TENTH TRIENNIAL REPORT

on

VACCINATION IN BENGAL

for the years

1914-15, 1915-16 and 1916-17.

by

DR. C. A. BENTLEY, M.B., D.P.H., D.T.M. & H.,
Sanitary Commissioner for Bengal.

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TRIENNIAL REPORT ON VACCINATION IN BENGAL FOR THE YEARS 1914-15, 1915-16 and 1916-17.

1. This report deals with the triennial period 1914-15 to 1916-17.

2. **Officer in charge of the department.**—Lieutenant-Colonel W. W. Clemesha was in charge of the department from 1st to 22nd April 1914, and again from 9th September 1914 to 10th April 1915, Major A. B. Fry, I.M.S., from 23rd April to 8th September 1914, and I for the rest of the triennial period.

The following statement shows the names of Medical Officers who held charge of the Deputy Sanitary Commissionerships in this Presidency, and the periods they remained in charge of the Circles under them :—

Circles.	Names of Officers who held charge of the office.	Period they remained in charge.
Presidency ...	Captain A. M. Jukes, I.M.S.	1st April 1914 to 3rd October 1914.
	Dr. B. B. Brahmachari ...	11th May 1916 to 31st March 1917.
Burdwan ...	Captain K. K. Mukherjee, I.M.S.	1st April 1914 to 1st October 1914.
	Dr. S. N. Sur, M D., D.P.H. ...	18th December 1916 to 31st March 1917.
Rajshahi ...	Dr. R. B. Khambatta, M.R.C.S., L.R.C.P., D.P.H.	1st April 1914 to 24th June 1916.
	Dr. R. C. Roy ...	25th June 1916 to 10th October 1916.
	Dr. S. P. Gupta, L.M.S. D.P.H.	14th December 1916 to 31st March 1917.
Dacca ...	Dr. M. E. Sufi, D.P.H. ...	1st April 1914 to 14th March 1916 and again from 15th June 1916 to 31st March 1917.
	Dr. B. B. Brahmachari ...	15th March 1916 to 8th May 1916.
	Dr. R. C. Roy ...	9th May 1916 to 14th June 1916.

It will be seen that there were no Deputy Sanitary Commissioners in the Presidency and Burdwan Circles during the greater part of the triennial period, and the same remark may be applied to the Rajshahi Circle as Dr. Khambatta was practically unable to do any vaccination or sanitary inspection work from September 1914, having been appointed to act as Civil Surgeon of Jalpaiguri in addition to his own duties.

3. **Strength of Staff.**—In Calcutta the average number of inspecting officers and vaccinators was 7 and 45 during 1911-12 to 1913-14, while in the rural areas of this Presidency and the mufassil municipalities and dispensaries, etc., the Inspecting staff and operators numbered 126, 1,347, 5 and 155 against 123, 1,338, 5, and 131, respectively, during the previous triennial period.

4. **General Operation.**—The total number of operations performed in this Presidency during the past year was 16,27,549 of which 1,334,186 were primary and 293,363 re-vaccination cases, against 1,639,383 with 1,267,114 primary and 372,269 re-vaccinations during 1915-16 and 1,605,711 with 1,139,384 primary and 466,327 re-vaccinations during 1914-15. The total number of persons vaccinated was 1,598,428 against 1,635,621 and 1,600,362 during the two preceding years. The average of the triennial period under review was 1,624,214 with 1,246,895 primary and 377,319 re-vaccination cases, the figures for the previous triennial period being 1,929,425, 1,722,101 and 207,324 respectively. There was thus a decrease of 305,211 cases on an

average, primary vaccinations showing a falling off of 475,206 which was to some extent counterbalanced by an increase of 169,995 in re-vaccination cases. The decrease in the total number of operations reported is chiefly due to the stricter supervision exercised now-a-days by Inspectors and Sub-Inspectors of Vaccination over the work of the vaccinators, and by Deputy Sanitary Commissioners over the work of both, the effect being to check the temptation to submit false figures. The growing difficulty experienced by licensed vaccinators in realising their prescribed fee has also got something to do with the decrease of vaccinations. Many vaccinators complain that they cannot obtain payment of their dues and unfortunately Magistrates and Panchayets are almost powerless to assist them in the absence of any enactment legalising these fees.

The rate of success under the two different heads—Primary and Revaccination, was slightly lower in the case of the former and somewhat higher in that of the latter, viz., 96·71 and 64·29 against 97·99 and 60·78 than in former years.

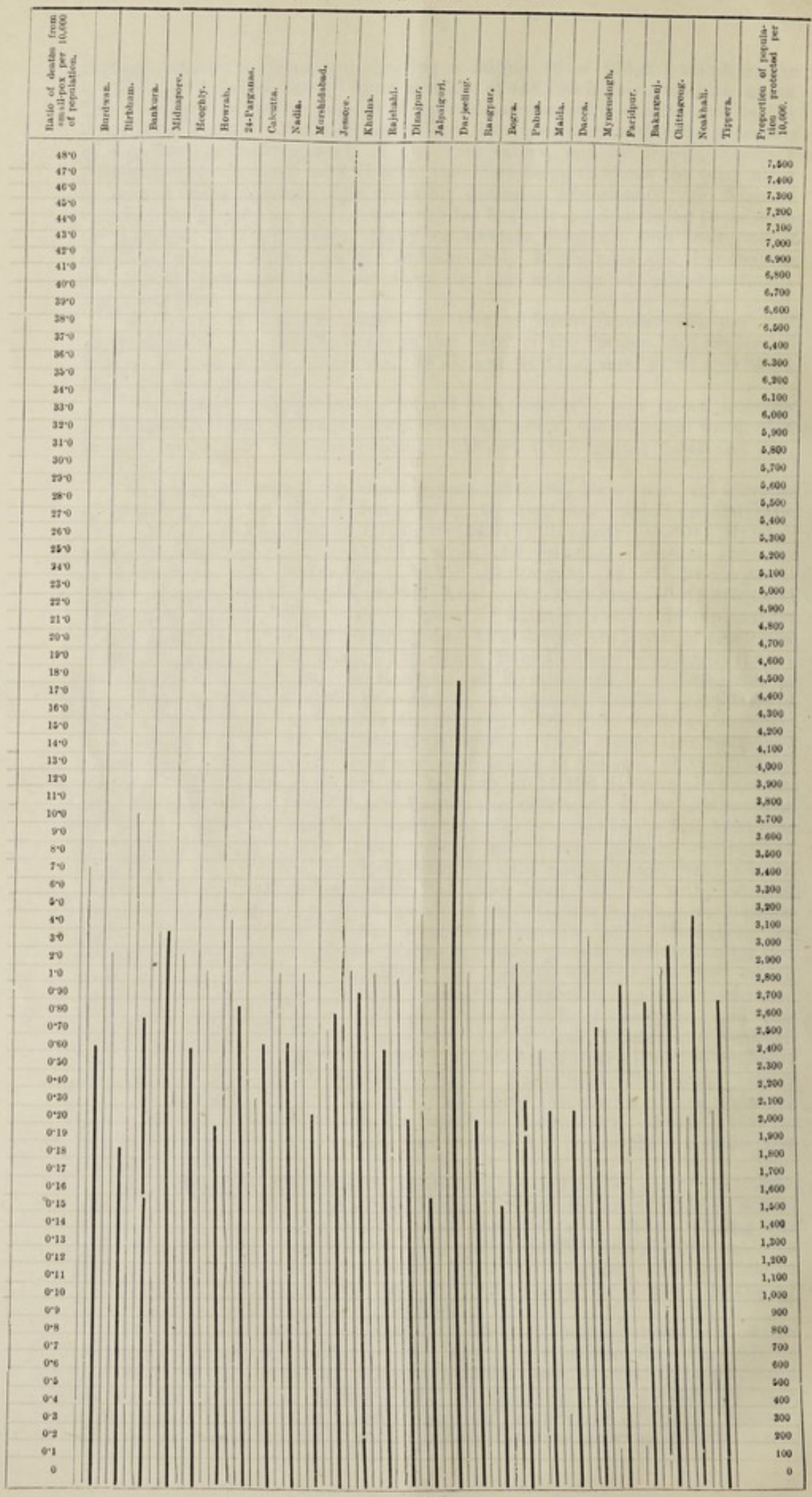
The number of operations performed by a vaccinator was on an average 1,045 against 1,245 of the previous triennial period, the average work of a licensed and a paid vaccinator being 1,028 and 1,117 against 1,340 and 768, respectively.

As compared with the preceding year (1915-16) there was an increase of operations in 13 and a decrease in 15 districts, including Calcutta. The increase was marked in Jalpaiguri (24,616), Rangpur (14,804), Mymensingh (11,562), and Faridpur (4,716), while the principal decrease occurred in 8 districts, viz., Midnapore (13,255), Backerganj (12,327), 24-Parganas (9,762), Tippera (9,945), Nadia (8,752), Khulna (7,553), Noakhali (4,980), and Chittagong (4,567). The Civil Surgeon of Jalpaiguri offers no explanation of the increase, but it is evidently due to a severe outbreak of small-pox in the Patgram, Alipur Duar, Dhup Guri, Dam-Dim and Jalpaiguri thanas and certain Tea Gardens. In Rangpur and Mymensingh it is attributed to the general healthiness of the year and the consequent smaller prevalence of malaria and cholera, and also to the activity of the staff, while in Faridpur it is reported to be due to the introduction of free vaccination in Bhanga thana, where six paid vaccinators were entertained at the cost of the District Board. In Midnapore there was an increase of 15,198 in primary vaccination, but a decrease of 28,557 in re-vaccination which led to the net decrease of 13,225. The Civil Surgeon reports that this was due to the fact that the staff was instructed by him to pay greater attention to primary vaccination. Regarding the decrease in Backerganj the Civil Surgeon says that both the licensed and the paid agency system (the latter being free) are being worked here side by side and this led the people of three thanas to refuse vaccination under the licensed system, for which they have to pay. Moreover, the licensed vaccinators could not realize the major portion of their fees for last year and so they were unwilling to perform vaccinations for which payment was uncertain. A large number of re-vaccinations were performed during the preceding year owing to greater prevalence of small-pox, and this also partly accounts for the net decrease. In Tipperah, Khulna and Noakhali the Civil Surgeons ascribe the decrease to absence of small-pox in epidemic form during the year under review, while in Nadia and Chittagong this is said to be partly due to the fact that three vaccination circles remained vacant in each of these districts for want of vaccinators. Besides this in the latter district, seven vaccinators worked for two to three months only during the season.

5. **Protection afforded to infants.**—During 1916-17, out of 1,210,260, the estimated number of available infants for vaccination, 370,659 or 306·26 per mille were successfully vaccinated as compared with 318·01 during the preceding year. In only five districts the protection afforded to infants was over 500 per mille while in the rest it was below this standard. The districts in the Dacca and Chittagong Divisions with the exception of the Chittagong Hill Tracts were the worst in this respect.

The supposed protection afforded to infants in municipalities is shown in Appendix VII attached to this report. It will be seen from this that 641·74 per mille of the surviving infant population was reported to be protected during the past year against 712·71 in the year before. But my own observations throw grave doubt upon the correctness of these figures; and recent inspections by Deputy Sanitary Commissioners in different parts

Diagram illustrating death-rates from small-pox during the year 1916-17 and degree of protection afforded 1910—17.



NOTE.—Thin lines indicate the death-rates from small-pox.
Thick lines indicate the proportion of population protected by vaccination.

of this Presidency, confirm this view and proves that a very large proportion of the child-population is entirely unprotected. This state of things constitutes a grave danger to the Province as small-pox is a disease which specially attacks children under five years of age; and epidemics of small-pox are bound in these circumstances to occur from time to time in district after district. Having regard to these facts and in view of the prevalence of small-pox since the close of the year in more or less severe form in parts of Burdwan, Hooghly, Midnapore, Jalpaiguri, Dinajpur, Pabna, Faridpur and Noakhali. I have addressed the District Boards concerned suggesting that they should take early steps to organise free vaccination throughout their respective districts. So far Jalpaiguri alone has responded in the affirmative and it would seem that District Boards generally do not realize that vaccination is an important branch of sanitation, for which they should accept responsibility. It should be mentioned here that in Bakarganj, 24-Parganas and Faridpur, the District Boards have already taken steps to organize free vaccination. And the sooner other District Boards follow their example and adopt measures for the thorough protection of the people against small-pox, the better it will be for the populations concerned.

6. **Recess Work.**—142,207 vaccinations were performed during the recess or non-working season of 1916-17, in connection with small-pox epidemics, against 215,752 and 118,585 during the two preceding years. The average operations of the triennial period under review was 1,58,848 against 123,251 during the previous epoch. In this connexion it must be pointed out that if vaccination were properly performed there should be little or no necessity for this sort of work in the off-season.

7. **Six-puncture vaccination.**—In spite of strong opposition from parents or guardians to have their infants vaccinated on more than 4 points the total number of successful primary and re-vaccination operations in six points in this Presidency during 1916-17 was 221,226 and 5,622 against 259,157, 10,212, 240,527 and 24,558, respectively, during the two previous years. The average of the triennial period was 240,303 primary, and 13,464 re-vaccination cases against 434,371 and 19,588, respectively, during the past triennium.

8. **Factory and Tea Gardens Vaccination.**—The total number of primary and re-vaccinations performed in factories and tea gardens in this Presidency during 1916-17 was 7,930 and 4,408 against 6,796 and 4,083, respectively, during 1915-16 and 2,839 and 2,620 during 1914-15. The average of the triennial period in primary and re-vaccination was 5,855 and 3,704 against 2,926 and 1,209. Thus it appear, that greater attention is being paid to vaccination both in factories and tea gardens.

9. **Cost of and contribution towards vaccination.**—The total average cost of vaccination in Bengal for the triennial period under review was Rs. 1,98,549-2-9 against Rs. 1,79,380-10-7 during 1911-12 to 1913-14, the cost of each successful vaccination being annas two and pies three against one anna and seven pies. Out of the average cost of vaccination as shown above Rs. 10,818-3-6 was contributed by District Boards and Rs. 96-8-10 by Cantonments against Rs. 2,448-8-9 and Rs. 84-2-8, respectively, during the previous triennial period.

10. **Diagram illustrating death-rates from small-pox and degree of protection afforded.**—The diagram facing this page illustrates the death-rates from small-pox in each district, the proportion of population protected against the disease by vaccination during the past seven years being shown side by side.

11. **Deaths from small-pox.**—During the past year the total number of deaths from small-pox in this Presidency was 10,519 against 24,074 and 20,734, respectively, during 1915-16, and 1914-15 the ratio per 1,000 of population being ·23 against ·52 and ·45. The largest number of deaths were recorded in the districts of Mymensingh (1,653), Bankura (1,221) Burdwan (1,206) 24-Parganas (1,161) Midnapore (1,006), Bogra (510), Jalpaiguri (494), Pabna (324), Rangpore (322), Nadia (262), Hughli (250), Dinajpur (241), Murshidabad (239), Birbhum (236), Chittagong (219) and Khulna (185), while the districts of Noakhali, Darjeeling, Calcutta, Faridpur, Malda and Bakarganj show only 33, 35, 36, 49, 62 and 71 deaths, respectively.

12. **Animal Vaccine Depot.**—The total number of calves vaccinated in the Animal Vaccine Depôt, Calcutta, during 1916-17 was 2,123 against 2,266

and 2,454 during the two preceding years, the quantity of lymph manufactured therefrom being 765,201, 783,632 and 772,587 grains, respectively. The average of the triennial period was 2,281 calves and 773,807 grains of lymph against 2,146 and 662,465 during the previous triennial poriod

13. **Different methods of vaccination.**—During the past year 3,433 primary operations were performed with lymph direct from calves 1,303,762 with lanoline lymph and 21,165 with glycerinated lymph against 6,987, 1,227,413 and 17,918, respectively, during 1915-16, and 10,630, 1,097,546 and 28,836 during 1914-15. The ratio per cent. of success under each of these methods of vaccination was 93·03, 93·33 and 96·64, respectively, against 97·47, 96·94 and 95·38 during 1915-16 and 96·81, 96·58 and 97·79, during 1914-15.

The number of revaccinations performed under each of the above processes was 2,918, 280,056 and 7,943 with a success of 54·18, 57·63, and 29·81 per cent. respectively, against 12,048, 317,932 and 11,217 with a success of 63·17 63·99 and 35·02 during 1915-16 and 20,577, 354,036 and 86,136 with a success of 70·40, 63·13 and 33·99 during 1914-15.

Although arm-to-arm vaccination was entirely abolished long ago, it is reported that 38,100 operations were performed under this system in the 24-Parganas during 1915-16, and 133 cases in Darjeeling during 1916-17. It is reported that this was resorted to on account of emergencies—an enquiry is being made into the matter.

14. **Inspections.**—During 1916-17, Dr. M. E. Sufi, Deputy Sanitary Commissioner, Dacca Circle, inspected 28,843 cases, Dr. B. B. Brahmachari of the Presidency Circle 30,633 cases, and Dr. S. N. Sur of the Burdwan Circle 17,041 cases, while Dr. S. P. Gupta of the Rajshahi Circle examined 6,961 children including many unprotected ones. The Civil Surgeons saw altogether 75,588 cases or 4·75 per cent. of the total operations performed in the Presidency. One of them, viz., the Civil Surgeon of Dinajpur, saw over 10,000 operations, one from 5,000 to 10,000, 13 from 2,000 to 5,000, 5 from 1,000 to 2,000, and 8 below 1,000 cases.

The Vaccination Inspectors and Sub-Inspectors inspected 9,38,522 cases or 59·01 per cent. of the total operations performed in the Presidency. Generally each Inspector inspected the work of all the vaccinators under him once during the season and each Sub-Inspector twice.

15. **General remarks.**—Free vaccination at the cost of District Boards was continued during 1916-17, in the Sadar Sub-Division of Bakarganj and in the 24-Parganas district, and it worked satisfactorily. It was also introduced in the Bhanga thana of the Faridpur district as an experimental measure. The Civil Surgeon writes that the system has worked better as the people who were reluctant to get vaccinated on payment of fees welcomed the opportunity of free vaccination, and thus many villages where vaccination was strongly objected to in previous years were vaccinated this year. Unfortunately the vaccine paste prepared during 1916-17 was not as satisfactory as usual. This was found to be due to the inferior quality of the lanoline available. In consequence of the present European war the depôt had to use unbleached lanoline which on analysis was found to contain a large percentage of mineral substance and free fatty acids. This affected the quality of the lymph; as a result whereof there were large failures of cases as well as in points, the number of repetition cases being consequently large.

A new method of inspection was introduced in 1916. Inspectors and Sub-Inspectors of Vaccination, as well as Civil Surgeons and Deputy Sanitary Commissioners being asked to report the proportion of children protected and unprotected by vaccination, respectively, in every village inspected by them. Already this new method of inspection has brought to light the fact that in many districts from ⅓ to ½ the children under 5 years of age escape vaccination.

It is hoped as a result of the knowledge thus gained to speedily put matters upon a proper footing by reorganizing the methods of work of the department throughout the province.

The prescribed statements are appended to this report.

C. A. BENTLEY, M.B., D.P.H., D.T.M. & H.,

Sanitary Commissioner for Bengal.

CALCUTTA:

The 12th June 1917.

STATISTICAL RETURNS.

STATEMENT No. I—*Showing particulars of Vaccination*

Number.	Districts.	Population of district according to the census of 1911.	Average population per square mile.	Average number of vaccinators employed throughout the year.	Total number of persons vaccinated. Male.	Female.	Total.	Average number of persons vaccinated by each vaccinator.	Primary. Total.
1	2	3	4	5		6		7	8
	BURDWAN DIVISION.								
1	Burdwan ... ... Licensed	1,444,185	541	38	23,380	19,419	42,799	1,126	34,573
2	Birbhum ... ... Paid by District Board ...	926,342	529	1	169	72	241	241	145
	Licensed			27	10,744	9,593	20,337	753	18,145
3	Bankura ... ... Licensed	1,081,464	415	53	25,517	22,299	47,816	902	36,626
4	Midnapore ... ... Do.	2,738,301	531	113	57,307	46,631	103,938	919	71,895
5	Hooghly ... ... Do.	938,615	811	39	15,105	13,377	28,482	730	27,673
6	Howrah ... ... Paid by District Board ...	741,719	1,489	3	2,577	1,615	4,192	1,397	3,895
	Licensed			24	10,096	10,236	20,332	847	20,325
	Total of Burdwan Division. Paid by District Board ...	7,870,626	569	4	2,746	1,687	4,433	1,108	4,043
	Licensed			294	142,149	121,555	263,704	897	209,237
	Total ...			298	144,895	123,242	268,137	900	213,277
	PRESIDENCY DIVISION.								
7	24-Parganas ... ... Paid by District Board ...	1,885,590	950	64	64,122	47,616	111,738	1,745	82,416
8	Calcutta ... ... Paid by Municipality ...	896,067	28,002	46	16,597	10,265	26,862	584	18,919
9	Nadia ... ... Licensed	1,521,928	953	70	25,940	22,838	48,778	696	43,491
10	Murshidabad ... ... Do.	1,288,791	609	45	20,597	19,009	39,606	880	33,439
11	Jessore ... ... Do.	1,737,066	506	67	31,588	27,298	58,886	878	54,992
12	Khulna ... ... Do.	1,397,579	650	49	28,348	25,981	54,329	1,109	46,602
	Total of Presidency Division. Paid by District Board ...	8,667,021	715	64	64,122	47,616	111,738	1,745	82,416
	Paid by Calcutta Municipality			46	16,597	10,265	26,862	584	18,919
	Licensed			231	106,513	94,126	201,639	873	184,524
	Total			341	187,232	153,007	340,239	998	285,859
	RAJSHAHI DIVISION.								
13	Rajshahi ... ... Licensed	14,48,930	554	35	32,586	26,273	60,159	1,718	44,542
14	Dinajpur ... ... Do	16,71,918	474	41	30,057	22,734	52,791	1,287	43,806
15	Jalpaiguri ... ... Do.	8,90,895	305	23	22,291	16,473	38,764	1,685	17,915
16	Darjeeling ... ... Paid by Improvement Fund ...	2,40,971	208	13	13,434	10,385	23,819	1,832	11,441
17	Rangpur ... ... Licensed	23,68,901	682	63	39,138	33,481	72,619	1,152	68,463
18	Bogra ... ... Do.	9,70,366	715	23	11,335	10,095	21,430	931	21,013
19	Pabna ... ... Do.	13,84,535	754	34	20,656	17,485	38,141	1,121	37,666
20	Malda ... ... Do.	9,62,765	509	23	15,987	14,832	30,819	1,339	30,593
	Total of Rajshahi Division. Paid by Darjeeling Improvement Fund.	93,39,281	518	13	13,434	10,385	23,819	1,832	11,441
	Licensed			242	1,73,350	1,41,373	314,723	1,300	2,65,058
	Total ...			255	1,86,784	1,51,758	338,542	1,327	2,76,499
	DACCA DIVISION.								
	Dacca ... ... Licensed	2,823,975	1,021	69	40,857	36,465	77,322	1,120	75,973
21	Mymensingh ... ... Do.	4,404,353	711	118	92,713	64,586	157,299	1,333	112,114
22	Faridpur ... ... Paid by District Board	2,089,710	815	6	2,418	1,966	4,384	730	4,179
23	Licensed			59	26,419	21,818	48,237	817	44,864
24	Bakarganj ... ... Paid by District Board	2,380,293	515	25	29,168	28,610	57,778	2,311	57,778
	Licensed			43	24,631	17,852	42,483	988	42,433
	Total of Dacca Division. Paid by District Board	11,698,331	724	31	31,586	30,576	62,162	2,005	61,948
	Licensed			289	184,620	140,721	325,341	1,126	275,384
	Total ...			320	216,206	171,297	387,503	1,211	337,332
	CHITTAGONG DIVISION.								
25	Chittagong ... ... Licensed	1,475,289	593	59	24,346	20,545	44,891	760	41,580
26	Noakhali ... ... Do.	1,295,081	788	47	21,998	19,023	41,021	872	42,230
27	Tippera ... ... Do.	2,372,434	954	85	31,202	29,323	60,525	712	62,281
28	Chittagong Hill Tracts Paid by Government	153,879	30	11	4,573	4,076	8,649	786	7,747
	Total of Chittagong Division. Paid by Government	5,296,683	451	11	4,573	4,076	8,649	786	7,747
	License			191	77,546	68,891	146,437	766	146,091
	Total ...			202	82,119	72,967	155,086	767	153,838
	Total of the Bengal Presidency. Paid by District Board ...	43,471,942	608	99	98,434	79,879	178,333	1,801	148,404
	Paid by Calcutta Municipality			46	16,597	10,265	26,862	584	18,919
	Licensed			1,247	684,178	567,666	1,251,844	1,003	1,080,214
	Paid by Darjeeling Improvement Fund.			13	13,434	10,385	23,819	1,832	11,441
	Paid by Government			11	4,573	4,076	8,649	786	7,747
	GRAND TOTAL ...	43,471,942	608	1,416	817,236	672,271	1,489,507	1,051	1,266,805

Sum

	Total number of persons vaccinated. Primary.	Re-vaccination.	Total number of operations performed. Primary.	Re-vaccination.
By Special Staff.				
Licensed	1,065,434	186,410	1,080,294	187,617
By Dispensary Staff.				
Municipalities, Jails, Cantonments, Dispensaries, and Railways.	59,889	40,893	61,688	40,896
By other Agencies.				
District Boards, Calcutta Corporation, Darjeeling Improvement Fund and paid by Government.	175,259	62,404	186,511	62,404
(Provincial population) 45, 483, 126.				
Total ...	1,300,582	289,707	1,328,493	290,917

5,693 Primary and 2,446 Re-vaccinations were performed in the European Tea Gardens of the Jalpaiguri district but

in the districts of Bengal during the year 1916-17.

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 the previous five years.		Average annual number of deaths from small-pox during the previous five years.	
Successful.															
Under 1 year.	1 year and under 6 years.	Total of all ages.	Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.		Primary.	Re-vaccination.	Number.	Ratio per 1,000 of population.	Number.	Ratio per 1,000 of population.
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12,325	17,642	33,876	53	8,748	6,071	114	98·13	70·31	27·66	·15	1·30	50,178	34·74	380	·26
40	94	134	4	96	21	—	96·01	21·87	21·15	2·75	—	27,849	23·74	130	·14
4,905	10,053	17,837	55	2,199	1,603	25	98·60	73·73		·30	1·13				
13,511	17,192	34,961	12	11,190	5,643	196	95·48	51·32	37·34	·03	1·75	38,807	33·88	274	·25
21,895	38,105	68,138	1,024	33,309	20,286	3,636	96·14	68·31	32·29	1·42	10·91	123,767	45·19	1,881	·68
11,487	13,672	27,457	19	904	728	2	99·28	78·11	30·02	·06	·2	33,929	36·14	386	·41
1,002	2,223	3,831	15	334	151	87	98·70	61·13	32·52	·38	26·04	21,272	28·67	516	·69
4,310	12,583	20,126	29	19	15	—	99·14	78·95		·12	—				
1,132	2,317	3,965	19	430	172	87	98·40	50·14	30·60	·47	20·23	291,798	37·07	3,567	·45
70,433	110,147	201,795	1,188	56,399	34,346	3,973	97·38	65·51		·36	7·04				
71,565	112,464	206,340	1,207	56,829	34,518	4,060	97·30	65·41		·36	7·14				
27,711	42,625	72,385	—	39,269	17,398	682	87·82	45·08	47·61		1·73	77,326	41·00	1,629	·86
9,944	7,918	18,217	552	7,943	2,368	1,612	99·18	37·40	22·97	2·91	20·29	31,989	39·04	786	·87
18,448	22,676	42,535	197	5,346	2,089	149	98·24	40·19	19·32	·45	2·78	54,098	35·51	128	·08
16,183	19,608	36,470	623	759	318	15	93·95	37·14	28·54	1·67	1·87	38,195	29·63	303	·22
21,502	30,524	54,678	34	3,940	1,633	281	99·49	44·64	32·41	·06	7·20	66,612	38·35	184	·10
17,148	24,752	46,438	57	7,767	3,412	65	99·77	44·30	37·26	·12	·63	34,385	40·65	67	·05
27,711	42,625	72,385	—	39,269	17,398	682	87·82	45·08	34·35	—	1·73	325,575	37·56	3,094	·35
9,944	7,918	18,217	552	7,943	2,368	1,612	99·18	37·40		2·91	20·29				
73,771	97,560	180,121	911	17,852	7,452	513	98·09	42·80		·49	2·87				
111,426	148,103	270,723	1,463	65,064	27,218	2,807	95·19	43·71		·51	4·31				
26,164	16,809	43,218	226	15,617	12,282	227	97·92	79·80	38·30	·50	1·45	43,984	31·80	82	·05
14,997	24,598	41,749	417	6,985	4,057	345	91·98	74·65	27·93	·91	4·93	49,649	29·69	248	·14
8,044	5,351	13,993	18	25,163	17,428	633	82·32	71·04	35·26	·10	2·51	17,602	19·75	54	·06
3,363	3,835	11,177	155	13,318	6,296	1,278	99·03	52·29	72·31	1·25	9·59	13,501	64·32	10	·01
15,375	47,635	64,675	447	4,156	2,753	194	95·08	69·48	28·46	·65	4·06	66,527	18·08	184	·07
7,242	11,940	20,724	25	541	249	24	98·73	48·16	21·61	·10	4·43	20,401	21·02	202	·20
10,984	23,005	35,482	466	1,113	852	9	95·38	77·17	26·24	1·28	·80	42,330	30·57	204	·14
22,131	7,540	29,716	388	334	270	10	98·31	83·33	31·14	1·26	2·59	27,950	29·06	56	·05
5,363	3,835	11,177	155	13,318	6,296	1,278	99·03	52·29	30·76	1·25	9·59	284,979	29·07	1,041	·10
105,437	136,968	249,557	1,985	53,909	38,791	1,442	94·86	73·93		·74	2·67				
110,800	140,803	260,734	2,140	67,227	45,087	2,720	95·03	69·89		·77	4·04				
9,100	53,207	67,903	1,481	4,675	2,757	489	91·15	65·86	25·02	1·94	10·45	86,268	30·54	1,190	·42
11,819	77,231	100,816	2,335	45,549	31,470	2,932	91·82	73·84	30·03	2·08	6·43	169,527	38·49	1,988	·45
277	2,360	3,597	213	261	138	95	90·90	83·13	23·52	5·10	36·39	10,546	38·54	181	·08
5,429	30,226	42,114	816	4,358	3,321	253	95·60	82·92		1·81	8·10				
387	15,151	54,413	1,859	—	—	—	97·30	—	40·00	3·21	—	89,411	37·56	223	·09
3,545	21,351	40,788	595	50	33	2	97·49	68·75		1·60	4·00				
664	17,511	58,010	2,072	261	138	95	96·88	83·13	25·65	3·34	36·39	425,752	36·39	3,582	·30
29,893	182,015	251,621	5,227	54,032	37,581	3,776	93·13	73·89		1·89	6·91				
30,557	199,526	309,631	7,299	54,393	37,719	3,871	93·81	73·92		2·16	7·05				
4,581	30,792	38,456	1,049	3,473	1,863	254	94·88	57·87	27·32	2·92	7·31	69,478	47·09	1,107	·75
8,823	24,819	35,788	951	942	384	21	86·69	63·40	28·08	2·25	2·22	64,729	49·58	261	·20
11,053	43,401	56,384	765	410	274	14	91·65	69·19	23·88	1·23	3·11	91,111	38·40	508	·21
1,800	3,728	7,198	52	1,183	557	16	93·54	47·72	30·39	·67	1·35	7,309	47·49	Not under registration.	
1,800	3,728	7,198	52	1,183	557	16	93·54	47·72	26·64	·67	1·35	732,627	43·91	1,876	·35
24,457	99,062	130,628	2,765	4,825	2,721	289	91·14	59·98		1·89	5·18				
26,257	102,790	137,826	2,817	6,008	3,278	305	91·26	57·47		1·83	5·07				
29,507	62,453	124,360	3,091	39,960	17,708	864	91·83	45·29		1·40	2·16				
9,944	7,918	18,217	552	7,943	2,368	1,612	99·18	37·40		2·91	20·29				
303,991	625,792	1,014,322	12,076	187,617	120,891	9,993	94·95	68·06		1·11	5·32				
5,363	3,835	11,177	155	13,318	6,296	1,278	99·03	52·29	30·36	1·25	9·59	1,564,731	35·99	13,160	·30
1,800	3,728	7,198	52	1,183	557	16	93·54	47·72		·67	1·35				
350,605	703,686	1,185,274	14,926	250,021	147,829	13,763	94·67	62·56		1·17	5·50				

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 vaccinations per 1,000 of population.	Total cost of department.	Average cost of each successful case.
Primary.	Re-vaccination.	Vaccinators employed.	Persons vaccinated by each vaccinator.	Under 1 year.	1 and under 6 years.			
							Rs. A. P.	Rs. A. P.
94·95	68·01	1,247	1,003	301,991	625,752			
92·54	50·83	159	634	20,054	31,179	30·61	2,04,494 9 11	0 2 3
93·98	45·92	170	1,328	46,614	77,934			
94·58	61·07	1,576	1,009	370,659	734,865			

they have been omitted from this statement for want of details.

STATEMENT No. II—*Showing the cost of vaccination in the*

Number.	Circles and Districts.	European supervising officers. (a)	Pay.	Native supervising officers.	Pay.	Paid vaccinators.	Pay.	Licensed vaccinators.	Pay. (c)	Clerks.	Pay.	Peons, etc.	Pay.	Total pay of establishment.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Burdwan Division.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.	Rs. A. P.
1	Burdwan	...	...	5	1,890 0 10	...	...	38	...	...	...	...	...	1,890 0 10
2	Birbhum	...	...	3	1,168 14 5	1	26 13 6	27	62 8 0	...	...	...	...	1,258 3 11
3	Bankura	...	...	3	1,140 0 0	...	...	53	292 8 0	...	...	...	...	1,432 8 0
4	Midnapore	...	...	7	2,594 10 6	...	...	113	456 12 0	...	...	...	...	3,051 6 6
5	Hooghly	...	...	4	1,405 0 0	...	...	39	...	...	...	...	...	1,405 0 0
6	Howrah	...	...	3	1,200 0 0	3	720 0 0	24	...	...	...	...	...	1,920 0 0
	Total of Burdwan Division.	...	...	25	9,403 9 9	4	746 13 6	294	811 12 0	...	...	...	...	10,962 3 3
	Presidency Division.													
7	24-Parganas	...	...	7	2,341 6 4	64	6,704 7 0	...	...	...	...	...	...	9,235 13 4
8	Calcutta Animal Vaccination Depôt for maintaining lymph.	...	...	5	4,660 0 0	...	...	...	...	1	306 0 0	21	2,278 11 0	7,244 11 0
9	Calcutta	...	...	7	17,400 13 0	46	3,336 4 4	...	...	...	...	16	2,080 1 2	22,817 2 6
10	Nadia	...	...	7	1,955 6 3	...	...	70	120 12 0	...	...	...	...	2,076 2 3
11	Murshidabad	...	...	5	1,936 14 6	...	...	45	...	...	...	...	...	1,936 14 6
12	Jessore	...	...	6	2,325 8 11	...	...	47	130 12 0	...	...	...	...	2,456 4 11
13	Khulna	...	...	4	1,438 9 4	...	...	49	...	...	...	...	...	1,438 9 4
	Total of Presidency Division.	...	...	41	32,268 10 4	110	10,040 11 4	231	251 8 0	1	306 0 0	37	4,358 12 2	47,225 9 10
	Rajshahi Division.													
14	Rajshahi	...	...	4	1,370 14 1	...	...	35	...	...	...	...	...	1,370 14 1
15	Dinajpur	...	...	4	1,350 14 6	...	...	41	...	...	...	...	...	1,350 14 6
16	Jalpaiguri	...	...	4	1,222 9 2	...	...	23	106 12 0	...	...	...	...	1,329 5 2
17	Darjeeling	...	...	3	1,260 0 0	14.5)	1,737 0 6	...	...	...	...	...	...	2,997 0 6
18	Rangpur	...	...	5	1,811 1 6	...	...	63	...	...	...	...	...	1,811 1 6
19	Bogra	...	...	2	930 0 0	...	...	23	60 0 0	...	...	...	...	990 0 0
20	Pabna	...	...	3	1,160 0 0	...	...	34	26 8 0	...	...	...	...	1,186 8 0
21	Malda	...	...	2	833 9 3	...	...	23	8 0 0	...	...	...	...	841 9 3
	Total of Rajshahi Division.	...	...	27	10,339 0 6	14	1,737 0 0	242	201 4 0	...	...	...	...	12,277 5 0
	Dacca Division.													
22	Dacca	...	...	5	2,165 0 0	...	...	69	...	...	...	...	...	2,165 0 0
23	Mymensingh	...	...	7	2,742 0 5	...	...	118	308 12 0	...	...	...	...	3,050 12 5
24	Faridpur	...	...	5	1,860 0 0	6	240 0 0	59	...	...	...	...	...	2,100 0 0
25	Bakarganj (d)	...	...	10	4,045 5 5	25	2,234 3 8	43	...	...	...	1	44 6 2	6,313 15 3
	Total of Dacca Division.	...	...	27	10,812 5 10	31	2,474 3 8	289	308 12 0	...	...	1	44 6 2	13,629 11 8
	Chittagong Division.													
26	Chittagong	...	...	3	1,167 14 6	...	...	59	127 4 0	...	...	...	...	1,294 2 6
27	Noakhali	...	...	4	1,500 0 0	...	...	47	289 8 0	...	...	...	...	1,789 8 0
28	Tippera	...	...	4	1,537 0 0	...	...	85	...	...	...	...	...	1,537 0 0
29	Chittagong Hill Tracts ...	...	...	3	1,680 0 0	11	932 10 2	...	...	...	...	...	...	2,612 10 2
	Total of Chittagong Division.	...	...	14	5,884 14 6	11	932 10 2	191	416 12 0	...	...	...	...	7,234 4 8
	Total of the vaccination circles.	...	...	134	68,498 8 11	170	15,931 7 2	1,247	1,990 0 0	1	306 0 0	38	4,403 2 4	91,329 2 5
30	Establishment of the Deputy Sanitary Commissioners.	4	19,134 15 4	...	...	...	...	...	...	5	2,543 15 11	6	523 7 8	22,212 6 11
	Total of the Presidency	4	19,134 15 4	134	68,498 8 11	170	15,931 7 2	1,247	1,990 0 0	6	2,849 15 11	44	4,926 10 0	1,13,541 9 4
31	Municipalities	...	...	4	2,771 4 3	135	15,569 15 6	...	...	...	...	3	305 0 0	18,646 3 9
32	Railway Vaccination ...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	Jails and Dispensaries ...	...	...	...	...	24	...	...	...	...	...	...	...	...
	Grand Total ...	4	19,134 15 4	138	71,469 13 2	329	31,501 6 8	1,247	1,990 0 0	6	2,849 15 11	47	5,231 10 0	1,32,187 13 1

(a) At present there are no European supervising officers, their appointments
(b) Includes one head or supervising vaccinator.
(c) Deputation allowance paid to licensed vaccinators.
(d) In Barisal one Special Inspector, four temporary Sub-Inspectors and 24
The cost of each successful case by the Special staff was anna one and

districts of Bengal during the year 1916-17.

Travelling allowance.	Contingencies. Cost of lymph.	Contingencies. Other contingencies.	Total cost.	Imperial fund.	Provincial fund.	Local fund.	Municipalities and Railways.	Native states.	Total.	Number of all successful vaccinations and re-vaccinations.	Average cost of each successful case.
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.
1,514 15 6	.....	208 0 0	3,620 0 4	...	3,620 0 4	.....	.....	.....	3,620 0 4	39,947	0 1 5
855 13 10	.....	145 14 0	2,259 15 9	...	2,233 2 3	26 13 6	.....	.....	2,259 15 9	19,599	0 1 10
768 4 0	.....	149 8 0	2,350 4 0	...	2,200 4 0	150 0 0	.....	.....	2,350 4 0	40,604	0 0 11
2,012 12 7	.....	314 0 0	5,378 3 1	...	5,138 3 1	.....	240 0 0	.....	5,378 3 1	88,424	0 0 11
1,928 9 6	.....	111 15 6	3,445 9 0	...	3,445 9 0	.....	.....	.....	3,445 9 0	28,185	0 1 11
903 2 6	.....	112 0 0	2,935 2 6	...	2,215 2 6	720 0 0	.....	.....	2,935 2 6	24,123	0 1 11
7,085 9 11	.....	1,041 5 6	19,989 2 8	...	18,852 5 2	896 13 6	240 0 0	.....	19,989 2 8	240,878	.....
1,933 7 0	.....	263 9 0	11,452 13 4	...	4,678 14 4	6,773 15 0	.....	.....	11,452 13 4	89,783	0 2 0
.....	.....	13,991 9 5	21,236 4 5	...	21,236 4 5	.....	.....	.....	21,236 4 5	.....	.....
237 14 3	5,332 0 0	1,251 1 3	29,638 2 0	...	.....	.....	29,638 2 0	.....	29,638 2 0	20,585	1 7 0
1,696 15 9	.....	172 6 0	3,935 8 0	...	3,935 8 0	.....	.....	.....	3,935 8 0	44,624	0 1 4
1,465 3 6	.....	236 4 0	3,697 6 0	...	3,697 6 0	.....	.....	.....	3,697 6 0	36,788	0 1 7
1,305 13 3	.....	189 15 11	4,452 2 1	...	4,452 2 1	.....	.....	.....	4,452 2 1	56,311	0 1 3
996 3 6	.....	29 15 8	2,534 12 6	...	2,534 12 6	.....	.....	.....	2,534 12 6	49,850	0 0 9
8,195 9 2	5,332 0 0	16,263 13 3	76,947 0 4	...	40,534 15 4	6,773 15 0	29,638 2 0	.....	76,947 0 4	297,941	.....
1,041 3 9	.....	120 0 0	2,737 1 10	...	2,737 1 10	.....	.....	.....	2,737 1 10	55,590	0 0 9
1,663 15 6	.....	117 9 0	3,331 14 0	...	3,331 14 0	.....	.....	.....	3,331 14 0	46,706	0 1 1
819 3 0	.....	134 6 0	2,273 14 2	...	2,273 14 2	.....	.....	.....	2,273 14 2	31,421	0 1 1
2,834 7 9	.....	91 12 0	5,927 3 6	...	2,880 0 0	3,047 3 6	.....	.....	5,927 3 6	17,473	0 5 5
1,583 8 7	.....	249 0 0	3,634 10 1	...	3,634 10 1	.....	.....	.....	3,634 10 1	67,428	0 0 10
500 9 6	.....	96 8 0	1,587 1 6	...	1,527 1 6	60 0 0	.....	.....	1,587 1 6	20,973	0 1 2
983 4 11	.....	130 12 0	2,300 8 11	...	2,300 8 11	.....	.....	.....	2,300 8 11	36,334	0 1 0
635 6 6	.....	141 12 0	1,618 11 9	...	1,607 11 9	8 0 0	3 0 0	.....	1,618 11 9	29,986	0 0 10
10,061 10 9	.....	1,072 2 0	23,411 1 9	...	20,292 14 3	3,115 3 6	3 0 0	.....	23,411 1 9	305,821	.....
1,477 6 9	.....	283 0 0	3,925 6 9	...	3,925 6 9	.....	.....	.....	3,925 6 9	70,660	0 0 10
1,993 1 0	.....	289 0 0	5,312 13 5	...	5,312 13 5	.....	.....	.....	5,312 13 5	1,32,286	0 0 7
1,358 9 6	.....	144 2 0	3,602 11 6	...	3,362 11 6	240 0 0	.....	.....	3,602 11 6	49,170	0 1 2
3,989 1 7		562 2 3	10,565 3 1	...	6,002 3 6	4,562 15 7	.....	.....	10,565 3 1	95,234	0 1 9
8,818 2 10	.....	958 4 3	23,406 2 9	...	18,603 3 2	4,802 15 7	.....	.....	23,406 2 9	3,47,350	.....
847 1 5	.....	182 3 0	2,324 6 11	...	2,324 6 11	.....	.....	.....	2,324 6 11	40,319	0 0 11
1,174 15 3	.....	109 0 0	3,064 7 3	...	3,064 7 3	.....	.....	.....	3,064 7 3	36,372	0 1 4
1,269 1 6	.....	146 8 0	2,952 9 6	...	2,952 9 6	.....	.....	.....	2,952 9 6	56,658	0 0 10
582 2 0	.....	62 7 6	3,257 3 8	...	3,257 3 8	.....	.....	.....	3,257 3 8	7,755	0 6 8
3,873 4 2	.....	491 2 6	11,598 11 4	...	11,598 11 4	.....	.....	.....	11,598 11 4	1,41,104	.....
38,874 4 11	5,332 0 0	19,826 11 6	1,55,352 2 10	...	1,09,882 1 3	15,588 15 7	29,881 2 0	.....	1,55,352 2 10	13,33,094	0 1 10
5,246 1 8	.....	1,708 14 3	29,177 6 10	...	28,177 6 10	.....	.....	.....	29,177 6 10	.....	.....
44,120 6 7	5,332 0 0	21,535 9 9	1,84,529 9 8	...	1,38,059 8 1	15,588 15 7	29,881 2 0	.....	184,529 9 8	12,33,094	0 2 2
.....	4 0 0	1,314 12 6	19,965 0 3	...	1,533 0 0	96 0 0	18,336 0 3	.....	19,965 0 3	59,618	0 5 4
.....	.....	.....	.....	...	.....	.....	.....	.....	.....	1,918	.....
.....	.....	.....	.....	...	.....	.....	.....	.....	.....	11,338	.....
44,120 6 7	5,336 0 0	22,850 6 3	2,04,494 9 11	...	1,40,592 8 1	15,684 15 7	48,217 2 3	.....	2,04,494 9 11	14,06,008	0 2 3

are now being held by non-I.M.S. Indians.

paid vaccinators were employed for free vaccination by District Board.
ples ten.

STATEMENT No. III.—*Showing particulars of Vaccination performed by Vaccinators attached to Municipalities, Dispensaries, etc., in the Presidency of Bengal during the year 1916-17.*

Numbers.	DISTRICTS.	Number of municipalities, dispensaries, etc., in each district to which a vaccinator is attached.	Average number of vaccinators attached to municipalities, dispensaries, etc., during the year.	Total number of persons vaccinated.	Average number of persons vaccinated by each vaccinator.	Number of cases primarily vaccinated.					Number of cases re-vaccinated.			Percentage of successful cases in which the results were known.		Percentage of unknown cases to total cases.	
							Successful.										
						Total.	Under one year.	One year and under six years.	Total of all ages.	Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.	Primary.	Re-vaccination.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Burdwan ...	6	6	5,302	883	3,438	1,377	1,524	3,260	38	1,969	956	132	95·08	52·04	1·10	6·70
2	Birbhum ...	1	1	365	365	311	44	197	249	5	54	36	14	81·37	90·00	1·60	25·92
3	Bankura ...	3	3	3,406	1,135	1,902	734	792	1,730	2	1,504	513	30	92·10	34·10	·10	1·99
4	Midnapore ...	7	9	3,021	335	2,608	687	1,517	2,384	4	595	246	152	91·55	55·53	·15	25·54
5	Hooghly ...	9	9	5,115	568	4,770	1,510	2,539	4,631	49	408	296	20	98·00	76·25	1·02	4·50
6	Howrah ...	2	7	5,068	724	4,846	2,115	2,345	4,510	184	351	115	22	96·73	35·06	3·79	6·55
7	24-Parganas ...	27	36	19,212	533	16,566	6,951	8,475	15,619	186	3,166	1,232	646	95·84	48·88	1·12	20·40
8	Nadia ...	9	9	3,964	440	3,016	994	1,610	2,786	145	898	435	38	95·37	50·58	4·72	4·23
9	Murshidabad ...	6	7	2,868	409	2,588	673	1,176	1,857	119	341	26	53	79·21	9·02	4·59	15·54
10	Jessore ...	3	3	574	191	496	172	322	494	...	78	26	7	90·59	36·61	...	8·97
11	Khulna ...	3	3	1,300	433	894	206	527	783	7	496	205	31	98·24	44·08	·87	6·25
12	Rajshahi ...	2	2	924	462	734	188	479	681	4	190	56	82	53·28	31·85	·54	43·15
13	Dinajpur ...	1	1	332	332	228	48	93	141	15	104	11	58	68·54	23·91	6·57	55·76
14	Jalpaiguri ...	1	1	505	505	422	233	144	378	1	100	48	13	89·78	35·17	·23	13·00
15	Darjeeling ...	2	2	2,582	1,291	867	421	323	837	8	1,734	221	896	97·43	21·37	·92	51·67
16	Rangpur ...	1	2	515	257	431	66	360	430	...	164	79	...	99·76	48·17	...	...
17	Bogra	2	2	851	425	631	59	522	612	9	222	77	32	98·39	40·92	1·42	14·41
18	Pabna	2	2	1,451	725	1,214	351	700	1,127	22	267	73	65	94·54	36·13	1·81	24·34
19	Malda	3	3	862	287	835	447	389	851	...	7	...	7	99·53	...	...	100·
20	Dacca	2	6	4,368	728	3,611	1,037	1,295	2,455	234	1,113	245	105	73·13	28·27	7·03	9·43
21	Mymensingh ...	8	8	4,361	545	3,508	462	2,346	3,031	153	829	406	29	90·24	50·75	4·26	3·49
22	Faridpur ...	2	2	1,296	648	897	53	425	535	80	661	319	47	65·48	51·95	8·91	7·11
23	Bakarganj ...	5	5	2,727	547	2,116	410	544	1,658	383	642	151	140	95·67	30·07	18·10	21·10
24	Chittagong ..	2	2	1,141	570	1,039	224	678	950	24	127	54	30	93·29	55·67	2·30	18·62
25	Noakhali ...	1	1	364	364	284	33	181	232	7	114	67	17	80·[illegible]4	49·07	2·46	16·91
26	Tippera ...	3	3	1,668	556	1,455	215	1,015	1,307	48	213	102	24	92·89	53·96	3·29	11·26
	Total ...	113	135	74,232	550	59,687	19,610	30,449	53,623	1,747	16,347	6,035	26·91	92·54	44·19	2·92	16·46
	*Vaccination performed by railway Staff.	...	...	2,657	...	1,422	413	715	1,313	31	1,235	505	427	94·59	74·87	2·18	34·57
	* Jail operations	...	24	23,813	993	579	1	6	426	88	23,314	10,912	32·49	86·76	54·38	1·51	12·93
	GRAND TOTAL	113	159	100,782	634	61,688	20,024	31,170	55,362	1,866	40,896	17,552	63·67	92·54	50·83	3·02	15·96

* In jails and railways operations were performed by their medical men, and each of them has been counted as an operator.

COMPARATIVE STATEMENT No. IV—*Showing the number of Persons primarily vaccinated, and the number of those Persons who were successfully vaccinated in each of the undermentioned official years.*

Establishment.	Persons primarily Vaccinated.																			
	1907-1908.		1908-1909.		1909-1910		1910-1911.		1911-1912.		1912-1913.		1913-1914.		1914-15.		1915-16.		1916-17.	
	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.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Government	18,835	18,689	5,850	5,686	6,798	6,487	6,264	5,109	6,907	4,966	6,618	6,481	7,085	7,032	6,287	6,255	8,082	7,984	7,466	7,198
Municipal	81,016	78,412	90,061	87,445	82,357	78,874	84,395	76,752	89,495	85,222	87,925	85,263	84,489	82,601	86,220	82,682	74,792	71,457	76,724	70,874
Local Fund	2,143	2,128	12,275	1,225	15,038	14,987	12,731	12,651	10,989	10,816	12,079	12,078	14,677	14,245	12,25	12,006	141,859	134,919	148,874	144,599
Dispensaries	1,551	1,440	1,313	1,172	1,294	1,179	223	153	1,428	1,247	2,777	2,535	2,768	2,532	1,236	1,220	2,458	2,140	2,081	1,803
Work done by ex-Inoculators ...	1,532,495	1,504,682	1,622,835	1,597,818	1,601,179	1,542,840	1,593,351	1,540,351	1,693,179	1,630,184	1,665,033	1,626,325	1,457,815	1,438,277	1,026,427	995,636	1,030,972	1,004,570	1,065434	1,009,887
Total ...	1,636,040	1,605,351	1,732,334	1,704,377	1,706,666	1,644,327	1,696,967	1,626,407	1,801,998	1,732,455	1,774,032	1,742,682	1,566,845	1,544,687	1,132,589	1,097,809	1,258,163	1,221,070	1,300,582	1,234,361

STATEMENT No. V.—*Showing particulars of Vaccination verified by the Inspecting Officers during the year 1916-17.*

Districts.	Total number of persons vaccinated.		Total number inspected— By Deputy Sanitary Commissioners or Civil Surgeons. Deputy Sanitary Commissioners.		Civil Surgeons.		By Native Superintendents or other Inspecting Officers. District Inspectors.		Sub-Inspectors.		Percentage of inspection to total number vaccinated— By Deputy Sanitary Commissioners or Civil Surgeons. Deputy Sanitary Commissioners.		Civil Surgeons.		By Native Superintendents or other Inspecting Officers. District Inspectors.		Sub-Inspectors.		Percentage of cases found successful to total number inspected— By Deputy Sanitary Commissioners or Civil Surgeons. Deputy Sanitary Commissioners.		Civil Surgeons.		By Native Superintendents or other Inspecting Officers. District Inspectors.		Sub-Inspectors.		Percentage of success reported by vaccinators.	
	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	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	18	19	20	21	22	23	24	25	26	27	28	29
1. Burdwan ...	37,391	11,565	373	...	3,031	1,244	9,691	961	21,319	3,891	·99	...	8·10	10·75	21·91	8·30	57·91	33·64	97·05	...	99·93	40·59	99·46	49·21	97·38	76·54	99·33	64·37
2. Birbhum ...	18,594	3,353	193	...	120	789	3,334	93	8,863	158	1·03	...	·64	21·17	17·94	2·77	47·66	4·71	97·92	...	95·00	94·08	88·81	65·44	96·27	27·84	97·98	78·01
3. Bankura ...	28,529	13,316	15,525	...	2,564	654	10,203	1,580	15,675	2,088	40·79	...	6·65	4·91	26·74	11·86	40·68	15·68	96·28	...	94·03	48·16	91·26	41·20	58·07	52·10	95·28	47·52
4. Midnapore	72,180	35,712	...	...	1,756	2,061	11,673	1,409	36,481	15,759	...	...	2·39	5·77	15·95	3·94	49·65	44·12	...	...	93·21	49·56	92·13	31·08	94·88	63·92	95·33	59·78
5. Hooghly ...	16,909	2,078	923	...	83	984	5,725	446	8,962	534	5·46	...	·49	43·98	53·85	21·46	53·00	25·69	98·26	...	100·	53·61	98·62	72·42	98·78	81·27	99·72	98·51
6. Serampore	15,479	404	27	...	424	7	...	...	8,853	73	·17	...	2·74	1·73	...	...	57·37	18·06	92·59	...	95·59	100·	...	...	99·34	73·97	99·21	73·76
7. Howrah ...	28,888	1,180	...	...	1,371	...	10,470	200	20,028	110	...	...	4·74	...	36·24	16·94	69·32	9·32	...	...	94·60	...	97·91	52·50	97·37	77·27	98·54	43·89
8. 24-Parganas	88,515	42,435	1,836	...	1,500	...	12,678	3,461	36,720	12,841	2·07	...	1·69	...	14·32	8·15	41·48	30·26	96·13	...	97·80	...	96·76	54·55	96·84	53·57	99·49	43·90
							7,089	3,397	28,683	12,009					8·09	8·00	32·40	28·29					96·12	54·66	96·54	54·64		
9. Calcutta ...	18,919	7,943	...	...	...	...	17,184	4,148	...	...	...	...	...	...	64·49	52·22	...	...	...	...	...	...	98·52	47·80	...	...	96·28	29·81
10. Nadia ...	46,498	7,119	10,776	...	3,008	872	17,431	1,030	28,738	2,750	23·17	...	6·46	12·24	37·48	14·46	61·80	34·62	99·17	..	97·49	58·02	95·78	52·62	95·72	40·65	97·46	42·56
11. Murshidabad	41,334	1,466	9,921	...	179	326	8,312	197	23,540	402	24·00	...	·43	22·23	20·10	13·09	56·95	27·42	98·08	...	93·29	34·96	94·42	30·20	90·43	29·85	90·90	31·24
12. Jessore ...	55,665	4,765	8,160	...	1,232	677	22,886	1,111	35,196	1,716	14·60	...	2·22	14·20	41·26	23·31	58·04	35·88	99·81	...	97·88	42·98	98·32	42·93	98·17	52·51	99·51	40·92
13. Khulna ...	47,423	8,981	...	...	2,060	696	7,248	525	14,741	1,348	...	...	4·34	7·74	15·28	5·84	31·98	15·00	...	...	98·44	84·33	98·82	48·38	98·12	41·64	99·60	46·13
14. Rajshahi ...	45,376	16,879	...	...	2,587	1,714	4,861	1,238	14,167	8,942	...	...	5·71	10·15	16·95	7·33	31·29	52·97	...	...	74·83	72·40	94·71	77·94	94·04	76·50	96·95	74·91
15. Dinajpur ...	46,034	7,487	...	...	11,162	1,725	15,227	2,361	20,266	2,012	...	...	24·24	23·04	33·07	31·53	44·02	27·14	...	...	89·96	45·97	83·52	47·39	79·07	50·59	91·00	68·95
16. Jalpaiguri	15,302	24,457	573	210	171	350	1,321	1,647	2,928	2,645	3·76	·85	1·12	1·43	8·68	6·73	19·58	10·81	94·41	100·	89·47	46·28	92·65	61·26	89·62	56·63	94·42	72·03
17. Darjeeling	11,350	15,987	...	...	1,792	1,752	4,290	3,900	5,716	6,897	...	...	11·38	8·23	37·79	26·38	50·36	42·68	...	...	99·53	76·11	100·	40·87	98·60	49·17	96·18	41·26
18. Rangpur ...	68,894	5,403	2,646	...	3,974	954	16,465	1,139	28,427	992	3·84	...	5·76	17·65	70·99	21·08	41·25	18·36	89·68	...	93·13	42·45	91·74	58·64	90·41	51·31	94·50	60·68
19. Bogra ...	21,518	1,503	...	...	3,054	381	4,992	44	4,465	59	...	...	14·19	25·34	23·19	2·92	20·75	3·92	...	...	98·13	56·43	97·67	31·04	96·55	27·12	98·26	41·11
20. Pabna ...	38,217	2,094	...	...	979	379	13,397	466	13,043	583	...	...	2·56	18·03	35·05	22·25	34·12	27·84	...	...	99·18	50·92	98·88	83·47	95·25	82·16	95·80	54·91
21. Malda ...	31,341	648	...	...	3,058	756	5,977	...	10,992	29	...	...	9·75	39·50	19·07	...	35·07	4·47	...	...	97·83	80·03	96·29	...	96·70	68·96	97·43	73·30
22. Dacca ...	75,907	8,838	...	...	315	1,855	7,839	411	27,879	1,333	...	...	·41	20·98	10·32	4·65	36·72	15·08	...	...	92·06	32·07	88·09	56·44	86·88	52·36	89·36	43·95
23. Mymensingh	115,285	48,160	446	1	1,243	1,083	24,389	8,923	62,460	14,860	·38	·002	1·07	2·24	21·14	18·52	54·17	30·85	97·30	100·	91·15	33·73	94·30	84·81	90·53	52·94	89·99	67·53
24. Faridpur ...	48,612	5,255	260	...	829	25	6,725	84	24,988	662	·53	...	1·70	·53	3·81	1·59	51·35	12·59	99·23	...	94·57	60·71	92·25	28·57	92·57	86·10	94·61	71·89
25. Bakarganj	License— 44,782	1,647	98	...	237	536	6,465	23	19,445	79	·21	...	·52	32·54	14·43	1·39	43·42	4·79	100·	...	78·50	60·26	95·39	39·13	96·05	21·62	96·25	42·92
	District Board— 57,778	...	...	...	...	...	2,296	...	...	...	...	...	...	...	3·90	...	...	...	...	...	...	...	96·18	...	...	...	...	...
26. Chittagong	42,432	4,211	16,668	68	25	596	8,573	409	10,688	150	39·28	1·61	·05	14·15	20·20	9·71	25·18	3·56	87·74	100·	100·	72·98	94·22	53·54	93·75	70·66	92·47	55·61
27. Noakhali ...	40,356	1,446	10,209	7	2,920	494	6,077	234	24,227	191	25·29	·48	7·26	34·16	15·05	16·18	60·03	12·20	88·44	100·	91·80	59·10	83·19	48·29	88·74	68·05	89·15	60·59
28. Tippera ...	61,586	3,857	1,084	2	2,372	2,744	8,236	478	21,362	97	1·76	·05	3·85	71·14	12·37	12·39	34·68	2·51	83·48	100·	91·52	55·21	87·29	39·33	92·04	61·85	93·68	55·69
29. Chittagong Hill Tracts.	7,466	1,183	...	...	1,367	219	1,786	347	3,696	558	...	...	17·20	18·51	23·92	29·33	49·50	47·16	...	...	89·13	46·11	88·91	39·76	89·01	35·84	96·41	47·08
30. Railway Vaccinations.	1,422	1,235	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	92·3	48·98
Total for the Bengal Presidency.	1,309,582	289,707	79,648	288	52,861	27,727	268,904	36,949	550,910	81,768	6·12	·09	4·06	7·84	20·67	12·75	42·35	28·22	94·10	100·	91·35	54·19	94·31	58·29	92·95	58·11	94·90	57·04

The Deputy Sanitary Commissioner, Rajshahi Circle, also inspected 104 children in the Jalpaiguri district; 103 in Rangpur; 1,397 in Pabna; 618 in Bogra 209 in Rajshahi 105 in Dinajpur; 986 in the Malda district, but for want of details regarding primary and re-vaccination cases as well as the result of each kind of vaccination, they have been excluded from this statement.

STATEMENT No. VI.—*Showing, side by side, the ratios per 1,000 of population of deaths from small-pox and the number of successful Vaccination during the ten years ending 1916-17.*

District.	1907-08.		1908-09.		1909-10.		1910-11.		1911-12.		1912-13.		1913-14.		1914-15.		1915-16.		1916-17.	
	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.	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	10	11	12	13	14	15	16	17	18	19	20	21
Burdwan	·71	49,340	·59	59,859	·48	61,729	·15	56,164	·11	60,238	·08	63,524	·04	54,740	·39	45,804	·46	47,602	·78	44,548
Birbhum	1·02	30,954	·79	38,883	·38	39,521	·05	31,925	·02	30,683	·05	31,672	·01	26,203	·19	15,306	·41	20,278	·25	20,826
Bankura	·28	35,800	·37	39,901	·43	45,218	·63	46,157	·008	46,818	·02	38,463	·02	41,609	·25	37,688	1·02	39,297	1·07	43,040
Midnapore	·52	128,180	·61	136,955	·96	143,751	·13	140,050	·02	139,263	·03	143,734	·14	135,437	1·21	127,270	1·98	99,811	·35	92,034
Hooghly	·71	33,291	·89	33,759	·91	37,782	·15	37,139	·08	39,248	·12	44,207	·12	38,601	·96	38,267	1·14	34,257	·22	33,685
Howrah	·47	26,401	2·17	29,435	1·75	28,378	·07	25,404	·01	26,137	·10	26,058	·13	27,069	2·00	27,473	1·42	26,494	·15	28,985
24-Parganas	·93	75,961	·89	82,580	·64	80,630	·09	77,475	·02	77,839	·02	78,225	·05	74,646	1·60	117,601	1·94	123,968	·47	106,714
Calcutta	·95	29,082	3·75	46,583	1·19	27,066	·05	22,657	·05	26,861	·10	27,981	·35	44,763	3·86	54,312	·81	21,079	·04	20,585
Nadia	·12	64,693	·14	66,119	·20	57,924	·01	58,241	·009	58,901	·01	62,467	·01	55,865	·12	51,295	·28	58,672	·16	48,351
Murshidabad	·86	47,481	·39	48,368	·32	45,813	·20	49,257	·12	50,447	·02	42,344	·03	39,238	·58	35,302	·49	36,287	·17	38,785
Jessore	·09	64,524	·08	67,093	·23	77,088	·12	73,804	·11	75,565	·01	78,008	·009	74,087	·11	55,647	·27	56,174	·08	57,145
Khulna	·05	43,316	·05	41,944	·12	41,344	·005	45,008	·004	42,916	·001	51,502	·005	59,554	·03	48,203	·21	57,128	·13	51,379
Rajshahi	·25	54,955	·13	55,053	·39	48,384	·16	52,092	·02	54,756	·01	49,617	·02	48,121	·08	47,342	·15	52,420	·12	56,544
Dinajpur	·17	39,973	·44	54,594	1·53	92,698	·35	51,975	·09	48,852	·07	53,455	·21	55,685	·11	46,834	·3	46,658	·14	47,058
Jalpaiguri	·06	28,254	·28	25,697	·26	20,417	·40	21,129	·14	20,425	·01	18,993	·01	17,855	·09	16,980	·02	16,481	·34	32,033
Darjeeling	·03	17,594	·03	17,823	·08	19,076	·07	15,106	...	14,148	...	15,289	·03	18,005	·06	17,701	·09	22,226	·13	18,545
Rangpur	·12	74,539	1·47	84,115	3·45	86,501	·37	67,487	·12	67,828	·02	89,166	·04	84,912	·09	59,591	·10	55,900	·13	68,384
Bogra	·28	25,929	·80	26,523	3·25	26,450	·56	25,644	·03	20,925	·001	21,868	·005	23,076	·21	19,741	·77	20,380	·51	21,904
Pabna	·35	51,182	·95	47,674	·54	32,897	·06	51,043	·04	57,987	·09	52,351	·06	35,898	·07	31,704	·50	41,341	·22	37,762
Malda	·19	31,353	·07	35,178	·45	39,180	·20	35,497	·01	31,409	·02	26,366	·07	30,277	·07	28,361	·04	27,350	·06	31,043
Dacca	·12	96,851	·18	99,845	·35	96,721	·23	102,201	·35	99,663	·84	113,116	·70	109,275	·16	61,249	·09	81,366	·004	74,247
Mymensingh	·05	156,267	·10	181,983	·59	171,114	·26	179,280	·81	201,244	·68	209,144	·31	216,290	·09	107,613	·31	135,798	·16	136,373
Faridpur	·05	114,277	·09	136 135	·22	126,821	·07	128,793	·10	114,561	·13	123,702	·10	87,176	·05	36,224	·04	47,229	·002	59,024
Bakarganj	·19	132,124	·21	146,408	·21	144,758	·05	101,416	·03	127,943	·04	116,514	·07	49,921	.18	60,107	·13	108,121	·002	97,745
Chittagong	·40	60,358	·03	63,329	·01	63,926	·01	58,774	·08	75,837	·51	90,877	·97	80,161	1·58	61,064	·55	46,426	·11	41,748
Noakhali	·11	67,264	·05	63,016	·08	55,360	·008	58,999	·09	74,176	·13	78,368	·23	74,477	·29	53,582	·24	45,404	·02	36,911
Tippera	·14	91,445	·03	88,080	·03	90,949	·02	95,134	·13	110,608	·65	121,193	·17	111,764	·04	52,819	·06	72,819	·03	59,843
Chittagong Hill Tracts ...	...	6,543	...	5,444	...	6,377	...	6,005	...	5,399	not under registration.	6,625	not under registration.	7,224	not under registration.	7,212	not under registration.	10,087	not under registration.	7,755
Railway vaccination ...	...	2,366	...	2,184	...	2,346	...	1,076	...	1,725	...	2,270	...	3,048	...	4,223	...	4,978	...	1,918
Total ...	·32	1,705,921	·42	1,824,565	·76	1,811,068	·22	1,715,020	·14	1,813,490	·21	1,855,699	·17	1,790,991	·45	13,66,650	·52	1,455,420	·23	1,406,008

STATEMENT No. VII—*Showing the protection afforded to Infants in each Town in the Province of Bengal during the year 1916-17.*

District.	Town.	Number of births during the year.	Number of deaths amongst children under 1 year during the year.	Number of successful vaccinations on children under 1 year during the year ending 31st March 1917.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
BURDWAN ...	Burdwan ...	305	28	392	1st July 1883.
	Kalna ...	129	26	163	1st " "
	Katwa ...	106	22	278	1st " "
	Dainhat ...	84	20	244	1st " "
	Raniganj ...	298	54	214	1st " "
	Asansol ...	506	68	86	14th September 1910.
	Total ...	1,428	218	1,377	
BIRBHUM ...	Suri ...	96	12	44	1st July 1881.
BANKURA ...	Bankura ...	438	72	279	1st " 1883.
	Vishnupur ...	469	56	343	1st " "
	Sonamukhi ...	272	73	112	6th June 1892.
	Total ...	1,179	201	734	
MIDNAPORE	Midnapore ...	513	81	209	1st July 1883.
	Ghatal ...	262	55	113	1st " "
	Kharar ...	162	21	112	16th August 1889.
	Chandrakona	159	30	46	1st July 1883.
	Ramjibanpur	164	42	12	1st " "
	Khirpai ...	107	21	59	1st " "
	Tamluk ...	175	34	136	1st " "
	Total ...	1,542	284	687	
HOOGHLY ...	Hooghly and Chinsura.	803	158	426	1st September 1881.
	Bansberia ...	63	17	46	1st July 1883.
	Arambagh ...	167	39	84	11th February 1889.
	Serampore ...	668	131	221	1st March 1883.
	Uttarpara ...	141	27	89	1st April "
	Kotrung ...	145	17	92	1st July "
	Baidyabati ...	502	87	200	1st " "
	Bhadreswar ...	258	71	183	1st " "
	Rishra Konnagar	380	72	169	(It formerly formed a part of the Serampore Municipality.)
	Total ...	3,127	619	1,510	
HOWRAH ...	Howrah ...	4,805	1,280	2,048	1st April 1882.
	Bally ...	382	63	67	1st October 1884
	Total ...	5,187	1,343	2,115	
	Total of the Burdwan Division.	12,559	2,677	6,467	
24-PARGANAS.	Cossipore-Chitpur.	1,034	280	723	1st October 1883.
	Manicktalla ...	870	440	862	1st " "
	South Suburban	758	113	799	1st " "
	Tollygunge ...	377	31	477	Ditto. (It formerly formed a part of the South Suburban Municipality.)

District.	Town.	Number of births during the year.	Number of deaths amongst children under 1 year during the year.	Number of successful vaccinations on children under 1 year during the year ending 31st March 1917.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
24-Parganas—*concld.*	Garden Reach	760	171	634	1st October 1883. (It formerly formed a part of the South Suburban Municipality.)
	Budge Budge	196	17	110	18th February 1902.
	Baranager ...	533	173	480	1st October 1883.
	Kamarhati ...	276	61	219	1st " " (It formerly formed a part of the Baranagar Municipality.)
	Rajpur ...	295	54	113	1st October 1883.
	Baruipur ...	73	22	84	1st " "
	Jaynagar ...	155	32	82	1st " "
	North Dum Dum.	112	23	40	1st " "
	South Dum Dum.	176	36	110	1st " "
	South Barrackpore including Barrackpore Cantonment.	...	...	...	1st " "
	Barrackpore ...	114	22	51	1st " " (They formerly formed parts of the South Barrackpore Municipality.)
	Panihati ...	192	24	136	
	North Barrackpore.	272	56	65	1st October 1883.
	Titagarh ...	399	128	225	1st " " (It formerly formed a part of the South Barrackpore Municipality.)
	Garulia ...	84	10	16	1st October 1883. (It formerly formed a part of the North Barrackpore Municipality.)
	Naihati ...	207	31	168	1st October 1883.
	Halisahar ...	201	31	154	1st " " (They formerly formed parts of the Naihati Municipality.)
	Bhatpara ...	568	58	320	
	Barasat ...	205	28	155	1st October 1883.
	Gobardanga ...	76	7	40	1st " "
	Basirhat ...	508	77	394	1st " "
	Baduria ...	186	26	243	1st " "
	Taki ...	136	30	40	1st " "
	Total ...	8,855	1,997	6,851	
Calcutta ...	Calcutta ...	18,984	4,771	9,944	1880.
Nadia ...	Krishnagar ...	287	35	273	1st October 1883.
	Nadia ...	192	36	76	1st " "
	Ranaghat ...	151	22	185	1st " "
	Birnagar ...	64	14	22	1st " "
	Santipur ...	824	123	212	1st " "
	Chakdaha ...	97	18	27	28th January 1887.
	Kushtia ...	97	9	75	1st October 1838.
	Kumarkhali ...	63	13	36	1st " "
	Meherpur ...	90	7	88	1st " "
	Total ...	1,865	277	994	

District.	Town.	Number of births during the year.	Number of deaths amongst children under 1 year during the year.	Number of successful vaccinations on children under 1 year during the year ending 31st March 1917.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
MURSHIDABAD.	Berhampore ...	464	73	172	1st October 1883.
	Murshidabad	316	71	46	1st " "
	Azimganj ...	275	58	25	1st " " (It formerly formed a part of the Murshidabad Municipality.)
	Kandi ...	320	49	235	1st October 1883.
	Jangipur ...	342	43	110	1st " "
	Dhuliyan ...	306	42	85	26th June 1910.
	Total ...	2,023	336	673	
JESSORE ...	Jessore ...	40	7	19	1st October 1883.
	Kotchandpur	106	15	87	1st February 1884.
	Maheshpur ...	39	8	66	1st October 1883.
	Total ...	185	30	172	
KHULNA ...	Khulna ...	122	13	42	1st July 1887.
	Satkhira ...	69	12	115	7th " 1883.
	Debhatta ...	96	13	49	1st October 1883.
	Total ...	287	38	206	
	Total of the Presidency Division.	32,199	7,449	18,840	
RAJSHAHI ...	Rampur Boalia	494	51	164	1st June 1881.
	Nator ...	121	27	24	1st January 1881.
	Total ...	615	78	188	
DINAJPUR ...	Dinajpur ...	174	19	48	1st January 1887.
JALPAIGURI ...	Jalpaiguri ...	253	39	233	1st " "
DARJEELING	Darjeeling ...	259	41	130	1st September 1884.
	Kurseong ...	155	44	291	1st January 1887.
	Total ...	414	85	421	
RANGPUR ...	Rangpur ..	220	37	66	1st July 1881.
BOGRA ...	Bogra ..	112	15	53	1st January 1882.
	Sherpur ...	63	9	6	1st October 1884.
	Total ...	175	24	59	
PABNA ...	Pabna ...	305	44	204	1st February 1882.
	Sirajganj ...	157	12	147	1st January 1887.
	Total ...	462	56	351	

District.	Town.	Number of births during the year	Number of deaths amongst children under 1 year during the year.	Number of successful vaccinations on children under 1 year during the year ending 31st March 1917.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
MALDA ...	English Bazar	316	38	199	1st March 1883.
	Malda ...	81	20	49	1st April 1887.
	Nawabganj ...	356	40	199	12th May 1904.
	Total ...	753	98	447	
	Total of Rajshahi Division.	3,066	436	1,813	
DACCA ...	Dacca ...	3,317	654	824	1st July 1887.
	Narainganj ...	852	186	213	Ditto.
	Total ...	4,169	840	1,037	
MYMENSINGH.	Mymensingh ...	224	49	38	1st October 1887.
	Muktagacha ...	144	27	17	Ditto.
	Netrokona ...	194	22	36	20th January 1890.
	Jamalpur ...	543	56	87	1st October 1887.
	Sherpur ...	485	79	103	Ditto.
	Kishorganj ...	335	35	67	Ditto.
	Bajitpur ...	226	19	20	Ditto.
	Tangail ...	347	50	94	19th February 1890.
	Total ...	2,498	337	462	
FARIDPUR ...	Faridpur ...	270	36	38	1st October 1887.
	Madaripur ...	580	95	14	Ditto.
	Total ...	850	131	52	
BAKARGANJ	Barisal ...	240	44	109	1st October 1887.
	Jhalakati ...	50	12	8	Ditto.
	Nalchiti ...	23	7	4	Ditto.
	Pirojpur ...	411	36	280	1st January 1890.
	Patuakhali ...	154	20	9	25th January 1894.
	Total ...	878	119	410	
	Total of Dacca Division.	8,395	1,427	1,961	
CHITTAGONG	Chittagong ...	617	111	127	1st April 1887.
	Cox's Bazar ...	111	5	97	14th November 1892.
	Total ...	728	116	224	
TIPPERA ...	Comilla ...	217	40	45	1st April 1887.
	Brahmanbaria	751	152	89	Ditto.
	Chandpur ...	277	39	81	22nd July 1898.
	Total ...	1,245	231	215	
NOAKHALI ...	Sudharam ...	216	21	33	1st April 1887.
	Total of Chittagong Division.	2,189	368	472	
	Total for the Province.	58,408	12,357	29,553	

PROVINCIAL STATEMENT A—*Showing the degree of protection afforded to infants during the year 1916-17.*

DISTRICTS.	Rural population among which vaccinations were performed.	Estimated birth at 32·74 per 1,000 of population being the birth-rate for the province during the year 1916.	Mortality among infants under one year.	Surviving population under one year available for vaccination.	Number successfully vaccinated.	Proportion of persons successfully vaccinated per 1,000 of population as shown in column 5.	Proportion of persons successfully vaccinated per 1,000 of population in 1915-16.
1	2	3	4	5	6	7	8
Darjeeling ...	240,971	7,889	1,786	6,103	5,363	878·74	880·48
Malda ...	962,765	31,521	6,069	25,452	22,131	869·51	750·39
Rajshahi ...	1,448,930	47,438	11,109	36,329	26,164	720·19	601·34
24-Parganas ...	1,885,590	61,734	8,628	53,106	27,711	521·80	644·10
Khulna ...	1,337,579	43,792	10,797	32,995	17,148	519·71	577·14
Murshidabad ...	1,288,791	42,195	9,302	32,893	16,183	491·98	404·61
Bankura ...	1,081,464	35,407	7,145	28,262	13,511	478·06	318·73
Hooghly ...	938,615	30,730	6,176	24,554	11,487	467·82	458·74
Nadia ...	1,521,928	49,828	9,433	40,395	18,848	466·59	649·89
Chittagong Hill Tracts.	153,879	5,038	983	4,055	1,800	443·89	431·69
Jessore ...	1,737,066	56,872	8,217	48,655	21,592	443·77	469·87
Jalpaiguri ...	890,895	29,168	7,985	21,183	8,044	379·73	431·03
Howrah ..	741,719	24,284	4,655	19,629	7,402	377·09	437·06
Dinajpur ...	1,671,918	54,739	14,568	40,171	14,997	373·32	422·80
Burdwan ...	1,444,185	47,283	10,707	36,576	12,325	336·96	357·56
Midnapore ...	2,738,301	89,652	16,456	73,196	21,895	299·12	208·81
Bogra ...	970,366	31,770	5,687	26,083	7,542	289·15	317·52
Pabna ...	1,384,535	45,329	5,767	39,562	10,984	277·64	293·32
Rangpur ...	2,368,901	77,558	16,429	61,129	15,575	254·78	260·29
Noakhali ...	1,295,081	42,401	7,269	35,132	8,823	251·13	333·75
Birbhum ...	926,342	30,328	7,111	23,217	4,945	212·99	187·51
Tippera ...	2,372,434	77,674	11,454	66,220	11,053	166·91	272·97
Dacca ...	2,823,975	92,457	15,157	77,300	9,100	117·72	132·26
Chittagong ...	1,475,289	48,301	8,419	39,882	4,581	114·86	148·95
Faridpur ...	2,089,710	68,417	12,299	56,118	5,706	101·67	122·62
Mymensingh ...	4,404,353	144,198	23,259	120,939	11,819	97·[illegible]2	109·99
Bakarganj ...	2,380,293	77,931	19,633	58,298	3,932	67·44	62·59
Total of the rural Circle.	42,575,875	1,393,934	266,500	1,127,434	340,661	302·15	315·59
Calcutta ...	896,067	29,337	4,771	24,566	9,944	404·78	383·97
Mufassal Municipalities, etc.	2,011,184	65,846	7,586	58,260	20,054	344·21	332·15
GRAND TOTAL ...	45,483,126	1,489,117	278,857	1,210,260	370,659	306·26	318·01

In Chittagong Hill Tracts the registration of births and deaths is not carried on. The number of deaths among infants has been calculated at the rate of infant mortality (195·3) obtaining in this Presidency in 1916.

PROVINCIAL STATEMENT B—*Showing the different kinds of lymph used and their rates of success during the year 1916-17.*

No.	District.	PRIMARY VACCINATION.															RE-VACCINATION.														
		Direct from calf.					With lanoline lymph.					Arm-to-arm vaccination.					Direct from calf.					With lanoline lymph.					Arm-to-arm vaccination.				
		Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	Burdwan ...	...	...	...	...	...	38,018	37,143	784	91	97·69	...	...	...	...	...	...	...	...	...	...	11,365	7,445	3,775	145	64·37	...	...	...	...	...
2	Birbhum ...	...	...	...	...	...	18,601	18,220	317	64	97·95	...	...	...	...	...	...	...	...	...	...	2,353	2,816	696	41	78·01	...	...	...	...	...
3	Bankura ...	...	...	...	...	...	38,529	36,712	1,803	14	95·28	...	...	...	...	...	...	...	...	...	...	13,316	6,328	6,641	347	47·52	...	...	...	...	...
4	Midnapur ...	3,433	3,194	137	102	93·03	71,183	67,392	2,823	968	94·67	...	...	...	...	...	2,918	1,581	1,039	298	54·18	32,808	19,867	9,005	3,934	60·55	...	...	...	...	...
5	Hooghly ...	...	...	...	...	...	16,909	16,863	46	...	99·72	...	...	...	...	...	...	...	...	...	...	2,078	1,216	861	1	58·51	...	...	...	...	...
6	Serampur ...	...	...	...	...	...	15,617	15,308	241	68	98·02	...	...	...	...	...	...	...	...	...	...	404	298	85	21	73·76	...	...	...	...	...
7	Howrah ...	...	...	...	...	...	29,066	28,467	375	224	97·93	...	...	...	...	...	...	...	...	...	...	1,180	518	225	347	43·89	...	...	...	...	...
	Total ...	3,433	3,194	137	102	93·03	227,923	220,105	6,389	1,429	...	...	...	...	...	...	2,918	1,581	1,039	298	...	64,702	38,288	21,308	5,026	...	...	...	...	...	...
8	24-Parganas ...	...	...	...	...	...	98,982	88,084	10,712	186	88·99	...	...	...	...	...	...	...	...	...	...	42,435	18,630	22,477	1,328	43·90	...	...	...	...	...
9	Calcutta ...	...	...	...	...	...	18,919	18,217	150	552	96·28	...	...	...	...	...	...	...	...	...	...	7,943	2,368	5,013	1,612	29·81	...	...	...	...	...
10	Nadia ...	...	...	...	...	...	46,557	45,321	894	342	97·34	...	...	...	...	...	...	...	...	...	...	7,119	3,030	3,839	250	42·56	...	...	...	...	...
11	Murshidabad	...	...	...	...	...	42,027	38,327	2,958	742	91·19	...	...	...	...	...	...	...	...	...	...	1,466	458	940	68	31·24	...	...	...	...	...
12	Jessore ...	...	...	...	...	...	55,511	55,195	282	34	99·43	...	...	...	...	...	...	...	...	...	...	4,765	1,950	2,454	361	40·92	...	...	...	...	...
13	Khulna ...	...	...	...	...	...	47,423	47,236	121	66	99·60	...	...	...	...	...	...	...	...	...	...	8,981	4,143	4,637	201	46·13	...	...	...	...	...
	Total ...						309,419	292,380	15,117	1,922	...	...	...	...	...	...	...	...	...	...	...	72,709	30,579	38,310	3,820	...	...	...	...	...	...
14	Rajshahi ...	...	...	...	...	...	45,276	43,899	1,147	230	96·95	...	...	...	...	...	...	...	...	...	...	16,879	12,645	3,808	426	74·91	...	...	...	...	...
15	Dinajpur ...	...	...	...	...	...	46,034	41,895	3,707	432	91·00	...	...	...	...	...	...	...	...	...	...	7,487	5,163	1,912	412	68·95	...	...	...	...	...
16	Jalpaiguri ...	...	...	...	...	...	17,477	14,395	3,063	19	82·36	...	...	...	...	...	...	...	...	...	...	25,613	17,638	7,329	646	68·86	...	...	...	...	...
17	Darjeeling ...	...	...	...	...	...	12,176	11,882	131	163	97·58	133	133	...	...	100·	...	...	...	...	...	15,087	6,525	6,392	2,177	43·26	...	...	...	...	...
18	Rangpur ...	...	...	...	...	...	68,594	65,105	3,342	447	94·90	...	...	...	...	...	...	...	...	...	...	5,403	3,279	1,712	412	60·68	...	...	...	...	...
19	Bogra ...	...	...	...	...	...	21,644	21,336	276	32	98·57	...	...	...	...	...	...	...	...	...	...	1,503	618	829	56	41·11	...	...	...	...	...
20	Pabna ...	...	...	...	...	...	38,885	36,612	1,784	489	94·15	...	...	...	...	...	...	...	...	...	...	2,094	1,150	646	298	54·91	...	...	...	...	...
21	Malda ...	...	...	...	...	...	31,409	30,566	453	388	97·32	...	...	...	...	...	...	...	...	...	...	648	475	105	68	73·30	...	...	...	...	...
	Total ...						281,795	265,692	13,903	2,200	...	133	133	...	...	...	...	...	...	...	...	74,714	47,496	22,723	4,495	...	...	...	...	...	...
22	Dacca ...	...	...	...	...	...	79,584	70,358	7,491	1,735	88·40	...	...	...	...	...	...	...	...	...	...	8,843	3,885	3,681	1,277	43·95	...	...	...	...	...
23	Mymensingh	...	...	...	...	...	115,625	103,849	9,288	2,488	89·81	...	...	...	...	...	...	...	...	...	...	48,160	32,524	12,349	3,287	67·53	...	...	...	...	...
24	Faridpur ...	...	...	...	...	...	49,931	46,246	2,576	1,109	92·61	...	...	...	...	...	...	...	...	...	...	5,280	3,778	1,007	495	71·55	...	...	...	...	...
25	Backerganj ...	...	...	...	...	...	102,581	97,038	2,663	2,880	94·59	...	...	...	...	...	...	...	...	...	...	1,647	707	643	297	42·92	...	...	...	...	...
	Total ...	...	...	...	...	...	347,721	317,491	22,018	8,212	...	...	...	...	...	...	...	...	...	...	...	63,930	40,894	17,680	5,356	...	...	...	...	...	...
26	Chittagong ...	...	...	...	...	...	42,819	39,406	2,140	1,073	92·46	...	...	...	...	...	...	...	...	...	...	4,211	2,342	1,560	309	55·61	...	...	...	...	...
27	Noakhali ...	...	...	...	...	...	42,341	36,029	5,254	958	84·69	...	...	...	...	...	...	...	...	...	...	1,445	862	524	49	60·99	...	...	...	...	...
28	Tippera ...	...	...	...	...	...	63,740	57,695	5,232	813	90·51	...	...	...	...	...	...	...	...	...	...	3,869	2,148	1,378	343	55·51	...	...	...	...	...
29	C. Hill Tract...	...	...	...	...	...	7,747	7,198	497	52	92·91	...	...	...	...	...	...	...	...	...	...	1,183	557	610	16	47·08	...	...	...	...	...
	Total ...	...	...	...	...	...	156,647	140,328	13,123	2,896	...	...	...	...	...	...	...	...	...	...	...	10,709	5,929	4,072	708	...	...	...	...	...	...
30	Railway ...	...	...	...	...	...	1,422	1,313	78	31	92·33	...	...	...	...	...	...	...	...	...	...	1,235	605	203	427	48·98	...	...	...	...	...
	Total of the Province	3,433	3,194	137	102	93·03	13,24,927	12,37,309	79,928	16,690	93·38	133	133	...	...	100·	2,918	1,581	1,039	298	54·18	287,999	163,791	104,376	19,832	56·87	...	...	...	...	...

In 24-Parganas 2,246 operations and in Calcutta all the operations were performed with glycerinized lymph.

B. S. Press—27-6-1917—452J—549—F. T. R

MUNICIPAL DEPARTMENT.

SANITATION.

CALCUTTA, THE 17TH JULY 1917.

RESOLUTION—No. 455 San.

READ—

The Reports of the Sanitary Commissioner, the Sanitary Board, and the Sanitary Engineer, Bengal, for the year 1916.

READ ALSO—

The Annual Statistical Returns and Short Notes on Vaccination in Bengal for the year 1916-17.

General Results.—In the Resolution of this Government reviewing the Report of the Sanitary Commissioner for 1915, it was observed that that year was the worst of a cycle of bad years, the result being that Bengal sustained a loss of population for the first time since 1892. The Governor in Council is pleased to observe that the record for 1916 is very different, there being an excess of births over deaths amounting to 204,571. This is the largest annual increase registered since 1912 and more than compensates for the decrease recorded in 1915. The recovery was the combined result of a slightly enhanced birth-rate and of a considerable decrease in mortality from almost every cause, and more especially from cholera, small-pox and fever. The rainfall was generally well distributed and ample in amount; the outturn of the rice crop, on which the agricultural prosperity of the Presidency mainly depends, was good. As a result of these favourable conditions, there was an increase of the natural population throughout the Presidency. Though small in West and North Bengal, it was large in Eastern Bengal, the growth of population being 9 per mille in the Dacca Division and 14½ per mille in the Chittagong Division.

2. **Birth-rate.**—The birth-rate rose from 31·80 to 31·89 per mille. The actual increase in the number of births is extremely small, but it is satisfactory that the check to the natural growth of the population has been stayed, and that the decrease of 2 per mille returned in 1915 has given place to an increase.

3. **Death-rate.**—Compared with 1915, the number of deaths decreased by nearly a quarter of a million, the death-rate falling from 32·83 per mille to 27·37 per mille. The mortality from every cause was lower, and the decrease was shared in by all areas, whether urban, rural, or combined urban and rural, while the mortality, both from fever and cholera, was the lowest on record since the creation of the Presidency in 1912.

There was a further satisfactory decline in infant mortality, the ratio which deaths in the first year of life bear to births falling from 21·89 per cent. to 19·53 per cent. In only one district, as against six last year, was the proportion of infant mortality higher than 25 per cent., and the district ratio in this case was considerably less than the maximum of the previous year.

4. **Accuracy of the vital statistics.**—The margin of error in vital statistics due to defective registration still persists. Comparison on a large scale of the returns obtained by Inspectors and Sub-Inspectors of Vaccination with entries in the thana registers reveal a deficiency averaging 2·58 per cent. in the case of births and 1·93 per cent. in the case of deaths, while in two districts one out of every 10 births escaped registration. The Sanitary Commissioner reports that there has been some improvement in towns, but from the abnormally low birth-rates reported in some towns, *e.g.*, 3·92 per mille in Jessore, 4·53 per mille in Barrackpore, and 4·80 per mille in Sirajganj, it is clear that the return for towns are still very incomplete and that a large number of births are unreported. A remarkable instance of

the improvement which can be effected by employing the powers permitted by law is afforded by the town of Asansol, where the reported birth-rate rose from 6·02 per mille in 1915 to 21·89 per mille in 1916 owing to a number of prosecutions being instituted for neglect to register vital occurrences. The Sanitary Commissioner rightly observes that—

"Unless Municipal Commissioners show an active interest in the matter and take proper steps to ensure correct registration, the vital statistics of Bengal towns will continue defective."

During the year under review the Governor in Council impressed upon municipal authorities the necessity for discharging their duties in this matter, and instructions were issued to Commissioners and District Officers that during their inspections they should examine the adequacy of the arrangements made for registration.

5. **Fever.**—The total number of deaths reported from fever was 909,880 compared with 1,064,159 in the previous year, and was considerably below the annual average of 986,443 returned for the five years 1911-1915. This head of the statistics includes deaths from various febrile diseases or ailments accompanied by a rise of temperature; and it is impossible to discriminate deaths due to fevers of malarial origin.

The decline in mortality is attributed by the Sanitary Commissioner to heavy seasonal rainfall and to the effects of inundations in many places, a view in which he is supported by a consensus of opinion among Civil Surgeons. In Birbhum, which in 1915 returned the highest mortality from fever, and in which malarial fever was said to have raged with unabated fury since 1912, the disease is reported to have been conspicuous by its absence as the result of unusually heavy rain and extensive inundation.

The decrease in mortality was more marked in rural than in urban areas, but in the towns the fever death-rate (6·93 per mille) remains less than a third of what it is in rural areas (20·97 per mille).

6. **Anti-malarial measures.**—The ordinary anti-malarial measures conducted by Government and local bodies were continued throughout the year, the only change being that the expenditure usually incurred by Government in deputing itinerant Sub-Assistant Surgeons was devoted to the free distribution of quinine through the District Boards in districts in which malaria was rife. The distribution of quinine to school children in certain areas in the Burdwan Division resulted in a considerable increase in the percentage of attendance.

Towards the close of the year a beginning was made with three out of four schemes designed by Dr. Bentley as experiments in anti-malarial operations. These schemes are to be carried out in areas with varying physical conditions, so that it may be possible to predicate what measures are likely to be successful for the prevention and mitigation of malaria in different parts of the Presidency. Two of the experiments are to be made in the deltaic tracts, viz., one in a rural area in the Burdwan district and the other in the town of Jangipur in the Murshidabad district. The Sanitary Commissioner describes these schemes as follows :—

"In the Burdwan and Jangipur schemes the idea is to take in the silt-laden waters of the Damodar and Bhagirathi rivers, respectively, during the floods so as to reduce what is called areas of mosquito-breeding edges by converting a large number of small pools into a big sheet of water, and at the same time to enrich the soil by allowing the silt to deposit on agricultural land. By constructing a series of regulators and sluices, it is arranged to control the flood water, so as to allow only a sufficient quantity that may benefit the crops and not drown them; and at the same time only the silt and not the sand may be deposited on agricultural land—a special method technically known as 'Bonificazione.' By this method it is also contrived to flush out old insanitary tanks and ditches, and in course of time to silt them up."

7. The basis of the third experiment is a system of subsoil drainage, which has been successful in Panama and the Federated Malay States, but has not been attempted in Bengal in connection with anti-malarial operations. This experiment is to be made at the Meenglass tea estate in the submontane region in the district of Jalpaiguri. A fourth will be carried out on a colliery situated at Singaram in the Burdwan district, in the rolling upland country which covers a large area in West Bengal. In these latter tracts

the chief carriers of malaria are believed to be stream-breeding mosquitoes which differ in their habits from the common carriers of malaria met with in deltaic areas. The two schemes have been specially drawn up with the object of ascertaining the best method of dealing with these mosquitoes and determining the minimum area round a village that must be controlled in order to bring about a reduction of malaria.

At Meenglass the hill streams, in which a dangerous species of anopheline mosquito breeds, will be put underground, the water being carried off in subsoil drains when the flow becomes sluggish, while the storm flow is allowed to pass over them in the usual stream channels. The Singaram scheme consists of two parts, viz., (1) a thorough surface drainage of the area to be experimented on, and (2) the periodical flushing of a small river in which malaria-carrying mosquitoes of a vicious character breed. The object of the first part is to drain away pools and depressions in which malaria-carrying mosquitoes breed: that of the second is to substitute a series of flushes in the river instead of a sluggish flow, for it has been ascertained that mosquitoes breed along its edge when the flow is gentle, but when the river is in flood their eggs and larvae are carried away. It is therefore proposed to construct a weir with sluices so arranged that, when the sluices are closed, a head of water will be accumulated behind the weir, and this will be periodically discharged so as to flush the bed of the rivulet. It is hoped that three of the schemes will be completed during the current year; and the Governor in Council looks forward to the results of the experiments with much interest.

8. **Stegomyia Enquiry.**—A conference was convened by Government in November 1916 to consider the measures necessary to establish homogeneous sanitary control throughout the port of Calcutta, with special reference to the question of taking measures to prevent the introduction of yellow fever through the medium of the stegomyia mosquito in consequence of the opening of the Panama Canal.

9. **Cholera.**—Owing to the absence of virulent epidemics, which is attributed to copious and seasonable rainfall, the number of deaths from cholera fell from 130,679, which is the highest figure as yet recorded in the Presidency, to 70,836, which is the minimum on record. Steps were taken by District Boards to cope with cholera outbreaks by the disinfection of wells and the appointment of itinerant doctors; but the Sanitary Commissioner is of opinion that much cannot be expected till all the District Boards possess a proper sanitary organization. The question of the reorganization of the sanitary staff employed by these bodies is now under consideration.

10. **Small-pox.**—It is satisfactory to find that the steady rise in mortality from small-pox, which culminated in 32,785 deaths in 1915, has been checked, the number of deaths reported in 1916 falling to 13,890. The highest district death-rate was returned by Bankura, viz., 1·32 per mille. The Civil Surgeon attributes the outbreak in that district to the fact that most of the sources of water-supply in the villages had dried up owing to the failure of the rains in the preceding year. Calcutta, which suffered from a virulent outbreak of the disease in 1915, was almost immune, only 58 deaths being returned.

11. **Vaccination.**—The total number of persons returned as having been vaccinated during the year 1916-17 was 1,598,428 as against 1,635,621 during the previous year. The decrease is said to be due chiefly to the stricter supervision exercised by inspectors and sub-inspectors of vaccination over the work of the vaccinators and by Deputy Sanitary Commissioners over the work of both, the effect being to check the temptation to submit false figures. Free vaccination at the cost of the District Boards was introduced as an experimental measure in one thana of the Faridpur district, and was continued with satisfactory results in the 24-Parganas and the Sadar subdivision of Bakarganj. A large number of persons were operated on who had not been vaccinated before and vaccination was introduced in villages which had hitherto objected to it. In the towns 642 per mille of the surviving infant population was reported to be protected; but the Sanitary Commissioner

doubts the correctness of these figures and states that a new method of inspection which was introduced under his orders has brought to light the fact that in many districts from one-third to one-half of the children under five years of age escaped vaccination.

12. **Plague.**—The mortality from plague continued to diminish, the total number of deaths being 110, of which 78 occurred in Calcutta and 22 at Sainthia in the district of Birbhum. A sharp outbreak at the latter place, which is believed to have been due to the importation of the disease by Marwari traders, was successfully localised. The total number of deaths during the year is the lowest on record; and the Presidency was entirely free from plague during the last five months of the year.

13. **The Sanitary Board.**—The Sanitary Board continued to do useful work. Besides advising on a number of sanitary questions of considerable importance, it considered and submitted to Government sketch projects for three drainage works and four schemes of water-supply, of which the total cost is estimated at Rs. 9,76,581.

14. **Sanitary Improvements.**—The total expenditure incurred on sanitary works executed during the financial year 1915-16 by Government, Municipalities, District Boards and private individuals is estimated at Rs. 14,60,006. Sanitary works were, as usual, carried out in the villages through the agency of District and Local Boards and Union Committees, but the Sanitary Commissioner reports that the complaint is almost universal that the villagers do not understand the importance of sanitary measures and are reluctant to contribute to their cost.

The total expenditure on sanitary engineering works during the calendar year 1916 is reported to have been Rs. 4,61,894, or nearly 3 lakhs less than in the previous year. The decrease is due to the unfavourable financial situation consequent on the war. The greater part of the expenditure was, as usual, devoted to water-supply. Water-works were completed at Chittagong and Bankura, and schemes for the improvement of the urban water-supply were under construction at Howrah, Barisal, Berhampore and Burdwan. Drainage schemes were fully completed at Katwa and partially completed at Burdwan and Bhadreswar, while others were under construction at Howrah, Bhatpara, Garden Reach and Tangail. The general results of the year are summarized as follows by the Sanitary Engineer :—

"Although the amount spent on sanitary engineering works during the year was small, the year was one of slow but steady progress. There was a considerable increase in the number of persons supplied with water and in the quantity of filtered water given. A number of important projects were prepared, and there should be no difficulty in carrying out an extensive project of sanitary engineering works in this province when financial equilibrium is restored."

A valuable indication is given by the Sanitary Engineer of the effect which the metering of house connections has on the consumption of water in towns. In Barisal it is reported that, as the result of allowing 51 metered house connections, no increase has been caused in the consumption *per capita*, although this is less than 3 gallons per head of the population served, whereas at Hooghly-Chinsura the consumption per head has increased from 4·81 gallons per head in 1914 to 11·29 gallons per head in 1916, concomitantly with the grant of unmetered house connections. The Sanitary Engineer estimates that in this latter municipality one-eighth of the inhabitants are consuming more than one-half of the water supplied. The Governor in Council regards it as a most un-satisfactory feature of the management of municipal water-works, constructed with the help of grants from Government, that Municipal Boards should neglect the rules which have been framed in the general interest for the regulation of private connections so as to secure a fair distribution of the supply among all classes.

15. **Sanitary Officers.**—Progress has been made in the appointment of sanitary officers in municipalities under the Sanitary Officers, Bengal, Act II of 1914, though there was for some time a disposition on the part of certain municipalities to defer making appointments until orders were passed on

appeals to Government for grants-in-aid. The Governor in Council had therefore occasion to point out that the appointment of sanitary officers is now a statutory obligation, which must be discharged irrespective of the decision of Government on requests for financial assistance.

All District Boards are also required by law to appoint a Sanitary Inspector, but there is at present no adequate definition of his duties, and rules prescribing the qualifications to be required for appointment have not yet been prescribed. The result has been considerable variety in the duties performed by the Sanitary Inspectors, and the scope of their work appears in some cases to be unduly limited. The Governor in Council has recently consulted District Boards and local officers as to the qualifications and functions to be required of these officers.

16. **Staff.**—Dr. C. A. Bentley, M.B., D.P.H., was in charge of the office of Sanitary Commissioner, Bengal, and Mr. G. B. Williams of the office of Sanitary Engineer throughout the year. The Dacca Circle alone was under the charge of a Deputy Sanitary Commissioner throughout the year, but by the end of the year all the vacancies in the superior sanitary cadre, which had been caused by officers being required for military duty, had been filled. To both Dr. Bentley and Mr. Williams the thanks of the Governor in Council are due for their careful administration of their departments.

By order of the Governor in Council,

L. S. S. O'MALLEY,

Secretary to the Govt. of Bengal.

Nos. 466—476San.

COPY with copies of the reports* forwarded to—

(1) All Commissioners of Divisions for information and communication to all District Officers in their respective divisions.

(2) The Surgeon-General / Inspector-General of Prisons / Inspector-General of Police, Bengal, for information.

(3) The Sanitary Commissioner / Secretary to the Sanitary Board / Sanitary Engineer, Bengal, for information.

* For (1) and (2) only—Report on Sanitation in Bengal, for the year 1916.
Triennial Report on vaccination in Bengal for the years 1914-15, 1915-16 and 1916-17.

By order of the Governor in Council,

C. W. GURNER,

Under-Secy. to the Govt. of Bengal.

CALCUTTA,
MUNICIPAL DEPT.—*San.*,
The 19th July 1917.

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