

Annual sanitary report of the Province of Assam.

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ANNUAL PUBLIC HEALTH REPORT

OF THE

PROVINCE OF ASSAM

FOR THE YEAR

1928

BY

MAJOR S. L. MITRA, B.Sc., M.B., Ch.B., D.T.M. & H., D.P.H., I.M.S.,
OFFG. DIRECTOR OF PUBLIC HEALTH, ASSAM.



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FROM

MAJOR S. L. MITRA, B.Sc., M.B., Ch.B., D.T.M. & H., D.P.H., I.M.S.,
OFFG. DIRECTOR OF PUBLIC HEALTH, ASSAM,

TO

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

Shillong, the 15th July 1929.

SIR,

I HAVE the honour to submit herewith the Annual Public Health Report of the Province of Assam for the year 1928.

Your obedient servant,

S. L. MITRA, *Major, I.M.S.,*

Offg. Director of Public Health, Assam.

Enclosures :—

- 1 Report.
- 20 Statements.
- 5 Charts.

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ANNUAL PUBLIC HEALTH REPORT

OF THE

PROVINCE OF ASSAM

FOR THE YEAR

1928.

SECTION I.

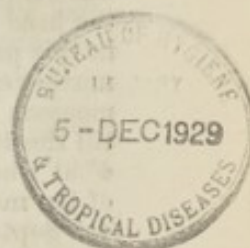
METEOROLOGY.

The Meteorologist, Calcutta, has kindly supplied the following summary of the meteorological conditions in Assam during the year 1928 :—

The cold weather period, January and February.—The western disturbances were much less active than usual and produced only about half the normal amount of rainfall during the two months. During February skies were much less clouded, maximum temperature was high and relative humidity in appreciable defect.

The hot weather period, March to May.—In March there was a very slight increase in the activity of the western disturbances and in connection with two of these, which affected the province between the 1st and the 5th of March, and between the 27th March and the 1st April, local rainfall occurred. Two western disturbances in April were productive of fairly widespread rainfall between the 6th and the 9th, and between the 17th and the 20th respectively. On the 26th weather was disturbed in the Andaman sea, this induced a flow of moist winds into inland Burma and under the influence of unsettled conditions advancing eastward from the west this flow extended into the province and widespread rain fell between the 26th April and the 3rd May. Another inflow of moist winds set in on the 11th May, in connection with a depression which formed in the north of the Bay and passing into Assam disappeared on the night of the 12th—13th. Owing to favourable pressure conditions over the Gangetic plain this inflow was maintained till the end of the month. Weather was in consequence more or less generally wet during this period. The passage into Assam of the depression from the Bay was attended also with very stormy weather in parts of the province and according to newspaper reports, considerable damage to property took place with some loss of life, at Silchar. The total rainfall of the month was in moderate defect in March and April, but in moderate excess in May. Among some of the heavy falls recorded at individual stations during this period may be mentioned 4" at Gauhati on 30th April, 4" at Dhubri on the 24th May and 9" at Cherrapunji on the 25th May. Skies were less clouded than usual in April. Maximum temperature was in marked excess and relative humidity in appreciable defect in March and April.

The monsoon period, June to September.—The advance of the monsoon occurred in the south of the Bay during the last week of May and under the influence of the usual wave of low pressure, which preceded the advance, rainfall decreased temporarily on the 1st and 2nd June. There was however a marked revival of rainfall on the 3rd. By the next day the wave of low pressure had reached the north of the Bay and had developed into a depression, and the monsoon was cut off from the province more or less completely up to the 6th. The depression passed into south-east Bengal by the morning of the 8th and monsoon conditions set in, and widespread rain fell till the 14th. About that time a depression formed over south-west Bengal, where it persisted till the 15th and in consequence rainfall decreased during this period. The monsoon then revived, but it did not regain its usual activity during the rest of the month, although sporadic heavy falls were recorded. Among such heavy falls the more noteworthy were 18" at Cherrapunji on the 22nd, and 7" and 5" respectively at Sibsagar and Dibrugarh on the 28th. The rainfall of June was 11 per cent. in defect. The month of July began with a weak monsoon, a gradual strengthening of the current took place and the monsoon was almost normally active between 5th and 14th. During this period some heavy falls were recorded in the Khasi



Hills. Cherrapunji receiving as much as 31" in the seventy-two hours ending at 8 hours on the 14th. On the 15th unsettled conditions set in in the north of the Bay, and these gave rise to two storms, which were responsible for a more or less complete diversion of the monsoon between the 16th and 21st. Later, the monsoon reappeared, but it was on the whole less active than usual till the end of the month. The rainfall of July was 17 per cent. in defect, and in keeping with this deficiency the relative humidity was below normal. By the morning of the 1st August a depression had formed near the head of the Bay; with the passage of this into deltaic Bengal the monsoon revived in this province. This strengthening synchronised with the setting in of a break in north-west and Central India, and as is usually the case under such conditions the monsoon was diverted into Bengal and Assam and abundant rain fell in this province till the 13th. Among heavy falls recorded in 24 hours the noteworthy were 5" and 4" at Dhubri and Dibrugarh respectively on the 5th. Thereafter, with the revival of the monsoon in the central parts of India, the current began to weaken and till the 4th September rain was limited to local or a few scattered falls. Later, the monsoon strengthened and remained fairly active till the 7th. Cherrapunji recorded 16" on the 6th and another 11" on the next day. With the appearance of unsettled conditions in the Bay which persisted in the sea area till the 15th, the monsoon weakened and remained weak till the end of the month except for occasional spurts of increased activity. The total rainfall of August was normal, while that of September exceeded the average by 19".

The retreating monsoon period, October to December.—A few sporadic falls of rain occurred during the first four days of October. During this period a wave of low pressure connected with a typhoon from the China Sea passed from central Burma across the middle of the Bay to the Peninsula and this initiated a pressure distribution which was responsible for an unusual and prolonged spell of more or less widespread wet weather in the province between the 5th and 15th. Some heavy falls were recorded during this period; Silchar had 5" on the 9th and another 5" on the 10th, and Cherrapunji 5" on each day between the 9th and 11th and another 5" on the 13th. During the last seven days there was a spell of wet weather associated with very disturbed weather in north-east India. The rainfall of the month was in large excess, being more than twice the average amount; in keeping with this excess, skies were more clouded than usual and maximum temperature was in defect. In November rainfall was limited to the northern districts; there local rain fell on the 10th and 16th, and fairly general on the 20th. The rainfall of the 16th and 20th was associated with a storm in the Bay. In view of the normal rainfall of the province for the month being less than 1", the total rainfall of November was 46 per cent. in excess. In December weather was dry except for a moderate fall of rain at Dibrugarh and Sibsagar on the 9th, in connection with a western disturbance. The total rainfall of this month averaged over the meteorological stations of Assam was 28 per cent. in defect.

The average price of common rice in plains districts varied from 6 $\frac{3}{4}$ seers to the rupee in Cachar to 5 $\frac{3}{4}$ seers in Sibsagar and Lakhimpur.

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

The provincial death-rate fell to 22.16 as compared with 23.47 in the previous year and 28.38 the average of the last 10 years, whilst the birth-rate rose to 31.24 as compared with 30.25 in the previous year and 29.38 the average of the last 10 years.

SECTION II.

BRITISH ARMY.

(No remarks.)

SECTION III.

INDIAN ARMY.

(No remarks.)

SECTION IV.

JAILS.

(No remarks.)

SECTION V.

GENERAL POPULATION.

Vital statistics.

2. The Census population of 1921 for the plains districts amounting to 6,852,242 has been as usual the basis of calculation for the ratios

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

in this report. The above population is composed of 3,582,659 males and 3,269,683 females.

Registration in the hill districts is shown separately in paragraph 10 of this report.

The birth-rate of the province for the year under review was 31.24 as compared with 30.25 in the previous year and 29.64 the average of five years ending 1926. These are compared below with the rates recorded in other provinces in India:—

Provinces.	Birth-rate.		
	1922-26.	1927.	1928.
1	2	3	4
Assam ...	29.64	30.25	31.24
Bengal ...	28.8	27.7	29.57
Bihar and Orissa ...	36.1	37.64	38.27
Central Provinces ...	43.11	45.58	46.51
Madras ...	33.6	36.5	37.4
Burma ...	27.91	25.08	25.85
Bombay ...	35.05	36.85	38.17
United Provinces ...	33.98	36.73	38.24
Punjab ...	40.9	42.27	46.30
North-West Frontier Province ...	27.1	29.28	32.52

The death-rate of the province for the year 1928 was 22.16 and is compared below with the rates recorded in other provinces in India:—

Provinces.	Death-rate.		
	1922-26.	1927.	1928.
1	2	3	4
Assam ...	24.65	23.47	22.16
Bengal ...	25.4	25.6	25.55
Bihar and Orissa ...	25.5	25.08	25.29
Central Provinces ...	30.81	31.31	33.66
Madras ...	23.5	24.3	26.4
Burma ...	20.86	19.55	21.28
Bombay ...	25.86	25.72	27.28
United Provinces ...	25.31	22.59	24.15
Punjab ...	32.6	27.46	24.72
North-West Frontier Province ...	23.6	22.05	19.31

3. The total number of births registered during the year 1928 was 214,057 as compared with 207,299 in the preceding year, the birth-rates being 31.24 and 30.25 respectively, and the quinquennial average 30.01. The rate of natural increase of the population, *i.e.*, the excess of the birth-rate over the death-rate was 9.07 which was higher than that of any year since 1912. The lower death-rate and higher birth-rate indicate the healthiness of the year.

Comparing the birth-rates of districts during the year 1928 with the average of the previous five years, all districts showed an increase with the exception of the Sibsagar district in which there was a small decrease of .75. The increase was conspicuous in the district of Nowgong (+4.66).

4. The total number of births registered in urban areas during the year 1928 was 4,686 yielding a ratio of 31.41 per 1,000 of the population, as compared with 4,425 and 29.66 respectively in the preceding year.

Out of 24 urban areas in the province 3 returned birth-rates exceeding 40 per 1,000, *viz.*, Barpeta (54.39), Gauripur (46.85) and Nazira (42.56). Seven towns recorded birth-rates between 30 and 40 per mille of population and 11 towns showed rates between 20 and 30. In the remaining 3 towns the recorded birth-rates were under 20, *viz.*, North Lakhimpur (19.84), Maulvi Bazar (17.40) and Silchar (17.34). The low rates indicate defective registration in these areas.

5. The total number of births registered in rural areas in 1928 was 209,371 or 31.23 per mille of population, as compared with 202,864 and 30.26 respectively in the preceding year.

The highest birth-rate recorded in rural circles was 56.79 in Kalaigaon circle in Darrang district. Other circles returning rates above the provincial average (31.23) were 19 in Sylhet, 8 in Cachar, 6 in Goalpara, 4 each in Kamrup and Darrang, 3 in Nowgong and 2 each in Sibsagar and Lakhimpur. Margherita (3.67) in the Lakhimpur district and Majuli (6.68) in the Sibsagar district again reported abnormally low rates. Other low rates were Titabor (19.18) in Sibsagar, Kwarital (18.47) and Jamunamukh (18.28) in Nowgong, Sulla (17.58) in Sylhet, Nalbari (17.19) in Kamrup and Dhekiajuli (17.01) in Darrang. The Civil Surgeons concerned will be asked to direct the vaccination inspecting staff to specially verify the vital statistical registers of these circles.

6. The total number of deaths registered during the year 1928 was 151,857 as compared with 161,813 in 1927, showing a decrease of 8,956. The death-rate for the year was 22.16 as compared with 23.47 for the preceding year and with 23.97, the quinquennial average.

As compared with the preceding year, a higher mortality was recorded in the Goalpara district (+2.5) which was due to the prevalence of cholera and small-pox. A staff of 3 Sub-Assistant Surgeons and 6 disinfectant carriers were employed in this district to deal with these epidemics.

The death-rates in Kamrup, Nowgong and Sylhet districts were below the quinquennial average. In each of these districts there is an epidemic staff and epidemics of cholera and small-pox can therefore be more promptly dealt with.

Act IV (B.C.) of 1873 for registration of births and deaths was extended to the Palashbari town in the district of Kamrup in November 1927.

7. The total number of deaths registered in urban areas during the year 1928 was 3,221 as compared with 3,533 in 1927, representing annual ratios of 21.59 and 23.68 per mille, respectively. The quinquennial average was 23.95 per mille.

The highest rate was recorded in Nazira (35.71), followed by Doom-Dooma (30.98) and Gauripur (28.76). All of them are small towns and high mortality is apparently due to the low standard of sanitation that is maintained in them. The mortality in Nazira is reported to be due to fevers. The high mortality in Doom-Dooma is attributed to dysentery and diarrhoea and fevers and that in Gauripur to cholera and fevers. Rates of 15 per mille or less were recorded in 5 towns, *viz.*, Karimganj (15.38), Tinsukia (15.26), Silchar (14.80), Maulvi Bazar (14.70) and Palashbari (11.32).

8. The deaths registered in rural areas during the year 1928 numbered 118,636 as compared with 157,280 in 1927. These figures represent annual ratios of 22.17 and 23.46 respectively, the quinquennial average death-rate being 23.97.

Registration circles considered individually, the Kalaigaon circle (43.61) in the Darrang district reported the highest death-rate. The high mortality in this circle was due to malaria, *kala azar* and cholera. Other circles reporting high death rates were Panerihat (34.86) due to *kala azar* and malaria in Darrang, Kanaighat (34.69) due to small-pox and fevers in Sylhet, Golakganj (34.28) due to cholera and fevers and North Salmara (32.26) due to small-pox, cholera and fevers in Goalpara, Nazira (33.28) due to *kala azar* and fevers in Sibsagar and Katlicherra (32.08) due to small-pox in Cachar. Margherita (3.50) in Lakhimpur and Majuli (4.81) in Sibsagar reported unrelatively low rates apparently due to defective registration.

9. The subjoined table shows the results of the enquiries conducted by the Registration in compulsory areas. vaccination inspecting staff in urban areas to test the accuracy of registration of vital statistics during the non-vaccination season :—

Municipalities.	Unregistered vital occurrences detected during the year 1928.		Recorded vital occurrences during the year 1928.		Percentage of omissions.	
	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
1	2	3	4	5	6	7
Silchar ...	10	5	167	146	5.65	3.31
Hailakandi ...	...	2	45	36	...	5.26
Sylhet ...	15	4	334	296	4.58	1.33
Karimganj ...	9	4	101	66	8.18	5.71
Maulvi Bazar ...	3	2	55	47	5.17	4.08
Habiganj ...	...	...	224	155	...	...
Sunamganj ...	7	5	127	111	5.22	4.31
Dhubri ...	12	3	247	166	4.63	1.77
Goalpara ...	...	...	159	130	...	...
Gauripur ...	2	7	200	117	.99	5.64
Gauhati ...	5	9	481	294	1.02	2.97
Larpeta ...	9	...	629	315	1.41	...
Palasbari ...	37	9	52	22	41.57	2.90
Tezpur ...	11	6	208	198	5.02	2.94
Mangaldai ...	4	1	21	23	16.00	4.16
Nowgong ...	23	2	250	145	8.42	1.36
Jorhat ...	10	...	191	135	4.97	...
Sibsagar ...	25	10	171	89	12.75	10.10
Golaghat ...	13	1	108	97	10.74	10.20
Nazira ...	14	15	98	79	12.50	15.95
Dibrugarh ...	18	3	462	337	3.75	.88
North Lakhimpur ...	11	3	28	43	28.20	6.62
Doom-Dooma ...	...	1	26	35	...	2.77
Tinsukia ...	9	1	55	46	14.06	2.12
Shillong ...	...	...	462	212	...	...
Total ...	247	93	4,901	3,340	4.79	2.32

Compulsory registration has recently been introduced in Palasbari and it appears that the people are not yet fully aware of what is required of them. In Shillong no house to house investigation to detect cases of omissions was made either in the year under report or in the previous year. The need for such check in registration has

been brought to the notice of the Municipal authority. The registration in Habiganj and Goalpara is not as thorough as it should have been. It appears that sub-inspectors of vaccination in charge of these areas did not perform this part of their duties satisfactorily. Registration continues to be defective in small towns of North Lakhimpur, Mangaldai, Tinsukia and Nazira. The percentages of omission detected in Sibsagar and Golaghat towns are high and they indicate the activity displayed by the sub-inspectors of vaccination in charge of these areas.

The total number of persons prosecuted for failing to report vital occurrences during the year under report was 314, of whom 221 were convicted and fined. The fines inflicted are in many cases too low to have any deterrent effect.

10. The following statement shows the recorded birth and death rates in hill districts in 1928 as compared with 1927:—

Registration in hill districts.

Districts.	1928.		1927.	
	Birth-rate.	Death-rate.	Birth-rate.	Death rate.
1	2	3	4	5
Khasi and Jaintia Hills ...	27.92	16.52	27.26	16.08
Naga Hills ...	20.87	23.09	17.01	20.26
Lushai Hills ...	52.52	27.88	51.37	22.79
Garohills ...	24.92	21.51	23.54	18.43

The general health of the Khasi and Jaintia Hills district compared favourably with that of the previous year. The principal epidemic diseases occurring in this district were cholera and small-pox. In May 1928 a few cholera cases were reported from the Muharam State. A Sub-Assistant Surgeon of the epidemic unit was sent to the infected villages. All contacts were inoculated and the epidemic was brought under control. Eight deaths from cholera were reported from Nongtluh in the Nongpoh circle. Small-pox prevailed in a mild epidemic form. Measures were taken to have the unprotected people in the infected areas vaccinated. The total number of births and deaths registered in the Shillong Municipality was 462 and 212, which yielded ratios of 26.86 and 12.32 respectively, against 28.95 and 14.71 for the previous year.

The health of the Shillong Municipality was far from satisfactory, both small-pox and cholera being prevalent. The former appeared in sporadic form in the month of March and persisted till July; 30 cases of small-pox were reported. Cholera broke out in May and continued till July; 28 cases of cholera being reported. A section of the Kamrup Epidemic Unit was temporarily posted to Shillong on cholera duty. Inoculations with cholera vaccine were carried out and leaflets containing instructions on the prevention of the disease with special reference to sanitation were circulated. Three thousand five hundred and ninety-six persons were inoculated. People were advised not to eat rotten fish, bad sweetmeats and other unwholesome food and measures were taken for the disposal of cowdung and stable litter. Cholera and small-pox patients were isolated as far as possible in the Municipal segregation hospital. Doctor B. K. Paul Chaudhury, M.B., was deputed by the Director, Pasteur Institute, for making an investigation. His report shows that cases were distributed round Garikhana and Jaiaw with a few scattered cases in Pynthorumkhrah, Laitumkhrah and Telegraph quarters. From the distribution of cases it does not appear that the outbreak was due to infected water-supply. Almost all the cases used to take tap water. Very few took water from a well or a spring. Water from the wells and springs was tested in the Pasteur Institute to detect cholera vibrios with negative results. The evidence seems to show that milk had a definite casual relation with the outbreak. From the analysis of cases it has been seen that as many as 19 cases had a definite history of having taken milk from the milkmen of Goalapati and most of the cases occurred in and around Goalapati, Garikhana and Jaiaw. Nepalese of the labouring class form 74 per cent. of the victims. Their insanitary habits contributed to the preponderance of cholera incidence among them. The employment of the Nepalese in handling milk is a serious menace.

In the Naga Hills registration is carried out only in Kohima town and Dimapur, the aggregate population of which is 4,936. The anti-malaria measures that have been carried out during about seven months from May to November every year since 1925 in the Kohima town have brought about a reduction in malaria in the local population and an improvement in the general sanitary condition. Twelve cases of small-pox were reported during the year.

Malaria is reported to be responsible for the increased death-rate in the Lushai Hills. As much quinine as was indented for by the Civil Surgeon, Superintendent and Subdivisional Officer was supplied. As in the previous years syphilitic cases were traced out by itinerating Sub-Assistant Surgeons and brought under treatment.

The death-rate in the Garo Hills district was higher than in the previous year. An epidemic of cholera occurred in Garo Hills in June and July. The infection was brought from the neighbouring districts of Goalpara and Mymensingh. A total of 654 deaths from cholera was recorded during the year against 89 in the previous year. Two epidemic Sub-Assistant Surgeons were deputed, who inoculated 12,720 persons, and further spread of the disease was stopped. Small-pox was less prevalent during the year. The Civil Surgeon reports that Garos have realised the value of segregation, and patients are isolated of their own accord in huts built for the purpose in their fields.

In the Sadiya Frontier Tract 609 births and 435 deaths were recorded in 1928 as compared with 537 and 418 in the preceding year. There was no epidemic of cholera or small-pox during the year.

11. The table below shows birth and death rates reported from tea estates during Registration in tea gardens. the year 1928 :—

Districts.						Birth-rate.	Death-rate.
1						2	3
Cachar	...	...	...	...	...	34.28	22.06
Sylhet	...	...	...	...	...	25.54	15.57
Goalpara	...	...	...	...	...	32.39	27.44
Kamrup	...	...	...	...	...	18.56	11.60
Darrang	...	...	...	...	...	21.02	14.72
Nowgong	...	...	...	...	...	28.52	19.15
Sibsagar	...	...	...	...	...	29.68	16.75
Lakhimpur	...	...	...	...	...	28.35	20.07
Total						28.11	18.01

The birth and death rates in tea estates during the year were 28.11 and 18.01, respectively, as compared with 28.78 and 18.11 respectively in 1927. The increase of population in tea estates during the year 1928 was 10.1 per mille or 1.03 in excess of the provincial rate. The rate of increase varied in different districts. A total of 93 deaths from *kala azar* were reported from tea estates, those in Darrang reporting 39, Sibsaagar 21, Nowgong 18, Sylhet 11, Kamrup and Sylhet each reporting 2. The total mortality from this cause in the preceding year was 124. The mortality from fevers was 3.24 per mille as compared with 2.88 in 1927.

12. The total number of births and deaths registered within railway limits during the year 1928 were 140 and 352, as compared with 122 and 340 in 1927. The largest number of deaths (154) was reported under "Other causes" followed by 112 under "Respiratory diseases", 40 under "Fevers" and 32 under "Dysentery and diarrhoea".

13. The highest birth-rate (3.53) was recorded in December and the lowest (1.88) in June. Mortality was the highest in the month of December (2.26) and lowest (1.51) in March.

Seasonal incidence of births and deaths.

14. Statements Nos. II, IV and V appended to this report furnish details of registration of deaths according to sex, age and class. Compared with the year 1927 the mortality during 1928 was lower among both sexes. As usual the death-rate was highest among infants under one year and lowest among children between 10 and 15 years of age. Male deaths were, as usual, higher than female deaths and they were in the proportion of 111 to 100. During the year under report the mortality amongst Christians was 18.16, Hindus 19.24, Muhammadans 24.97, Buddhists 22.15 and other classes 32.48 as compared with 18.08, 21.24, 25.55, 24.65 and 31.71 respectively in 1927.

In the table below are shown the deaths and death rates among infants, calculated on the births of the year for the last five years :—

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
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

In the following table the infant mortality rate of Assam for the year 1928 is compared with that of other provinces :—

Assam	...	...	...	...	...	172.01
Bengal	...	...	...	...	...	178.12
Bihar and Orissa	...	...	...	...	...	181.79
Central Provinces	...	...	...	...	...	238.41
Madras	...	...	...	...	...	184.2
Burma	...	...	...	...	...	209.64
Bombay	...	...	...	...	...	180.29
United Provinces	...	...	...	...	...	159.90
Punjab	...	...	...	...	...	167.62
North-West Frontier Province	...	...	...	...	...	137.00

Magic lantern demonstrations on Child Welfare were regularly given as in the previous year.

The Lady Superintendent of the Lady Kerr Child Welfare Centre, Shillong, attended 1,537 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 1928 is attached.

15. The Vaccination inspecting staff verified the records of 43,411 births and 23,521 deaths during the year, as compared with 32,935 and 23,763 respectively in 1927. The percentage of omissions detected was 4.57 in respect of births and 3.44 in respect of deaths as compared with 5.78 and 3.89 respectively in the preceding year. The largest number of entries was tested in Sylhet (28,389) while the lowest in Goalpara (1,493).

Inspection of village register of vital statistics.

16. There was no change in the agency for the collection and registration of vital statistics. The system of granting rewards to selected gaonburas for good work in reporting vital statistics was continued during the year. Weekly epidemic reports from districts were regularly published in the gazette and in certain local vernacular papers for the information of the public.

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

SECTION VI.

HISTORY OF CHIEF DISEASES.

17. The annexed statement compares the ratios under the chief causes of mortality in 1928 with the average ratios of the previous ten years.

	1918-27.			1928.		
	Urban.	Rural.	Combined.	Urban.	Rural.	Combined.
1	2	3	4	5	6	7
Cholera ...	1.16	1.98	1.96	.83	1.01	1.01
Small-pox ...	.17	.42	.42	.28	1.25	1.23
Plague ...	...	...	...	...	...	...
Fever ...	7.21	16.94	16.73	5.92	13.18	13.03
Dysentery and Diarrhœa	3.45	1.65	1.68	2.69	1.20	1.24
Respiratory diseases ...	3.88	2.25	2.31	2.81	.77	.82
Injuries ...	.56	.28	.29	.47	.26	.27
All other causes ...	7.83	4.91	4.99	8.59	4.47	4.57
Total ...	24.26	28.47	28.38	21.59	22.17	22.16

It will be seen that there was decrease under all heads except under "Small-pox" in 1928 as compared with the decennial average.

INFLUENZA.

The total number of deaths from influenza reported during the year was 123. No serious epidemic of this disease was reported from any district. The mild type of the epidemic reported from Sibsagar and Lakhimpur districts was promptly brought under control.

18.—CHOLERA.

Districts.	Death-rate per mille.	
	1918-27.	1928.
1	2	3
Cachar ...	2.33	.73
Sylhet ...	2.23	1.52
Goalpara ...	1.45	2.30
Kamrup ...	3.36	.39
Darrang ...	2.37	.51
Nowgong ...	1.80	.63
Sibsagar ...	.98	.11
Lakhimpur ...	.49	.09
Total ...	1.96	1.01

The total number of deaths from cholera reported during the year was 6,915, as compared with 15,392 in 1927, the rates per 1,000 of population being 1.01 and 2.24 respectively. The decennial average was 1.96. The largest number of deaths (1,269) occurred in January and the smallest (109) in August. The Goalpara district which suffered least from cholera in 1927 reported the highest rate of 2.30 in 1928. A temporary epidemic unit has been created for this district during the year. The next

highest rate, *viz.*, 1·52, was reported from the Sylhet district. Cholera was not so widespread or virulent as it was in this district in 1927. The epidemic staff of the district was increased by two more units of 6 Sub-Assistant Surgeons and 12 disinfectant carriers.

The amount of cholera vaccine issued in the last five years is as follows :—

1924	...	...	...	...	...	75,295 c.c.
1925	...	...	...	...	...	103,930 c.c.
1926	...	...	...	...	...	154,760 c.c.
1927	...	...	...	...	...	419,880 c.c.
1928	...	...	...	...	...	237,773 c.c.

During the year under report three epidemic units in addition to the three existing units were temporarily entertained. The popularity of the anti-cholera vaccine is being enhanced every year by the activities of these units. It must be admitted that mortality from cholera would have been as high as it was in 1927 or higher if prophylactic anti-cholera inoculations and disinfection of water-supplies had not been undertaken in all areas from which cholera was reported, and this was only possible by means of a special epidemic establishment. The services of the Sub-Assistant Surgeons in charge of *kala azar* dispensaries and local board dispensaries and Assistant Surgeons on *kala azar* duty and Subdivisional Medical Officers were utilized for cholera duty when required. Magic lantern demonstrations were also given in cholera infected villages by the *kala azar* Assistant Surgeons.

In 1928, 113,826 persons were inoculated with cholera vaccine. This does not include inoculations done in tea gardens.

The Director, Pasteur Institute, sent a medical officer to certain cholera infected areas with a supply of cholera bacteriophage which he manufactured in the Institute for administration in selected cases, and the results have been encouraging.

Chart No. II shows the provincial mortality from cholera from 1912 to 1928.

19. Gauripur town in the Goalpara district reported the highest death-rate from cholera, *viz.*, 3·25 followed by Mangaldai (2·93), Maulvi Bazar (2·70), Goalpara (2·41), Barpeta (2·39), and Sunamganj (2·05). None of these towns has a protected water-supply and their conservancy and sanitary arrangements are also unsatisfactory. There were thus ample facilities for the spread of the disease once the infection was introduced into them. Seven towns were free from cholera during the year.

Among rural circles, from Dharmapassa in Sylhet a mortality of 4·22 per mille was reported. Dhubri (3·14) and Golakganj (3·1) in Goalpara and Muchikandi (3·06), Habiganj (2·7) and Kamalganj (2·44) in Sylhet also reported high ratios. Thirteen rural circles escaped the disease.

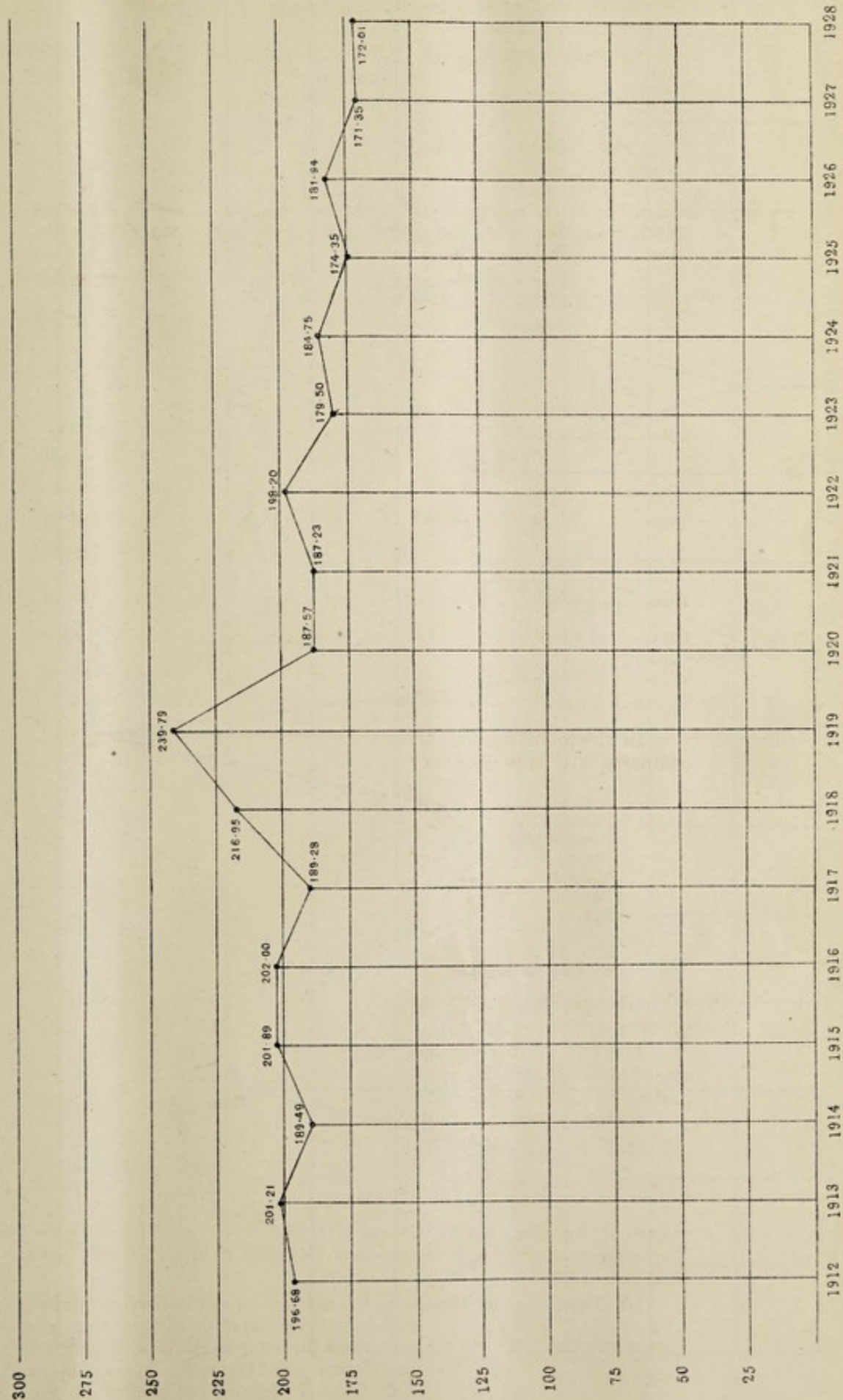
20. The total number of deaths from cholera reported from tea estates was 381, as compared with 669 in 1927, the ratios per mille of population being ·42 and ·73, respectively. The highest rate of ·98 was reported from Sylhet.

21.—SMALL-POX.

Districts.	Death-rate per mille.	
	1918-27.	1928.
Cachar	·07	1·60
Sylhet	·19	2·33
Goalpara	·52	1·53
Kamrup	·80	·37
Darrang	·50	·10
Nowgong	·71	·06
Sibsagar	·88	·08
Lakhimpur	·14	·27
Total	·42	1·23

The total number of deaths registered from small-pox during the year under report was 8,461, as compared with 5,237 in the preceding year, showing an increase

CHART NO. I
 Infantile Mortality (per 1,000 of Births) in the Province of Assam
 from 1912 to 1928



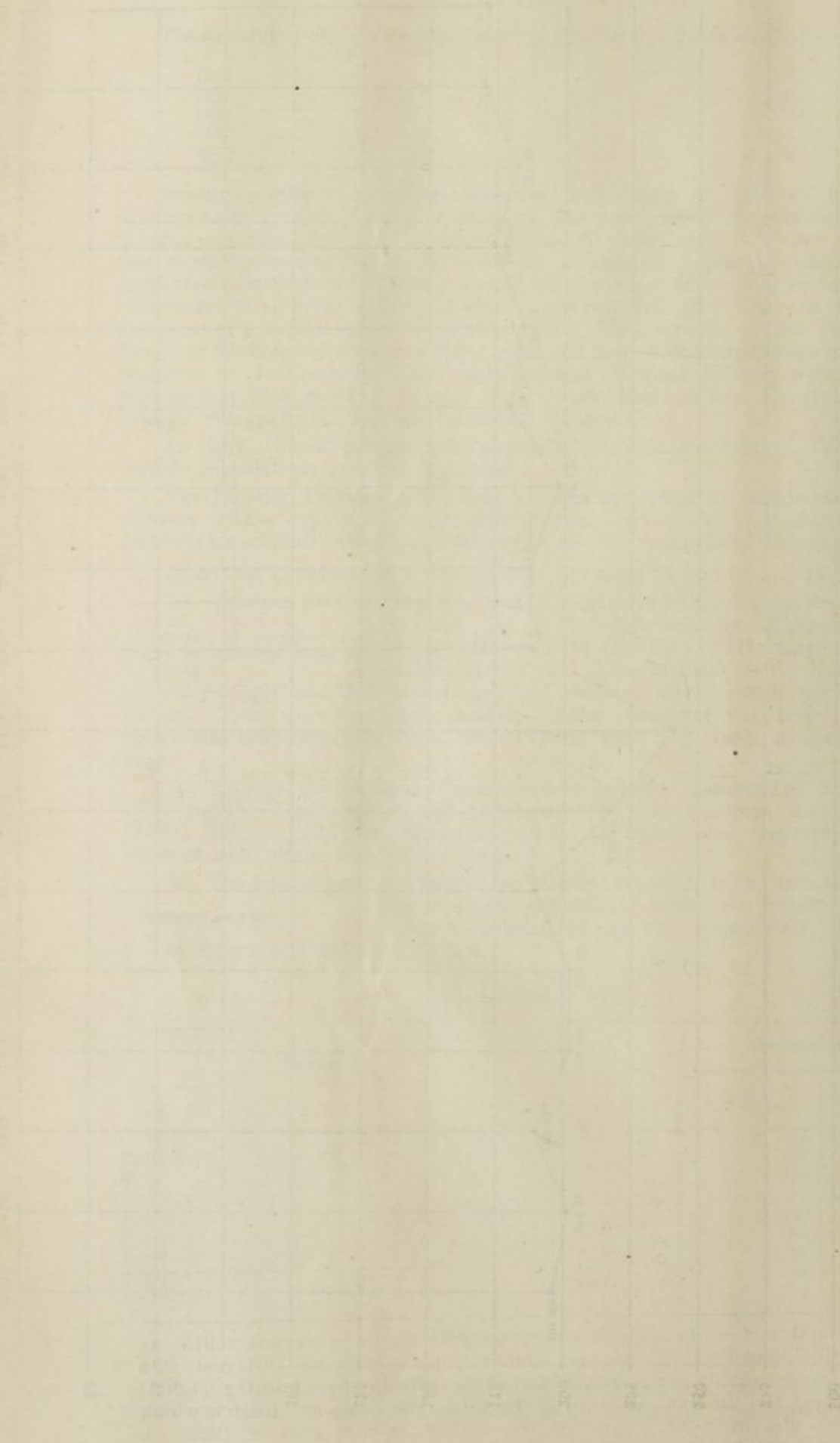
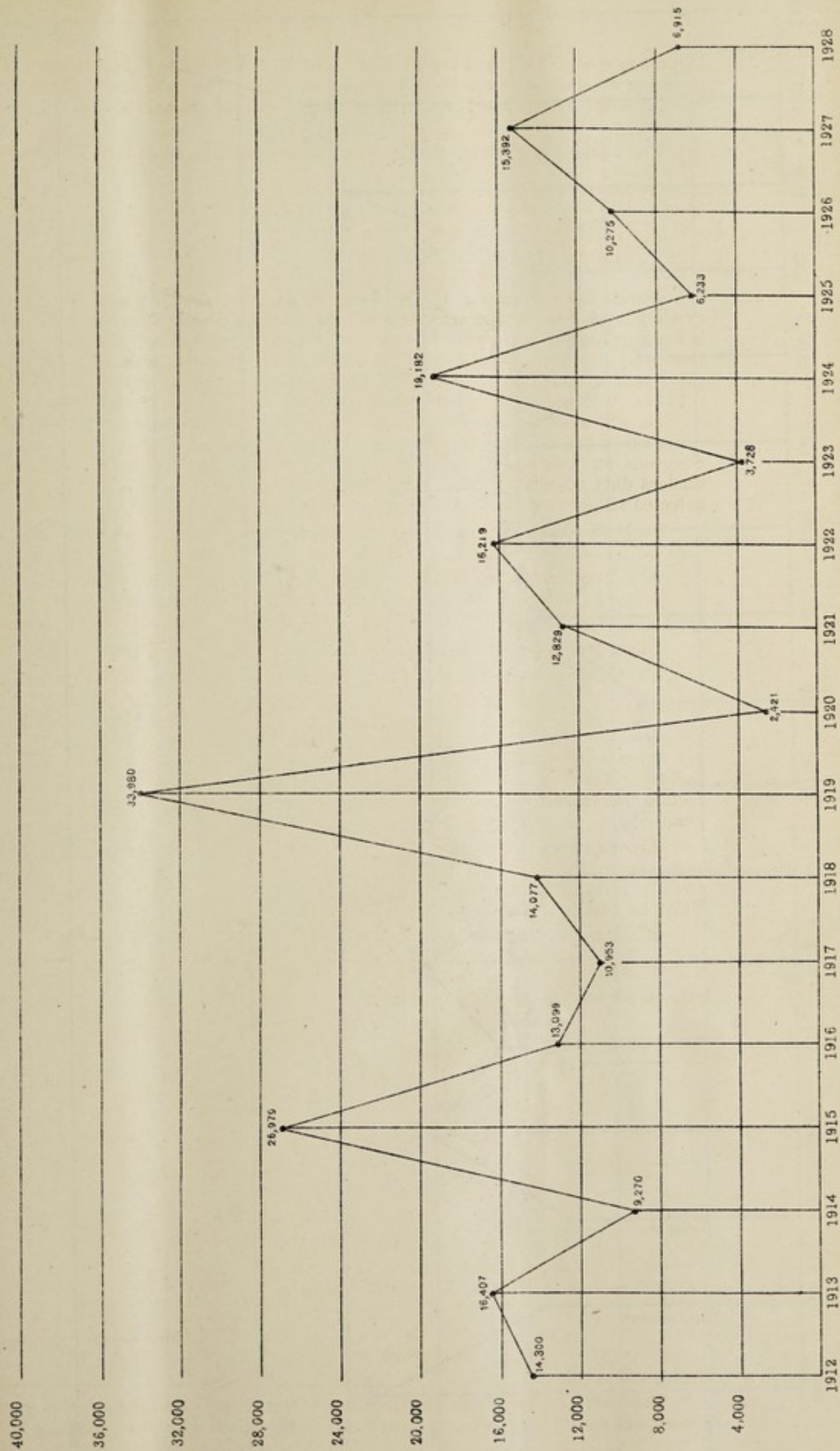
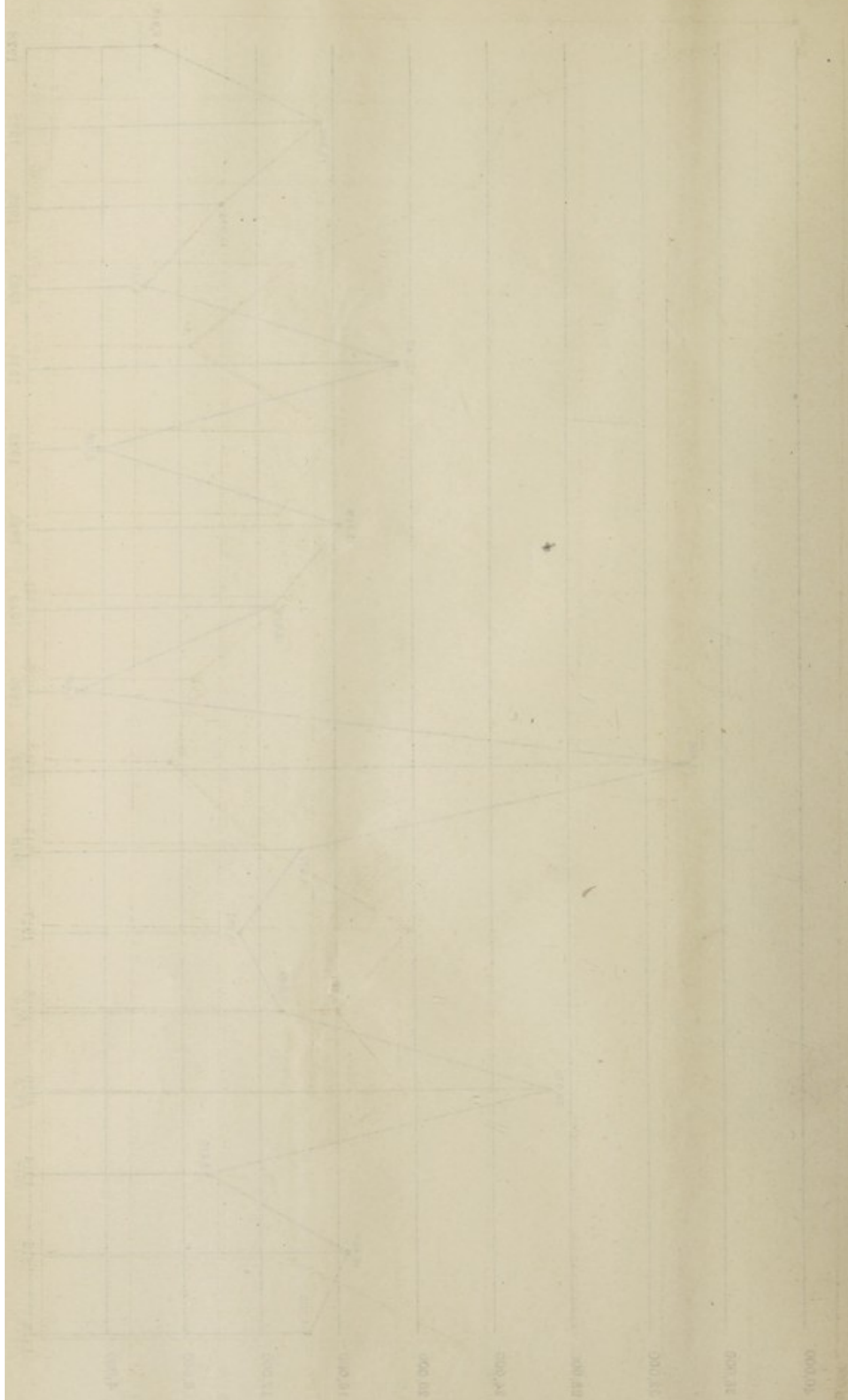


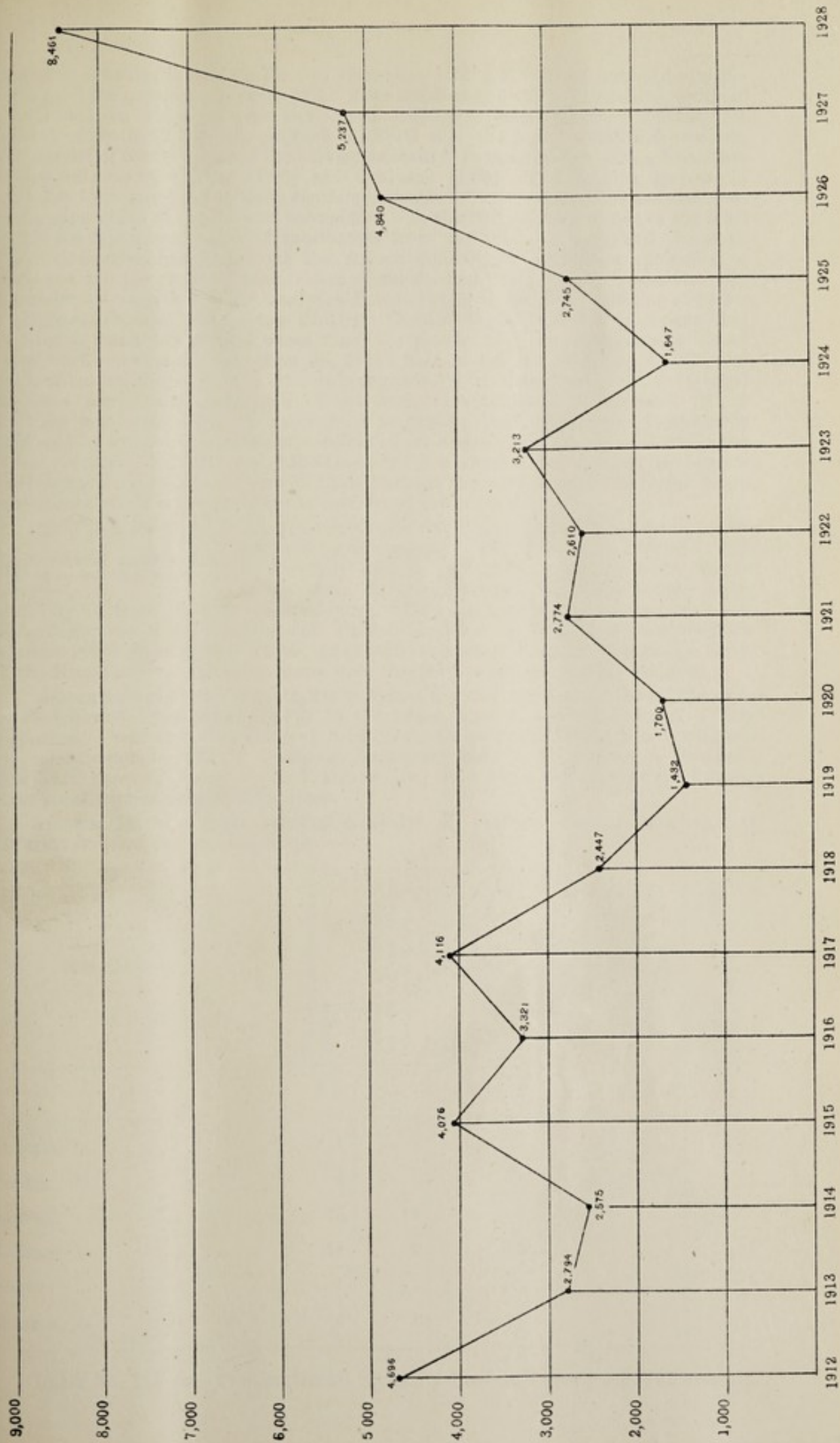
CHART NO. II
Mortality from Cholera in Assam
from 1912 to 1928





Jan 1835 to 1838

Mortality from Small-pox in Assam
from 1912 to 1928





of 3,224. The death-rates for the two years were 1.23 and .76, respectively, and the average of the previous ten years .42. Four hundred and thirty-five deaths occurred among children under one year and 1,043 between 1 and 10 years. The highest number of deaths (1,377) was recorded in April and the lowest (168) in November. The district of Sylhet returned the highest mortality from small-pox with a death-rate of 2.33 followed by Cachar (1.60) and Goalpara (1.53). The growing increase in mortality from small-pox in these districts indicates defective vaccination and slackness in the supervision of the work of vaccinators. In the Sylhet district one of the local boards has taken over control of vaccinators from the hands of the Civil Surgeon. The Civil Surgeon has pointed out the serious difficulty in controlling epidemics of small-pox and the proper administration of vaccination work, if the vaccinators are not under his control. In the Goalpara district the Civil Surgeon is taking steps for more thorough vaccination of the district. Certain thanas in that district have been declared as small-pox infected areas under the provisions of the regulations published under the Government Notification No. 1336LS.-G., dated the 30th April 1928, and vaccination has thereby been rendered compulsory in these areas. In the Cachar district a more strict supervision of the work of vaccinators is indicated. Since 1927 the provincial cadre of vaccination inspecting staff has been temporarily increased by ten Sub-Inspectors of vaccination for a closer supervision of vaccination in the province. Rule 113 under the Local Self-Government Act appears to require amendment so as to give the district Civil Surgeon the control over the local board vaccinators which is necessary in the interest of vaccination.

22. The highest death-rate from small-pox was reported from Sylhet town (1.48) followed by Sunamganj (1.23) in the same district. This is obviously due to failure to get thorough vaccination done in these towns. The vaccination state of the Sylhet town is very unsatisfactory. This has been repeatedly noticed in the inspection notes of the Director of Public Health. In Sunamganj a whole-time vaccinator has been provided from 1929 and this may improve vaccination work of the Municipality. Fourteen towns were free from small-pox during the year.

Amongst rural circles, Kanaighat in Sylhet reported the highest death-rate, viz., 10.25, followed by Chhatak (8.75) in the same district and Hailakandi (7.53) in Cachar. Fenchuganj, Sunamganj, Srimangal, Derai, Sylhet, Tahirpur, Goainghat and Jaintiapur in Sylhet, Goalpara, Golakganj and North Salmara in Goalpara and Katlicherra in Cachar reported rates varying from 3 to 5 per mille of population. Nine rural circles escaped the disease.

Information as regards vaccinal condition of patients treated in a special isolation hospital is furnished 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 present.	Stated to have been vaccinated (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		
Habiganj	1	...	...	1	...	...
Dhubri	4	...	2	2	...	...
Gaubati	25	19	...	6	...	...
Shillong	15	4	3	7	1	...		
Tezpur	1	1	...	...	...	...
Nowgong	2	1	...	1	...	...

Chart No. III shows the provincial mortality from small-pox from 1912 to 1928.

23.—FEVERS.

Districts.						Death-rate per mille.	
						1918-27.	1928.
1						2	3
Cachar	...	...	...	...	...	14.49	10.91
Sylhet	...	...	...	...	...	16.85	11.54
Goalpara	...	...	...	...	...	27.02	23.66
Kamrup	...	...	...	...	...	17.73	11.27
Darrang	...	...	...	...	...	16.12	14.88
Nowgong	...	...	...	...	...	17.10	13.17
Sibsagar	...	...	...	...	...	11.35	11.14
Lakhimpur	...	...	...	...	...	11.20	10.75
Total						16.72	15.63

The number of registered deaths under this head was 89,255, compared with 80,324 in 1927, the rate per mille of population for both the years being 13.03 against a decennial average of 16.72. The total number of deaths under fevers amounts to 58.77 per cent. of all deaths registered during the year. This head includes not only deaths due to malaria and *kala azar* but also deaths due to various diseases of which fever has been a symptom. The largest number of deaths (8,866) was recorded in December and the smallest (5,488) in March.

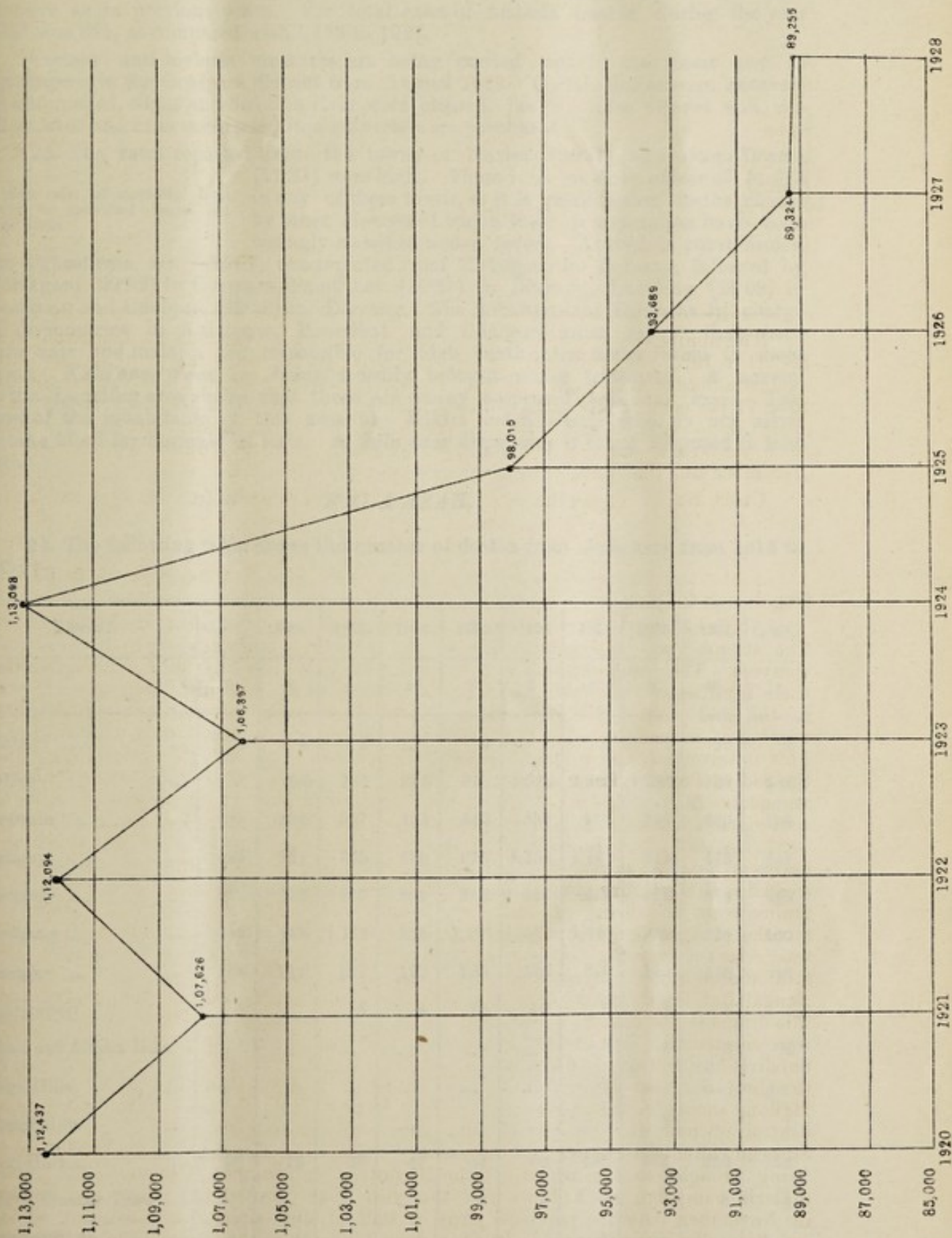
Chart No. IV shows the provincial mortality from fevers from 1912 to 1928.

MALARIA.

Anti-malaria measures were continued at Pasighat, Haflong, Kohima and Lumding during the year.

At Pasighat the Morali stream was, as usual, cleared of all surrounding jungle. The stream was cleared of weeds and oiled systematically with dipcans and sprayers. The prophylactic issue of quinine thrice weekly to the 2nd Assam Rifles, their families and the Political coolies was continued. Mosquito nets were in use in the 2nd Assam Rifles Barracks and the permanent coolie corps lines. The number of malaria cases treated during the year was more than double that of 1927. This is accounted for by the increased prevalence of malaria generally throughout the Sadiya Frontier Tract among all sections of people. It was specially marked among the Miris and Abors. The health of the station was otherwise good. The anti-malaria operation at Haflong was carried out on the same line as in the year 1927. A staff of an Overseer and 8 men were engaged in keeping the lakes and drains all over the station free from weeds and undergrowth. Breeding places were treated with a mixture of crude and kerosine oil. A number of trees near the lakes and drains were cut down. Lakes were treated with oil twice a week between the months of April and September and once a week in the remaining six months. Silt was removed from the branches and nooks of lakes and edges were deepened. The total annual cost of anti-malaria work amounted to Rs. 3,125, of which the Assam-Bengal Railway contributed Rs. 600. The balance was provided from the Bazar Fund. The drains in the station were kept under proper repairs and certain new drains were constructed. As in the previous year the staff worked under the control of the Subdivisional Officer as Chairman of the Bazar Fund, according to the direction of the Civil Surgeon, Cachar. The Civil Surgeon suggests that the whole town of Haflong should be under the control of the Subdivisional Officer for the purpose of control of malaria. In the present condition the recommendation of the Civil Surgeon cannot be enforced on the railway area. The Civil Surgeon's suggestion is being brought to the notice of the Deputy Commissioner, Cachar. The anti-malaria campaign at Kohima for the year 1928 started on May and ended in November. As in previous years a staff of one sirdar, one assistant sirdar and 30 coolies were engaged in keeping down all scrub in the station from its western extremity near Kuki picket to the outskirts of the Kohima village. All trickling streams were bunded to get an expanse of water that could be treated with oil. The station was completely cleared of all undergrowth three times during the period. The pools of water were treated with oil. The total number of patients treated for

CHART NO. IX
Total number of deaths due to fevers



malaria in charitable dispensary, third Assam Rifles Hospital and jail hospital during the year amounted to 3,036, as compared with 2,687 in 1927, 3,256 in 1926 and 3,379 in 1925. A sum of Rs. 3,360 was expended on the malaria preventive measures at Kohima during the year 1928-29. The work so far appears to have added to the amenities of the station and to have had a beneficial effect on the health of the locality. The anti-malaria operations at Lumding were maintained in the same manner as in previous years. The total cases of malaria treated during the year 1928 was 825, as compared with 1,125 in 1927.

Certain anti-malaria measures are being carried out in the forest area at Kachugaon in the Goalpara district from August 1928. Certain drains were excavated and graded, edges and bed of a river were cleared, jungles were cleared and one oil sprayer and nine corrugated iron culverts were purchased.

24. The rates reported from the towns of Nazira (28·87) and Doom-Dooma (17·21) were high. There is no medical officer of health

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

in any of these towns, so it is possible that deaths caused by other diseases of which fever is a symptom have been wrongly classified under fevers. As regards rural circles, the highest rate, viz.,—34·07, was reported from Kalaigaon in Darrang, followed by Golakganj (29·92) in Goalpara, Panerihat (28·21) in Darrang, Lumding (28·08) in Nowgong and Udalguri (25·28) in Darrang. The Sub-Assistant Surgeons in charge of dispensaries in Kalaigaon, Panerihat and Udalguri areas report that both *kala azar* and malaria are responsible for high death-rates under fevers in these areas. *Kala azar* cases are being speedily brought under treatment. A survey in the Lumding area shows that there are many suspected *kala azar* cases. The most of the inhabitants of this area are Mikirs and Kacharis who do not allow to take blood for Formal-Gel tests. A *kala azar* dispensary is being reopened in that area.

KALA AZAR.

25. The following table shows the number of deaths from *kala azar* from 1919 to 1928 :—

Districts.	1919.	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.
1	2	3	4	5	6	7	8	9	10	11
Cachar ...	3	5	1	...	4	2	3	9	12	2
Sylhet ...	7	26	183	275	841	1,874	2,109	1,320	798	432
Goalpara ...	311	602	557	253	442	309	453	297	226	166
Kamrup ...	423	931	755	450	976	1,152	1,120	714	475	241
Darrang ...	171	256	169	202	289	448	478	474	318	258
Nowgong ...	559	846	1,172	933	1,291	1,479	1,445	839	528	260
Sibsagar ...	168	114	121	128	289	235	200	170	143	86
Lakhimpur ...	5	...	3	4	13	13	8	1	5	5
Khasi and Jaintia Hills	...	...	...	...	...	...	8	4	3	4
Naga Hills	...	...	...	...	...	...	1	...	...	...
Lushai Hills	...	...	...	...	...	...	...	1	...	1
Garo Hills ...	20	18	26	47	54	69	435	346	350	154
Sadiya Frontier Tract ...	...	...	...	...	2	4	3	1	1	1
Manipur State	...	...	...	...	...	...	2	...	...	...
Total	1,667	2,798	2,987	2,292	4,131	5,585	6,365	4,176	2,859	1,660

The following table shows the number of *kala azar* cases treated from 1920 to 1928:—

Districts.	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.
1	2	3	4	5	6	7	8	9	
Cachar ...	75	316	210	352	253	442	303	359	394
Sylhet ...	158	2,837	5,148	9,278	16,516	10,934	16,355	10,527	8,988
Goalpara ...	1,569	2,500	2,731	4,176	5,016	6,003	5,671	3,495	2,316
Kamrup ...	2,402	3,491	2,700	4,098	5,780	8,758	7,301	6,445	3,577
Darrang ...	387	1,360	1,229	2,416	3,286	5,262	4,414	4,053	2,228
Nowgong ...	1,816	4,343	5,934	11,847	13,625	13,895	9,586	5,008	2,614
Sibsagar ...	659	875	1,307	2,143	2,929	3,585	2,658	1,521	1,555
Lakhimpur ...	9	22	12	68	81	99	20	19	28
Khasi and Jaintia Hills ...	54	52	59	120	274	213	198	120	6
Naga Hills ...	...	...	...	4	3	4	2	1	5
Lushai Hills ...	...	...	...	...	...	...	...	...	1
Garohills ...	43	84	329	589	985	1,952	2,812	1,828	1,690
Sadiya Frontier Tract ...	...	...	...	...	...	8	4	3	8
Manipur State ...	...	...	...	...	22	85	31	36	166
Total ...	7,118	15,880	19,659	35,071	48,770	60,940	49,385	33,415	23,576

The number of deaths from *kala azar* fell from 2,859 in 1927 to 1,660 in 1928. The number of *kala azar* cases treated also fell from 33,415 in 1927 to 23,576 in 1928. As the organisation for survey and treatment remained the same in both the years, the lower figures both for deaths and treatments in 1928 indicate a further reduction in the infection during the year. The satisfactory result is due to intensive treatment carried on with free urea stibamine throughout the province. Free treatment with this organic salt has resulted in a remarkable increase in cures and less relapses. It has also led to regular attendance, thus reducing the number of "stopped treatment" cases as it requires a shorter period for a complete cure. A case of *kala azar* is diagnosed by Formal-Gel test and by clinical signs and symptoms. Special attention is being paid to survey work as it is an important factor in the campaign against *kala azar* and no less so than the treatment of the disease. Before closing a dispensary a thorough survey is done to ensure that there are actually no *kala azar* cases remaining without treatment. In the same way when a new dispensary is started, a preliminary survey of the area is made. During the year the *Kala azar* Commission continued its activities into the problem of the transmission of the disease.

The North Cachar Hills subdivision of the Cachar district requires a resurvey and it will be carried out as soon as the services of a hill tribe Sub-Assistant Surgeon can be spared for the work. The number of special *kala azar* hospitals and dispensaries in Sylhet district remained almost the same as in the preceding year. The Civil Surgeon, Sylhet, is carrying out a thorough resurvey of the whole districts utilising the services of the Epidemic Unit staff when there are no epidemics of cholera or small-pox. Owing to a severe epidemic of cholera in the Goalpara district certain areas outside the radius of 5 miles of dispensaries could not be resurveyed. Jaleswar and Jagirjhar areas near Jamadarhat in this district require resurvey and this will be arranged. One new dispensary was opened in the Kamrup district. Sorbhog area was resurveyed and a number of suspected *kala azar* cases have been detected. The Kalai-gaon-Phutkibari areas in the Darrang district has been surveyed and positive cases detected have been brought under treatment. Gohpur-Kolabari areas in that district require a resurvey and it will be arranged as soon as the survey of Kalai-gaon-Phutkibari areas is completed. Two *kala azar* dispensaries and certain sub-centres in the Nowgong district were closed on account of paucity of patients. Namtiali, Nakachari and Kakodanga areas in the Sibsaigar district are being specially resurveyed as they are suspected to be infected. All the five cases treated in the Naga

Hills are reported to have contracted the disease from plains. The north and north-western section of the Garo Hills district along Dudnai, Krishnai and Jinari rivers are the most heavily infected. Two Sub-Assistant Surgeons, one a Garo and other Lushai are resurveying the district under the direction of the Civil Surgeon. As an adequate number of hill tribe Sub-Assistant Surgeons are not forthcoming the survey work must necessarily be slow. When the Civil Surgeon goes out on tour he surveys villages and the cases detected are sent to nearest *kala azar* centre for treatment. The number of beds in the Tura *Kala azar* hospital was reduced from 200 to 120 as recommended by the Civil Surgeon, but as the number of patients continued high since the reduction in the number of beds, steps are being taken after the close of the year to provide 100 additional beds. The hospitals at Dainadubi and Bajingdoba were run in the same manner as in the previous year. The Civil Surgeon acknowledges with thanks the services of Mr. G. D. Walker, Deputy Commissioner, who takes personal interest in everything in connection with *kala azar* and it is through his valuable assistance that the *kala azar* work is progressing satisfactorily. The name of the *kala azar* ward attached to the Pasteur Institute at Shillong has been changed to Clinical Research Hospital. The number of *kala azar* cases seeking admission to this ward is steadily falling. This has resulted from *kala azar* patients throughout the province being treated with urea stibamine.

Sub-Assistant Surgeons with few exceptions worked well under the most trying conditions, *kala azar* dispensaries generally being located in unhealthy areas.

Civil Surgeons of *kala azar* infected districts and their subordinate officers deserve thanks for their whole-hearted co-operation and excellent work in connection with the campaign against the disease.

26.—DYSENTERY AND DIARRHŒA.

District.	Death-rate per mille.	
	1918-1927.	1928.
1	2	3
Cachar	2.36	2.21
Sylhet	1.58	1.20
Goalpara ... ..	.33	.35
Kamrup ... ..	.83	.54
Darrang	2.47	1.51
Nowgong ... ..	.96	.60
Sibsagar	2.52	2.06
Lakhimpur	3.11	1.72
Total	1.68	1.24

During the year under report the number of deaths due to dysentery and diarrhœa was 8,501, as compared with 10,469 in 1927, the death-rates per 1,000 of population being 1.24 and 1.52, respectively. The decennial average was 1.68. The highest number of deaths (840) was recorded in May and the lowest (537) in March. The highest death-rate (2.21) was reported from Cachar, followed by Sibsaagar (2.06). The lowest rate was recorded in Goalpara (.35).

The death-rate from the same cause in tea estates was 3.13 in 1928, as compared with 3.42 in 1927. There was no marked variation in any district. This shows that arrangements for water-supply and conservancy in tea estates are receiving due attention.

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

OTHER CAUSES.

28. Respiratory diseases were responsible for 5,651 deaths yielding a death-rate of '82, the corresponding figures for the preceding year being 5,658 and '82.

The total number of deaths reported from injuries was 1,821 as compared with 1,871 in 1927, the corresponding death-rates for the two years being the same, *viz.*, '27. Two hundred and fifty-six deaths were due to suicide and 255 attributed to snakes and wild animals. Forty-three deaths occurred from hydrophobia.

The total number of deaths registered under the head "All other causes" amounted to 31,289 which yielded a ratio of 4.57 per mille.

PUBLIC HEALTH PROPAGANDA.

Public health propaganda during 1928 was carried out on the same lines as in 1927. Assistant Surgeons on *kala azar* duty gave magic lantern demonstrations and lectures in the course of their tours of inspection of dispensaries. In all 498 demonstrations were given, which were attended by 73,659 people. Slides on malaria, *kala azar*, small-pox, child-welfare, leprosy, tuberculosis, fly danger and milk were shown. To make these demonstrations more attractive new sets of slides on various subjects, *viz.*, malaria, cholera, *kala azar*, leprosy, tuberculosis, maternity and child-welfare, milk and house-fly were purchased and supplied to Civil Surgeons. Three leaflets on opium entitled "Evil of opium", "Do not use opium", "What children should know" were compiled. The first two leaflets were widely distributed among masses and third leaflets was distributed among school children. They were also published in local vernacular papers for information of the public.

As in the previous year the Director of Public Instruction was supplied 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. Funds for prizes to pupils and teachers as approved by the Director of Public Instruction were as usual allotted to Local Boards and Municipal Boards during the year.

SECTION VII.

VACCINATION.

29. The following paragraphs in this section deal with vaccination work in the triennial period 1926-27, 1927-28 and 1928-29 and more especially with the last year of that triennium. Short notes of the preceding two years having been furnished with the annual vaccination returns for those years.

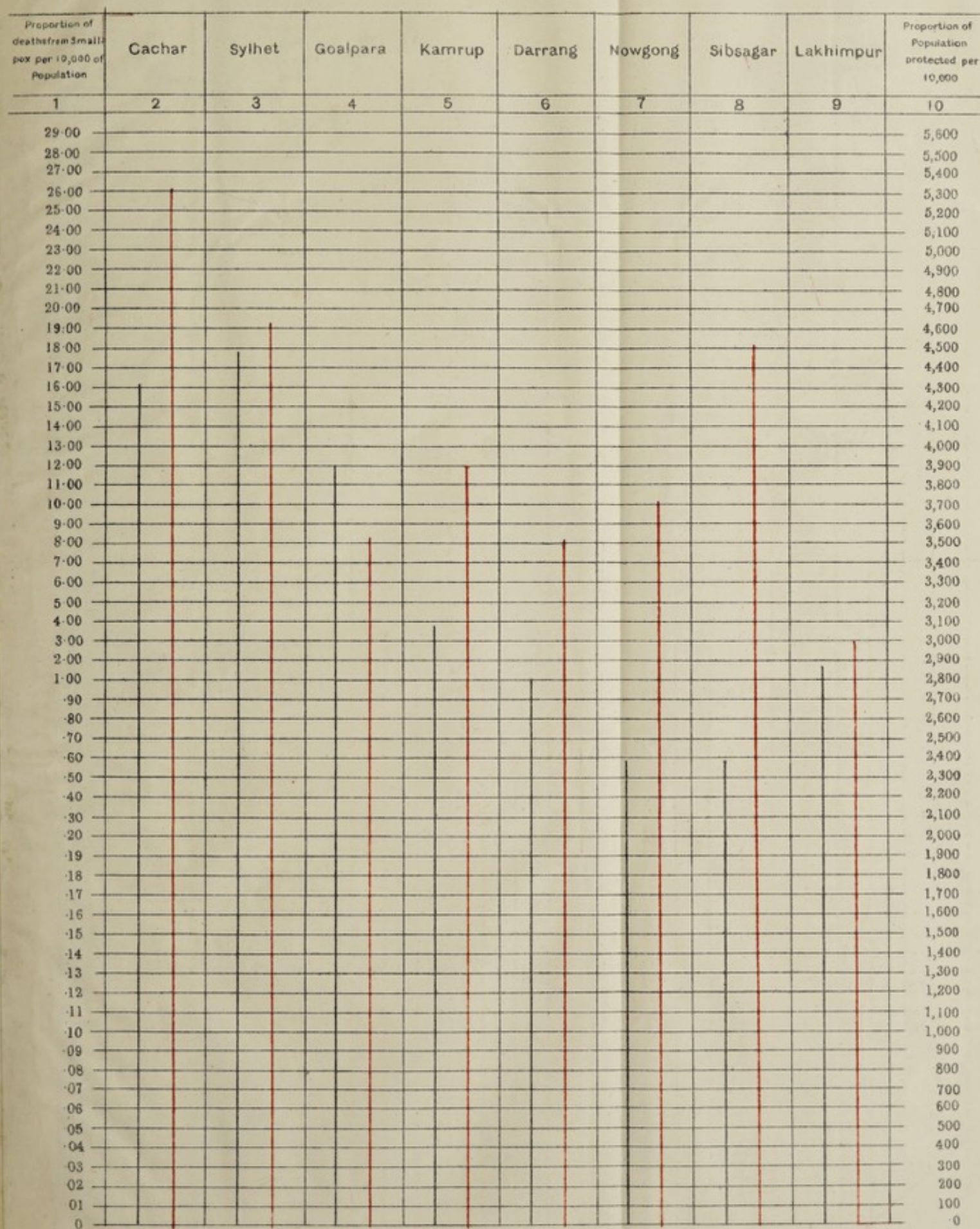
Introductory.

30. The total number of vaccinators employed in 1928-29 was 464, as compared with 486 in 1927-28 and 448 in 1926-27 and 430 the annual average of the preceding triennium. Small-pox prevailed in epidemic form in several districts during the triennium and additional temporary vaccinators had therefore to be entertained. During the triennium the vaccinating staff of the North Cachar Hills subdivision of the Cachar district was increased by four seasonal vaccinators and that of the Lushai Hills by one permanent and two seasonal vaccinators and that of the Naga Hills by one seasonal vaccinator, for more efficient vaccination in these districts. One vaccinator for six months, every year, was sanctioned for Margherita hills in Lakhimpur district in 1928. Disinfectant carriers of epidemic units were employed on vaccination work when their services were not required to deal with cholera epidemics. The average number of persons vaccinated by each vaccinator was 1,716 in 1928-29, as compared with 1,816 in 1927-28 and 1,290 in 1926-27 and 913 the average of the preceding triennium. The number of persons successfully vaccinated per 1,000 of population was 82.20 as compared with 95.97 in 1927-28 and 67.59 in 1926-27 and 47.29, the average of the preceding triennium. Vaccination in tea gardens was as usual performed by garden medical officers and in hospitals and railways by their respective medical officers.

31. The total number of vaccination operations performed in 1928-29 was 871,114 as compared with 980,841 in 1927-28 and 656,366 in 1926-27, the annual average of the preceding triennial

Total number of operations. period being 435,036. The total operations during the triennium under review

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 1922-23 to 1928-29.



NOTE. Black lines indicate death rate from Smallpox.

Red lines indicate the proportion protected by Vaccination.

numbered 2,508,321, of which 1,228,662 were primary operations and 1,279,659 revaccinations, as compared with 1,305,289 in the preceding triennium, of which 986,879 were primary operations and 318,410 revaccinations in the preceding triennium. This shows an increase of 1,203,032 operations (241,783 primary and 961,249 revaccinations) in the triennium under review. The increase was mainly due to a larger number of revaccinations being performed in each year of the triennium to combat outbreaks of small-pox. The increase in primary operations indicates growing a popularity of vaccination among the masses. Certain sections of the people in the Assam Valley who were opposed to vaccination on religious prejudice have submitted to vaccination in larger number during the triennium.

32. The death-rate from small-pox in 1928-29 was '86 as compared with '79 in 1927-28 and '65 in 1926-27. The average annual ratio of deaths from small-pox for the triennium under review was '76 as compared with 35 for the preceding triennium. The highest rate of 1'79 was recorded in Sylhet, followed by Cachar 1'61 and Goalpara 1'20. In Sylhet the small-pox epidemic was not so severe in 1928-29 as it was in 1927-28. In 1928-29 the disease prevailed in some villages of the Karimganj and South Sylhet subdivisions of the Sylhet district. There is much opposition to vaccination in certain villages in the districts of Cachar and Goalpara, which is being overcome by declaring them as small-pox infected under special regulations and thereby rendering vaccination compulsory in these areas. The regulations framed under the Epidemic Diseases Act for the control of small-pox epidemics, which also include provision for making revaccination compulsory with certain restrictions, have proved to be of immense value in dealing with epidemics of small-pox in the province. When a village is infected with small-pox and there is opposition to vaccination, it is declared by a notification in the provincial Gazette as a small-pox infected area and all unprotected persons in it are forthwith vaccinated and revaccinated. The system of recruitment of vaccinators lately introduced by local boards in Goalpara stands in the way of efficient vaccination. The Local Boards will be well advised to act in this matter in accordance with the advice of the Civil Surgeon, leaving the appointment and punishment of vaccinators in his hands. Small-pox is an easily preventable disease which can be eradicated by thorough and complete vaccination and revaccination of the people. To bring about a satisfactory vaccination state, the Civil Surgeon should have complete power of appointing and retaining only suitable vaccinators and of seeing that every vaccinator's work is properly supervised as regards the quantity and quality of the operations performed.

The diagram shows the death-rate from small-pox during the year 1928-29 and the proportion of the population protected against the disease by vaccination during the seven years 1922-23 to 1928-29.

33. The number of vaccination operations performed by the dispensary staff during the triennium was as follows :—

Dispensary vaccination.				Primary.	Revaccination.	Total.
1926-27	...	...	...	2,212	4,928	7,140
1927-28	...	...	...	5,980	13,278	19,258
1928-29	..	...	...	5,662	10,687	15,749

People attended dispensaries for vaccination in larger numbers in 1927-28 and 1928-29 owing to greater prevalence of small-pox epidemics in these years. The annual average for the triennium was 14,049.

34. The percentage of success of the operations by all establishments combined was 95'95 in primary vaccinations and 69'20 in revaccinations in 1928-29, as compared with 96'30 and 76'43 respectively in 1927-28 and 95'52 and 75'16, respectively, in 1926-27.

The percentage of success in primary operations in Naga Hills (80'82) was much below the provincial average. It will be observed that the percentage of cases in which results were not ascertained in this district is very high. The low percentage of success in primary operations and the high percentage of unknown cases demand a more strict supervision of the work of vaccinators in this district and verification of the results of their operations.

35. As in previous years all vaccination operations were performed with glycerinated lymph manufactured in the provincial vaccine depôt at Shillong.

Different methods of vaccination.

36. The following table shows the total number of persons vaccinated by all agencies, in the various districts, during the triennium 1923-24 to 1925-26 and 1926-27 to 1928-29:—

Vaccination work in different districts.

Statement showing the total number of persons vaccinated by all agencies, viz., Vaccine Department, dispensaries, tea gardens, jails, mental hospitals, infectious diseases hospitals, police hospitals and railways during the triennium 1923-24 to 1925-26 and 1926-27 to 1928-29.

District.	Population.	1923-24.	1924-25.	1925-26.	Total number of triennium.	1926-27.	1927-28.	1928-29.	Total number of triennium.	Difference.	
										Increase.	Decrease.
1	2	3	4	5	6	7	8	9	10	11	12
Cachar ...	529,391	25,294	26,385	32,547	84,226	35,992	74,197	103,275	213,364	128,968	...
Sylhet ...	2,541,341	137,926	145,184	158,518	441,628	198,264	236,804	322,092	567,763	426,134	...
Khasi and Jaintia Hills ...	2,43,263	13,707	13,015	15,000	41,722	21,772	76,843	43,703	142,318	99,996	...
Naga Hills ...	158,891	6,147	5,683	5,873	17,703	17,024	14,084	8,899	40,907	23,204	...
Lushai Hills ...	98,406	3,812	5,565	7,662	17,039	7,974	11,731	13,646	33,351	16,312	...
Goalpara ...	762,523	30,867	31,152	37,147	99,166	59,517	89,823	62,767	194,107	94,541	...
Kamrup ...	762,671	40,436	47,969	49,069	137,474	65,999	63,560	60,607	189,166	52,333	...
Darrang ...	477,442	21,483	24,569	28,672	74,724	27,186	39,583	37,523	104,292	29,572	...
Nowgong ...	395,007	20,604	23,657	24,449	68,710	25,806	29,385	30,618	85,809	17,209	...
Sibsagar ...	823,197	38,152	43,049	80,758	161,959	129,825	91,388	62,539	283,752	120,733	...
Lakhimpur ...	586,577	18,759	22,481	30,874	72,114	36,335	44,796	33,900	115,031	39,956	...
Garo Hills ...	179,149	8,978	8,741	8,804	26,523	39,069	51,370	27,762	103,141	72,618	...
Manipur State ...	384,916	17,737	19,329	19,363	56,429	18,144	40,547	61,262	120,213	63,843	...
Sadiya Frontier Tract ...	41,349	1,681	1,498	1,744	4,923	2,517	4,260	5,491	12,268	7,345	...
Total of the Province ...	7,955,934	385,579	418,359	501,351	1,305,289	656,305	989,841	871,114	2,565,221	1,262,904	...

It will be observed from the above statement that there has been a substantial increase in the number of vaccination operations performed in all districts of the province in the triennium under review. This shows clearly that people are realising the protective value of vaccination against the small-pox infection. It is satisfactory to record that Mahapurushas, Kacharis, Laloongs, and Mikirs in the Assam Valley Division who are opposed to vaccination owing to superstition, have been vaccinated in larger number during the triennium under review. The increase is most marked in Sylhet, Cachar, and Goalpara which was infected with small-pox and also in Sibsaagar which suffered severely from the disease in 1925-26 and 1926-27. There was an increase of 426,134 operations in Sylhet over the last triennium which is due to the fact that the number of Local Board vaccinators employed during the triennium was 26 more than the number employed in the previous triennium and this increase in the number of vaccinators was due to the severe epidemic of small-pox in 1927-28. In this district 49 villages (3 in the North Sylhet subdivision, 13 in Karimganj, 22 in South Sylhet, 4 in Sunamganj and 7 in Habiganj) were notified as small-pox infected areas in 1928-29 against 209 in 1927-28. In Cachar small-pox was more prevalent in the last two years of the triennium which has just terminated and more people had to be protected. Several villages in the district had to be declared as small-pox infected areas in 1928-29 to overcome opposition. In Goalpara the vaccinators were allotted a specified number of villages in which they had to visit each house and their work was under constant

supervision. Four thanas, which were declared as compulsory vaccination areas were thoroughly dealt with during the year. It is believed that when the remaining thanas of the district are similarly dealt with, the mortality from small-pox in the district will be considerably reduced.

37. The permanent inspecting staff consist of 9 inspectors and 20 sub-inspectors of vaccination excluding one sub-inspector entertained by the Manipur State for supervision of vaccination in the State. Ten temporary sub-inspectors are being entertained from 1927-28 for more efficient inspection of vaccination.

38. In 1928-29, Civil Surgeons, Assistant Directors of Public Health and Assistant Surgeons inspected 6.30 per cent. of the primary vaccinations and 4.25 of the revaccinations, as compared with 5.14 and 4.84 respectively in 1927-28 and 7.03, 6.00 respectively in 1926-27. The annual average of the triennium under report was 6.35 for primary vaccinations and 5.03 for revaccinations as compared with 4.89 and 4.85 respectively of the preceding triennium. The highest percentage of the primary vaccinations inspected in 1928-29 was in Darrang (14.82) followed by Garo Hills (13.56) and Nowgong (11.31). In other districts it varied from 9.16 in Sibsagar to 2.49 in Lushai Hills. Inspection of vaccination in the districts will certainly improve when the proposed scheme of appointment of district medical officers of health is sanctioned.

The subordinate inspecting staff inspected 46.04 per cent. of the primary operations and 37.66 of the revaccinations in 1928-29, as compared with 38.53 and 32.63 respectively in 1927-28 and 40.94 and 34.86, respectively, in 1926-27, the annual average of the preceding triennium being 51.33 and 42.08, respectively. As regards the percentage of inspections of primary operations, the Khasi and Jaintia Hills has again topped the list in 1928-29 with 99.04 followed by Nowgong 72.84, Darrang 66.50 and Lakhimpur 62.75. The districts returning low percentages of inspections of primary operations in 1928-29 were the Lushai Hills 15.26, Garo Hills 17.75 and Goalpara 20.37. The Civil Surgeons of these districts should impress upon the sub-inspectors the need for more inspections.

39. Out of 4,234 infants under one year estimated to have been available for vaccination in Municipal towns in which vaccination is compulsory, 1,831 or 43.24 per cent. were successfully vaccinated in 1928-29 as compared with 48.15 in 1927-28 and 49.61 in 1926-27.

In 1928-29, 90.36 per cent. of infants were vaccinated in Jorhat, 86.42 in Nazira, 79.91 in Dhubri, 74.14 in Goalpara, 63.53 in Nowgong and 63.22 in Barpeta. In Habiganj, Sunamganj, Sibsagar and Mangaldai 50 per cent. of infants were vaccinated. The percentage of vaccination was very low in Hailakandi 5.41, Golaghat 6.89, Maulvi Bazar 9.33, Sylhet 11.90, Gauhati 14.14, Gauripur 14.89 and Shillong 18.44. The tax collector of the Hailakandi Town Committee also works as a vaccinator which is not a good arrangement. The matter may improve when the work is allotted to one of the Local Board temporary vaccinators whom the Board propose to entertain permanently. The sub-inspectors of vaccination, South Sylhet and Golaghat subdivisions, who are responsible for the Maulvi Bazar and Golaghat compulsory areas are answerable for the low figures of primary vaccination. It is regrettable to note that the figures for primary vaccination has been so low in Sylhet and Gauhati in which there are Health Officers to look after the vaccination work. In Gauripur compulsory vaccination has been introduced recently and it appears that the provisions of the Act were not properly enforced. The Inspector and Sub-Inspectors of Vaccination who are responsible for that area should be warned. The unsatisfactory condition of vaccination in the Shillong Municipality was reported to the Commissioner, Surma Valley and Hill Division. It is hoped that matters will improve.

In rural compulsory areas in the Sylhet district, 3,835 operations were performed in 1928-29, against 7,349 in 1927-28 and 2,998 in 1926-27. In Sibsagar rural compulsory areas 1,249 operations were performed against 2,011 in the preceding year.

40. The number of capillary tubes loaded during the year 1928-29 was 1,282,776 as compared with 1,292,860 in 1927-28, 879,997 in 1926-27 and 645,497 the annual average of the preceding triennium.

The following table shows the expenditure incurred and the number of capillary tubes loaded in the provincial vaccine depôt at Shillong in the last three years as compared with the annual average of the preceding triennium :—

—	Establishment.	Purchase of calves.	Feed of calves.	Vaccine tubes and lanolin.	Medical stores.	Miscellaneous.	Total.	Total number of capillary tubes loaded.
1	2	3	4	5	6	7	8	9
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1926-27 ...	5,700	4,055	823	3,319	183	1,360	15,440	879,997
1927-28 ...	5,891	6,669	1,126	4,712	175	1,593	20,166	1,292,870
1928-29 ...	6,141	6,703	480	7,102	203	1,663	22,292	1,282,776
Annual average of the triennium 1923-24 to 1925-26.	5,080	3,740	700	3,108	165	1,233	14,029	645,497

The expenditure during the triennium under report was higher as compared with that of the preceding triennium due to a larger number of lymph tubes having had to be manufactured. Eight hundred and ninety-eight calves were purchased in 1928-29 and there was a balance of 24 calves of the preceding year. Out of 913 calves, 912 were inoculated and lymph was taken from 838 calves and the remaining 74 calves were rejected. The number of calves rejected in each year of the triennium and the reasons for their rejection are as stated below :—

—	Total number rejected.	Reasons for the rejection.		
		Failure of operation.	Illness.	Ulceration and unsatisfactory vesicles.
1	2	3	4	5
1926-27 ...	62	31	15	16
1927-28 ...	104	36	54	14
1928-29 ...	74	24	36	14

The lymph strain was rejuvenated by passing it through rabbits. Another process to rejuvenate the lymph strain by using human vaccinated scab was tried. This was made into paste and calves were inoculated. The vaccine lymph was issued free to Civil Surgeons and Medical Officers of regiments. Tea gardens, Railways and Manipur State were charged at one anna per tube.

The average cost of manufacture of each lymph tube was 3.3 pies in 1928-29 as compared with 3 pies in 1927-28 and 3.3 pies in 1926-27.

41. The total expenditure of the Department amounted to Rs. 1,25,378-14-7 in 1928-29 as compared with Rs. 1,16,306-13-9 in 1927-28 and Rs. 97,143-0-2 in 1926-27.

Cost of department.

The following statement shows the expenditure under different heads :—

—	Pay of establishment.	Travelling allowance.	Contingencies.	Total expenditure.
1	2	3	4	5
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1926-27 ...	73,309 0 8	10,391 10 3	13,442 5 3	97,143 0 2
1927-28 ...	79,895 3 9	15,133 9 3	21,278 0 9	1,16,306 13 9
1928-29 ...	84,844 0 4	16,597 10 3	23,537 4 0	1,25,378 14 7
Annual average of the triennium 1923-24 to 1925-26.	67,547 15 8	9,928 8 10	12,210 13 0	89,687 5 6

During the triennium under review the number of vaccinators and that of sub-inspectors of vaccination had to be increased to deal with small-pox epidemics in several districts. This accounts for higher expenditure under the above heads.

General.

42. The following table shows the operations reported to have been performed by other agencies :—

—					Tea gardens.	Jails, etc.	Railways.
1					2	3	4
1926-27	...	...	...	...	65,626	4,611	1,278
1927-28	...	...	...	...	72,501	4,183	2,085
1928-29	...	...	...	...	53,355	4,044	1,450

SECTION VIII.

SANITARY WORKS—MILITARY.

(No remarks.)

SECTION IX.

SANITARY WORKS—CIVIL.

43. The number of Municipal Boards and Town Committees during the year under report remained the same as in the previous year *viz.*, seventeen Municipal Boards and eight Town Committees.

General.

44. The total income of these Municipal Boards and Town Committees, including the opening balance, amounted to Rs. 13,35,686, as compared with Rs. 12,48,374 in 1927. Rupees 5,32,528 or 40·94 per cent. of the total income was expended on sanitary works, original and recurring, as compared with Rs. 4,92,749 and 39·47, respectively in the previous year.

The percentage of expenditure on public health in each of Municipalities and small towns was as follows :—

1. Palasbari Town Committee ...	...	...	...	57·79
2. Maulavi Bazar Municipal Board	...	...	...	53·40
3. Karianganj ditto	...	...	...	52·86
4. Habiganj ditto	...	...	...	52·48
5. Jorhat ditto	...	...	...	52·19
6. Tezpur ditto	...	...	...	49·77
7. Silchar ditto	...	...	...	46·94
8. Gauhati ditto	...	...	...	43·07
9. Shillong ditto	...	...	...	42·46
10. Sylhet ditto	...	...	...	42·36
11. Gauripur Town Committee	...	...	...	40·19
12. Goalpara Municipal Board	...	...	...	36·48
13. Dibrugarh ditto	...	...	...	35·05
14. Nowgong ditto	...	...	...	33·73
15. Dhubri ditto	...	...	...	33·18
16. Sibsagar ditto	...	...	...	29·92
17. Sunamganj ditto	...	...	...	29·61
18. North Lakhimpur Town Committee	...	...	...	28·09
19. Barpeta Municipal Board	...	...	...	25·05
20. Hailakandi Town Committee	...	...	...	24·02
21. Mangaldai ditto	...	...	...	23·08
22. Golaghat Municipal Board	...	...	...	21·28
23. Doomdooma Town Committee	...	...	...	20·81
24. Nazira ditto	...	...	...	19·36

The improvements of water-supply and markets account for the high percentage of expenditure on public health in the Palashbari town.

The following statement shows the expenditure for the public health purposes during the year 1928 as compared with that in the year 1927 :—

Heads of expenditure.	Total expenditure.		Difference.	
	1928.	1927.	Increase.	Decrease.
1	2	3	4	5
	Rs.	Rs.	Rs.	Rs.
1. Conservancy including establishment, read watering, latrine, etc.	2,93,461	2,67,382	26,079	...
2. Drainage	27,146	29,693	...	2,547
3. Water-supply	1,54,693	1,48,744	5,949	...
4. Disposal of the dead	779	475	304	...
5. Markets and slaughter houses	20,839	17,392	3,447	...
6. Vaccination	5,264	4,792	472	...
7. Pay of Health Officers and Sanitary Inspectors	5,373	Not available.	5,373	...
8. Epidemic charges including up-keep of contagious or infectious diseases hospitals.	12,036	Not available.	12,036	...
9. Other sanitary works... ..	12,937	24,271	...	11,334
Total	5,32,528	4,92,749	39,779	...
10. Construction and maintenance of roads	1,98,556	2,05,767	...	17,209
Total including roads	7,21,086	6,98,516	22,570	...

The increase of Rs. 26,079 under the head "conservancy" was contributed by the Silchar, Maulvi Bazar, Karimganj, Habiganj, Tezpur and Dibrugarh Municipal Boards. The progressive increase of expenditure under conservancy is satisfactory as it shows realisation of what is the most pressing sanitary need of the towns of the province.

45. *Surma Valley Division.*—The pressing need of the Sylhet Municipality is an efficient drainage system. The surface drainage of the town is extremely defective. The water-supply was consistently good throughout the year. To prevent wastage of good filtered water, it has been suggested that all private connections should be metered. An additional storage tank is being provided to meet the increased demand for water. The majority of private latrines in this Municipality are defective and steps should be taken to have them reconstructed according to a standard type and this should be enforced by suitable byelaws. The surface drainage of the Maulvi Bazar Municipality is very defective and requires early improvements. Some of the public latrines have been improved. The existing water-supply of this Municipality is inadequate and needs augmentation. Three and two tube wells to supply drinking water have been sunk in the Habiganj and Karimganj Municipalities, respectively. The need for maintaining in a more sanitary condition the newly built Municipal market in the Karimganj Municipality has been brought to notice. The water-supply of the Sunamganj Municipality should be augmented by the provision of three tube wells. The conservancy of this Municipality should be improved in accordance with the suggestions of the Assistant Director of Public Health. The bazar in this Municipality is in a very insanitary condition and should be improved. In the Silchar Municipality the water supplied

to the public was of good quality. The condition of the drains of this Municipality is most unsatisfactory. The only effective remedy is a proper drainage scheme. This Board is taking steps to prepare a drainage scheme. The water-supply and conservancy of Hailakandi town require improvement but this small town has no funds to carry them out.

Assam Valley Division.—In the Gauhati Municipality, a shed for sweepers was constructed at a cost of Rs. 1,169 and three pairs of bullocks were purchased. Nine tube wells were provided in different parts of the town and the construction of some more tube wells is in progress. The question of remodelling the water-works has been postponed for want of funds. As stated in previous reports the surface cleanliness, surface drainage and conservancy of this town need improvement. In Palashbari town five tube wells were sunk at a cost of Rs. 1,838, one *pucca* well was constructed, two two-seated public latrines were constructed and one rubbish cart was purchased. In the Goalpara Municipality a sum of Rs. 814 was expended on the construction of two masonry wells. In Tezpur Municipality an urinal and a public latrine have been constructed to serve the bazar area. The pipe water-supply in this Municipality was extended to two new areas. The experimental tube well boring in Mangaldai town has yielded water which is not potable on account of its high iron content. It appears that a new boring and settling tanks with mechanical filtration to remove iron would be necessary. An estimate for a complete scheme including pipe distribution is being prepared by Messrs. Scott and Saxby Limited of Calcutta. The Nowgong Municipality should provide more rubbish bins. Its newly built wells need roofs and suitable lifts. In Sibsagar Municipality a public latrine was constructed and a watering cart was purchased. The Jorhat Municipality has purchased an oil engine for its water-works. The Municipality should provide one or more motor lorries according to its requirements for speedy removal of rubbish. The question of improving the drainage of this town is urgent and should be taken up as soon as the services of a Public Health Engineer are available. The experimental boring for a tube well in the Golaghat Municipality has not yielded the quantity of water required. There is therefore a proposal for making another experimental boring. The water-supply and drainage of the Dibrugarh Municipality require improvement. The Municipal Committee proposes to take them up if funds are available after the next reassessment of taxes. This Municipality is also in urgent need of an infectious diseases hospital and the matter is receiving due attention of the committee. During the year no great improvements were carried out by the town committees of Tinsukia, Doom Dooma and North Lakhimpur.

Hill Districts.—In Shillong several drains were improved, an incinerator was constructed and certain improvements were carried out in the Municipal segregation hospital at Mawprem. In view of the difficulty in the proper disposal of night-soil by trenching or in pits in this station, the installation of septic tanks with aerobic filters or carriage of the night-soil through iron pipe sewers towards Barapani (as is done at Nainital) should be considered. The pipe water-supply at Cherra and well at Nongpoh were as usual repaired. There should be one authority responsible for the sanitary administration of the whole of the Haflong town. The present arrangements under which a part of it is in charge of the Bazar Fund and a part under the Railway Authority are not working satisfactorily. The question of bringing the whole town under an authority is receiving attention of the Deputy Commissioner and Commissioner. Certain special repairs to water-supply at Kohima were carried out at a cost of Rs. 827. Annual repairs to water-supply at Pasighat were carried out. An expenditure of Rs. 1,185 was incurred in remodelling the water-works at Tura.

A total expenditure of Rs. 8,879 was incurred by the Public Works Department on the maintenance of water-supplies, drainage and town improvements in 1928 as compared with Rs. 9,090 in the preceding year.

SECTION X.

GENERAL REMARKS.

46. The aggregate expenditure of 19 Local Boards on improvements of water-supplies by providing more tanks and wells and maintaining existing tanks under repairs amounted to Rs. 3,86,493 as compared with Rs. 4,52,757 in 1927. The largest sum expended by a Board was Rs. 31,450 by the Habiganj Local Board.

Village sanitation.

The expenditure incurred on original works, *viz.*, construction of new tanks and wells, was as follows :—

	Rs.
North Sylhet	28,231
South Sylhet	21,808
Habiganj	31,450
Sunamganj	21,783
Karimganj	13,589
Silchar	21,746
Hailakandi	6,312
Dhubri	10,643
Goalpara	19,271
Gauhati	24,743
Barpeta	6,712
Tezpur	10,478
Mangaldai	12,527
Nowgong	22,743
Sibsagar	21,691
Jorhat	20,004
Golaghat	11,093
Dibrugarh	17,119
North Lakhimpur	3,371

Local Boards are improving water-supply in villages from which cholera has been reported year after year. They have in some cases experienced difficulty in procuring suitable sites for tanks or wells. Where sites are being provided free, the work is of course being done speedily. Important public health measures which are carried out in rural areas are vaccination against small-pox and inoculation against cholera. People are gradually realising the value of the protection they offer against these deadly diseases. *Kala azar* treatment measures have been carried on as in previous years. Much attention is paid to survey to detect cases. The area of five miles around a dispensary, either special *kala azar* or Local Board dispensary is surveyed by the Sub-Assistant Surgeon in charge of it. In the case of an area which is suspected to be infected but is beyond five miles of a dispensary, a special Sub-Assistant Surgeon is provided for survey. Quinine in treatment form is sold in all village post offices from which a person attacked with malaria can purchase a treatment and treat himself without the aid of a medical officer in accordance with directions given along with each treatment. Health propaganda work in villages was carried on in the same way as in the previous year. Illustrated pamphlets on prevailing diseases, *viz.*, cholera, small-pox, malaria and *kala azar* were supplied to all primary schools. Funds for grant of prizes were also placed at the disposal of Local Boards and Municipal Boards.

Village authorities where they exist carry out simple sanitary improvements according to funds at their disposal.

Sale of quinine.

47. The attached table shows the amount of quinine sold during the year 1928.

Districts.	Treatment parcels sold in—		Difference.	
	1928.	1927.	Increase.	Decrease.
1	2	3	4	5
Cachar	575	395	180	...
Sylhet	1,616	1,154	462	...
Goalpara	868	889	...	21
Kamrup	624	793	...	169
Darrang	523	438	85	...
Nowgong	360	298	62	...
Sibsagar	826	317	509	...
Lakhimpur	293	202	91	...
Khasi and Jaintia Hills	335	229	106	...
Naga Hills	48	59	...	11
Lushai Hills	1,609	687	922	...
Garo Hills	50	24	26	...
Sadiya Frontier Tract	52	47	5	...
Manipur State	62	38	24	...
Total	7,841	5,570	2,271	...

The total number of parcels of quinine treatment sold during the year was 7,841 as compared with 5,570 in 1927, showing an increase of 2,271. The increase is attributed mainly to the reduction in the retail sale price of a quinine treatment, which was effected in 1926. The increase in the Lushai Hills is partly due to greater prevalence of malaria during the year. A treatment of twenty tablets of quinine sulphate was sold for four annas and six pies as in the year 1927. During the year quinine was on sale at 462 post offices in Assam against 429 post offices in 1927.

48. The Sidheswar Mela and the Hailakandi cattle show in the Cachar district were as usual held during the year. Efficient sanitary arrangements were made and drinking water was treated with electrolytic chlorine. There was no cholera or any other epidemic disease during the melas. The former which were attended by 10,000 people was held for a fortnight and the latter in which 4,000 people assembled lasted for four days. There is another big pilgrimage in the Bhuban Hill in this district which is attended by a large number of pilgrims. It is reported that cholera and small-pox spreads from this concourse of pilgrims. There should be medical arrangements and isolation hospitals here as in Sidheswar Mela. In this connection the Deputy Commissioner has remarked: "The Bhuban Hill pilgrimage is a real menace to health. I have asked Hindu members of the Local Board to see if a committee cannot be formed as for Sidheswar, but my suggestion aroused no interest and nothing has been done." There was a large gathering of pilgrims at Dhubri town for a day only during Brahmaputra *snan* (bathing); about 8,000 to 10,000 people assembled. Suitable sanitary precautions were taken and there was no epidemic. The Assistant Surgeon, Sub-Assistant Surgeon and Health Officer were deputed to look after sanitary arrangements and to afford medical relief. Temporary latrines were constructed and pipe water was supplied that day for a longer time than usual. The annual pilgrimage to Parusuram in Sadiya Frontier Tract took place in January. There were no epidemics among the pilgrims.

A complete list of fairs and festivals held throughout Assam is being compiled.

49. There were altogether eleven coolie camps with a population varying from 212 to 475 on new railway lines under construction by the Assam-Bengal Railway during the year 1928. In the bigger camps temporary *kutcha* latrines or trench latrines were provided and sweepers engaged according to requirements. Drinking water was supplied from tanks, wells or rivers. There was no epidemic of any disease in any camp. There were few sporadic cases of cholera and small-pox and also cases of malaria, diarrhoea and dysentery. They were treated by railway medical officers. There was no railway line under construction by the Eastern Bengal Railway in Assam during the year.

50. The following is the detail of the work done in the Public Health Laboratory at Shillong during the year 1928:—

	1928.	1927.
1	2	3
Chemical examination of water ...	99	92
Ditto of ghee ...	43	44
Ditto of milk ...	233	286
Ditto of mustard oil ...	63	65
Ditto of tea ...	16	...
Ditto of other food-stuffs ...	7	15
Miscellaneous chemical analysis ...	12	12
Bacteriological examination of water ...	325	301
Miscellaneous bacteriological analysis ...	26	33
Bacteriological analysis of vaccine lymph ...	250	330
Total ...	1,074	1,183

Three hundred and twenty-five samples of water were analysed bacteriologically and 93 chemically. The Shillong pipe water was examined once a week chemically and bacteriologically. Chemically this water has been found very good, but bacteriologically it has not been found to maintain its high standard of purity. Out of 102 samples analysed, 47 samples showed signs of contamination due probably to the faulty laying of the pipes along drains and leakages in distributing pipes. Sylhet water was found to be excellent throughout the year. The Silchar water was found to have been contaminated in October, Gauhati in October and November, Tezpur in June and November, Dhubri in March, May and December, and Jorhat in May, June and November. Haflong water is examined quarterly and Murarichand College water half-yearly. Both these waters were found to be defective. From August 1928 the waters of various water-works in the province are being inoculated on the spot and brought up to the laboratory for further analysis. Previously these samples used to be inoculated in the laboratory.

Of the 233 samples of milk analysed, 87 were declared as sophisticated. Of the 43 samples of *ghee* and 65 samples of mustard oil analysed, 25 and 27, respectively, were declared as adulterated. Of the 16 samples of tea analysed, 15 were found to have been adulterated. It will be observed from the above figures that commonly used articles of food are being very much adulterated. They indicate the need for a provincial Food Adulteration Act. It will not be difficult to provide for the agency to collect samples of food from all parts of the province for analysis in the laboratory when the scheme for Rural Sanitary Inspectors and District Medical Officers of Health is sanctioned. As in previous years laboratory was utilised as a provincial depôt for the supply of urea stibamine, syringes and their spare parts for treatment of *kala azar*.

Assistant Surgeon Sarat Sashi Kundu held charge of the Laboratory throughout the year.

51. The number of immigrants to Assam by the different routes during the year was 65,113 as compared with 53,046 in 1927 as shown below:—

Immigration.				
<i>Via</i> Chandpur by rail to Assam Valley	...	...	...	7,309
<i>Via</i> Chandpur by rail to Cachar and Sylhet	...	...	...	7,154
<i>Via</i> Naihati, Santahar and Amingaon by rail	...	...	...	47,704
<i>Via</i> Naihati, Santahar and Rangiya	...	...	...	2,946
Total	...	...	...	65,113

There were ten cases of sickness amongst immigrants who came *via* Naihati-Santahar-Amingaon route. Of these one was attacked by cholera, six by fever and three by diarrhoea. All of them were treated in hospitals. The cholera case ended fatally, while the others were cured and discharged. Sixty-five cases were admitted into the hospital at Goalundo for the following diseases: Influenza 2, pneumonia 3, pulmonary tuberculosis 1, other respiratory diseases 3, acute enteritis 1, other digestive diseases 3, eye diseases (mostly conjunctivitis) 21, rheumatism 1, diseases of the areolar tissue (inflammation and suppuration) 2, carbuncle 1, cholera 1 and small-pox 1. The tuberculosis, acute enteritis and one of the pneumonia cases ended fatally. Two immigrants were rejected, one for infirmity and defective eyesight and the other for leprosy. Three immigrants absconded at Goalundo and one was repatriated.

The following statement shows the number of sick coolies treated in the hospitals at Gauhati and Tezpur:—

		Gauhati.	Tezpur.
	1	2	3
Cholera	...	1	2
Small-pox	...	17	1
Dysentery and diarrhoea	...	9	...
Influenza	...	1	1
Conjunctivitis	...	62	...
Malaria	...	31	8
Other diseases	...	43	9
Total	...	164	21

The Sub-Assistant Surgeon in charge of Kulaura dispensary inspected coolie carriages on the Assam-Bengal Railway as in the previous year. Coolies travelling by the Eastern Bengal Railway were examined at the coolie depôt of the Tea District Labour Association at Gauhati by the Sub-Assistant Surgeon on emigration duty at that place.

52. Lieut.-Colonel Murison, I.M.S., held charge of the department throughout the year. During January, he inspected *kala azar* operations and vaccination work in Kamrup, Goalpara and Nowgong districts and accompanied the Health Interchange of the League of Nations on their tour in Assam. In February, he inspected *kala azar* operations and vaccination work in the Darrang district and attended the Senchoa-Dhing Railway Committee. In the first part of May he visited Dibrugarh in connection with the medical school examination. In the last part of June he visited Kachugaon in connection with the sanitary scheme for sanitary improvement of that place. In July he inspected the Dibrugarh Municipality. The most parts of the months of May, June and July were spent at headquarters in the preparation of administration reports and in administrative work. In August he inspected Tezpur and Shillong Municipalities. In September he inspected Silchar and Sylhet Municipalities. In November he inspected *kala azar* operations and vaccination work in Kamrup and Nowgong districts. In December he inspected *kala azar* operations and vaccination work in Darrang and Kamrup districts.

Dr. P. Gupta held the post of the Assistant Director of Public Health for the Surma Valley Division from January to September when he was transferred to the Assam Valley Division on the creation of the post of the second Assistant Director of Public Health for the province. In January he inspected vaccination work in North Sylhet and South Sylhet subdivisions, *kala azar* dispensary in Habiganj and South Sylhet subdivisions, Maulvi Bazar Municipality and attended Railway Committee for Shaistaganj-Balla line at Habiganj. In February he inspected vaccination and *kala azar* work in the Sunamganj subdivision and gave demonstrations in Habiganj exhibition and Baby shows. In March he inspected vaccination work in Karimganj, North Sylhet, Hailakandi and Silchar subdivisions. In April he organised and supervised small-pox preventive measures in the Sunamganj subdivision and inspected vaccination work in that subdivision. In May he organised and supervised cholera preventive measures in North Sylhet, South Sylhet, Habiganj, and Sunamganj subdivisions. In June he inspected Hailakandi town, anti-malaria work at Halflong and *kala azar* work in Hailakandi subdivision. In July he inspected *kala azar* work in North Sylhet and Sunamganj subdivisions. In August he inspected *kala azar* work in Habiganj and South Sylhet subdivisions. In September he inspected certain *kala azar* dispensaries in Habiganj and North Sylhet subdivisions. In October he was transferred to the Assam Valley Division. In that month he conducted the examination in hygiene and vaccination in the medical school at Dibrugarh. In November he organised and supervised cholera preventive measures in Goalpara district and inspected *kala azar* and vaccination work in that district. In December he inspected *kala azar*, vaccination and cholera epidemics in Barpeta subdivision.

Dr. S. H. Paul, second Assistant Director of Public Health, joined on the 10th September. In that month he inspected 5 *kala azar* dispensaries, 1 Local Board dispensary and 1 sub-centre for treatment of *kala azar* in North Sylhet and Habiganj subdivisions. In October he inspected 5 *kala azar* dispensaries, 5 Local Board dispensaries and 1 sub-centre in Sunamganj and Habiganj subdivisions. In that month he inspected 215 vaccination operations in 3 villages in Sunamganj subdivision and inspected a bazar drain at Kulaura. In November he inspected 6 *kala azar* dispensaries, 8 Local Board dispensaries and 1 sub-centre in North Sylhet, South Sylhet, Habiganj and Karimganj subdivisions, visited bazars at Fenchuganj, Balaganj and Enathgunj and reported on their insanitary condition, inspected certain cholera affected villages in Karimganj subdivision and inspected 754 vaccination operations in 8 villages in Karimganj subdivision. In December he inspected two *kala azar* dispensaries, 8 Local Board dispensaries and one sub-centre in North Sylhet, Karimganj and Maulvi Bazar subdivisions and helped the Sub-Assistant Surgeon of Akhalia *kala azar* dispensary in his village survey work and visited five cholera affected villages in Karimganj subdivision and 4 cholera affected villages in South Sylhet subdivision. In that month he inspected the *kala azar* work of certain Local Board dispensaries, 1,186 vaccination operations, Hailakandi Town Committee and Silchar Municipality in the Cachar district.

S. L. MITRA, B.Sc., M.B., CH.B., D.T., M. & H., D.P.H.,
Major, I.M.S.,
Offg. Director of Public Health, Assam.

SECTION XI.

ANNUAL REPORT OF THE PUBLIC HEALTH BOARD, ASSAM, FOR THE YEAR 1928.

53. There was no meeting of this Board during the year. The Health Board (epidemics) functioned as in previous years.

S. L. MITRA,
Major, I.M.S.,
Offg. Secretary, Public Health Board.

W. D. RITCHIE,
Lieut.-Colonel, I.M.S.,
Offg. President, Public Health Board.

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	9,100	8,415	17,515
2	Sylhet	...	...	1,308,734	1,232,607	2,541,341	41,686	38,624	80,310
	Total	...	...	1,570,328	1,471,497	3,041,825	50,786	47,039	97,825
ASSAM VALLEY.									
3	Goalpara	...	...	406,628	355,895	762,523	14,862	13,718	28,580
4	Kamrup	...	...	397,267	365,404	762,671	11,453	10,897	22,350
5	Darrang	...	...	252,849	224,593	477,442	7,523	7,134	14,657
6	Nowgong	...	...	208,731	189,276	398,007	6,391	5,789	12,180
7	Sibsagar	...	...	433,913	389,284	823,197	11,483	10,780	22,263
8	Lakhimpur	...	...	312,843	273,734	586,577	8,276	7,916	16,192
	Total	...	...	2,012,231	1,798,186	3,810,417	59,988	56,244	116,232
	Total for the Province	...	...	3,582,559	3,269,683	6,852,242	110,774	103,283	214,057

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	17,515	34.99	6,090	6,022	12,112
2	Sylhet	5,388	472	1,308,734	1,232,607	2,541,341	80,310	31.60	32,351	29,036	61,387
	Total	7,247	419	1,570,328	1,471,497	3,041,825	97,825	32.16	38,441	35,058	73,499
ASSAM VALLEY.											
3	Goalpara	3,954	193	406,628	355,895	762,523	28,580	37.49	12,766	9,930	22,696
4	Kamrup	3,863	197	397,267	365,404	762,671	22,350	29.31	6,215	5,634	11,849
5	Darrang	2,916	164	252,849	224,593	477,442	14,657	30.70	5,420	5,191	10,611
6	Nowgong	3,699	108	208,731	189,276	398,007	12,180	30.60	3,678	3,247	7,025
7	Sibsagar	5,097	162	433,913	389,284	823,197	22,263	27.95	7,611	7,317	14,928
8	Lakhimpur	3,910	143	312,843	273,734	586,577	16,192	27.61	6,987	5,542	11,529
	Total	23,439	162	2,012,231	1,798,186	3,810,417	116,232	30.50	41,377	36,961	78,338
	Total for the Province	30,686	223	3,582,559	3,269,683	6,852,242	214,057	31.24	79,818	72,039	151,857

registered in the districts of Assam during the year 1928.

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
18.18	16.81	34.99	108	10.79	...	17.56	16.63	34.19
16.40	15.20	31.60	108	7.44	...	15.62	14.44	30.06
16.70	15.46	32.16	108	7.66	...	15.94	14.80	30.74
19.49	18.00	37.49	108	8.25	...	18.47	17.39	35.86
15.02	14.29	29.31	105	13.74	...	14.85	13.94	28.79
15.76	14.94	30.70	105	8.47	...	15.07	14.32	29.39
16.06	14.54	30.62	110	12.95	...	13.56	12.38	25.94
13.95	13.10	27.05	106	8.90	...	11.39	13.41	27.80
14.11	13.50	27.61	105	7.77	...	13.62	12.98	26.50
15.74	14.76	30.50	107	9.93	...	15.16	14.25	29.41
16.17	15.07	31.24	107	9.07	...	15.61	14.50	30.01

registered in the districts of Assam during the year 1928.

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 Diarrhoea.	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
101	.73	1.60	...	10.91	2.21	2.00	.30	6.45	23.28	25.21	24.29	23.33	24.55	23.91
111	1.52	2.33	...	11.54	1.20	.49	.29	6.78	24.72	23.56	24.16	26.17	24.61	25.42
110	1.39	2.21	...	11.44	1.37	.74	.29	6.72	24.48	23.82	24.16	25.79	24.60	25.17
125	2.30	1.53	...	23.66	.35	.18	.35	.87	30.41	27.99	29.24	29.81	27.39	28.64
110	.39	.67	...	11.27	.54	.32	.28	2.41	15.64	15.47	15.56	23.87	23.34	23.62
104	.51	.10	...	14.88	1.51	1.07	.23	3.91	21.41	23.11	22.22	24.73	25.94	25.39
110	.63	.06	...	13.17	.60	.45	.20	2.54	17.62	17.68	17.65	22.21	21.10	21.68
104	.11	.08	...	11.14	2.06	1.29	.18	3.28	17.54	18.80	18.13	18.16	18.79	18.46
110	.09	.27	...	16.75	1.72	2.10	.20	4.70	19.46	20.25	19.83	20.31	20.53	20.41
112	.71	.46	...	14.29	1.14	.83	.25	2.84	20.56	20.56	20.56	23.22	22.80	23.02
111	1.01	1.23	...	13.03	1.24	.82	.27	4.57	22.28	22.03	22.16	24.31	23.61	23.97

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	...	...	...	1,219	870	771	980	1,025
2	Sylhet	...	...	...	7,012	5,541	4,869	5,202	5,229
	Total	...	...	...	8,231	6,411	5,640	6,182	6,254
ASSAM VALLEY.									
3	Goalpara	...	...	...	1,831	1,284	1,221	1,977	1,772
4	Kamrup	...	...	...	802	676	769	904	1,232
5	Darrang	...	...	...	705	771	696	555	1,037
6	Nowgong	...	...	...	619	482	361	460	608
7	Sibsagar	...	...	...	1,002	747	891	886	1,123
8	Lakhimpur	...	...	...	805	752	793	779	900
	Total	...	...	...	5,764	4,712	4,731	5,561	6,672
	Total for the Province	...	...	...	13,995	11,123	10,371	11,743	12,926
	Ratio per 1,000	...	...	...	2.04	1.62	1.51	1.71	1.88

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 ...	871	651	1,522	454	353	807	274	235	509	1,599	1,239	2,838	851	888
2	Sylhet ...	5,461	4,066	9,527	2,223	1,858	4,081	979	794	1,773	8,663	6,718	15,381	3,993	3,752
	Total ...	6,332	4,717	11,049	2,677	2,211	4,888	1,253	1,029	2,282	10,262	7,957	18,219	4,844	4,640
ASSAM VALLEY.															
3	Goalpara ...	1,651	1,225	2,876	1,153	971	2,124	591	430	1,021	3,395	2,626	6,031	1,842	1,618
4	Kamrup ...	872	809	1,681	533	505	1,038	295	231	526	1,790	1,545	3,335	1,040	1,023
5	Darrang ...	475	379	854	548	549	1,097	263	269	532	1,286	1,197	2,483	738	744
6	Nowgong ...	497	419	916	316	289	605	133	158	291	946	866	1,812	592	530
7	Sibsagar ...	658	523	1,181	586	534	1,110	325	324	649	1,569	1,371	2,940	1,437	1,456
8	Lakhimpur ...	523	432	955	378	390	768	174	203	377	1,075	1,025	2,100	1,018	968
	Total ...	4,676	3,787	8,463	3,514	3,228	6,742	1,781	1,615	3,396	9,971	8,630	18,601	6,667	6,359
	Total for the Province.	11,008	8,504	19,512	6,191	5,439	11,630	3,034	2,644	5,678	20,233	16,587	36,820	11,511	10,999
	Population (according to the Census of 1921).	...	...	...	...	...	...	...	...	...	101,342	99,389	200,731	359,087	376,501
	Ratio per 1,000 ...	...	...	...	...	...	...	...	...	...	199.65	166.89	183.42	32.05	29.21

districts of Assam during each month of the year 1928.

June.	July.	August.	September.	October.	November.	December.	Total.
8	9	10	11	12	13	14	15
1,125	992	993	778	965	1,165	1,229	12,112
4,618	4,325	4,105	4,019	4,112	5,640	6,715	61,387
5,743	5,317	5,098	4,797	5,077	6,805	7,944	73,499
2,036	2,168	1,609	1,657	1,849	2,408	2,481	22,296
1,369	1,080	1,003	883	1,067	1,080	1,004	11,809
753	1,014	1,036	851	1,081	926	1,186	10,611
688	838	774	610	621	569	395	7,025
1,471	1,805	1,483	1,331	1,403	1,521	1,262	14,928
1,072	959	946	1,055	1,174	1,238	1,226	11,629
7,319	7,864	6,851	6,390	7,195	7,742	7,557	78,358
13,062	13,181	11,949	11,187	12,272	14,547	15,501	1,51,857
1.96	1.92	1.71	1.63	1.79	2.12	2.26	22.16

age in the districts of Assam during the year 1928.

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
403	379	221	171	225	402	503	1,013	522	556	561	338	497	322	858	714
1,996	1,698	1,114	876	1,258	1,705	3,199	4,717	3,232	3,224	2,658	1,683	2,266	1,644	3,932	3,019
2,309	2,077	1,335	1,047	1,483	2,167	3,702	5,739	3,774	3,780	3,159	2,021	2,673	1,966	4,810	3,733
985	747	558	383	466	688	1,081	1,351	1,239	882	1,042	579	829	488	917	568
553	483	263	153	186	245	357	535	462	483	487	428	497	285	670	474
353	319	215	161	150	297	449	771	645	617	570	353	480	344	534	388
258	223	153	117	142	203	276	361	293	305	331	197	310	255	375	289
628	624	283	270	261	389	553	981	701	721	695	473	702	399	782	624
494	364	230	208	156	286	553	776	734	714	693	435	584	325	640	421
3,181	2,778	1,702	1,292	1,361	2,100	3,269	4,775	4,067	3,722	3,818	2,465	3,393	2,096	3,948	2,784
5,580	4,855	3,037	2,339	2,844	4,207	6,971	10,505	7,841	7,507	6,977	4,486	6,066	4,002	8,758	6,497
580,906	568,880	435,205	342,744	278,664	292,075	577,151	613,934	556,071	448,620	359,844	259,435	198,842	149,979	137,290	118,126
9.60	8.53	7.08	6.82	10.20	14.40	12.07	17.11	14.11	16.72	19.38	17.29	30.50	27.08	63.79	55.00

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	Newgong ...	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—contd.								
		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	1	...	1	200	290	420	6,090	6,022	12,112
2	Sylhet... ..	...	...	...	317	276	573	32,331	29,036	61,367
	Total	1	...	1	517	476	993	38,441	35,058	73,499
ASSAM VALLEY.										
3	Goalpara	2	...	2	3,292	2,569	5,861	12,966	9,900	22,266
4	Kamrup ... ..	...	...	...	1,030	972	2,002	6,215	5,654	11,869
5	Darrang	6	2	8	1,682	1,649	3,331	5,420	5,191	10,611
6	Newgong	1	...	1	941	880	1,821	3,678	3,347	7,025
7	Sibsagar	74	67	141	1,180	1,086	2,266	7,611	7,317	14,928
8	Lakhimpur	27	24	51	1,051	1,021	2,072	6,087	5,542	11,629
	Total	110	93	203	9,176	8,177	17,353	41,377	36,961	78,358
	Total for the Province	111	93	204	9,693	8,653	18,346	79,818	72,039	151,857

to class in the districts of Assam during the year 1928.

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	8	8	16	3,453	3,378	6,831	2,428	2,416	4,844
34	9	43	3,371	3,036	6,407	1,308,734	1,232,607	2,541,341	23	25	48	12,846	11,094	23,940	19,165	17,661	36,826
67	11	78	7,789	7,590	15,379	1,570,328	1,471,497	3,041,825	31	33	64	16,299	14,472	30,771	21,593	20,077	41,670
547	375	922	35,978	31,429	65,407	406,628	355,895	762,523	115	126	241	4,478	3,561	8,039	4,479	3,674	8,153
286	113	399	51,515	50,911	102,426	397,267	365,404	762,671	34	38	72	4,170	3,842	8,012	981	802	1,783
466	244	710	50,158	46,992	97,150	252,849	224,593	477,442	82	90	181	3,132	2,989	6,121	518	452	970
24	6	30	51,723	50,648	102,371	298,731	189,276	398,007	21	21	42	2,042	1,874	3,916	673	572	1,245
1,889	1,055	2,944	42,712	39,651	82,363	433,913	389,284	823,197	54	58	112	6,037	5,808	11,845	266	298	564
2,516	2,110	4,626	51,774	47,865	99,639	312,843	273,734	586,577	24	21	45	4,825	4,352	9,177	160	124	284
5,228	3,903	9,131	281,860	267,496	549,356	2,012,231	1,798,189	3,810,417	339	363	693	24,684	22,426	47,110	7,077	5,922	12,999
5,205	3,914	9,209	289,649	275,086	564,735	3,582,559	3,269,683	6,852,242	361	396	757	40,983	36,898	77,881	28,670	25,999	54,669

to class in the districts of Assam during the year 1928—concl'd.

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
9.43	10.50	9.94	20.70	22.16	21.40	27.13	29.79	28.39	30.30	...	28.57	45.27	48.31	46.81	23.28	25.21	24.29
23.71	31.81	27.33	22.72	20.76	21.77	25.94	25.43	25.69	...	...	...	94.04	84.32	89.43	24.72	23.56	24.16
17.05	21.32	19.01	22.26	21.07	21.68	26.06	25.99	25.98	14.92	...	12.82	66.37	62.71	64.57	24.48	23.82	24.16
21.16	25.83	23.37	22.51	20.89	21.76	26.70	24.70	25.76	3.66	...	2.17	96.89	81.74	89.61	30.41	27.90	29.24
17.63	21.90	19.67	14.71	14.72	14.71	16.35	15.55	15.98	...	...	...	19.99	19.09	19.55	15.64	15.47	15.56
29.12	39.57	34.04	17.47	18.86	18.12	25.72	27.56	26.55	12.88	8.29	11.27	33.53	35.09	34.29	21.44	23.11	22.22
14.33	14.38	14.36	17.47	17.81	17.63	17.41	17.92	17.64	41.67	...	33.67	18.19	17.37	17.79	17.62	17.68	17.65
11.85	15.17	13.37	16.50	17.65	17.04	13.73	19.07	16.12	53.28	63.51	57.69	27.63	27.39	27.51	17.54	18.89	18.13
5.69	5.97	5.82	19.71	20.31	19.99	16.87	20.89	18.39	10.73	11.37	11.02	26.30	21.33	20.80	19.46	26.25	19.83
16.16	20.26	18.08	17.77	18.10	17.93	22.44	21.92	22.20	21.04	23.83	22.23	32.55	30.57	31.59	20.56	20.56	20.56
16.24	20.35	18.16	19.32	19.16	19.24	25.06	24.86	24.97	20.96	23.76	22.15	33.46	31.45	32.48	22.28	22.03	22.16

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 Diarrhoea.	Respiratory diseases.
			Male.	Female.	Total.							
DISTRICTS EXCLUDING TOWNS.												
SURMA VALLEY.												
1	Cachar	488,052	8,970	8,323	17,293	31.43	362	796	...	5,423	1,081	970
2	Sylhet	2,505,744	41,241	38,194	79,435	31.70	3,827	5,888	...	29,198	2,974	1,161
	Total	2,993,796	50,211	46,517	96,728	32.31	4,189	6,684	...	34,621	4,055	2,131
ASSAM VALLEY.												
3	Goalpara	745,293	14,321	13,449	27,770	37.33	1,723	1,167	...	17,923	222	86
4	Kamrup	734,461	10,815	10,322	21,137	28.89	261	279	...	8,401	339	198
5	Darrang	469,078	7,398	7,015	14,413	30.72	240	48	...	7,060	694	464
6	Nowgong	391,122	6,253	5,654	11,907	30.45	248	23	...	5,219	211	156
7	Sibsagar	804,955	11,164	10,469	21,633	26.88	89	62	...	8,981	1,635	1,020
8	Lakhimpur	564,363	7,974	7,609	15,583	27.61	41	156	...	6,167	943	1,141
	Total	3,709,271	58,125	54,518	112,643	30.37	2,602	1,735	...	33,751	4,044	3,065
	Total of districts excluding towns.	6,703,067	108,336	101,035	209,371	31.23	6,791	8,419	...	88,372	8,099	5,196
TOWNS.												
SURMA VALLEY.												
1	Silchar	10,304	103	74	177	17.34	1	3	...	32	23	30
2	Hailakandi	2,228	27	18	45	20.26	1	1	...	7	3	2
3	Sylhet	16,912	175	174	349	20.64	7	25	...	41	32	45
4	Karimganj	4,552	68	42	110	24.17	...	1	...	18	12	4
5	Maulvi Bazar	3,334	23	35	58	17.40	9	...	...	28	2	5
6	Habiganj	5,918	116	108	224	37.85	9	...	...	26	30	31
7	Sunamganj	4,881	63	71	134	27.46	10	6	...	19	8	6
	Total	48,029	575	522	1,097	22.84	37	36	...	171	110	123

causes in the districts and towns of the province of Assam during the year 1928.

11						12	13	14											15
Injuries.						All other causes.	Total.	Ratio of deaths per 1,000 of population.											No.
Suicide.		Wounds or accidents.	Snakes and wild animals.	Rabies.	Total.			Cholera.	Small-pox.	Plague.	Fever.	Dysentery and Diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	From all causes.			
Male.	Female.															For the year.	Mean of previous five years.		
7	7	103	21	...	133	3,153	11,923	74	163	...	11.11	2.21	1.99	28	6.46	24.43	24.16	1	
29	20	630	38	4	721	16,928	60,697	1.53	2.35	...	11.65	1.19	46	29	6.76	24.22	25.44	2	
36	27	733	59	4	859	10,081	72,620	1.39	2.23	...	11.56	1.35	71	28	6.70	24.26	25.23		
24	15	156	63	5	263	489	21,873	2.31	1.57	...	24.05	30	12	35	66	29.35	28.72	3	
20	32	67	51	22	202	1,540	11,229	36	38	...	11.48	46	27	28	2.10	15.33	23.45	4	
8	11	44	39	2	104	1,773	10,383	51	10	...	15.05	1.48	99	22	3.78	22.13	25.20	5	
8	3	44	17	2	74	947	6,878	63	66	...	13.34	54	40	19	2.42	17.59	21.57	6	
19	12	89	17	2	139	2,576	14,592	11	68	...	11.16	2.03	1.28	17	3.20	18.02	18.42	7	
15	8	81	5	1	110	2,602	11,160	67	28	...	10.93	1.67	2.02	19	4.61	19.77	20.39	8	
101	81	481	192	34	892	9,927	76,016	70	47	...	14.49	1.09	82	24	2.68	20.40	22.96		
140	108	1,214	251	38	1,751	30,008	148,636	1.01	1.25	...	13.18	1.20	77	26	4.47	22.17	23.97		
...	...	6	1	...	7	55	151	19	29	...	3.13	2.25	2.94	69	5.39	14.80	14.30	1	
1	...	1	1	...	3	21	38	45	45	...	3.14	1.35	90	1.35	9.43	17.06	13.46	2	
...	...	2	...	...	2	143	300	41	1.48	...	2.42	1.89	2.66	12	8.75	17.74	23.65	3
...	...	2	...	...	2	33	79	...	22	...	3.95	2.64	68	44	7.25	15.38	20.65	4
...	...	...	...	...	...	5	49	2.79	...	...	8.40	60	1.50	...	1.50	14.70	11.10	5
...	...	7	...	...	7	52	135	1.52	...	...	4.39	5.07	5.24	1.18	8.79	20.19	32.95	6
2	...	3	...	...	5	62	116	2.05	1.23	...	3.89	1.64	1.23	1.02	12.70	23.77	23.15	7
3	...	21	2	...	26	376	879	77	75	...	3.56	2.29	2.56	54	7.83	18.30	21.13		

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 diarrhoea.	Respiratory diseases.
			Male.	Female.	Total.							
TOWNS—concl'd. ASSAM VALLEY.												
8	Dhubri	6,707	142	117	259	38.61	4	...	...	19	22	24
9	Goalpara	6,212	90	69	159	25.60	15	...	...	58	11	16
10	Gauripur	4,311	109	93	202	46.85	14	2	...	45	9	8
11	Gauhati	16,480	253	233	486	29.49	8	1	...	88	24	18
12	Barpeta	11,730	343	295	638	54.39	28	...	...	83	46	24
13	Palasbari ... ..	...	42	47	89	32.51	...	...	...	21	1	2
14	Tezpur	7,341	113	106	219	29.83	2	...	...	36	23	47
15	Mangaldai	1,023	12	13	25	24.44	3	...	...	8	6	...
16	Nowgong	6,885	138	135	273	39.5	2	1	...	24	29	22
17	Jorhat	6,626	107	94	201	30.34	...	1	...	32	18	26
18	Sibsagar	5,329	102	94	196	36.78	1	...	...	46	21	1
19	Golaghat	3,655	54	67	121	33.10	...	...	...	37	10	14
20	Nazira... ..	2,632	56	56	112	42.56	...	...	...	76	8	3
21	Dibrugarh	16,067	230	250	480	29.99	9	1	...	63	42	80
22	North Lakhimpur	1,966	22	17	39	19.84	1	...	...	23	1	11
23	Doom Dooma	1,162	14	12	26	22.38	...	...	...	20	13	...
24	Tinsukia	3,680	36	28	64	20.78	...	...	...	33	8	...
Total		101,146	1,863	1,726	3,589	35.48	87	6	...	712	292	296
Total for towns		149,175	2,438	2,248	4,686	31.41	124	42	...	883	402	419
Total for the Province		6,852,242	110,774	103,283	214,057	31.24	6,915	8,461	...	89,255	8,501	5,615

Supplementary (optional) Statement

		1		2		3		4		5		6	
Towns.		Malaria.		Enteric fever.		Measles.		Relapsing fever.		Kala azar.		Other fevers.	
		Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.
Silchar	...	11	1.07	...	...	3	.19	...	...	1	.01	1.7	1.66
Sylhet	...	37	2.18	1	.05	3	.17	...	...	...	...	...	...
Habiganj	...	7	1.18	2	.23	...	...	...	...	12	2.02	5	.84
Karimganj	...	14	3.07	...	...	...	...	...	...	...	...	4	.87
Gauhati	...	7	.42	1	.06	...	...	...	...	1	.06	79	4.79
Barpeta	...	73	6.22	...	...	8	.68	...	...	1	.08	1	.08
Dhubri	...	5	.74	2	.29	...	...	...	...	9	1.34	3	.44
Goalpara	...	14	2.22	...	...	1	.16	...	...	2	.32	41	6.60
Tezpur	...	6	.81	1	.13	1	.13	...	...	11	1.49	17	2.31
Nowgong	...	...	...	...	...	...	...	...	...	4	.58	20	2.90
Jorhat	...	12	1.81	6	.90	...	...	...	...	2	.30	12	1.81
Dibrugarh	...	7	.43	3	.18	...	...	...	...	3	.18	50	3.12
Shillong	...	5	.29	...	...	2	.11	3	.17	3	.17	49	2.84

in the districts and towns of the province of Assam during the year 1928—concluded.

11		12	13	14														15
Injuries.						Ratio of deaths per 1,000 of population.												
Suicide.		Wounds or accidents.	Snakes and wild animals.	Rabies.	Total.	All other causes.	Total.	Cholera.	Small-pox.	Plague.	Fever.	Dysentery and diarrhoea.	Respiratory diseases.	Injuries.	All other causes.	From all causes.		Number.
Male.	Female.															For the year.	Mean of previous five years.	
1	...	1	...	...	2	98	169	60	...	...	283	328	358	30	1461	2520	2714	8
1	1	29	130	241	...	...	934	177	258	16	467	2093	2318	9
...	46	124	325	46	...	1044	209	186	...	1067	2876	2505	10
...	...	4	...	...	4	160	303	49	06	...	534	146	109	24	971	1839	2367	11
...	...	2	2	...	4	130	315	239	...	...	708	392	205	34	1168	2683	3061	12
...	1	1	6	31	...	...	...	767	36	73	36	219	1132	Not available.	13
1	...	5	...	1	7	89	204	27	...	...	490	313	640	95	1212	2779	3147	14
...	...	1	...	...	1	6	24	293	...	...	782	587	...	98	587	2346	2346	15
1	...	5	...	...	6	63	147	29	15	...	349	421	320	87	915	2135	2594	16
...	...	2	...	1	3	55	135	...	14	...	483	272	392	45	830	2067	2053	17
...	...	3	...	...	3	27	99	19	...	...	863	394	19	56	507	1858	1914	18
...	1	1	...	...	2	35	98	...	...	...	1012	274	383	55	958	2681	2025	19
...	7	94	...	...	...	2387	303	114	...	266	3571	2014	20
...	...	8	...	1	9	136	340	56	06	...	394	262	509	56	850	2124	2693	21
...	10	46	51	...	...	1170	51	560	...	509	2340	2899	22
...	1	1	2	36	...	...	...	1721	1119	...	86	172	3098	2754	23
...	6	47	...	...	...	1071	260	...	...	195	1526	1299	24
4	1	32	2	5	44	905	2,342	86	06	...	704	268	292	43	894	2315	2529	
7	1	53	4	5	70	1,281	3,921	83	28	...	592	269	281	47	859	2159	2395	
147	109	1,267	253	43	1,821	31,289	151,857	1,01	123	...	1303	124	82	27	457	2216	2397	

VI(a) for the year 1928.

7		8		9		10		11		12	Deaths under one year.			Infant mortality rate.
Dysentery.		Diarrhoea.		Pneumonia.		Phthisis.		Other respiratory diseases.		Deaths from child-birth.				
Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.		Male.	Female.	Total.	
12	1.17	11	1.07	14	1.37	6	.58	28	2.74	6	10	8	18	101.69
12	.70	20	1.18	2	.11	4	.23	39	2.30	14	39	35	74	212.03
13	2.19	17	2.87	5	.84	...	..	26	4.39	4	27	19	46	205.35
5	1.09	7	1.53	...	...	...	...	4	.87	3	14	6	20	181.81
15	.91	9	.54	12	.72	5	.30	1	.06	24	38	38	76	156.37
33	2.81	13	1.10	17	1.44	6	.51	1	.08	3	47	27	74	115.98
15	2.23	7	1.04	14	2.08	6	.89	4	.59	3	19	17	36	138.99
8	1.28	3	.48	13	2.09	3	.48	...	...	5	15	15	30	188.67
17	2.31	6	.81	19	2.58	17	2.31	11	1.49	5	14	14	28	127.85
29	4.21	...	...	...	...	...	...	22	3.19	4	16	13	29	106.22
13	1.96	5	.75	12	1.81	2	.30	12	1.81	2	18	6	24	119.40
42	2.62	...	...	...	...	...	...	80	4.99	3	29	20	49	102.08
7	.40	9	.52	19	1.10	6	.34	...	...	1	23	20	43	93.07

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	12	1,103	292	128	47	11	56	75
2	Sylhet ...	40	39	10,781	1,068	901	529	422	394	616
	Total ...	52	51	11,884	1,360	1,029	576	433	450	691
	ASSAM VALLEY.									
3	Goalpara ...	18	17	2,137	329	86	33	17	73	96
4	Kamrup ...	16	14	1,954	49	27	4	21	22	35
5	Darrang ...	13	10	1,406	102	16	8	17	32	46
6	Nowgong ...	10	8	1,495	6	85	8	10	12	2
7	Sibsagar ...	17	9	2,143	84	19	1	6	9	11
8	Lakhimpur ...	15	6	1,702	9	7	8	7	...	11
	Total ...	89	64	10,837	579	240	62	78	148	201
	Total for the Province	141	115	22,721	1,939	1,269	638	511	598	892

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	10	1,103	776	7	18	29	80	94	142	155
2	Sylhet ...	40	37	10,781	1,198	435	683	754	995	805	685	541
	Total ...	52	47	11,884	1,974	442	701	783	1,075	899	827	696
	ASSAM VALLEY.											
3	Goalpara ...	18	15	2,137	269	118	105	94	191	178	166	147
4	Kamrup ...	16	11	1,954	26	21	41	25	50	96	8	11
5	Darrang ...	13	10	1,406	27	3	3	...	6	8	2	18
6	Nowgong ...	10	5	1,495	2	...	...	1	6	5	5	3
7	Sibsagar ...	17	11	2,143	59	8	5	6	6	9	12	13
8	Lakhimpur ...	15	12	1,702	30	26	38	4	43	6	24	10
	Total ...	89	64	10,837	404	176	192	130	302	302	217	202
	Total for the Province	141	111	22,721	2,378	618	893	913	1,377	1,201	1,044	898

districts of Assam during each month of the year 1928.

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
31	4	3	1	6	...	2	205	159	364	·78	·66	·73	1·81	1
344	140	30	70	54	127	235	2,114	1,748	3,862	1·61	1·42	1·52	1·68	2
375	144	33	71	60	127	237	2,319	1,907	4,226	1·48	1·29	1·39	1·70	
124	96	32	35	195	504	465	926	830	1,756	2·28	2·33	2·30	1·43	3
23	7	8	4	12	98	37	179	118	297	·45	·32	·39	3·38	4
25	36	10	4	13	4	34	134	111	245	·53	·49	·51	1·26	5
15	35	19	7	46	8	3	133	117	250	·64	·62	·63	1·82	6
7	7	7	3	7	11	2	43	47	90	·10	·12	·11	·69	7
4	2	...	4	4	1	3	36	15	51	·11	·05	·09	·40	8
197	183	76	57	277	626	544	1,451	1,238	2,689	·72	·69	·71	1·52	
572	327	109	128	337	753	781	3,770	3,145	6,915	1·05	·96	1·01	1·60	

Small-pox in the districts of Assam during each month of the year 1928.

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
98	67	37	22	51	406	394	800	66	111	1·55	1·65	1·60	·63	1
345	235	179	108	155	3,232	2,688	5,920	266	690	2·47	2·18	2·33	·18	2
443	302	216	1·0	206	3,633	3,082	6,720	332	861	2·32	2·09	2·21	·16	
55	50	15	31	19	611	558	1,169	53	101	1·50	1·57	1·53	·55	3
2	8	4	6	8	146	132	280	33	118	·37	·36	·37	1·06	4
6	1	...	1	...	23	25	48	...	6	·09	·11	·10	·37	5
2	...	...	...	2	13	11	24	...	...	·06	·06	·06	·86	6
2	1	1	...	...	25	38	63	2	12	·06	·10	·08	1·45	7
5	1	...	...	...	78	79	157	15	5	·25	·29	·27	·29	8
72	61	29	38	29	896	843	1,741	103	242	·45	·47	·46	·80	
515	363	236	168	235	4,536	3,925	8,461	435	1,043	1·27	1·29	1·23	·52	

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 fevers were reported.					
1	2	3	4	5	6	7	8	9	10	11
SURMA VALLEY.										
1	Cachar	12	12	1,103	1,103	506	379	378	406	437
2	Sylhet	40	40	10,781	7,768	2,887	2,294	1,945	2,073	2,273
	Total	52	52	11,884	8,871	3,393	2,673	2,323	2,479	2,710
ASSAM VALLEY.										
3	Goalpara	18	18	2,137	2,137	1,511	1,082	1,045	1,640	1,406
4	Kamrup	16	15	1,954	669	553	478	573	658	876
5	Darrang	13	12	1,406	1,348	486	534	454	332	714
6	Nowgong	10	10	1,495	109	413	344	250	339	471
7	Sibsagar	17	17	2,143	1,491	566	424	508	454	628
8	Lakhimpur	15	15	1,702	1,241	399	338	335	370	465
	Total	89	87	10,837	6,995	3,928	3,200	3,165	3,793	4,560
	Total for the Province ...	141	139	22,721	15,866	7,321	5,873	5,488	6,272	7,270

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 diarrhoea were reported.	Number in each district.	Number from which deaths from dysentery and diarrhoea were reported.					
1	2	3	4	5	6	7	8	9	10	11
SURMA VALLEY.										
1	Cachar	12	12	1,103	577	115	103	90	127	119
2	Sylhet	40	39	10,781	1,603	461	270	243	275	296
	Total	52	51	11,884	2,270	576	373	333	402	415
ASSAM VALLEY.										
3	Goalpara	18	18	2,137	131	14	5	6	21	23
4	Kamrup	16	15	1,954	121	12	17	16	24	55
5	Darrang	13	12	1,406	199	47	25	32	40	70
6	Nowgong	10	9	1,495	37	11	17	14	28	24
7	Sibsagar	17	15	2,143	427	87	57	74	124	162
8	Lakhimpur	15	15	1,702	137	54	52	62	94	91
	Total	89	84	10,837	1,952	225	173	204	331	425
	Total for the Province ...	141	135	22,721	3,322	801	546	537	733	840

in the districts of Assam during each month of the year 1928.

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
537	505	493	353	403	510	555	2,746	2,716	5,462	10.50	11.37	10.91	11.16	1
2,252	2,417	2,516	2,335	2,181	2,939	3,168	15,615	13,715	29,330	11.93	11.13	11.54	14.46	2
2,789	2,922	3,009	2,708	2,584	3,449	3,753	18,361	16,431	34,792	11.69	11.16	11.44	13.92	
1,614	1,779	1,391	1,462	1,517	1,732	1,866	10,077	7,968	18,045	24.78	22.39	23.66	25.06	3
1,079	835	719	640	747	734	701	4,498	4,095	8,593	11.32	11.21	11.27	15.10	4
498	644	706	554	725	649	808	3,708	3,396	7,104	14.66	15.12	14.88	15.74	5
560	682	579	452	437	409	307	2,726	2,517	5,243	13.06	13.30	13.17	15.10	6
1,008	1,278	1,014	819	853	982	733	4,721	4,451	9,172	10.88	11.43	11.14	9.49	7
638	545	524	612	703	674	698	3,293	3,013	6,306	10.33	11.01	10.75	9.91	8
5,397	5,763	4,933	4,539	4,992	5,080	5,113	29,023	25,440	54,463	14.42	14.15	14.29	15.16	
8,186	8,685	7,942	7,247	7,576	8,529	8,866	47,384	41,871	89,255	13.23	12.81	13.03	14.61	

Dysentery and Diarrhoea in the districts of Assam during each month of the year 1928.

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
97	56	64	73	86	98	79	526	581	1,107	2.01	2.43	2.21	2.39	1
234	134	129	144	267	313	352	1,640	1,418	3,058	1.25	1.15	1.20	1.45	2
331	190	193	217	293	411	431	2,166	1,999	4,165	1.38	1.36	1.37	1.60	
43	42	15	15	27	31	22	154	110	264	.38	.31	.35	.30	3
56	47	38	34	45	32	34	227	183	410	.57	.50	.54	.84	4
85	119	72	57	79	48	49	385	338	723	1.32	1.50	1.51	1.98	5
28	22	26	22	18	21	9	150	110	260	.62	.58	.60	.82	6
190	172	166	143	204	163	145	887	605	1,492	2.04	2.07	2.06	1.85	7
76	87	91	98	94	135	73	570	437	1,007	1.82	1.60	1.72	2.40	8
478	489	408	369	467	435	332	2,333	1,983	4,316	1.17	1.10	1.14	1.33	
809	679	601	586	760	846	763	4,519	3,982	8,501	1.26	1.22	1.24	1.45	

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	231	89	72	67	64	77
2	Sylhet	40	39	10,781	627	161	121	97	80	98
	Total	52	51	11,884	858	250	193	164	144	175
ASSAM VALLEY.										
3	Goalpara	18	14	2,137	46	14	12	12	10	6
4	Kamrup	16	15	1,954	23	17	18	19	15	14
5	Darrang	13	11	1,406	65	53	52	64	49	44
6	Nowgong	10	8	1,495	31	17	14	31	11	18
7	Sibsagar	17	16	2,143	199	63	67	100	107	133
8	Lakhimpur	15	12	1,702	66	107	108	115	107	96
	Total	89	76	10,837	369	276	271	341	299	311
	Total for the Province	141	127	22,721	1,218	526	464	505	443	486

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	...	...	...	...	...	...

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 1973.	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	Not available.	177	Not available.	17.34	151	111	14.80	10.87	15	(a)
Hailakandi	2,228		45		20.20	38	30	17.06	13.46	2	1
Sylhet	16,912		349		20.64	300	243	17.74	14.36	19	(a)
Karimganj	4,552		110		24.17	70	61	15.38	13.40	13	8
Maulvi Bazar	3,334		58		17.40	49	44	14.70	13.19	5	5
Habiganj	5,918		224		37.85	155	142	26.19	23.99	...	...
Sunamganj	4,881		134		27.46	116	103	23.77	21.10	12	2(b)
Dhubri	6,707		259		38.61	169	128	25.29	19.08	15	2(c)
Goalpara	6,212		159		25.60	130	113	20.93	18.19	...	...
Gauripur	4,311		202		46.85	124	124	28.76	28.76	9	8(d)
Gauhati	16,480		486		29.49	303	155	18.39	9.49	14	11
Barpeta	11,730		638		54.39	315	306	26.85	26.08	9	7(f)
Palasbari	2,738		89		32.51	31	31	11.32	11.32	46	39(ā)
Tezpur	7,341		219		29.83	204	158	27.79	21.52	18	18
Mangaldai	1,023		25		24.44	24	11	23.46	10.75	5	3
Nowgong	6,885		273		39.65	147	105	21.35	15.25	25	25
Sibsagar	5,329		196		36.78	99	75	18.58	14.07	12	5(e)
Naxira	2,632		112		42.56	94	94	35.71	35.71	24	5()
Jorhat	6,626		201		30.34	135	102	20.37	15.39	13	9
Golaghat	3,655		121		33.10	98	77	26.81	21.06	12	10
Dibrugarh	16,007		489		29.99	340	188	21.24	11.74	21	16
Doom Dooma	1,162		26		22.38	36	36	30.98	30.98	1	1
North Lakhimpur	1,966		39		19.84	46	34	23.40	17.29	14	6
Tinsukia	3,089		64		20.78	47	47	15.26	15.26	10	10
Total	151,913		4,686		31.41	2,342	2,518	21.59	16.57	314	208

(a) The cases were not disposed of in 1928.

(b) 7 Cases remained pending.

(c) 6 Ditto.

(d) 1 Ditto.

(e) 7 Ditto.

(f) 7 Ditto and 2 died.

(g) 1 Ditto.

(h) 3 Ditto.

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.	Sae.
										Under one year.
1	2	3	4	5	6			7	8	9
SURMA VALLEY AND HILL DIVISION.										
					Male.	Female.	Total.			
1	Cachar	529,301	148	31	45,275	35,941	81,216	2,620	34,202	2,584
2	Sylhet	2,541,341	472	109	169,773	131,908	301,681	2,768	111,376	11,926
3	Khasi and Jaintia Hills	243,263	40	10	20,019	23,684	43,703	4,370	14,301	3,645
4	Naga Hills	158,801	52	6	4,725	4,098	8,823	1,470	6,469	694
5	Lushai Hills	98,406	14	8	7,190	5,888	13,078	1,634	9,712	357
Total of Surma Valley and Hill Division		3,571,112	141	164	246,982	201,519	448,501	2,735	176,000	19,206
ASSAM VALLEY DIVISION.										
6	Goalpara	762,523	193	57	38,368	23,625	61,993	1,088	28,607	7,010
7	Kamrup	762,671	197	59	32,650	26,182	58,832	997	39,927	8,433
8	Darrang	477,442	164	38	18,637	12,594	31,231	822	22,019	5,551
9	Nowgong	398,007	108	27	17,156	12,379	29,535	1,094	23,454	5,623
10	Sibsagar	823,197	162	54	30,040	24,726	54,766	996	28,831	3,308
11	Lakhimpur	586,577	143	37	13,595	11,410	25,005	676	17,473	2,929
12	Garo Hills	179,140	57	7	13,827	12,888	26,715	3,745	8,189	5,190
Total of Assam Valley Division		3,989,557	149	279	164,273	122,304	286,577	1,027	168,500	38,044
13	Manipur State	384,016	45	17	31,286	25,155	56,441	3,320	19,366	6,396
14	Sadiya Frontier Tract	41,249	106	4	2,830	2,167	4,997	1,249	2,585	286
Total Vaccine Department		7,985,934	130	464	445,371	351,145	796,516	1,716	366,511	63,932
Total Dispensaries ... ..		...	...	...	...	...	15,749	...	5,652	573
Total tea-gardens by garden agencies ...		...	...	...	28,530	24,825	53,355	...	27,089	12,738
Total Jails, Mental hospital, Police hospitals and Infectious Diseases hospitals.		...	...	...	3,985	59	4,044	...	309	5
Total Railways ... ..		...	...	...	1,166	284	1,450	...	267	18
Grand Total		7,985,934	130	464	479,052	376,313	871,114	1,716	399,833	77,265

Sum

1	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)	366,511	430,005	366,511	430,005
By dispensary staff (Statement III)	5,662	10,089	5,662	10,089
By other agencies—Tea-gardens, Railways, Jail hospitals, Police hospitals, Mental hospitals and Infectious Diseases hospitals.	27,665	31,184	27,665	31,184
Total	399,838	471,278	399,838	471,278

DEPARTMENT.

the Province of Assam during the year 1928-29.

vaccination.			Revaccination.			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.	Revaccination.	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
19,827	32,874	259	47,014	33,006	1,408	96.70	72.37	124.37	.76	3.00	25,301	47.80	175	.33
63,533	104,021	3,445	190,305	111,468	18,453	96.38	64.86	84.79	3.09	9.69	156,502	61.58	1,640	.65
5,527	14,279	21	29,402	15,280	631	99.99	53.11	121.51	.14	2.15	23,676	97.33	20	.08
3,234	3,928	1,609	2,354	1,428	549	80.82	78.72	33.73	24.87	22.94	6,291	39.62	...	...
4,524	8,044	1,128	3,366	2,136	268	93.70	68.95	71.31	11.61	7.96	5,280	53.66	...	...
96,645	163,096	6,463	272,441	163,318	21,300	96.17	65.03	90.52	3.67	7.82	217,050	60.78	1,835	.51
14,647	26,275	1,079	33,386	23,035	5,274	95.45	81.94	64.67	3.77	15.80	38,689	50.74	595	.78
22,914	37,284	1,024	18,905	12,108	1,423	95.84	69.26	64.76	2.56	7.53	43,029	56.42	635	.83
13,892	20,907	216	9,212	5,647	813	95.89	67.23	55.62	.98	8.83	20,299	42.52	161	.34
14,157	23,004	...	6,081	3,867	...	98.08	63.59	67.51	...	...	20,609	51.78	38	.05
18,192	25,464	1,502	24,935	11,911	3,543	93.18	55.68	45.40	5.21	10.20	40,304	48.96	1,198	1.46
11,317	16,349	297	7,532	4,246	730	95.18	62.42	35.11	1.70	9.69	20,662	35.22	145	.25
2,065	7,438	257	18,026	14,135	8.8	93.77	82.48	120.42	3.14	4.93	17,159	95.78	46	.26
97,184	156,721	4,375	118,077	74,949	12,671	95.49	73.95	58.07	2.60	30.61	200,751	50.32	2,818	.71
7,862	14,258	4,733	37,075	23,907	11,350	97.44	92.93	99.38	24.44	30.61	17,634	45.92	...	...
678	2,411	104	2,412	1,967	75	97.18	84.17	106.13	4.02	3.11	1,761	42.69	1	.02
202,369	336,486	15,675	430,005	264,141	45,396	95.91	68.68	74.81	4.28	10.56	437,196	54.75	4,740	.59
2,707	4,503	782	10,087	5,147	2,349	92.27	66.50	...	13.81	23.28	25,574	...	...	...
10,046	26,229	116	26,266	20,684	1,173	97.24	82.43	...	.43	4.47	217,397	...	...	...
4	236	25	3,735	1,291	412	83.10	38.85	...	8.09	11.03	7,387	...	...	...
158	243	7	1,183	674	57	93.46	59.86	...	2.62	4.82	2,507	...	...	...
215,284	367,697	16,005	471,276	291,937	49,387	95.95	69.20	82.20	4.15	10.48	690,361	85.45	4,740	.59

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 Department.	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
95.91	68.68	464	1,716	63,932	202,369	74.81	Rs. a. p. 125,378 14 7	Rs. a. p. 0 3 4
92.27	65.50	...	...	573	2,707	...	...	...
97.06	76.67	...	...	12,761	10,208	...	...	...
95.95	69.20	464	1,716	77,265	215,284	74.81	125,378 14 7	0 3 4

Statement No. II—Showing the cost of Vaccination

No.	District.	Expenses												
		European supervising officer.	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	1,347 8 0	31	5,818 9 0	...	...	...	...	...	...	7,165 1 0
2	Sylhet ...	...	...	11	4,608 0 0	109	12,908 0 10	...	...	...	...	...	...	17,576 9 10
3	Khasi and Jaintia Hills	...	...	2	1,109 4 0	10	2,359 13 0	...	...	...	...	...	...	3,469 1 0
4	Naga Hills	...	...	1	384 0 0	6	1,320 0 0	...	...	...	...	...	...	1,704 0 0
5	Lushai Hills	...	...	1	504 0 0	8	998 6 0	...	...	...	...	...	...	1,502 6 0
6	Goalpara ...	...	...	3	1,320 0 0	57	7,281 15 2	...	...	...	...	...	...	8,601 15 2
7	Kamrup ...	...	...	3	1,671 1 0	59	7,434 2 0	...	...	...	...	...	...	9,106 3 0
8	Darrang ...	...	...	3	1,317 1 0	38	4,130 13 0	...	...	...	...	...	...	5,447 14 0
9	Nowgong ...	...	...	2	1,330 0 0	27	3,091 3 0	...	...	...	...	...	...	4,421 3 0
10	Sibsagar ...	...	...	5	2,379 7 0	54	6,841 0 0	...	...	...	...	...	...	9,220 7 0
11	Lakhimpur	...	...	3	1,534 0 0	37	4,190 5 0	...	...	...	...	...	...	5,714 5 0
12	Garo Hills	...	...	1	432 0 0	7	1,086 0 0	...	...	...	...	...	...	1,518 0 0
13	Manipur State	...	...	1	300 0 0	17	1,812 10 4	...	...	...	...	...	...	2,172 10 4
14	Sadiya Frontier Tract	...	...	1	571 14 0	4	510 14 0	...	...	...	...	...	...	1,082 12 0
Total of Districts		...	...	40	18,918 3 0	464	59,784 13 4	...	...	...	...	...	...	78,703 0 4
Shillong Vaccine Depot		1	600 0 0	1	2,880 0 0	...	2,061 0 0	...	...	...	...	...	...	6,141 0 0
Total for the Province		1	600 0 0	41	21,798 3 0	464	62,445 13 4	...	...	...	...	...	...	84,844 0 4

the Province of Assam during the year 1928-29.

ditore.

Paid from—

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.			Un-known.
						Under one year.	Over one and under six years.	Total of all ages.	
1	2	3	4	5	6	7	8	9	10
Cachar	455	...	13	...	13	13	...
Sylhet	7,114	...	3,109	171	1,534	2,465	506
Khasi and Jaintia Hills
Naga Hills	76	...	54	...	17	17	...
Lushai „	568	...	347	13	140	287	11
Goalpara	273	...	44	4	20	42	...
Kamrup
Darrang	156	...	109	6	58	91	1
Nowgong
Sibsagar	181	...	146	6	107	134	2
Lakhimpur	64	...	43	2	19	35	1
Garo Hills	1,547	...	441	101	240	353	37
Manipur State	4,821	...	970	222	482	704	224
Sadiya Frontier Tract.	494	...	386	47	77	362	...
Total	15,749	...	5,662	572	2,707	4,503	782

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

Establishment.	Persons							
	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.
	Year ending							
	1919-20.		1920-21.		1921-22.		1922-23.	
1	2	3	4	5	6	7	8	9
Government ...	22,970	20,682	26,096	24,194	48,215	45,045	24,499	22,417
Dispensaries ...	4,787	3,892	1,017	892	597	495	756	660
Municipal ...	4,606	4,276	3,858	3,431	3,467	3,268	4,925	4,382
Local Funds ...	249,931	238,218	252,105	237,777	205,990	194,158	237,170	223,749
Licensed vaccinators	...	...	...	...	...	...	...	...
Apprentices ...	5,271	5,180	2,325	2,223	950	925	2,414	2,320
Native States ...	26,595	16,159	17,059	11,690	16,529	13,240	13,892	11,524
Total ...	314,160	288,407	302,460	280,207	275,748	257,131	283,656	265,052

VACCINATION.

in the Province of Assam during the year 1928-29.

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
442	99	...	100.00	22.39	...	...
4,005	1,891	1,126	94.70	65.63	16.28	28.12
...
22	1	...	31.48	4.55	...	...
221	165	...	85.42	74.66	3.17	...
229	81	93	95.45	59.56	...	40.61
...
47	19	...	84.26	40.43	.92	...
...
35	16	4	93.06	51.61	1.37	11.43
21	9	8	83.33	69.23	2.33	38.09
1,106	605	160	87.38	68.95	8.39	14.47
3,851	2,208	957	94.37	76.29	23.09	24.85
108	53	1	93.78	49.53	...	.92
10,087	5,147	2,349	92.27	66.50	13.81	23.28

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

primarily vaccinated.

Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.
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31st March

1923-24.		1924-25.		1925-26.		1926-27.		1927-28.		1928-29.	
10	11	12	13	14	15	16	17	18	19	20	21
25,859	23,730	18,858	17,945	29,979	27,812	34,589	27,786	65,524	59,339	50,560	44,570
1,363	1,163	1,457	1,250	2,353	1,987	2,212	1,801	5,980	5,171	5,662	4,503
5,997	5,499	4,991	4,726	4,881	4,624	5,009	4,787	5,881	5,443	7,231	6,744
243,130	231,092	262,227	248,759	268,846	256,726	301,565	286,393	312,404	291,560	288,661	270,267
...
6,101	5,945	2,952	2,877	733	700	900	885	1,092	1,059	713	657
13,534	10,506	16,325	11,961	18,089	15,370	16,972	14,655	18,304	15,995	19,366	14,258
295,984	277,935	306,810	287,518	324,881	307,219	361,247	336,407	409,185	378,579	372,193	340,989

Statement No. V—Showing particulars of Vaccination verified by Inspecting Officers for the year 1928-29.

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 ...	34,215	47,456	1,212	1,159	18,327	22,268	3.54	2.44	53.56	46.92	91.74	61.34	91.74	57.73	96.70	72.57
Sylhet ...	114,485	194,310	5,833	6,545	48,830	74,078	5.09	3.37	42.13	58.12	92.46	53.66	76.66	50.91	96.38	64.86
Khasi and Jaintia Hills ...	14,301	29,402	...	...	14,164	10,048	...	...	99.04	34.17	...	...	99.09	65.20	99.90	53.11
Naga Hills ...	6,523	2,376	455	425	2,070	1,345	6.97	17.83	31.73	56.61	...	...	83.09	60.30	80.82	78.72
Lushai „ ...	10,009	3,587	251	188	1,535	637	2.49	5.24	15.26	17.76	26.23	16.66	17.88	24.39	93.70	68.95
Goalpara ...	28,651	33,615	1,569	2,592	8,836	8,201	5.55	7.71	20.37	24.46	91.67	67.51	81.15	50.91	95.45	81.94
Kamrup ...	39,927	18,005	2,806	908	14,848	8,629	7.03	4.80	37.19	43.64	95.30	55.92	91.11	54.98	...	...
Darrang ...	22,128	9,259	3,280	354	14,716	4,578	14.82	3.82	66.50	49.44	95.76	59.89	93.03	72.89	95.89	67.23
Nowgong ...	23,454	6,081	2,637	694	17,115	3,569	11.31	11.03	72.84	56.57	97.11	58.65	97.72	51.66	98.08	63.59
Sibsagar ...	28,977	24,979	2,655	1,240	15,080	9,004	9.16	4.97	52.04	30.96	88.66	57.88	89.51	49.51	93.18	55.65
Lakhimpur ...	17,516	7,553	701	406	10,992	4,858	4.09	5.36	62.73	64.32	94.72	89.78	93.92	77.15	95.18	62.42
Garo Hills ...	8,630	19,132	1,170	2,720	1,632	5,745	13.56	14.22	17.75	30.33	88.88	89.41	92.56	89.2	93.77	82.48
Manipur State ...	20,396	40,926	748	1,450	5,137	11,829	3.68	3.54	25.26	28.99	96.92	73.03	97.72	89.05	97.44	92.53
Sadiya Frontier Tract ...	2,971	2,520	102	32	1,770	1,032	3.43	1.27	59.58	46.95	96.29	46.88	95.82	76.16	97.18	84.17
Total ...	372,173	440,662	23,459	18,713	171,352	165,811	6.10	4.25	46.04	37.06	87.45	63.48	85.49	62.37	95.01	68.69

Statement No. VI—Showing the number of vaccinations performed in Municipal towns on children under one year of age during the year 1928-29.

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 1929.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Cachar	Silchar ...	195	15	52	21st January 1892.
	Hailakandi ...	46	9	2	10th November 1922.
Sylhet	Sylhet ...	322	70	30	1st October 1882.
	Habiganj ...	227	46	93	11th December 1913.
	Sunamganj ...	143	33	55	28th June 1915.
	Karimganj ...	135	19	45	27th July 1915.
	Maulvi Bazar ...	78	13	7	16th April 1916.
Khasi & Jaintia Hills	Shillong ...	470	47	78	21st June 1895.
	Total of Surma Valley and Hill Division.	1,616	252	362	
Goalpara	Dhubri ...	260	41	175	13th February 1891.
	Goalpara ...	141	25	86	12th November 1890.
	Gauripur ...	181	40	21	15th September 1922.
Kamrup	Ganhati ...	491	88	57	August 1882.
	Barpeta ...	629	77	349	29th October 1915.
Darrang	Tezpur ...	220	36	114	22nd May 1907.
	Mangaldai ...	23	5	10	12th October 1906.
Nowgong	Nowgong ...	279	32	157	7th April 1897.
Sibsagar	Sibsagar ...	202	19	98	21st January 1892.
	Jorhat ...	188	22	150	12th April 1892.
	Golaghat ...	131	15	8	24th March 1892.
	Nazira ...	114	33	70	1st December 1916.
	Dibrugarh ...	416	56	140	September 1883.
	Doom Dooma ...	18	...	6	21st October 1918.
	Tinsukia ...	72	8	28	31st August 1922.
	Total of Assam Valley Division.	3,365	497	1,469	
	Total for the Province.	4,981	747	1,831	

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

District.	1919-20.		1920-21.		1921-22.		1922-23.	
	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	·03	22,736	·02	21,459	·003	20,263	·04	21,557
Sylhet	·16	127,816	·46	142,767	·29	127,139	·009	116,561
Khasi and Jaintia Hills ... ..	...	10,824	·20	10,627	·12	14,508	·008	9,885
Naga Hills ... ..	...	4,569	...	9,539	...	4,748	...	5,682
Lushai „ ... ..	...	7,098	...	6,294	...	5,249	·01	3,247
Goalpara	·66	23,579	·09	25,300	·48	22,434	1·05	23,724
Kamrup	·13	32,386	·08	28,613	·27	17,383	1·13	29,711
Darrang	·19	11,162	·49	13,670	2·38	13,036	·05	15,951
Nowgong	·02	12,845	·07	13,141	·40	14,522	3·12	14,907
Sibsagar	·58	28,601	·28	24,258	·10	17,028	·04	21,816
Lakhimpur	·09	16,915	·05	17,555	·07	15,608	·09	16,052
Garo Hills	·06	5,138	·08	7,121	·02	6,312	·04	9,351
Manipur State ... ..	...	50,439	...	18,154	...	16,214	...	15,714
Sadiya Frontier Tract ... ..	...	1,351	...	1,803	...	1,182	...	1,056
Total	·20	355,459	·24	340,301	·35	295,626	·38	305,214

from small-pox and the number of successful vaccinations during the ten years ending 1928-29.

1923-24.		1924-25.		1925-26.		1926-27.		1927-28.		1928-29.	
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
·02	19,225	·01	19,613	·05	21,904	·01	24,769	·15	41,331	1·61	65,942
·02	118,735	·02	122,817	·06	139,006	·16	156,196	1·37	253,654	1·79	219,845
...	11,772	...	11,145	·004	13,547	·05	19,188	·28	63,020	·06	29,559
...	5,626	...	5,142	·006	4,859	...	8,740	·006	8,845	...	5,374
...	2,811	...	4,313	...	5,329	...	6,712	...	9,588	...	10,632
·29	26,738	·19	27,680	·30	31,517	·57	42,533	1·68	65,943	1·20	49,433
1·33	34,481	·96	41,750	·69	39,986	1·32	48,991	·67	49,939	·37	49,392
·62	17,013	·56	17,558	·22	20,353	·36	21,387	·10	25,860	·10	26,664
2·72	15,205	·15	18,006	·02	20,389	·01	23,095	·005	26,443	·06	26,871
·06	27,826	·26	23,748	2·99	40,821	3·40	61,006	·57	50,473	·06	37,525
·04	15,030	·02	16,576	·14	22,346	·38	24,436	·53	26,400	·15	20,639
·02	7,183	...	7,832	·02	8,106	·50	23,994	·41	41,017	·35	22,531
...	12,540	...	13,356	...	16,300	...	15,598	...	34,317	...	41,077
...	1,454	·02	1,133	·09	1,353	·05	2,197	...	3,757	...	4,793
·40	315,639	·22	330,672	·45	385,816	·65	478,842	·79	700,587	·86	610,277

Year 1911 and the number of persons employed in the various industries.

Year	1911			1910			1909			1908		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
1911	10,000	5,000	5,000	9,500	4,750	4,750	9,000	4,500	4,500	8,500	4,250	4,250
1910	9,500	4,750	4,750	9,000	4,500	4,500	8,500	4,250	4,250	8,000	4,000	4,000
1909	9,000	4,500	4,500	8,500	4,250	4,250	8,000	4,000	4,000	7,500	3,750	3,750
1908	8,500	4,250	4,250	8,000	4,000	4,000	7,500	3,750	3,750	7,000	3,500	3,500
1907	8,000	4,000	4,000	7,500	3,750	3,750	7,000	3,500	3,500	6,500	3,250	3,250
1906	7,500	3,750	3,750	7,000	3,500	3,500	6,500	3,250	3,250	6,000	3,000	3,000
1905	7,000	3,500	3,500	6,500	3,250	3,250	6,000	3,000	3,000	5,500	2,750	2,750
1904	6,500	3,250	3,250	6,000	3,000	3,000	5,500	2,750	2,750	5,000	2,500	2,500
1903	6,000	3,000	3,000	5,500	2,750	2,750	5,000	2,500	2,500	4,500	2,250	2,250
1902	5,500	2,750	2,750	5,000	2,500	2,500	4,500	2,250	2,250	4,000	2,000	2,000
1901	5,000	2,500	2,500	4,500	2,250	2,250	4,000	2,000	2,000	3,500	1,750	1,750
1900	4,500	2,250	2,250	4,000	2,000	2,000	3,500	1,750	1,750	3,000	1,500	1,500
1899	4,000	2,000	2,000	3,500	1,750	1,750	3,000	1,500	1,500	2,500	1,250	1,250
1898	3,500	1,750	1,750	3,000	1,500	1,500	2,500	1,250	1,250	2,000	1,000	1,000
1897	3,000	1,500	1,500	2,500	1,250	1,250	2,000	1,000	1,000	1,500	750	750
1896	2,500	1,250	1,250	2,000	1,000	1,000	1,500	750	750	1,000	500	500
1895	2,000	1,000	1,000	1,500	750	750	1,000	500	500	500	250	250
1894	1,500	750	750	1,000	500	500	500	250	250	500	250	250
1893	1,000	500	500	500	250	250	500	250	250	500	250	250
1892	500	250	250	500	250	250	500	250	250	500	250	250
1891	500	250	250	500	250	250	500	250	250	500	250	250
1890	500	250	250	500	250	250	500	250	250	500	250	250

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 1928.

Extract from the Proceedings of the Governor of Assam and the Minister of Local Self-Government in the Medical Department, Public Health Branch, No. 1133M., dated the 24th September 1929.

READ—

The Public Health Report for the year 1928.

RESOLUTION.

BOTH the birth-rate and the death-rate improved during the year 1928, and the excess of the former over the latter, which represents the natural increase of the population, was higher than in any year since the reconstitution of the province in 1912. The birth-rate rose from 30·25 per mille in the previous year (and 30·01, the quinquennial average) to 31·24, and the death-rate decreased from 23·47 in the preceding year (and 23·97, the quinquennial average) to 22·16 per mille. Only in two other provinces, namely, Burma and the North-West Frontier Province, was a lower death-rate recorded. The Director of Public Health attributes these satisfactory features, which, despite the dubiety of such comparisons owing to defects in registration, are reflected in the statistics of mortality from all the principal diseases except small-pox, to better health conditions following the favourable climatic factors of the year and to prosecution of the intensive campaigns against cholera and *kala azar*.

2. The death-rate on the tea estates, 18·01 per mille, was again considerably lower than the provincial rate. This is evidently due to the better sanitary conditions and supervision prevailing on the tea estates; and, though the proportion of births is still lower than that in the province as a whole, the increase in the garden population was 10·1 per mille or 1·03 more than the provincial increase. The health of the larger towns was also satisfactory, save in Shillong, where the problems of sanitation have caused Government some concern.

3. There was no change in the agency employed for the collection and registration of vital statistics. Since, as was pointed out in the resolution on the last annual report, the value for statistical purposes of the registration returns depends upon the accuracy of the collection, it is regrettable that there was also little improvement in the work of the agency responsible. Birth-rates in the rural areas range between 56·79 and 3·67 and death-rates between 43·61 and 3·50, figures only too indicative of defects. The percentage of omissions found by the vaccination staff in checking urban registration was considerably higher for both births and deaths than last year, and it is clear, as the Director of Public Health points out, that more attention must be paid to this check particularly in the smaller towns and also in Sibsagar and Golaghat. Though registration is compulsory in the towns, no less than three important towns, including Shillong, appear to have made no check at all.

4. The improvement in the mortality from the chief diseases did not extend to small-pox, which prevailed in severe epidemic form in the districts of Sylhet, Cachar and Goalpara. The total number of deaths registered from small-pox during the year under report was 8,461 as compared with 5,237 in the preceding year. The death-rates for the two years were 1·23 and ·76 respectively, as compared with ·42, the average of the previous ten years. The increase in mortality from small-pox, particularly in Sylhet, is, according to the Director of Public Health, mainly due to defective vaccination and slackness in supervision of the work of the vaccinators. Though the vaccinating staff has recently been increased, he has called attention

to a more serious defect than shortage of staff in the absence of efficient control. The provision of an adequate supervising staff of rural health officers as adumbrated in the resolution on the last report may not be possible in the early future. Meanwhile Government have under consideration the possibility of improving the means of control, so far as the fault lies with the rules and orders and with division of responsibility between the Civil Surgeons and the local boards.

5. The report for 1923 includes for the first time a chapter corresponding with the triennial report hitherto separately published on vaccination, and the Director has therefore included the vaccination figures for the past three years. In future only annual figures will be required. The results are interesting, and the Governor and his Minister are glad to observe that they indicate a growing popularity of vaccination among the masses. This may in part be due to the advantages attending the use of *anti-cholera* vaccine and the phenomenal success of *kala azar* injections.

6. Government observe with satisfaction the decrease in the number of deaths from cholera reported during the year, which were 6,915 as compared with 15,392 in 1927. A temporary epidemic unit was created for the district of Goalpara, which had lightly escaped in 1927 but showed the highest death-rate from cholera, *i.e.*, 2.30, in 1928. The epidemic staff in Sylhet, which district reported the next highest death-rate, was increased by two more units consisting of six sub-assistant surgeons and twelve disinfectant carriers. The epidemic units appear to have fully justified their existence, though the system of co-ordination enabled the assistant and the sub-assistant surgeons of the *kala azar* staff, the sub-assistant surgeons of the local board dispensaries and the subdivisional medical officers also to play their part. The units were employed, in addition to the actual treatment of patients, on the disinfection of water-supplies, inoculation of all possible contacts with *anti-cholera* vaccine, and the instruction of the people in the dangers arising from impure water by magic lantern slides and other means. It has been mentioned that the figures show people to be taking more freely to inoculation. The manufacture of cholera vaccine at the provincial Pasteur Institute has been satisfactory in enabling prompt supplies to be made. An important step has been taken in the manufacture of combined cholera and dysentery bacteriophage at the Pasteur Institute and its administration both as a prophylactic and as a remedy in selected areas. The method as applied to epidemics is still in an experimental stage, but the results are remarkably encouraging. The problem of manufacturing a uniform product is nearing solution. That however, of securing proper controls in the field is, Government understand, the chief difficulty in the experiment. A demonstration of the value of this product as a simple and readily available tool in epidemics of cholera and dysentery would be of more than provincial importance.

7. *Anti-malaria* measures were continued at Pasighat, Haflong, Kohima and Lumding and were undertaken in the forest area at Kachugaon in the Goalpara district. Malaria is, however, of such widespread importance in Assam that these measures hardly touch the fringe of the problem. As quinine treatment must always form a prime factor in dealing with this disease, the Governor and his Minister are glad to hear that the number of parcels of quinine sold during the year rose to 7,841 from 5,570 in 1927. They hope, however, that the time may not be long delayed when it will be possible to organize a campaign against the root causes of malaria, which continues to be a constant cause not only of sickness and death but also in all probability of lowered vitality.

8. The campaign against *kala azar* was continued with vigour as in preceding years. The number of deaths from *kala azar* fell from 2,859 in 1927 to 1,660 in 1928, and the number of cases from 33,415 to 23,576 in the two years. This satisfactory result, as the Director remarks, is due to the continuance of free treatment with Urea stibamine throughout the province. The Governor and his Minister have read with pleasure the account of the good work done by the special staff, and of the co-operation of the Civil Surgeons and their subordinates. They fully recognize the difficulties met with by the staff engaged in such a campaign, especially in a primitive and rugged area like the Garo Hills, and regard it as therefore all the more important that the staff should be carefully selected for the purpose, and hill men utilised as far as possible for work among the hill tribes.

9. It is observed that there is a satisfactory increase in the expenditure of local bodies upon conservancy, but that the amount spent upon drainage is still lamentably small. Proper drainage constitutes an important health factor, especially in malarious places. It is hoped that a Public Health Engineer will shortly be appointed and that the Director will in the future find less matter for adverse comment in the sanitation of the towns.

10. The Governor and his Minister have perused with interest the remarks of the Director in paragraph 50 of the Report anent the prevalence of food adulteration. They are at present in doubt whether the Public Health scheme mentioned by him will in view of the recent floods be financially possible in the immediate future. His opinion that there is need for a provincial Food Adulteration Act engages attention. It is however a question requiring close consideration whether the existing provisions of law are not adequate in view of the present limitations of staff and popular education, and in particular whether the provincial laboratory as at present constituted would be capable of operating such an Act.

11. The second Assistant Director of Public Health whose appointment was sanctioned by Government during the year joined his duties in the month of September and was posted to Sylhet, the other Assistant Director of Public Health being transferred to Gauhati for work in the Assam Valley Division.

12. The charge of the Department was held by Major T. D. Murison, I.M.S., throughout the year. The Governor and his Minister congratulate this officer and his staff on a successful year's work. Their thanks are due also to Major S. L. Mitra, I.M.S., Officiating Director of Public Health, for his 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.*

The Government of India have received with interest the reports of the Commission of Enquiry into the affairs of the Government of Assam, and are glad to see that the Commission has found that the Government of Assam have done much to improve the condition of the people of Assam, and that the Government of Assam have done much to improve the condition of the people of Assam, and that the Government of Assam have done much to improve the condition of the people of Assam.

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SHILLONG :

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