

Annual vaccination returns of the Province of Assam : with brief explanatory notes.

Contributors

Assam (India)

Publication/Creation

Shillong : Government Press, [1918]

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ANNUAL VACCINATION RETURNS

OF THE

X

PROVINCE OF ASSAM

FOR THE YEAR

1917-18

WITH BRIEF EXPLANATORY NOTES

BY

MAJOR T. C. McCOMBIE YOUNG, I.M.S.,
SANITARY COMMISSIONER, ASSAM.



SHILLONG :

PRINTED AT THE ASSAM SECRETARIAT PRINTING OFFICE.

1918.

Price Eleven annas.

[Price One shilling.]

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FROM

MAJOR T. C. McCOMBIE YOUNG, M.D., D.P.H., I.M.S.,
SANITARY COMMISSIONER, ASSAM,

To

THE SECOND SECRETARY TO THE CHIEF COMMISSIONER
OF ASSAM

Dated Shillong, the 1st July 1918.

SIR,

I HAVE the honour to submit herewith the Annual Vaccination Returns of the province of Assam for the year 1917-18, with brief explanatory notes.

I have the honour to be,

SIR,

Your most obedient Servant,

T. C. McCOMBIE YOUNG, *Major, I.M.S.,*

Sanitary Commissioner, Assam.

Enclosures :—

- 1 Report.
- 1 Diagram.
- 7 Statements.

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NOTES ON VACCINATION IN ASSAM FOR THE YEAR 1917-18.

1. *Introductory.*—I was in charge of the Department throughout the year and the usual routine of work was followed.

2. *Vaccination agencies.*—The vaccination of the general population was performed by 305 departmental vaccinators and on tea estates the vaccination work was done by the garden medical staff. The average number of persons vaccinated by each vaccinator was 1,047 during the year 1917-18, as compared with 1,080 in the preceding year.

3. *Total number of operations.*—The total number of vaccination operations performed by all agencies during the year 1917-18 was 354,323, as compared with 371,662 in 1916-17, showing a decrease of 16,761 in the primary operations and 578 in re-vaccinations.

The total number of operations as performed by the different agencies is distributed as follows :—

319,566	operations by departmental vaccinators ;
3,270	„ by the staff of dispensaries ;
28,927	„ by the tea garden agencies ;
2,479	„ by the Jail and Lunatic Asylum agencies ; and
81	„ by railway medical officers.

The variations in the district returns are noted in paragraph 8 of the report.

4. *Deaths from small-pox.*—The ratio of deaths from small-pox during the year 1917 was .59 per mille of population, against .47 in 1916. The highest ratio 2.24 was reported from the district of Cachar, followed by the districts of Garo Hills .98, Sibsagar .96, Goalpara .79 and Kamrup .74. The rate for the Cachar district was the highest since 1903.

5. *Dispensary vaccination.*—Three thousand two hundred and seventy persons were vaccinated at dispensaries during the year 1917-18, as compared with 3,712 in 1916-17, showing a decrease of 442 cases. As remarked in the previous reports, vaccination by the dispensary staff is not pressed, and only those who visit dispensaries for this purpose are vaccinated there.

6. *Percentage of successful operations.*—The percentage of success in known cases was for all agencies 93.90 in primary operations and 67.05 in re-vaccinations during the year under report, as compared with 97.73 and 69.40, respectively, in the preceding year.

The fall in the success rate is due to the issue in October of vaccine which had been in cold storage for periods approximating to six months, and had deteriorated somewhat in potency. These vaccines had been proved to be free from extraneous organisms and had been tested in Shillong to ascertain their potency. In spite of giving good results in the hills, the potency of the lymph was inadequate to resist the adverse effect of high temperatures in the plains in October, and the result was that a large number of insertions failed. To this result the unsatisfactory working of the cold storage plant contributed by exposing the stored lymph to a higher temperature than that at which it should be stored. For next season's work, lymphs of more recent origin will be issued for October work and precautions to prevent delay in use will be more stringently enjoined. A more even temperature in the cold storage room is now being maintained, but it is probable that three months will prove to be the maximum period of storage permissible at the temperatures attainable with the present plant, and that we shall have to regulate our issues accordingly. Against these failures must be set on the credit side of the account the gratifying absence of septic arms, or excessive reaction, as the result of insertions made with the stored lymph.

7. *Different methods of vaccination.*—As in previous years, all vaccination operations were performed with glycerinated lymph manufactured in the Vaccine Depot at Shillong.

8. *Vaccination work in different districts.*—Compared with the preceding year, the number of persons vaccinated by all agencies in the province during the year 1917-18 showed a decrease of 17,339 cases. The districts which showed an increase were Manipur State (+12,929), Kamrup (+9,264), and Lakhimpur (+8,282). The increase in the district of Kamrup is due to an increase in the staff of vaccinators

employed from 40 to 50, and to careful supervision by the Civil Surgeon. In Manipur the increase is reported to be due to vaccination having been carried on throughout the year instead of during six months of the vaccination season. I am not disposed to accept without reserve the figures returned from Manipur, as 2,830 operations per vaccinator is a phenomenal record, being more than double the best seasonal records from plains districts where the population is more closely aggregated and much more easily accessible, and I propose to enquire whether the Civil Surgeon has himself verified sufficient of the returns to be able to vouch for their accuracy, as it would appear as if either the Manipuri vaccinators are exceptionally energetic and their visits unusually welcome or else that their returns are unreliable. The large decrease of 27,012 and 15,188 cases in the districts of Sylhet and Cachar, respectively, is very unsatisfactory. The growing increase in the mortality from small-pox in the district of Cachar is of serious import. The Civil Surgeon attributes the decrease in the vaccination operations to stricter supervision, but an analysis of the figures submitted from this district suggest the contrary view. Whatever may be the cause of the fall, the vaccination of the district should in future receive more attention with the object of increasing the number of operations performed. In Sylhet the decrease is attributed by the Civil Surgeon to a comparative freedom from widespread epidemics of small-pox as compared with the preceding year in which 13 extra vaccinators had to be entertained to deal with epidemics. Statement VII appended to the report shows that there was a further increase in mortality from small-pox in the district during the year under report and that the number of operations performed is the lowest since 1910-11. The explanation given cannot be accepted as satisfactory and it is necessary that more attention should be given to vaccination by the Civil Surgeon, as the system of delegating its supervision to the Subdivisional Assistant Surgeons is associated with the unfortunate results revealed by the returns in question. The decrease of 6,137 operations in the district of Sibsagar is attributed by the Civil Surgeon to the following causes—(1) a smaller number of vaccinations being performed in the non-vaccination season as compared with the preceding year, (2) non-receipt of a number of returns from tea gardens, and (3) the exclusion from the return of 2,008 entries which were found by the inspecting staff to be false. Falsification of returns seems common in this district and several vaccinators were punished for false entries. It is only fair to the Civil Surgeon to add that the vaccination inspecting staff in this district during the past year have worked very badly, being incompetent or ignorant, or both. A pleasing contrast with the disappointing work in these three districts is afforded by the returns from Nowgong where the steady increase in the protection afforded by vaccination and the resulting fall in the ratio of mortality from small-pox is most satisfactory. Much credit is due to the Deputy Commissioner and the Civil Surgeon for the results of their combined efforts, which one could wish to see imitated elsewhere. High percentages of success in re-vaccinations in the districts of Naga Hills (79·39), Goalpara (77·05), Sibsagar (76·51) and Lakhimpur (76·83) seems improbable, and will be investigated. The higher percentage of cases in which results were not ascertained by vaccinators in the district of the Lushai Hills received the attention of the Civil Surgeon. It is stated that in spite of his instructions one of the four temporary vaccinators failed to carry out orders.

9. *Composition and strength of the inspecting staff.*—There was no change under this head during the year under report.

10. *Verification by inspecting officers.*—The Civil Surgeons inspected 18,945 primary operations and 2,796 re-vaccinations, or 6·98 and 5·42 per cent., respectively, of the total number of operations of each class performed during the year. The percentage of inspections was the highest in the district of Nowgong, followed by Manipur, Lushai Hills, and Sylhet. In the last named district the Civil Surgeon was assisted by Assistant Surgeons in charge of the subdivisions. The amount of verification done by Civil Surgeons is not wholly satisfactory. The Civil Surgeon, Cachar, in whose district small-pox was rife, inspected only 735 operations and one would have thought that under the circumstances this department of his work should have received more attention. Other plains districts returning small inspection figures are Darrang and Lakhimpur. These low verification figures may be compared with those from Nowgong where Dr. Dodds Price inspected 2,158 operations. The importance of these inspections lies in the fact that the success or otherwise of district vaccination is very largely dependant in the amount of attention given to it by the district Civil Surgeon. The subordinate inspecting staff inspected 55·13 per cent. of the primary operations and 40·86 of the re-vaccinations during the year under report, as compared with 65·10 and 32·81, respectively, of the preceding year.

11. *Vaccination in compulsory areas.*—During the year under report, out of an estimated number of 3,602 infants available for vaccination in the towns in which vaccination is compulsory, 1,935 infants or 53 per cent. were successfully vaccinated, as compared with 56 per cent. in 1916-17. The degree of protection afforded to infants by successful vaccination appears satisfactory in the towns of Nowgong, Nazira, Jorhat, Goalpara, and Tezpur, in which almost all available infants were vaccinated. In Dhubri though the percentage of 47 is very low, the history of all children whose births were registered has been carefully followed by the Civil Surgeon. The ratio was very low in all towns in the Surma Valley Division—Sunamganj 25, Karimganj 25, Sylhet 26, Silchar 38, Habiganj 45 and Maulvi Bazar 55 and the administration of the compulsory Act in these towns is lax. The unsatisfactory state of vaccination in Sylhet called for adverse comment on the occasion of my inspection of the town and since the close of the year, active steps have been taken to improve matters. In the Assam Valley Division the lowest rate of 19 per cent. was recorded in Barpeta town, but here we are intentionally proceeding with caution, as there are religious scruples to be overcome. In the town of Dibrugarh (51 per cent.) negligent administration of the Act by the Sanitary Inspector who is responsible to the Civil Surgeon for its working, was brought to notice in my last inspection.

12. *Vaccine De ót.*—The number of capillary tubes loaded during the year 1917-18 was 561,854 as compared with 638,559 in the preceding year. The number of calves inoculated during the year was 402, and lymph was taken from 316 calves, 86 calves being rejected for unsatisfactory vesicles and other reasons. The average number of tubes filled per calf was 1,778 against 1,726 in 1916-17.

13. *Cost of the Department.*—The total cost of the Department was Rs. 55,000-11-10 against Rs. 52,635-11-9 in the previous year, *i.e.*, an excess of Rs. 2,334-0-1 due to increased expenditure on the pay of vaccinators. The cost per successful vaccination was three annas and two pies in 1917-18 against two annas and nine pies in 1916-17. One notes that in Cachar there were two vaccinators less than in last year but some Rs. 300 more was disbursed in pay, and that the travelling allowance drawn is almost the same as last year, *viz.*, Rs. 1,348, although the vaccination inspecting staff inspected only 10,702 primary operations as against 15,084 primary operations inspected in 1916-17. In Nowgong with the same strength of inspecting staff, 10,134 inspections were performed, and the travelling allowance drawn was Rs. 503. In Kamrup with a larger population to serve and with double the number of vaccinators, double the number of operations, and double the number of inspections, the travelling allowance drawn was Rs. 404 only. In this district the vaccination arrangements receive close attention from the Civil Surgeon.

The conclusion to be drawn is that the Cachar travelling allowance should be reduced to a reasonable figure by more careful scrutiny of the travelling allowance bills by the Civil Surgeon, who is responsible for checking the travelling allowance bills, not only of the inspecting staff but of the vaccinators, by the rules framed under the Local Self-Government Act.

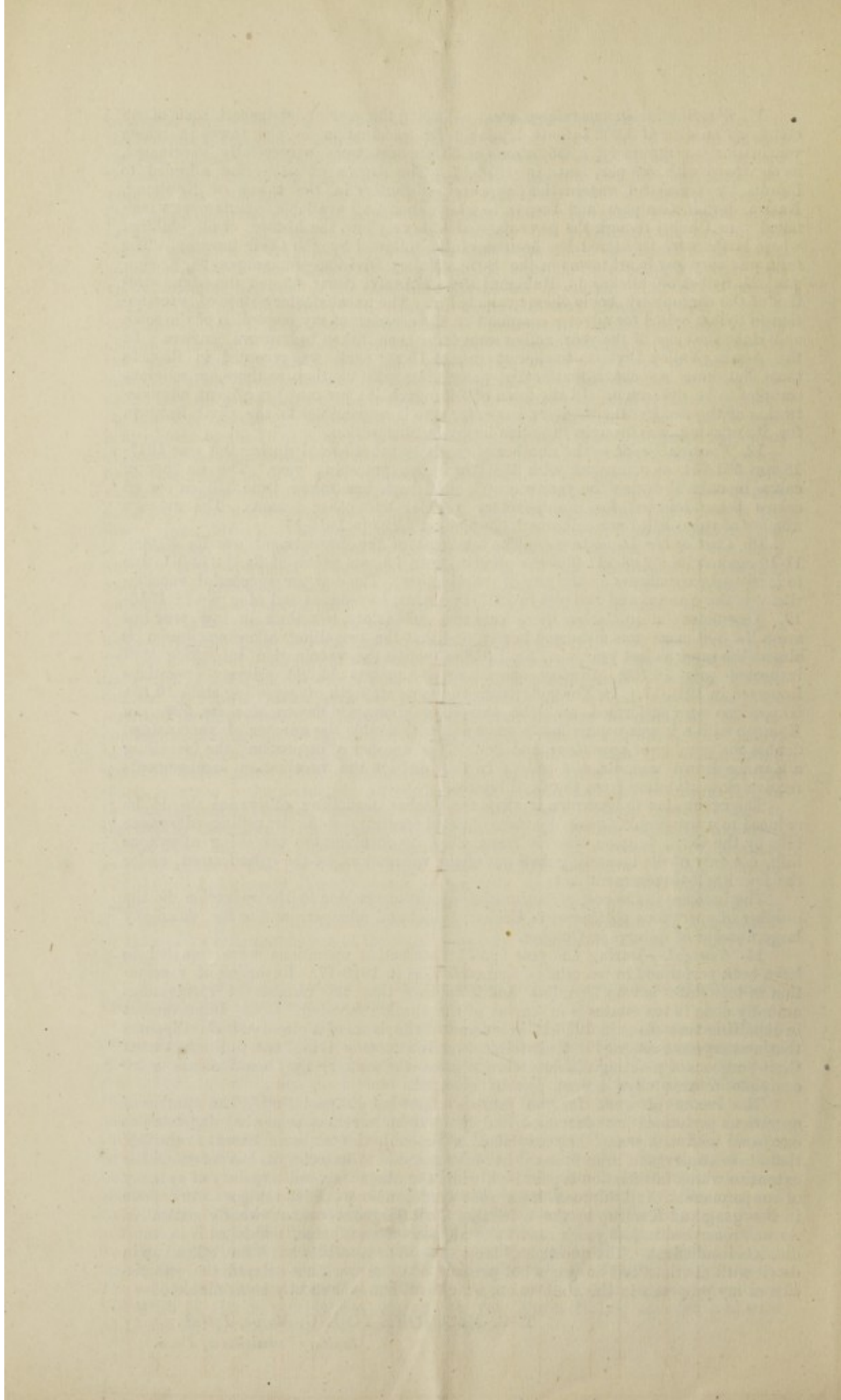
The increase in the cost per successful operations is due to the reduction in the number of operations performed in Cachar, Sylhet and Sibsagar, and to the unusually large number of failures in October.

14. *General.*—During the year 28,927 vaccination operations were reported to have been performed in tea estates, against 35,618 in 1916-17. Reporting of vaccination in tea estates is very irregular and it appears that the number of vaccinations actually done in tea estates is in excess of the number reported. Some improvement in reporting took place in 1916-17 as a result of the issue of a circular, but it appears that matters have relapsed to their former condition. One is inclined to think that if Civil Surgeons of planting districts were to press the matter, they could secure more complete returns than are at present received.

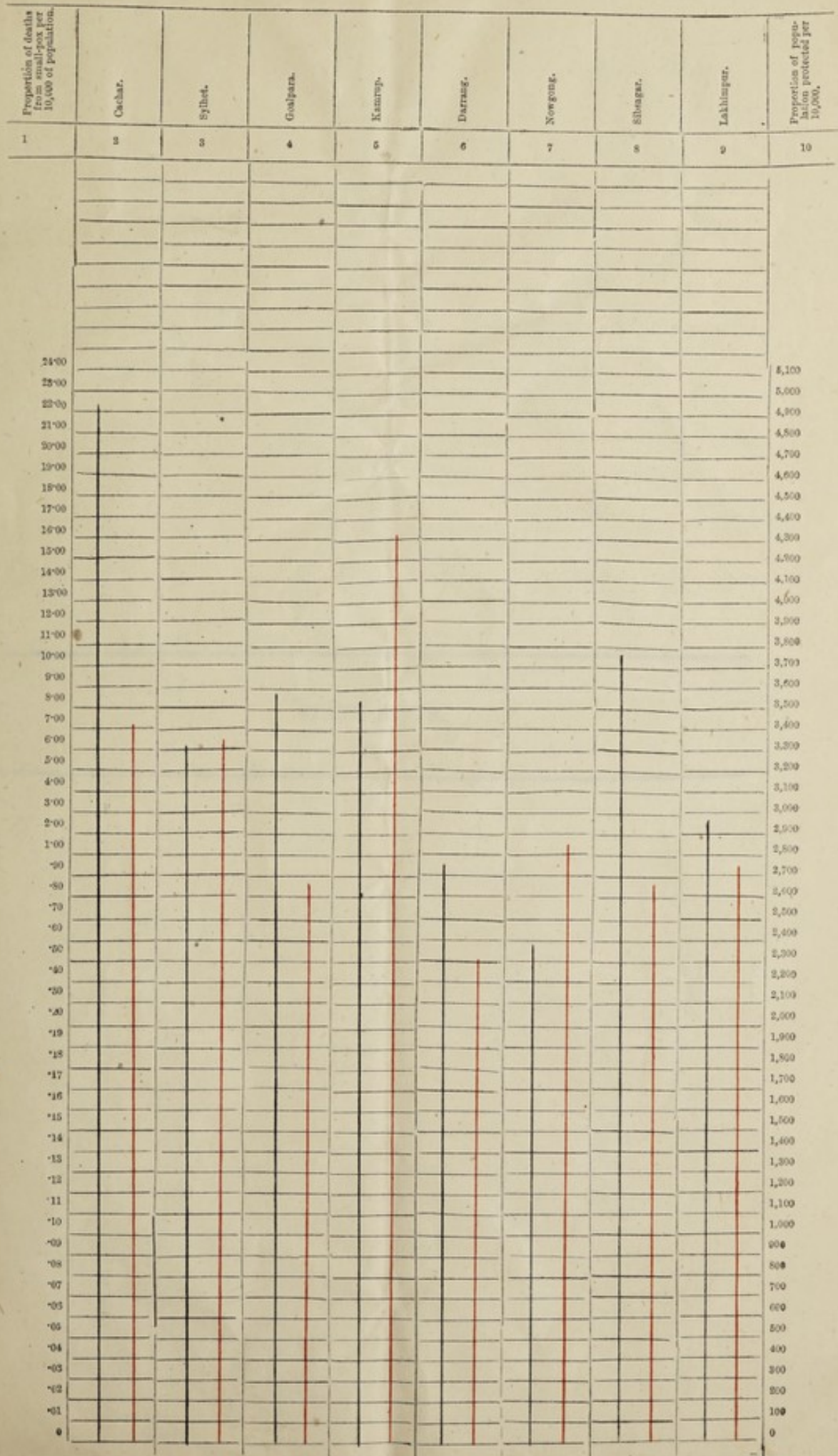
The record of work for the year is somewhat disappointing. The number of operations performed has decreased and the expenditure has somewhat increased as compared with last year. The explanation probably lies to some extent in the fact that closer supervision in so far as it has been possible to exercise it, has decreased the extent to which falsification is practised, while the absence on military duty of so many of our permanent Civil Surgeons is an undoubted handicap which the good work done in Nowgong and Kamrup by the officiating Civil Surgeons cannot wholly neutralise. As was remarked in last year's report the number of vaccinators employed is in most districts insufficient. The question of increasing their numbers has been taken up in detail with district Civil Surgeons but pressure of other work has delayed the submission of my proposals in this connection, which will however shortly be available.

T. C. McCOMBIE YOUNG, Major, I.M.S.,


Sanitary Commissioner, Assam.



The following diagram illustrates the death-rates from small-pox in each district side by side with the proportion of the population protected against the disease by vaccination during the seven years 1911-12 to 1917-18.



Note.—Black lines indicate death-rates from small-pox.



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No.	Name	Age	Sex	Profession	Religion	Marital Status	Income	Assets	Liabilities
1	John Doe	35	M	Teacher	Methodist	Married	\$1200	House, Car	None
2	Jane Smith	28	F	Nurse	Catholic	Single	\$800	None	None
3	Robert Brown	45	M	Engineer	Protestant	Married	\$1500	House, Car	None
4	Mary White	52	F	Homemaker	Methodist	Widowed	\$600	None	None
5	William Black	30	M	Student	Baptist	Single	\$400	None	None
6	Elizabeth Green	40	F	Teacher	Methodist	Married	\$1000	House	None
7	Thomas Grey	55	M	Retired	Protestant	Widowed	\$900	House	None
8	Sarah Hall	25	F	Student	Catholic	Single	\$300	None	None
9	James King	38	M	Farmer	Methodist	Married	\$1100	Land, House	None
10	Anna Lee	60	F	Retired	Protestant	Widowed	\$700	None	None

STATEMENTS.

Statement No. I—Showing particulars of Vaccination in

No.	District.	Population of district according to the census of 1911.	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		
					Male.	Female.	Total.		Total.	Under one year.	
1	2	3	4	5	6	7	8	9			
SURMA VALLEY AND HILL DISTRICTS.											
1	Cachar ...	By paid vaccinators ...	497,463	139	18	11,428	9,593	21,021	1,168	16,355	1,309
2	Sylhet ...	By paid vaccinators ...	2,472,671	458	84	56,013	50,026	106,039	1,262	91,423	6,626
3	Khasi and Jaintia Hills ...	By paid vaccinators ...	235,069	40	9	4,615	4,651	9,266	1,029	6,799	1,069
4	Naga Hills ...	By paid vaccinators ...	149,623	48	5	2,205	1,869	4,074	814	3,775	443
5	Lushai Hills ...	By paid vaccinators ...	91,204	12	5	3,110	2,133	5,243	1,048	4,666	82
	Total of Surma Valley and Hill Districts.	By paid vaccinators ...	3,446,030	136	121	77,371	68,272	145,643	1,203	123,018	9,529
ASSAM VALLEY DISTRICTS.											
6	Goalpara ...	{ By paid vaccinators ... By licensed vaccinators }	696,613	151	{ 2 27	365 11,535	300 10,021	665 21,556	332 798	410 18,760	290 6,367
7	Kamrup ...	By paid vaccinators ...	667,828	173	50	26,170	22,089	48,259	965	45,438	10,041
8	Darrang ...	By paid vaccinators ...	377,314	110	18	7,761	6,582	14,343	797	12,304	1,855
9	Nowgong ...	By paid vaccinators ...	303,596	79	16	7,911	6,009	13,920	814	12,931	1,970
10	Sibsagar ...	By paid vaccinators ...	690,299	138	34	14,665	12,313	26,378	776	20,669	3,561
11	Lakhimpur ...	By paid vaccinators ...	468,989	103	20	9,100	7,918	17,018	851	15,016	3,250
12	Garo Hills ...	By paid vaccinators ...	158,936	50	6	3,936	3,191	6,227	1,937	5,810	3,275
	Total of Assam Valley Districts.	{ By paid vaccinators ... By licensed vaccinators }	3,267,605	118	{ 146 27	67,508 11,535	58,402 10,021	125,910 21,556	862 798	112,578 18,760	24,242 6,367
13	Manipur ...	By paid vaccinators ...	346,223	41	9	16,008	9,464	25,472	2,830	14,482	9,000
14	North-East Frontier District.	By paid vaccinators ...	...	...	2	771	214	985	492	484	69
	Total Vaccine Department.	{ By paid vaccinators ... By licensed vaccinators Total ... }	7,059,857	115	{ 278 27 305	161,658 11,535 173,193	136,332 10,021 146,373	298,010 21,556 319,566	1,072 798 1,047	230,562 18,760 269,322	42,840 6,367 49,207
	Total Dispensaries ...	...	...	...	...	...	...	3,270	...	1,929	103
	Total Railways ...	...	...	...	...	56	25	81	...	22	...
	Total tea-gardens by garden agencies ...	...	...	...	...	14,647	14,280	28,927	...	19,255	7,831
	Total Jails and Lunatic Asylum ...	...	...	...	...	2,430	49	2,479	...	753	...
	Grand total	...	7,059,857	115	305	190,326	160,727	354,323	1,047	291,281	57,141

Sum

1	Total number of persons vaccinated.		Total number of operations performed		
	Primary.	Re-vaccinations.	Primary.	Re-vaccinations.	
2	3	4	5		
By special staff (Statement I)	269,322	59,244	269,322	59,244
By dispensary staff (Statement III)	1,929	1,341	1,929	1,341
By other agencies—tea-gardens, Railway and Jail agencies	20,030	11,457	20,030	11,457
Total	...	291,281	63,942	291,281	63,942

DEPARTMENT.

the Province of Assam during the year 1917-18.

vaccination.			Re-vaccination			Percentage of successful cases in which the results were known.		Persons successfully vaccinated per 1,000 of population.	Percentage of unknown cases to total cases.		Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.				
Successful.			Total.	Successful.	Unknown.	Primary.	Re-vaccination.		Primary.	Re-vaccination.	Number.	Ratio per 1,000.	Number.	Ratio per 1,000.			
Over one and under six years.	Total of all ages.	Unknown.						10							11	12	13	14	15	16	17	18	19	20	21	22	23	24
10,149	14,686	289	4,666	2,766	390	91.41	64.68	35.08	1.76	8.35	18,136	36.45	268	.53			
63,666	86,758	162	14,616	7,191	4	94.62	49.21	37.83	.17	.02	113,824	46.03	729	.29			
3,381	6,750	...	2,467	1,152	...	99.27	46.69	33.61	...	...	8,426	35.84	21	.08	
2,487	3,486	49	209	235	3	93.55	79.39	24.66	1.29	1.00	4,578	30.05	...	...	
3,099	3,181	428	577	327	63	75.06	63.61	38.46	9.17	10.91	2,979	32.65	...	...	
82,782	114,461	928	22,625	11,071	460	93.75	52.65	36.60	.75	2.03	147,943	42.96	1,018	.29			
94	397	3	255	145	4	97.54	57.76	32.94	.73	1.56	22,162	36.89	490	.81			
9,934	17,888	118	2,796	2,059	124	92.20	77.05	39.33	.62	4.43	38,881	58.22	1,029	1.54			
26,947	43,010	179	2,821	1,792	87	95.03	65.54	67.08	.59	3.08	11,851	31.40	189	.50			
7,542	10,558	368	2,039	1,024	260	90.50	57.66	30.60	3.05	12.75	11,287	37.17	80	.26			
9,446	12,695	1	89	50	...	98.18	56.18	41.98	.007	...	21,519	31.17	636	.77			
13,993	19,140	669	5,709	4,264	136	95.7	76.51	33.90	3.23	2.38	12,462	26.84	55	.12			
10,178	14,552	30	2,902	1,353	241	97.04	76.83	33.91	.13	12.03	11,720	73.74	35	.22			
1,512	4,787	267	417	187	139	86.36	67.16	31.29	4.59	33.33	129,783	39.71	2,413	.73			
68,812	105,139	1,507	13,332	8,815	867	94.65	70.71	40.76	1.33	6.50	12,328	35.58	...	...	
9,934	17,188	118	2,796	2,059	124	92.20	77.05	...	.62	4.43	...	...	...	...
2,361	11,361	2,066	10,990	6,298	2,006	91.50	70.10	51.00	14.26	18.25	...	...	...	...
334	420	7	501	262	62	88.05	59.68	...	1.36	12.37	...	...	...	...
154,289	231,381	4,508	47,448	27,046	3,395	94.03	61.39	39.33	1.79	7.15	290,054	41.08	3,431	.48			
9,934	17,188	118	2,796	2,059	124	92.20	77.05	...	.62	4.43	...	...	...	...
164,223	248,569	4,626	50,344	29,105	3,519	93.91	62.29	...	1.71	7.00	...	...	...	...
1,417	1,704	45	1,311	957	104	90.44	77.36	...	2.33	7.75	1,654	...	...	...
16	20	...	59	45	...	90.90	76.27	...	...	...	107	...	...	...
8,347	18,235	85	9,672	8,922	61	91.87	92.83	...	.18	.63	18,327	...	...	...
...	567	27	1,726	695	113	78.69	43.08	...	3.58	6.54	955	...	...	...
174,103	269,025	4,733	63,942	39,724	3,797	93.90	67.05	43.74	1.62	6.02	311,097	44.06	3,431	.48			

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
93.91	62.29	305	1,047	49,207	164,223	39.3	Rs. a. p. 55,000 11 9	Rs. a. p. 0 3 2
90.44	77.36	...	...	103	1,417	...	...	...
94.26	85.63	...	...	7,831	8,363	...	...	...
93.90	67.05	305	1,047	57,141	174,103	43.74	55,000 11 9	0 3 2

the Province of Assam during the year 1917-18.

ditare.				Paid from—						Number of all successful vaccinations and revaccinations.	Average cost of each successful case.
Travelling allowance.	Contingencies.		Total cost.	Imperial Fund.	Provincial Fund.	Local Fund.	Municipalities.	Native States.	Total.		
	Cost of lymph.	Other contingencies.									
16	17	18	19	20	21	22	23	24	25	26	27
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		Rs. a. p.
1,348 1 0	...	113 10 6	4,259 13 1	...	1,829 9 6	2,207 0 1	154 3 6	...	4,350 13 1	17,452	0 3 10
2,247 11 2	...	230 2 0	12,501 0 10	...	3,665 4 0	8,457 12 5	208 0 5	...	12,501 0 10	93,540	0 2 1
927 5 0	...	15 11 0	3,355 8 4	...	3,168 4 2	...	180 4 2	...	3,355 8 4	7,002	0 6 9
233 10 0	...	3 15 0	1,380 7 3	...	1,380 7 3	...	...	...	1,380 7 3	3,721	0 5 11
357 0 0	...	44 11 9	1,075 15 0	...	1,075 15 0	...	...	...	1,075 15 0	3,568	0 4 10
391 10 2	...	650 0 0	2,255 10 0	...	1,285 10 5	966 15 7	63 0 0	...	2,255 10 0	19,789	0 1 9
404 1 9	...	45 4 0	5,508 10 4	...	1,470 2 6	3,584 11 7	543 12 3	...	5,508 10 4	44,892	0 2 0
619 15 9	...	143 4 0	3,336 7 2	...	1,474 10 5	1,681 12 9	180 0 0	...	3,336 7 2	11,582	0 4 7
503 5 6	...	30 0 0	2,532 3 3	...	1,381 8 5	1,494 1 7	66 9 3	...	2,532 3 3	12,745	0 3 7
302 14 0	...	99 6 3	3,726 11 6	...	1,402 4 4	1,802 7 2	432 0 0	...	3,726 11 6	23,494	0 2 6
748 4 0	3,596 4 0	...	1,571 4 0	1,785 0 0	240 0 0	...	3,596 4 0	15,905	0 3 7
443 0 0	...	24 2 0	1,514 10 9	...	1,514 10 9	...	...	...	1,514 10 9	4,974	0 4 10
...	308 0 0	17 0 0	1,486 10 8	...	...	...	...	1,486 10 8	1,486 10 8	17,639	0 1 4
...	171 11 0	...	171 11 0	...	...	...	171 11 0	682	0 4 3
8,526 14 4	308 0 0	1,417 2 6	47,192 11 2	...	21,839 5 9	22,229 13 2	2,136 13 7	1,486 10 8	47,192 11 2	277,674	0 2 8
...	...	4,149 5 0	7,808 0 8	...	7,808 0 8	...	...	...	7,808 0 8	...	...
8,526 14 4	308 0 0	5,566 7 6	55,000 11 10	...	29,147 6 5	22,229 13 2	2,136 13 7	1,486 10 8	55,000 11 10	277,674	0 2 2

Statement No. III—Showing Dispensary Vaccination

District.	Number of dispensaries in each district to which a vaccinator is attached.	Average number of vaccinators attached to dispensaries during the season.	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	136	...	103	11	49	98	1
Sylhet
Khasi and Jaintia Hills
Naga Hills	1,159	...	188	20	110	179	...
Lushai „	707	...	581	20	438	458	22
Goalpara	63	...	38	3	9	17	19
Kamrup
Darrang
Nowgong	518	...	499	19	379	470	...
Sibsagar
Lakhimpur
Garo Hills	121	...	60	13	28	41	3
Manipur State	532	...	431	13	403	416	...
North-East Frontier District.	29	...	29	4	1	25	...
Total	3,270	...	1,929	103	1,417	1,704	45

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							
	1908-09.	1909-10.	1910-11.	1911-12.				
1	2	3	4	5	6	7	8	9
Government	39,838	39,078	31,212	30,128	25,926	23,580	24,950	24,146
Dispensaries	3,160	2,990	2,818	2,474	2,549	2,128	1,464	1,390
Municipal	3,513	3,098	2,309	2,182	2,347	2,237	3,262	3,023
Local Funds	150,917	149,433	147,644	142,315	161,234	154,616	179,887	176,566
Licensed vaccinators	31,084	30,929	39,645	38,285	31,811	29,902	37,563	37,231
Apprentices	5,010	4,920	5,187	5,102	4,682	4,563	16,762	16,411
Native States	13,302	11,100	13,316	16,166	13,358	11,612	13,193	11,756
Total	246,824	241,548	242,131	230,652	241,907	228,638	277,481	270,523

VACCINATION.

in the Province of Assam during the year 1917-18.

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
33	11	...	96.07	33.33	.97	...
...
...
971	763	46	95.21	82.49	...	4.74
126	65	3	81.23	52.84	3.78	2.38
30	16	6	89.47	66.66	50.00	20.00
...
...
19	10	...	94.19	52.63	...	...
...
...
61	8	49	71.93	66.66	5.00	80.33
101	84	...	90.52	83.16	...	...
...	...	...	86.20	...	...	...
1,341	957	104	90.44	77.36	2.33	7.75

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

primarily vaccinated.

Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.
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31st March.

1912-13.		1913-14.		1914-15.		1915-16.		1916-17.		1917-18.	
19	11	12	13	14	15	16	17	18	19	20	21
30,130	28,802	33,014	31,655	23,384	20,649	21,309	18,365	23,969	22,218	23,473	20,246
1,036	937	1,005	900	1,580	1,430	1,025	945	2,553	2,149	1,929	1,704
3,517	3,023	2,897	2,865	2,828	2,684	5,575	5,389	5,110	4,793	4,495	4,199
179,380	176,043	179,010	176,981	169,629	163,948	173,757	168,724	213,215	208,712	201,759	189,413
45,790	44,336	44,537	43,523	34,500	32,706	25,697	24,562	18,942	18,154	18,760	17,188
13,469	13,542	15,329	15,007	17,208	16,645	16,342	15,966	6,445	6,235	7,888	7,614
13,656	11,521	13,626	12,343	13,756	12,595	13,974	12,966	12,945	12,023	12,947	9,909
287,178	278,274	289,448	283,274	262,945	250,657	257,749	246,917	283,180	274,284	271,251	250,273

Statement No. V—Showing particulars of Vaccination verified by Inspecting Officers for the year 1917-18.

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 Deputy Sanitary Commissioners or Civil Surgeons.		By Native Superintendents or other inspecting officers.		By Deputy Sanitary Commissioners or Civil Surgeons.		By Native Superintendents or other inspecting officers.		By Deputy Sanitary Commissioners or Civil Surgeons.		By Native Superintendents or other inspecting officers.			
	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Cachar ...	16,458	4,699	628	197	10,702	2,665	3.82	3.28	65.02	56.71	97.03	43.91	90.50	64.77	91.41	64.68
Sylhet ...	91,423	14,616	7,597	511	53,708	3,385	8.21	3.49	58.74	23.16	96.47	56.16	91.78	69.83	94.62	49.21
Khasi and Jaintia Hills ...	6,799	2,467	436	21	4,789	1,518	6.41	85	79.43	61.53	95.87	71.43	98.12	69.54	90.27	46.69
Naga Hills ...	3,963	1,270	270	823	1,532	262	6.81	64.80	46.73	15.90	72.96	88.46	84.13	53.97	93.55	79.39
Lushai ...	5,247	703	507	119	1,800	112	9.66	16.02	36.02	15.93	69.82	68.90	75.19	59.52	75.06	63.61
Goalpara ...	19,208	3,681	1,381	36	7,558	1,763	2.55	1.13	43.35	57.25	96.6	100.00	87.88	67.38	91.63	72.27
Kamrup ...	45,438	2,821	1,636	46	19,869	1,164	4.28	1.63	43.72	41.28	98.82	11.1	94.19	57.72	93.03	65.54
Darrang ...	12,394	2,039	558	138	8,392	461	4.51	6.76	68.30	23.69	90.10	44.21	82.90	43.33	90.50	57.56
Nowgong ...	13,430	108	2,124	34	10,134	33	15.81	31.48	75.45	39.55	98.54	83.35	97.43	33.33	98.18	59.18
Sibsagar ...	20,699	5,709	1,685	57	13,978	1,581	5.29	99	67.62	27.66	89.88	52.63	93.71	62.55	95.7	76.51
Lakhimpur ...	15,016	2,002	410	67	9,683	978	2.73	3.35	64.48	48.81	96.34	89.55	97.82	78.62	97.04	76.83
Garo Hills ...	5,876	478	200	33	1,784	33	3.40	6.90	39.39	6.90	96.00	100.00	86.00	60.00	86.30	67.26
Manipur State ...	14,913	11,091	1,968	804	5,332	7,186	13.37	7.24	35.88	64.79	93.73	65.92	87.03	69.72	91.50	70.10
North-East Frontier district	513	501	...	...	...	...	...	...	...	...	...	...	...	...	87.94	58.68
Total ...	271,251	51,585	15,945	2,796	149,691	21,081	6.98	5.42	55.18	40.86	91.60	67.28	89.81	69.24	93.91	62.39

Statement No. VI—Showing the number of Vaccinations performed in Municipal towns on children under one year of age during the year 1917-18.

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 1918.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Cachar	Silchar	212	28	71	21st January 1892.
Sylhet	Sylhet	450	63	102	1st October 1882.
	Habiganj	208	42	75	11th December 1913.
	Sunamganj	155	33	31	28th June 1915.
	Karimganj	97	16	21	27th July 1915.
	Maulvi Bazar	56	16	22	16th April 1916.
Khasi & Jaintia Hills	Shillong	441	63	257	21st June 1895.
	Total of Surma Valley and Hill Districts.	1,619	261	579	
Goalpara	Dhubri	191	20	81	13th February 1891.
	Goalpara	199	35	163	12th November 1890.
Kamrup	Gauhati	492	53	212	August 1882.
	Barpeta	509	58	90	29th October 1915.
Darrang	Tezpur	174	26	161	22nd May 1907.
	Mangaldai	14	9	2	12th October 1916.
Nowgong	Nowgong	206	33	174	7th April 1897.
Sibsagar	Sibsagar	146	18	89	21st January 1892.
	Jorhat	154	41	106	12th April 1892.
	Golaghat	66	14	39	24th March 1892.
	Nazira	61	17	55	1st December 1916
Lakhimpur	Dibrugarh	402	46	194	September 1883.
	Total of Assam Valley Districts.	2,614	370	1,356	
	Total for the Province.	4,233	631	1,935	

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

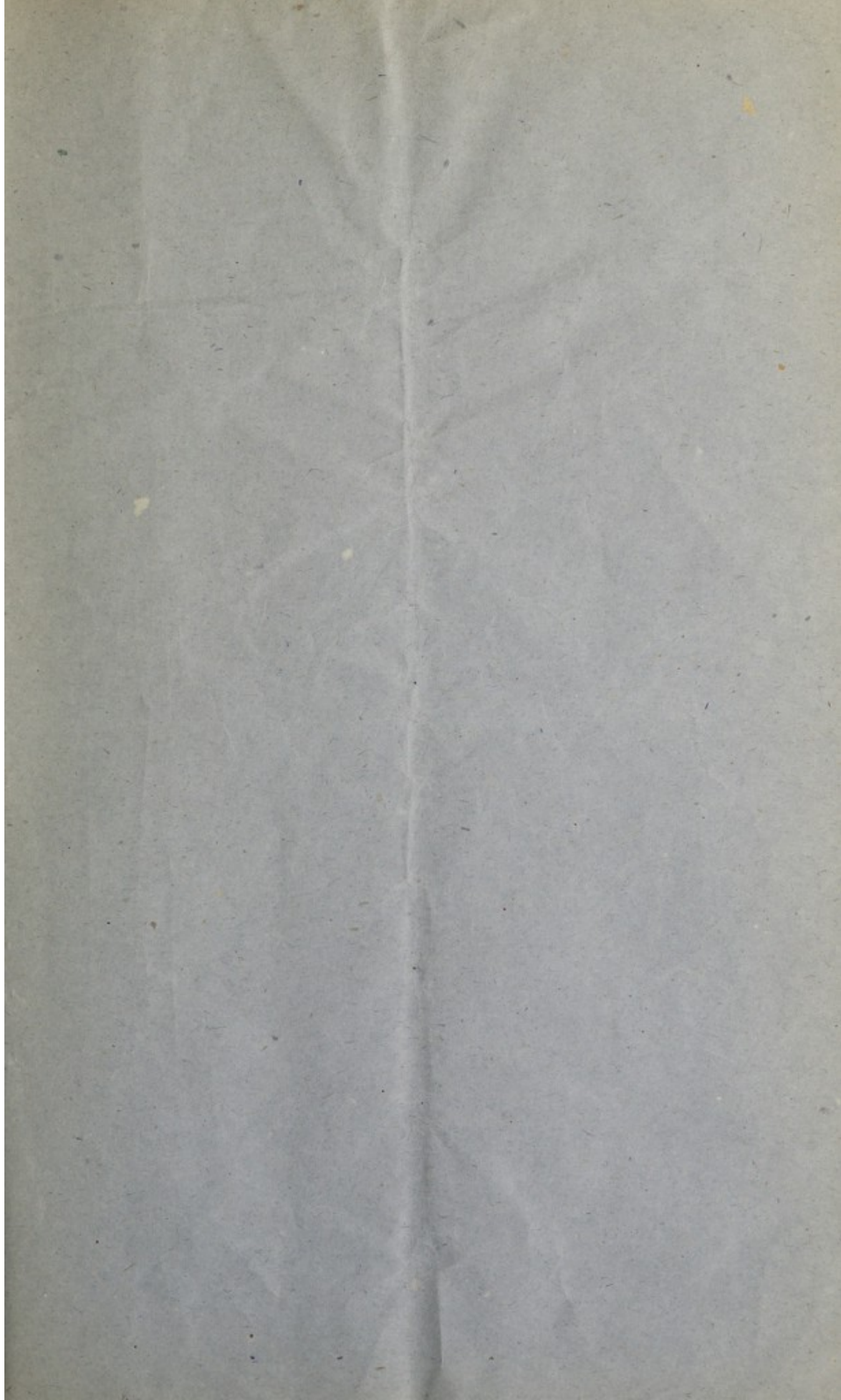
District.	1908-09.		1909-10.		1910-11.		1911-12.	
	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.
1	2	3	4	5	6	7	8	9
Cachar	·01	13,533	·02	15,177	·03	15,635	·02	16,641
Sylhet	·08	83,817	·07	79,768	·07	83,189	·38	108,987
Khasi and Jaintia Hills	·43	21,272	·59	8,815	·04	5,026	·04	7,369
Naga Hills ... ..	...	4,777	...	5,335	...	4,518	...	4,836
Lushai „ ... ..	...	3,585	...	2,738	...	2,799	...	3,121
Goalpara	·34	21,875	·83	26,561	·28	19,065	·44	23,151
Kamrup	2·40	31,024	1·07	27,111	·58	25,006	1·21	39,178
Darrang	2·77	9,028	1·22	6,778	·30	10,036	·56	10,606
Nowgong	2·44	5,483	3·49	4,523	3·05	7,456	·44	8,469
Sibsagar	·85	21,814	·57	19,084	·19	21,089	·16	18,490
Lakhimpur	·15	14,613	·08	14,688	·05	14,470	...	14,119
Garo Hills ... ..	...	14,851	·09	17,120	·15	13,219	·01	15,161
Manipur State ... ..	...	11,370	...	10,429	...	12,082	...	12,025
North-East Frontier district ... ..	...	...	...	...	...	...	...	...
Total	·64	257,042	·47	238,127	·28	233,590	·35	282,153

from small-pox and the number of successful vaccinations during the ten years ending 1917-18.

1912-13.		1913-14.		1914-15.		1915-16.		1916-17.		1917-18.	
Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.
10	11	12	13	14	15	16	17	18	19	20	21
·008	16,992	·006	19,596	...	15,146	·008	13,641	·59	26,734	2·24	17,561
·99	132,022	·47	113,226	·14	100,597	·06	102,842	·26	120,578	·52	93,549
·13	10,740	·35	9,128	·64	8,108	·02	4,963	...	9,355	·03	7,902
...	5,119	...	6,363	...	4,572	...	3,843	...	4,811	...	4,063
...	3,123	...	3,027	...	3,481	·02	3,639	...	3,610	...	4,031
·69	19,731	·59	23,408	·78	24,185	1·07	23,236	·82	20,263	·79	19,822
1·89	39,978	1·02	42,323	2·03	40,178	3·10	35,050	·79	36,891	·74	44,802
·50	10,964	·82	11,508	·36	12,092	·61	13,563	·61	11,130	·08	11,582
·95	6,602	·43	12,946	·24	12,494	·25	12,408	·34	13,106	·04	13,225
·09	18,298	·14	18,768	·18	18,077	1·22	22,813	1·35	29,676	·96	23,404
·006	14,063	·07	14,227	·09	13,982	·06	10,282	·18	9,758	·16	15,905
·09	12,338	·84	22,813	·60	9,368	·39	8,171	·13	6,773	·98	5,023
...	11,678	...	12,498	...	12,879	...	13,094	...	12,152	...	18,159
...	...	...	...	...	...	...	...	...	765	...	707
·67	301,648	·40	309,831	·37	275,159	·58	267,545	·47	305,622	·59	280,335

AMERICAN STATISTICAL ASSOCIATION

Year	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
Population	76,212,367	77,875,829	79,549,291	81,222,753	82,896,215	84,569,677	86,243,139	87,916,601	89,590,063	91,263,525	92,936,987
Male	38,106,183	38,937,914	39,769,645	40,601,376	41,433,107	42,264,838	43,096,569	43,928,300	44,760,031	45,591,762	46,423,493
Female	38,106,184	38,937,915	39,769,646	40,601,377	41,433,108	42,264,839	43,096,570	43,928,301	44,760,032	45,591,763	46,423,494
White	57,632,471	58,311,541	58,990,611	59,669,681	60,348,751	61,027,821	61,706,891	62,385,961	63,065,031	63,744,101	64,423,171
Colored	18,579,896	19,564,288	20,548,680	21,533,072	22,517,464	23,501,856	24,486,248	25,470,640	26,455,032	27,439,424	28,423,816
Foreign-born	13,110,367	13,201,887	13,293,407	13,384,927	13,476,447	13,567,967	13,659,487	13,751,007	13,842,527	13,934,047	14,025,567
Native-born	63,101,999	64,673,942	66,245,884	67,817,826	69,389,768	70,961,710	72,533,652	74,105,594	75,677,536	77,249,478	78,821,420
Urban	55,248,162	57,033,362	58,818,562	60,603,762	62,388,962	64,174,162	65,959,362	67,744,562	69,529,762	71,314,962	73,100,162
Rural	20,964,205	20,842,467	20,730,729	20,618,991	20,507,253	20,395,515	20,283,777	20,172,039	20,060,301	19,948,563	19,836,825



REPTON REPTON