700	187,867	59·97	Rs. a. p. 119,818 1 0	Rs. a. p. 0 4 0
89·63	64·81	...	...	465	1,429	...	...	...
95·94	73·13	...	...	10,099	9,082	...	...	...
95·14	66·84	464	1,390	118,264	198,378	64·77	119,818 1 0	0 4 0

Statement No. II—Showing the cost of Vaccination

No.	District.	Expen												
		European supervising officers.	Pay.	Native supervising officer.	Pay.	Paid vaccinators.	Pay.	Licensed vaccinators.	Pay.	Clerks.	Pay.	Peons, etc.	Pay.	Total pay of establishment.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			Rs. a. p.		Rs. a. p.		Rs. a. p.		Rs. a. p.		Rs. a. p.		Rs. a. p.	Rs. a. p.
1	Cachar	...	...	3	1,263 3 0	31	5,029 15 0	...	...	...	...	...	...	6,298 2 0
2	Sylhet	...	...	11	4,277 3 0	119	11,749 15 6	...	...	...	...	...	...	16,027 2 6
3	Khasi and Jaintia Hills	...	...	2	1,166 4 0	9	1,970 5 0	...	...	...	...	...	...	3,136 9 0
4	Naga Hills ...	...	...	1	396 0 0	6	1,320 0 0	...	...	...	...	...	...	1,716 0 0
5	Lushai Hills ...	...	...	1	504 0 0	8	1,007 4 0	...	...	...	...	...	...	1,511 4 0
6	Goalpara	...	...	3	1,245 0 0	48	7,217 15 6	...	...	...	...	...	...	8,462 15 6
7	Kamrup	...	...	3	1,651 0 0	59	7,189 9 0	...	...	...	...	...	...	8,840 9 0
8	Darrang	...	...	3	1,371 1 0	38	4,779 13 0	...	...	...	...	...	...	6,150 14 0
9	Nowgong	...	...	2	1,320 0 0	27	3,400 0 0	...	...	...	...	...	...	4,720 0 0
10	Sibsagar	...	...	5	2,418 8 0	55	5,941 3 0	...	...	...	...	...	...	8,359 11 0
11	Lakhimpur ...	...	...	3	1,685 5 0	26	4,375 8 0	...	...	...	...	...	...	6,060 13 0
12	Garo Hills ...	...	...	1	447 0 0	7	1,002 9 0	...	...	...	...	...	...	1,449 9 0
13	Manipur State ...	...	...	2	430 0 0	17	1,484 14 3	...	...	...	...	...	...	1,914 14 3
14	Sadiya Frontier Tract	...	...	1	588 0 0	4	452 5 0	...	...	...	...	...	...	1,040 5 0
	Total of Districts ...	...	...	41	18,767 8 0	464	56,921 4 3	...	...	...	...	...	...	75,688 12 3
	Shillong Vaccine Depôt	1	600 0 0	1	2,880 0 0	...	2,602 0 0	...	...	...	...	...	...	5,982 0 0
	Total for the Province	1	600 0 0	42	21,647 8 0	464	59,423 4 3	...	...	...	...	...	...	81,670 12 3

the Province of Assam during the year 1929-30.

...re.				Paid from—							
Travelling allowance.	Contingencies.		Total cost.	Imperial Fund.	Provincial Fund.	Local Fund.	Municipalities.	Native States.	Total.	Number of all successful vaccinations and re-vaccinations.	Average cost of each successful case.
	Cost of Vaccine.	Other contingencies.									
16	17	18	19	20	21	22	23	24	25	26	27
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		Rs. a. p.
1,370 7 0	...	267 1 6	8,035 10 6	...	3,872 15 6	3,846 0 0	316 11 0	...	8,035 10 6	30,612	0 4 2
3,704 15 0	...	690 9 3	20,422 10 9	...	7,503 2 3	11,723 4 0	1,197 4 6	...	20,422 10 9	144,364	0 2 3
1,277 6 0	...	32 6 0	4,446 5 0	...	4,211 9 0	...	234 12 0	...	4,446 5 0	13,524	0 5 3
511 11 0	...	54 12 0	2,282 7 0	...	2,282 7 0	...	...	...	2,282 7 0	5,784	0 6 4
489 6 0	...	113 1 9	2,113 11 9	...	2,113 11 9	...	...	...	2,113 11 9	10,742	0 3 2
913 10 0	...	412 15 9	9,789 9 3	...	2,058 15 0	7,251 1 0	479 9 3	...	9,789 9 3	54,990	0 2 10
1,229 7 0	...	545 6 0	10,615 6 0	...	2,844 7 0	6,793 8 0	977 7 0	...	10,615 6 0	49,553	0 3 5
1,383 7 0	...	387 4 6	7,921 9 6	...	2,521 0 0	5,100 7 6	300 2 0	...	7,921 9 6	26,559	0 4 9
1,126 15 0	...	145 0 0	5,991 15 0	...	2,169 15 0	3,563 0 0	259 0 0	...	5,991 15 0	27,908	0 3 5
1,634 4 6	...	670 9 0	10,654 8 6	...	4,115 14 0	5,517 1 6	1,021 9 0	...	10,654 8 6	39,411	0 4 4
977 15 0	...	...	7,038 12 0	...	2,585 0 0	3,804 12 0	649 0 0	...	7,038 12 0	21,102	0 5 0
586 0 0	...	34 2 0	2,069 11 0	...	2,069 11 0	...	...	...	2,069 11 0	20,727	0 1 7
1,284 14 3	2,590 12 0	12 6 9	5,892 15 3	...	...	...	...	5,892 15 3	5,892 15 3	29,368	0 3 2
287 8 6	...	...	1,327 13 6	1,327 13 6	...	...	...	...	1,327 13 6	4,297	0 4 11
6,767 14 3	2,590 12 0	3,465 10 6	98,513 1 0	1,327 13 6	38,348 11 6	47,598 2 0	5,435 6 9	5,892 15 3	98,513 1 5	478,941	0 3 3
...	...	15,323 0 0	21,305 0 0	...	21,305 0 0	...	...	...	21,305 0 0	...	...
6,767 14 3	2,590 12 0	18,788 10 6	119,818 1 0	1,327 13 6	59,653 11 6	47,598 2 0	5,435 6 9	5,892 15 3	119,818 1 0	479,841	0 4 0

B.—DISPENSARY

Statement No. III—Showing Dispensary Vaccination

Districts.	Number of dispensaries in each district to which a vaccinator is attached.	Average number of vaccinators attached to dispensaries during the year.	Total number of persons vaccinated.	Average number of persons vaccinated by each vaccinator	Primary vaccination.				
					Total.	Successful.			Unknown.
						Under one year.	Over one and under six years.	Total of all ages.	
1	2	3	4	5	6	7	8	9	10
Cachar	...	...	86	...	...	...	...	...	...
Sylhet	...	...	1,560	...	740	123	312	639	19
Khasi and Jaintia Hills	...	...	59	...	44	12	32	44	...
Naga Hills ...	...	...	130	...	14	3	10	13	...
Lushai ,, ...	...	...	1,775	...	451	28	273	301	117
Goalpara ...	...	...	413	...	65	10	45	64	...
Kamrup ...	...	...	...	...	...	...	...	...	...
Darrang ...	...	...	207	...	191	14	127	163	1
Nowgong ...	...	...	...	...	...	...	...	...	...
Sibsagar ...	...	...	144	...	75	7	38	69	...
Lakhimpur ...	...	...	433	...	141	10	76	111	23
Garo Hills ...	...	...	1,451	...	422	100	276	380	28
Manipur State ...	...	...	1,610	...	569	151	219	370	151
Sadiya Frontier Tract.	...	...	176	...	139	7	21	77	23
Total ...	...	...	8,044	...	2,851	465	1,429	2,231	362

Comparative Statement No. IV—Showing the number of persons primarily vaccinated in each of the under

Establishment.	Persons							
	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.
	Year ending							
	1920-21.		1921-22.		1922-23.		1923-24.	
1	2	3	4	5	6	7	8	9
Government	26,096	24,194	48,215	45,045	24,499	22,417	25,859	23,730
Dispensaries	1,017	892	597	495	756	660	1,363	1,163
Municipal	3,858	3,431	3,467	3,268	4,925	4,382	5,997	5,499
Local Funds	252,105	237,777	205,990	194,158	237,170	223,749	243,130	231,092
Licensed vaccinators ...	...	...	...	...	...	...	...	...
Apprentices	2,325	2,223	950	925	2,414	2,320	6,101	5,945
Native States	17,059	11,690	16,529	13,240	13,892	11,524	13,534	10,506
Total	302,460	280,207	275,748	257,131	283,656	265,052	295,984	277,935

VACCINATION.

in the Province of Assam during the year 1929-30.

Re-vaccination.			Percentage of successful cases in which the results were known.		Percentage of unknown cases to total cases.	
Total.	Successful.	Unknown.	Primary.	Re-vaccination.	Primary.	Re-vaccination.
11	12	13	14	15	16	17
86	75	...	...	87·21	...	...
820	404	96	88·63	55·80	2·57	11·71
15	6	...	100·00	40·00	...	...
116	48	...	92·86	41·38	...	...
1,324	728	283	90·12	69·93	25·94	21·37
318	192	17	98·46	58·01	...	4·88
...	...	...	...	...	...	...
16	4	...	85·79	25·00	·52	...
...	...	...	...	...	...	...
69	29	...	92·00	42·03	...	...
292	133	92	94·07	66·50	16·31	31·51
1,029	434	245	96·45	55·36	6·64	23·81
1,041	706	175	88·52	81·52	26·54	16·81
37	11	...	66·38	29·73	16·55	...
5,193	2,770	919	89·85	64·81	12·91	17·70

and the number of those who were successfully vaccinated in the Province of Assam mentioned official years.

Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.
primarily vaccinated.											
31st March—											
1924-25.		1925-26.		1926-27.		1927-28.		1928-29.		1929-30.	
10	11	12	13	14	15	16	17	18	19	20	21
18,858	17,945	29,979	27,812	34,589	27,786	65,524	59,339	50,560	44,570	36,803	32,086
1,457	1,250	2,353	1,987	2,212	1,801	5,980	5,171	5,662	4,503	2,851	2,231
4,991	4,726	4,881	4,624	5,009	4,787	5,881	5,443	7,231	6,744	4,935	4,645
262,227	248,759	268,846	256,726	301,565	286,393	312,404	291,569	288,661	270,257	260,658	238,776
...	...	...	...	...	...	...	...	...	...	...	...
2,952	2,877	733	700	900	885	1,092	1,059	713	657	1,132	962
16,325	11,961	18,089	15,370	16,972	14,655	18,304	15,995	19,366	14,258	18,240	16,171
306,810	287,518	324,881	307,219	361,247	336,407	409,185	378,579	372,193	340,989	324,619	294,871

Statement No. V—Showing particulars of Vaccination verified by Inspecting Officers for the year 1929-30.

District.	Total number of persons vaccinated.		Total number inspected.				Percentage of inspection to total number vaccinated.				Percentage of successful cases to total number inspected.				Percentage of successes reported by vaccinators.	
			By Assistant Director of Public Health or Civil Surgeons.		By Native Superintendents or other Inspecting Officers.		By Assistant Director of Public Health or Civil Surgeons.		By Native Superintendents or other Inspecting Officers.		By Assistant Director of Public Health or Civil Surgeons.		By Native Superintendents or other Inspecting Officers.			
	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Cachar	16,305	28,514	1,109	783	6,537	7,007	6·80	2·75	40·09	24·57	91·43	40·10	90·83	41·52	96·56	55·94
Sylhet	94,361	105,050	5,437	4,670	59,144	51,463	5·75	4·45	55·26	48·99	93·66	40·64	85·10	40·38	95·25	63·96
Khasi and Jaintia Hills ...	8,838	11,770	95	5	5,026	3,376	1·07	·04	56·87	28·68	100·00	...	99·98	69·52	99·84	40·84
Naga Hills	6,153	2,336	118	...	2,261	1,236	1·92	...	36·73	52·91	...	...	81·72	60·35	77·37	70·68
Lushai ,, ...	7,198	9,873	377	562	1,846	1,536	5·29	5·69	25·89	15·46	84·09	62·10	90·98	68·22	92·50	68·74
Goalpara	21,472	64,325	269	1,520	3,774	12,833	1·25	2·36	17·78	19·95	91·44	56·44	84·31	72·85	92·94	80·77
Kamrup	44,643	14,778	3,604	1,207	11,888	5,122	8·07	8·17	26·63	34·66	92·50	60·95	90·46	50·38	95·41	59·53
Darrang	20,991	12,113	1,135	1,025	17,070	6,277	5·43	8·46	81·67	51·81	92·51	62·44	93·16	74·47	93·76	68·22
Nowgong	24,579	6,940	2,354	310	17,742	3,921	9·58	4·47	72·18	56·50	97·53	49·77	96·76	60·88	97·73	56·05
Sibsagar	13,886	20,236	3,983	1,505	20,318	6,461	11·75	7·45	52·96	31·93	95·61	40·70	94·95	44·54	95·59	48·72
Lakhimpur	15,918	12,407	1,905	392	11,003	6,182	11·97	3·16	69·12	49·83	95·21	41·21	95·59	73·27	95·59	62·78
Garo Hills	7,903	19,866	893	1,288	1,042	2,106	11·30	6·48	13·18	10·60	80·84	56·56	83·40	60·59	89·21	80·60
Manipur State	18,800	18,772	2,719	743	6,143	10,184	14·46	3·96	32·66	54·25	96·65	89·23	96·79	75·89	97·36	87·47
Sadiya Frontier Tract ...	3,715	1,203	127	329	2,329	465	3·41	27·35	62·56	38·65	89·76	82·07	94·76	79·14	99·05	90·14
Total	324,619	328,183	24,115	14,342	159,122	118,159	7·43	4·37	49·02	36·00	92·40	57·60	91·34	62·72	95·13	69·46

Statement No. VI—Showing the number of vaccinations performed in Municipal towns on children under one year of age during the year 1929-30.

District.	Town.	Number of births during the year.	Number of deaths amongst children under one year during the year.	Number of successful vaccination on children under one year during the year ending 31st March 1930.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Cachar ...	Silchar ...	178	19	41	21st January 1892.
	Hailakandi ...	46	8	3	10th November 1922.
Sylhet ...	Sylhet ...	505	84	76	1st October 1882.
	Habiganj ...	202	42	135	11th December 1913.
	Sunamganj ...	173	30	49	28th June 1915.
	Karimganj ...	118	23	65	27th July 1915.
	Maulvi Bazar ...	114	11	26	16th April 1916.
Khasi & Jaintia Hills	Shillong ...	522	56	104	21st June 1895.
	Total of Surma Valley and Hill Division.	1,858	273	499	
Goalpara ...	Dhubri ...	229	39	175	13th February 1891.
	Goalpara ...	128	9	86	12th November 1890.
	Gauripur ...	184	39	21	15th September 1922.
Kamrup ...	Gauhati ...	470	61	237	August 1882.
	Barpeta ...	566	61	332	29th October 1915.
Darrang ...	Tezpur ...	247	38	105	22nd May 1907.
	Mangaldai ...	30	6	20	12th October 1906.
Nowgong ...	Nowgong ...	331	48	204	7th April 1897.
Sibsagar ...	Sibsagar ...	142	15	80	21st January 1892.
	Jorhat ...	189	22	35	12th April 1892.
	Golaghat ...	122	13	7	24th March 1892.
	Nazira ...	79	18	61	1st December 1916.
Lakhimpur ...	Dibrugarh ...	403	55	141	September 1883.
	Doom Dooma ...	27	...	1	21st October 1918.
	Tinsukia ...	58	8	16	31st August 1922.
	Total of Assam Valley Division.	3,205	432	1,521	
	Total for the Province.	5,063	705	2,020	

Statement No. VII—Showing, side by side, the ratio (per 1,000 of population) of deaths

District.	1920-21.		1921-22.		1922-23.		1923-24.	
	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.
1	2	3	4	5	6	7	8	9
Cachar	·02	21,459	·003	20,263	·04	21,557	·02	19,225
Sylhet	·46	142,767	·29	127,139	·009	11[illegible],561	·02	118,735
Khasi and Jaintia Hills ...	·20	10,627	·12	14,508	·008	9,885	...	11,772
Naga Hills	...	9,539	...	4,748	...	5,682	...	5,626
Lushai „	...	6,294	...	5,249	·01	3,847	...	2,811
Goalpara	·09	25,300	·48	22,434	1·05	23,724	·29	26,738
Kamrup	·08	28,613	·27	17,383	1·13	20,711	1·33	34,481
Darrang	·49	13,670	2·38	13,036	·05	15,951	·62	17,013
Nowgong	·07	13,141	·40	14,522	3·12	14,907	2·72	15,205
Sibsagar	·28	24,258	·10	17,028	·04	21,816	·06	27,826
Lakhimpur	·05	17,555	·07	15,608	·09	16,052	·04	15,030
Garo Hills	·08	7,121	·02	6,312	·04	9,351	·02	7,183
Manipur State	...	18,154	...	16,214	...	15,714	...	12,540
Sadiya Frontier Tract	...	1,803	...	1,182	...	1,056	...	1,454
Total ...	·24	340,301	·35	295,626	·38	305,214	·40	315,639

from small-pox and the number of successful vaccinations during the ten years ending 1929-30.

1924-25.		1925-26.		1926-27.		1927-28.		1928-29.		1929-30.	
Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.
10	11	12	13	14	15	16	17	18	19	20	21
·01	19,613	·05	21,904	·01	24,769	·15	41,331	1·61	65,942	·32	30,687
·02	122,817	·06	139,006	·16	156,196	1·37	253,654	1·79	219,845	·15	145,407
...	11,145	·004	12,547	·05	19,188	·28	63,020	·06	29,559	·03	13,574
...	5,142	·006	4,859	...	4,740	·006	8,845	...	5,374	...	5,845
...	4,316	...	5,329	...	6,712	...	9,588	...	10,632	...	11,771
·19	27,680	·30	31,517	·57	42,533	1·68	65,943	1·20	49,433	·26	55,246
·96	41,750	·69	39,986	1·32	48,991	·67	49,939	·37	49,392	·21	49,553
·56	17,558	·22	20,353	·36	21,387	·10	25,860	·10	26,664	·08	26,726
·15	18,006	·02	20,389	·01	23,095	·005	26,443	·06	26,871	·01	27,908
·26	23,748	2·99	40,821	3·49	61,006	·57	50,473	·06	37,525	·02	39,509
·02	16,576	·14	22,346	·38	24,436	·53	26,400	·15	20,639	·26	21,346
...	7,832	·02	8,106	·50	23,994	·41	41,017	·35	22,531	·06	21,541
...	13,356	...	16,300	...	15,578	...	34,317	...	41,077	...	30,444
·02	1,133	·09	1,353	·05	2,197	...	3,757	...	4,793	...	4,385
·22	330,672	·45	385,816	·65	478,842	·79	700,587	·86	610,277	·14	483,942

GOVERNMENT OF ASSAM.

The Governor and the Minister of Local Self-Government.

Resolution on the Annual Public Health Report of the Province of Assam for the year 1929.

Extract from the Proceedings of the Governor of Assam and the Minister of Local Self-Government in the Medical Department, Public Health Branch, No. 1926M., dated the 17th September 1930.

READ—

The Public Health Report for the year 1929.

RESOLUTION.

1. A further general improvement in public health was exhibited by the recorded figures of births and deaths in 1929. The birth rate was 32·77 per mille, to be compared with 31·24 in 1928 and 29·42 the average of the preceding ten years, while the death rate was 20·91 per mille, against corresponding figures of 22·16 and 26·52. Such an improvement in both rates largely discounts the element of doubt due to faulty registration, particularly in rural areas, which is illustrated in paragraphs 5 and 8 of the Report by the wide differences between circles. Birth rates vary between 55·24 and 13·13 per mille and death rates between 47·75 and 4·79. Some of the small towns unfortunately appear to sustain their reputation for defective registration. It is clear from the very small total of fines inflicted for failure to register—Rs. 139—that this must be partly ascribed to the apathy of magistrates and of public feeling on the subject. The figures as they stand indicate a death rate lower than in any province of India, and a birth rate above that of Bengal, Burma and the North-West Frontier Province. The death rate in tea gardens exhibited a slight regression from 18·01 to 19·09, but the natural increase of the tea-garden population was 10·51 per mille against 10·1 in the previous year. The provincial increase was 11·86.

A satisfactory improvement is shown in the incidence of infant mortality which was 157·44 per mille, against 172·01 in 1928, lower than in any of the previous ten years. It was also lower than any recorded by other provinces. The Department continued propaganda for the advancement of child welfare.

2. The year was on the whole a mild one in respect of epidemics, remarkably so in view of the serious floods which overtook the Surma Valley and Nowgong. Deaths from cholera rose only from 6,915 to 7,665. This result was due to the energy and promptitude with which the Public Health Department combated the situation and also to the growing popularity of anti-cholera inoculation. The increase in the quantity of vaccine issued from 237,773 to 356,047c. c. amply illustrates the claim that inoculation is appreciated. Manufacture of vaccine at the Pasteur Institute has ensured prompt supply to infected centres, and the five epidemic units proved their value as a means of applying preventive methods, particularly mass inoculation. Two temporary units were entertained to cope with the outbreaks anticipated after the floods.

3. Deaths from small-pox fell from 8,461 in 1928 to 1,648. This result is attributed to the adoption in 1927 and 1928 of a policy of compulsory inoculation in threatened rural areas. The fact that the total of vaccinations decreased from 871,114 to 694,117 is ascribed to this reduction in outbreaks of the disease. It is disappointing, however, that the figures do not appear to indicate a rapid growth in the popularity of vaccination comparable with that of anti-cholera inoculation. The Director's remarks in regard to the faulty supervision and laxity of vaccinators in some areas indicate in the opinion of Government a need that Civil Surgeons and other inspecting officers should give a more lively attention to this important matter, in which, as he suggests, expert control is very necessary.

4. There was some increase in cases of dysentery and diarrhœa, *viz*, from 8,501 to 9,662, a phenomenon not unexpected in view of the damage to water supplies done by the flood. The Governor and his Minister would have been glad had it been possible to make any estimate of the benefit derived from use of bacteriophage in these outbreaks and in the epidemics of cholera in the Khasi Hills, Kamrup and Nowgong.

5. The Director emphasises the handicap placed upon preventive work in the rural areas, as well as upon the supervision of the vaccinating staff, by the preoccupation of the Civil Surgeons with their work at headquarters and the lack of other competent supervising officers. The Governor and his Minister have given their most careful consideration to this matter and to the proposals that the Director first put forward some years ago for the separation of the Public Health Department and the entertainment of district health officers. They are not prepared to abandon the system of co-ordination between the Medical and Public Health Departments which has been in operation since 1923 and has particularly proved its value in the *kala azar* campaign, owing to the hearty co-operation evinced by all concerned, particularly the officers of the Public Health Department, unless and until a better presents itself. They are satisfied that it would be unwise in present circumstances to deprive the Civil Surgeons of their ultimate responsibility for both preventive and curative work. Further, before the appointment of district health officer's public opinion would require to be satisfied of the utility of the health officers in municipal areas. Prophylactic and remedial measures, as public opinion appears generally to recognise, must go hand in hand, and while the local bodies retain a large element of responsibility in the campaign against disease and extensive freedom in discharging it, the Civil Surgeon furnishes the readiest and most practical agency for the co-ordination of their activities with those of Government.

The desirability of building up a larger and more efficient organisation for the improvement of rural sanitation and defence against epidemic disease has been recognized, but the problem of construction presents certain difficulties. The chief obstacle at present is the impossibility of financing any comprehensive scheme during a succession of lean years, while there are administrative difficulties involved in the introduction of the Director's proposals piece-meal which, it is hoped, will be surmounted when funds become more free.

6. The *kala azar* campaign proceeded with unremitting vigour. The recorded deaths fell from 1,660 to 1,405, a fact affording significant evidence that the disease is now well under control. There was an increase from 23,576 to 23,804 in the number of cases treated, mainly due to the fresh surveys which are still necessary in certain areas, and to the necessity of increased effort in the Garo Hills, where the position was found to be unsatisfactory owing, it must be feared, to lack of proper supervision in the past. Measures have been taken to remedy the system of management in this district. The Governor and his Minister hope that the large sums hitherto allocated to *kala azar* will now be increasingly freed for the many other purposes of public health activity.

7. The most common and ubiquitous menace in life and health must be admitted to be malaria, which, while the toll it noticeably levies upon life may not be so striking as that taken by the diseases with a more rapid climax and more visible physical results, yet saps the energy and economic powers of the people as a whole more than any other. Public attention all over the world has been recently drawn to the possibilities of combating malaria on scientific lines adapted to local conditions, and remarkable work has already been done in this province. Assam, which suffers so much from the ravages of this disease, cannot afford to ignore the teaching of the latest investigations, and Government, while recognising the value of the earnest efforts made with the means available to disseminate correct information about the disease, to make quinine generally available at cheap rates, and to tackle local problems, agree with the Director that there is urgent need for a much wider malarial investigation. It is becoming evident that without expert investigation expenditure upon anti-malarial measures may be worse than wasted. The Governor and his Minister have decided that the possibility of providing an investigation unit as a first step is deserving of the fullest examination and they are contemplating action in consultation with the employers of labour. The success which has attended expert enquiry by the officials of the Indian Research Fund Association, and the Director of the Pasteur Institute and his assistants in several epidemic problems furnishes strong evidence as to the utility of well directed effort of this kind. An instance of the kind in which expert investigation and preventive methods might well work together is to be found in the epidemic following the Bhutia *mela* which the Report describes.

8. The appointment of a Public Health Engineer was an important event of this year. It is hoped that with the awakening of public consciousness, and as the spirit of co-operation with professional advice developes, it will, provided funds are available, greatly assist in the organisation of a sound water supply and better conservancy. The conditions in some of the towns are admittedly deplorable, and the sanitation of Shillong, parts of which are becoming seriously congested, has been the cause of increasing anxiety. It is a matter for much regret that a combination of causes threatens to weaken the provincial finances and defeat some of the high hopes with which the gradual expansion of the department's work has been carried on.

9. The work of the department during a year of unusual effort has deserved much praise, and congratulation is due upon the success with which the dangers following the floods of June were met and vanquished. The Governor and his Minister wish to acknowledge the energy and enthusiasm displayed by Major Mitra, Lieut.-Colonel Murison and their subordinate officers, and to thank Lieut.-Colonel Murison for his full and interesting report.

ORDER :—Ordered that the Resolution be published in the *Assam Gazette*.

By order of the Government of Assam,

H. G. DENNEHY,

Offg. Secretary to the Government of Assam in the Transferred Departments.

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