

ELEVENTH TRIENNIAL REPORT

on

VACCINATION IN BENGAL

for the years

1917-18, 1918-19 and 1919-20.

by

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

Sanitary Commissioner for Bengal.



CALCUTTA :

THE BENGAL SECRETARIAT BOOK DEPÔT.

1920.

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**ELEVENTH TRIENNIAL REPORT ON VACCINATION IN BENGAL
FOR THE YEARS 1917-18, 1918-19 and 1919-20.**

1. I submit the following report on Vaccination in Bengal for the triennial period from 1917-18 to 1919-20.

2. **Officer-in-charge of the department.**—I was in charge of the department throughout the triennial period.

Dr. Brahmachari held charge of the office of the Deputy Sanitary Commissioner of the Presidency Circle; Drs. Sur and Ray of the Burdwan Circle; Dr. Sufi of the Dacca Circle; and Drs. Gupta, Ray and Ghosh of the Rajshahi Circle during the triennium

3. **Strength of staff.**—The average number of inspecting officers and vaccinators in Calcutta was 14 and 62 during the triennial period against 7 and 45 during the previous epoch. In the rural areas of the Presidency they numbered 133 and 1,576, and in mufassal municipalities, dispensaries, etc., 6 and 170 as compared with 126 and 1,347, and 5 and 155 during the previous triennial period.

4. **General operations.**—Excluding about 7,538 operations performed by the British India Steam Navigation Company, the Port Health Department, Calcutta, and a sub-assistant surgeon in the Murshidabad district for which no details are available, the total number of vaccinations reported to have been performed in this Presidency during the year 1919-20 was 3,186,642 on 3,181,727 persons against 1,784,817 on 1,773,715 persons during the previous year, showing an increase of no less than 1,401,825 operations. Of the total cases, 1,646,099 were primary and 1,540,543 re-vaccinations as compared with 1,295,331 and 489,486 during 1918-19. There were thus 350,768 more primary vaccinations and 1,051,057 more re-vaccinations performed in 1919-20 than during the previous season. The average of the triennial period under review was 2,195,353 of which 1,432,923 were primary operations and 762,430 re-vaccinations, the corresponding figures of the previous triennial epoch being 1,624,214, 1,246,895 and 377,319, respectively. The average increase in the triennium thus amounts to a total of 571,139 operations. The greatly increased amount of vaccination during the season under review is to be attributed firstly to the greater prevalence of small-pox and secondly to the special efforts made to induce people to accept vaccination. Early in the season warnings were issued by this department that an epidemic was likely to occur and repeated requests were sent to civil surgeons, chairmen of district boards and municipalities and others urging them to push on vaccination as vigorously as possible. Special circulars and illustrated leaflets and posters were also prepared and widely circulated, and it is reported that these proved very effective in inducing people to accept vaccination more readily than usual.

The average rate of success in primary and re-vaccination cases during the triennial period was 96.75 and 67.95, respectively, against 96.71 and 64.29 during the previous epoch.

The average number of operations performed by a vaccinator was 1,187 against 1,045 during the previous triennial period. The average work of a licensed and a paid vaccinator was 1,105 and 1,365 respectively, as compared with 1,028 and 1,117 during the previous triennium.

As compared with the previous year (1918-19) there was an increase of operations in every district except Darjeeling, but there was slight decrease in primary vaccination in the Serampur subdivision of the Hooghly district and in the districts of Malda and Chittagong Hill Tracts. The increase was between 12,000 to 20,000 in four districts, over 20,000 to 30,000 in seven, over 30,000 to 40,000 in three, over 40,000 to 50,000 in three, over 50,000 to 80,000 in five and over one lakh in four, viz., Dacca (106,156), Mymensingh (118,677), Faridpur (171,760) and Calcutta (181,402). The decrease in Darjeeling and the increase in the Chittagong Hill Tracts in total operations were slight.

5. **Protection afforded to infants.**—During 1919-20 out of 935,708, the estimated number of available infants for vaccination, 295,676 or 315·98 per mille were said to have been successfully vaccinated as compared with 260·92 and 261·22 during the previous years. In four districts only the protection afforded to infants was over 500 per mille. As reported in previous years, the districts in the Dacca and Chittagong Divisions were the worst in this respect. The protection afforded to infants in municipalities is shown in Appendix VII attached to this report. It will be seen that 836·47 per mille of the surviving infants were protected during the year against 658·95 and 582·56 during 1918-19 and 1917-18, respectively.

6. **Recess work.**—Altogether 556,400 vaccinations were performed during the recess or non-working season of 1919-20 in connection with small-pox epidemic against 193,147 and 123,203 during the two previous years. The average recess operation of the triennial period was 290,917 as compared with 158,848 during the past triennium.

7. **Six-puncture vaccination.**—The total number of successful primary and re-vaccination operations performed in six points during 1919-20 was 214,069 and 19,051, respectively, as compared with 153,184 and 6,404 during 1918-19 and 196,136 and 3,763 during 1917-18. The average of the triennial period was 187,796 primary and 9,739 re-vaccination cases against 240,303 and 13,464, respectively, during the previous epoch.

8. **Factory and tea garden vaccination.**—Seven thousand seven hundred and seventy-five primary and 20,264 re-vaccinations were performed in factories and tea gardens in this Presidency during 1919-20 against 4,002 and 10,896, and 6,801, and 2,007 during the two preceding years. The average of the triennial period was 6,193 primary and 11,056 re-vaccination cases as compared with 5,855 and 3,704 during the previous triennium.

9. **Cost of and contribution towards vaccination.**—The total average cost of vaccination during the triennial period under review was Rs. 2,47,585-0-11 against Rs. 1,98,549-2-9 during the previous triennium, the cost of each successful case of vaccination being two annas and two pies against two annas and three pies. Out of the average cost as shown above, Rs. 35,170-4 was contributed by the district boards and Rs. 115-1-4 by cantonments against Rs. 10,818-3-6 and Rs. 96-8-10 during the previous period.

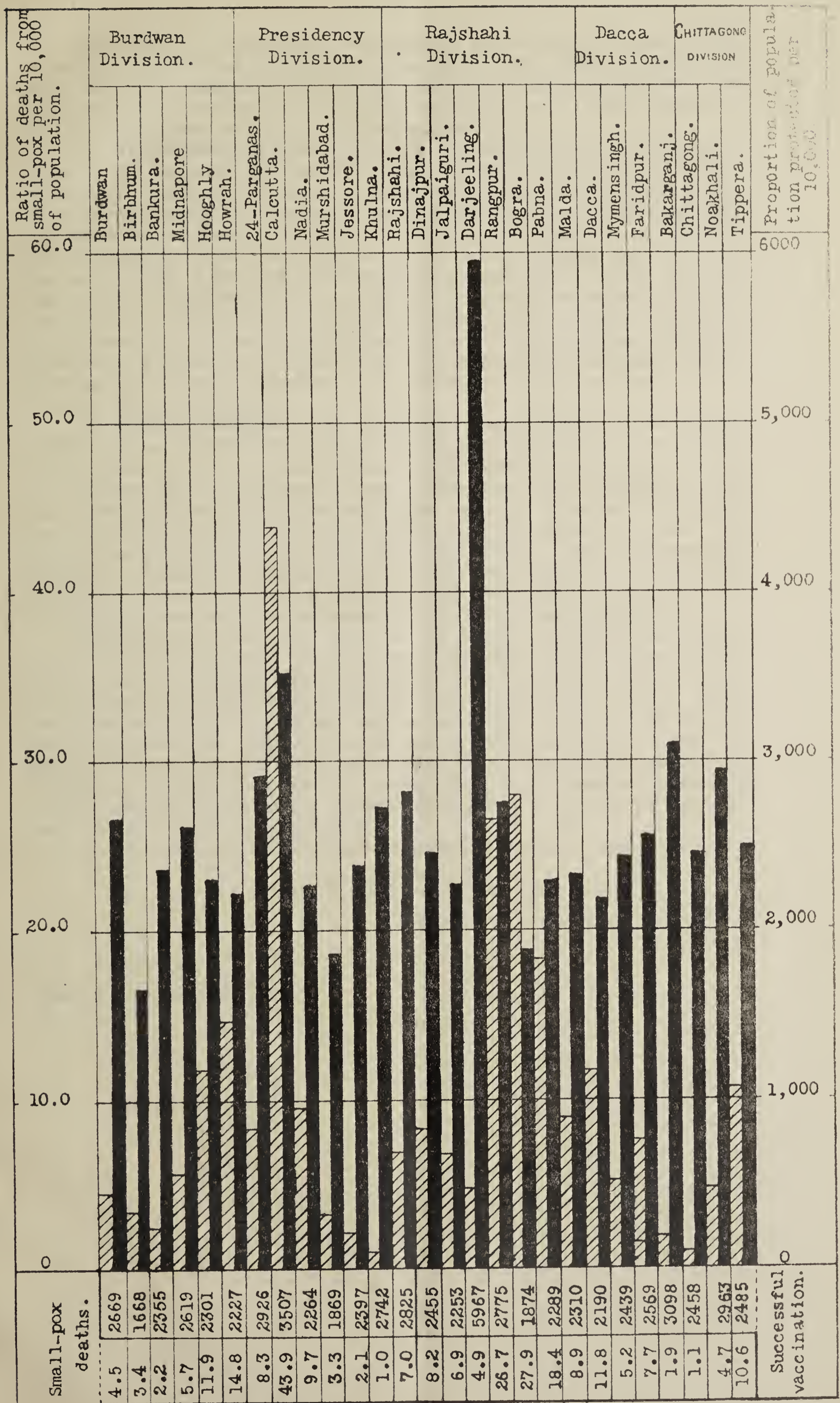
10. **Diagram illustrating death-rates from small-pox and degree of protection afforded.**—The death rates from small-pox in each district and the proportion of population protected against the disease by vaccination during the past seven years are shown in the diagram facing this page.

11. **Deaths from small-pox.**—During 1919-20 the total number of deaths recorded from small-pox was 41,200 against 12,147 and 7,020 during the two previous years, the ratio per mille of population being ·90 against ·26 and ·15. The largest number of deaths were recorded in the districts of Rangpur (6,381), Calcutta (3,935), Dacca (3,487), Bogra (2,742), Pabna (2,636), Tippera (2,585), Mymensingh (2,360), 24-Parganas (2,021), Faridpur (1,644), Midnapur (1,619), Nadia (1,568), Howrah (1,400), Dinajpur (1,380), Hooghly (1,293), Rajshahi (1,036), Malda (899), Jalpaiguri (622) and Noakhali (608). Darjeeling, Khulna and Chittagong districts had 130, 143 and 160 deaths, respectively.

12. **Animal Vaccine Depot.**—The total number of calves vaccinated in the Animal Vaccine Depot, Calcutta, during 1919-20 was 2,742 against 2,452 and 2,299 during the two previous years, and the quantity of lymph manufactured therefrom was 1,715,101, 1,058,273 and 858,759 grains respectively. The average of the triennial period was 2,498 calves and 1,210,711 grains of lymph against 2,281 calves and 773,807 grains of lymph during the previous triennial period.

13. **Different methods of vaccination.**—During 1919-20 the total number of primary operations performed with lymph direct from calves was 6,433, with lanoline paste 1,050,601 and with glycerinated lymph 589,065 against 2,532, 1,200,089 and 92,710, respectively, during 1918-19 and 1,223, 1,334,422 and 21,695, respectively, during 1917-18. The ratio percentage of success under each of these methods was 96·96, 97·04, and 96·89 against 94·51, 95·44 and 96·69 during 1918-19 and 97·54, 96·64 and 95·13 during 1917-18.

Diagram illustrating death-rates from small-pox during the year 1919-20 and degree of protection afforded, 1913-14 to 1919-20.



Indicate the death-rates from small-pox.

Indicate the proportion of population protected by vaccination.

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The number of re-vaccinations performed under each of these methods was 6,517, 919,378 and 614,648 with a success of 62·16, 72·22, and 60·50 per cent. respectively against 1,615, 450,927 and 36,944 with a success of 71·64, 67·05 and 41·04 during 1918-19 and 586, 243,000 and 13,675 with 55·12, 68·49 and 27·12 per cent. of success during 1917-18.

14. **Inspections.**—During 1919-20, the Deputy Sanitary Commissioners were mostly engaged on special duties in connection with outbreaks of small-pox, cholera and epidemic dropsy, and they were therefore unable to do much routine vaccination inspection work. The Civil Surgeons saw altogether 51,488 cases or 1·62 per cent. of the total operations performed in the Presidency. The Civil Surgeons of Malda, Tippera and Faridpur inspected 6,592, 4,753 and 4,628 operations, respectively. Of the rest, two, viz., the Civil Surgeons of Mymensingh and Rangpur, saw between 3,000 to 4,000 cases; 13 from 1,000 to 2,700 and 5 below 1,000 operations. No vaccination inspection was performed by the Civil Surgeons of Burdwan, Serampur, Howrah, 24-Parganas and Dacca. The Government paid Vaccination Inspectors and Sub-Inspectors inspected 1,133,556 cases or 35·63 per cent. of the total operations performed.

15. **General remarks.**—Free vaccination was introduced in the districts of Birbhum and Howrah from the beginning of 1919-20 at the cost of the District Boards, and it was continued in the Burdwan district, including the Asansol Mining Settlement area, 24-Parganas and Jalpaiguri as well as in certain thanas of the Bogra and Malda districts. It was also introduced in the Patuakhali subdivision of the Bakarganj district during the year. The district boards of Rajshahi, Dinajpur, Rangpur, Pabna, Dacca, Mymensingh, Faridpur, Chittagong, Noakhali and Tippera also appointed many paid vaccinators for the suppression of small-pox in their districts and as reported in previous years that it proved a success wherever it was introduced.

Mention has already been made of the use of illustrated leaflets and posters for the purpose of popularizing vaccination. Three large posters and a number of leaflets illustrating the danger of small-pox and the value of vaccination were prepared during the year and circulated widely among municipalities, district boards and railway and steamer companies, jute mills and tea gardens, etc., and from reports that have since been received they appear to have served a very useful purpose in educating the public and inducing them to come forward for vaccination in larger numbers than ever before. An illustrated pamphlet on small-pox and its prevention has since been prepared and is being circulated.

17. The prescribed statements are appended to these notes.

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

Sanitary Commissioner for Bengal.

CALCUTTA ;

The 6th September 1920.

STATISTICAL RETURNS.

STATEMENT No. I.—Showing particulars of vaccination

Number.	DISTRICT.	Population of districts according to the Census of 1911.	Average population per square mile.	Average number of vaccinators employed throughout the year.	TOTAL NUMBER OF PERSONS VACCINATED.			Average number of persons vaccinated by each vaccinator.	PRIMARY.							
					Male.	Female.	Total.									
1	2	3	4	5	6	7	8	9	10							
1	BURDWAN DIVISION.	Burdwan { Paid by District Board } 1,444,183	541	32	48,987	80,432	79,419	2,482	49,930							
	 { Paid by Asansol Mines Board of Health. } 12								21,864	13,960	35,824	2,985	14,141		
		Birbhum { Paid by District Board } 926,342								529	24	21,154	16,484	37,638	1,568	21,051
		Bankura { Licensed Agency } 1,081,464								415	51	29,723	24,987	54,710	1,073	37,008
		Midnapur { Paid by Railway } 2,738,301								531	1	1,148	873	2,021	2,021	1,241
		Hooghly { Licensed } 938,615								811	112	73,304	56,088	129,392	1,155	80,122
Howrah { Do. } 741,719	1,489	36	18,984	13,610	32,594	905	21,952									
	Total of Burdwan Division.	{ Paid } 7,870,626	569	87	115,513	75,480	190,993	2,195	109,000							
		{ Licensed } 199		199	122,011	94,685	216,696	1,089	139,082							
		Total		286	237,524	170,165	407,689	1,425	248,082							
7	PRESIDENCY DIVISION.	24-Parganas { Paid by District Board } 1,855,590	950	64	58,702	40,608	99,310	1,552	66,995							
		Calcutta { Paid by Municipality } 1,96,067								28,002	94	177,619	61,508	239,157	2,544	30,594
		Nadia { Licensed } 1,521,928								553	86	41,453	33,012	74,465	866	48,546
		Murshidabad { Do. } 1,288,791								609	45	20,328	17,615	37,943	843	32,822
		Jessore { Do. } 1,737,066								596	80	47,985	38,676	86,661	1,083	58,006
		Khulna { Paid by District Board } 1,337,579								650	5	8,394	5,789	14,183	2,836	7,764
	Total of Presidency Division.	{ Paid } 8,667,021	718	163	244,745	107,905	352,650	2,163	105,353							
		{ Licensed } 259		259	138,014	113,850	251,864	972	174,484							
		Total		422	382,759	221,755	604,514	1,432	279,837							
13	RAJSHAHI DIVISION.	Rajshahi { Paid by District Board } 1,448,930	554	8	15,724	11,880	27,604	3,450	3,428							
	 { Licensed } 41								53,128	40,437	93,565	2,282	37,645		
		Dinajpur { Paid by District Board } 1,671,918								424	30	15,847	7,315	23,162	772	3,665
	 { Licensed } 57								65,296	38,369	103,665	1,819	40,738		
		Jalpaiguri { Paid by District Board } 890,895								305	24	25,071	15,106	40,177	1,574	21,011
		Darjeeling { Paid by Improvement Fund } 240,971								298	16	24,172	22,273	46,445	2,903	12,349
17	Rangpur { Paid by District Board } 2,368,901	682	53	29,933	15,732	45,665	862	8,557								
	... .. { Licensed } 64		64	99,712	55,774	155,486	2,429	62,826							
18	Bogra { Paid by District Board } 970,366	715	11	19,382	13,260	32,642	2,967	19,169								
	... .. { Licensed } 13		13	9,753	7,145	16,898	1,299	10,266							
19	Pabna { Paid by District Board } 1,384,535	754	20	17,703	11,318	29,051	1,452	4,625								
	... .. { Licensed } 38		38	26,855	21,916	48,771	1,308	39,552							
20	Malda { Paid by District Board } 962,765	509	14	11,871	4,922	16,843	1,203	4,023								
	... .. { Licensed } 18		18	19,926	14,485	34,411	1,912	20,627							
	Total of Rajshahi Division.	{ Paid } 9,939,281	518	176	159,703	101,886	261,589	1,486	76,827							
		{ Licensed } 231		231	274,670	178,126	452,796	1,960	211,654							
		Total		407	434,373	280,012	714,385	1,755	288,481							
21	Dacca DIVISION.	Dacca { Paid by District Board } 2,823,975	1,021	125	5,004	2,768	7,772	310	2,224							
	 { Licensed } 120								91,432	74,986	166,418	1,387	94,231		
		Mymensingh { Paid by District Board } 4,404,353								711	13	4,756	2,808	7,564	582	4,232
	 { Licensed } 167								148,514	100,997	249,511	1,494	156,503		
		Faridpur { Paid by District Board } 2,089,710								815	43	29,956	22,549	52,505	1,221	23,794
	 { Licensed } 80								101,531	70,204	171,735	2,147	78,211		
24	Bakargauj { Paid by District Board } 2,380,293	515	47	87,339	64,806	152,145	3,287	145,237								
	... .. { Licensed } 12		12	7,477	6,636	14,113	1,176	14,113							
	Total of Dacca Division.	{ Paid } 11,698,331	724	128	127,055	92,931	219,986	1,719	175,487							
		{ Licensed } 379		379	348,654	252,823	601,777	1,588	343,058							
		Total		507	476,009	345,754	821,763	1,621	518,545							
25	CHITTAGONG DIVISION.	Chittagong { Paid by District Board } 1,475,289	593	(a) 50	21,688	14,266	35,954	719	25,857							
	 { Licensed } 50								12,116	9,670	21,786	435	20,583		
		Noakhali { Do. } 1,295,081								788	52	52,599	35,189	87,788	1,688	62,183
	 { Paid by District Board } 2,372,434								954	39	21,295	16,317	37,612	964	18,979
	 { Licensed } 86								63,478	52,938	116,436	1,354	80,489		
		Chittagong Hill Tracts { Paid by Government } 153,879								30	11	5,564	4,569	10,133	921	5,902
	Total of Chittagong Division.	{ Paid } 5,296,683	431	100	48,547	35,152	83,699	837	50,738							
		{ Licensed } 188		188	128,193	97,967	225,960	1,202	163,255							
		Total		288	176,740	132,919	309,659	1,079	213,993							
	Total of Bengal Presidency.	{ Paid } 43,471,942	608	654	695,563	413,354	1,108,917	1,696	517,405							
		{ Licensed } 1,256		1,256	1,011,842	737,251	1,749,093	1,393	1,031,533							
		Total		1,910	1,707,405	1,150,606	2,858,010	1,496	1,548,938							

(a) For two months. (b) For 4 months. * Out of 14 eleven worked for 4 months. † For about a month.

Sum

	Total number of persons vaccinated.		Total number of operations performed.	
	Primary.	Re-vaccination.	Primary	Re-vaccination.
<i>By special staff.</i>				
Licensed	1,031,025	718,068	1,031,533	718,118
<i>By dispensary staff.</i>				
Municipalities, Jails, Cantouments, Dispensaries, Railways, etc.	96,780	226,930	97,161	226,951
<i>By other agencies.</i>				
District Boards, Calcutta Corporation, Darjeeling Improvement Fund, Government and Asansol Mines Board of Health.	513,644	595,273	517,405	595,474
Provincial population—45,483,126.				
Total ...	1,641,449	1,540,278	1,646,099	1,540,543

in the districts of Bengal during the year 1919-20.

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.			Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.		Primary.	Re-vaccination.	Number.	Ratio per 1,000 of population.	Number.	Ratio per 1,000 of population.			
Under 1 year.	1 year and under 6 years.	Total of all ages.							11							12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
8,145 4,956	28,801 8,606	49,699 14,037	154 9	29,489 21,683	19,241 18,837	226 217	99.54 99.26	65.25 86.97	70.71	.30 .06	.77 1.00	43,525	30.14	709	.48			
1,843 8,665 334	12,753 23,304 785	20,476 36,526 1,239	304 43 ...	16,608 17,702 780	11,709 10,875 582	633 487 ...	97.26 95.99 99.83	70.50 61.43 74.61	34.74 42.90 40.84	1.44 .11 ...	3.81 2.75 ...	18,307 31,611 93,963	19.76 29.22 34.31	196 480 2,070	.21 .44 .75			
23,314 6,538 4,057	44,682 12,504 15,515	78,516 21,882 22,323	813 17 123	49,313 10,645 13,454	31,503 8,602 8,592	5,061 296 640	97.99 99.68 98.61	63.88 80.80 63.86	40.84 32.47 41.68	1.01 .07 .54	10.23 2.78 4.75	24,764 22,694	23.38 30.59	398 547	.42 .73			
19,335 38,517	66,460 80,490	107,774 136,924	590 973	82,014 77,660	58,961 50,980	1,716 5,844	98.87 97.72	71.89 65.64	44.93	.54 .69	2.09 7.52	234,663	29.81	4,399	.55			
57,852	146,950	244,698	1,563	159,674	109,941	7,560	98.23	68.85		.63	4.73							
20,478 15,762 15,980 13,093 16,386 1,709 12,321	42,378 12,882 30,214 18,721 36,855 3,888 18,034	66,242 29,539 48,103 32,435 57,795 7,627 35,010	108 783 93 120 71 23 14	32,317 208,563 25,919 5,127 28,655 6,419 17,685	15,235 84,531 17,931 3,628 19,179 4,693 13,330	951 19,745 1,045 167 1,110 521 279	98.87 96.55 99.08 98.81 99.63 98.23 99.71	47.14 40.53 69.18 70.76 66.93 73.11 75.37	43.21 127.29 43.38 27.58 44.31 45.35	.16 2.55 .19 .36 .12 .29 .03	2.94 9.46 4.03 3.25 3.87 8.11 1.57	85,916 31,096 44,309 32,924 52,438 44,643	45.56 34.70 29.11 25.54 30.18 33.37	1,963 877 200 339 193 109	.77 .97 .13 .26 .11 .08			
37,949 57,780	59,148 103,824	103,408 173,343	914 298	247,299* 77,386	104,459 51,068	21,217 2,601	98.15 99.34	42.23 69.86	50.22	.86 .17	8.57 3.36	295,295	34.07	2,804	.32			
95,729	162,972	276,751	1,212	324,885	158,527	23,318	95.48	48.82		.41	7.33							
391 15,943 899 11,221 8,777 5,324 545 9,882 3,676 3,034 697 8,871 2,538 15,810	2,748 20,331 1,310 20,758 6,278 4,116 4,920 38,984 11,774 5,768 3,545 26,853 1,859 4,179	3,363 37,247 3,101 38,283 17,359 11,607 8,287 61,562 18,762 9,921 4,466 38,621 3,925 20,074	11 191 295 672 49 701 110 310 130 138 66 306 73 210	21,176 55,920 19,497 62,935 22,288 31,594 37,108 92,660 13,473 6,632 24,426 9,219 12,851 13,810	20,770 49,526 12,386 53,747 13,077 16,121 31,507 83,484 8,963 3,957 17,668 6,879 10,459 12,127	549 1,870 4,637 1,558 1,198 7,819 1,276 1,452 818 340 760 385 1,005 630	98.10 98.94 93.61 93.97 82.61 93.99 96.84 97.98 97.87 96.63 96.56 97.64 97.56 92.47	85.91 88.56 63.52 85.40 58.67 46.60 84.90 90.09 66.52 59.66 72.33 63.77 81.38 87.81	76.54 64.30 34.36 115.06 78.02 42.87 48.85 48.35	.32 .50 8.05 1.64 .23 5.67 1.28 .49 .67 	2.27 3.34 23.78 2.47 5.37 22.60 3.70 1.56 6.07 5.12 3.11 4.17 7.82 4.56	49,804 48,834 27,984 19,454 56,788 22,335 40,227 29,341	34.37 29.20 31.41 80.73 23.37 23.01 29.05 30.47	137 677 292 48 761 391 916 108	.09 .40 .32 .19 .32 .40 .66 .11			
22,847 64,761	36,050 116,873	70,870 205,708	1,435 1,827	188,413 241,176	130,951 209,720	18,162 6,235	92.24 97.19	69.50 86.95	62.09	1.86 .86	9.63 2.58	297,165	29.89	3,330	.33			
87,608	1,52,923	2,76,578	3,262	429,589	3,40,671	24,397	95.87	79.30		1.13	5.67							
212 7,925 545 17,107 2,619 7,269 1,591 2,369	1,739 72,734 3,133 103,414 15,455 51,639 54,483 10,046	2,150 91,222 4,664 150,044 23,361 76,267 1,38,175 13,798	4 1,374 30 1,802 217 1,290 5,730 5	5,548 72,237 3,332 93,019 28,713 93,835 6,908 ...	4,362 55,745 2,626 76,484 21,000 70,957 4,807 ...	134 561 174 3,064 3,732 13,105 547 ...	96.67 96.80 95.03 95.87 98.18 97.51 95.13 97.76	78.62 77.16 78.81 82.22 73.14 75.01 59.58 ...	54.34 52.95 91.68 65.86	.17 1.45 .70 1.15 .91 1.64 3.94 .03	2.39 7.76 5.22 3.29 12.99 13.96 17.91 ...	70,079 124,388 49,640 105,110	24.81 28.24 23.75 44.15	240 931 82 184	.08 .21 .02 .07			
4,967 34,670	74,810 237,833	167,750 331,331	5,981 4,471	44,507 259,091	32,795 203,186	4,587 16,730	95.59 95.58	73.60 73.42	44.68	3.40 1.80	10.30 6.45	349,216	29.85	1,437	.12			
39,637	3,12,643	4,99,081	10,452	3,03,592	2,35,981	21,317	96.24	77.72		2.01	7.02							
2,276 1,959 8,870 1,720 14,531 1,256	19,854 16,377 41,422 13,097 59,544 3,197	25,078 20,154 60,034 18,069 78,751 5,581	501 272 1,159 208 761 29	10,097 1,153 25,882 18,652 35,970 4,498	6,284 642 18,581 13,324 29,627 2,469	1,151 42 2,324 1,747 1,590 140	96.99 97.90 96.54 95.20 97.84 94.56	62.36 53.94 72.35 71.43 82.36 54.89	35.3 60.7 58.9 ... 52.3	1.93 1.32 1.86 1.09 1.94 .49	11.39 3.64 9.04 9.35 4.42 3.11	45,432 45,787 66,281 8,436	30.7 35.3 27.9 54.82	704 180 166 Not under registra- tion.	.47 .13 .06			
5,252 25,360	36,148 117,343	48,728 153,939	738 2,192	33,247 62,805	22,077 48,850	3,038 3,956	96.03 97.35	66.40 77.78	52.59	1.45 1.34	9.13 6.29	165,935	31.32	1,050	.19			
30,612	153,491	207,667	2,930	96,052	70,927	6,994	97.04	73.84		1.36	7.28							
90,350 221,088	272,616 656,363	498,530 1,006,245	9,658 9,761	593,474 718,118	349,243 566,804	48,720 35,366	96.3 97.5	58.65 78.92	55.68	1.86 .94	8.18 4.92	1,342,276	30.87	23,283	.54			
311,438	928,979	1,504,775	19,419	13,13,592	9,16,047	84,086	97.1	62.12		1.25	6.40							

mary.

Primary.	Re-vaccination.	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.
		Vaccinators employed.	Persons vaccinated by each vaccinator.	Under 1 year.	1 and under 6 years.			
97.55	78.92	1,256	1,393	221,088	656,363	57.97	Rs. A. P. 2,80118 4 4	Rs. A. P. 0 1 8
94.52	54.60	186	1,740	26,381	52,605			
97.50	58.65	654	1,696	90,350	272,616			
96.99	67.50	2,096	1,518	337,819	981,584			

STATEMENT NO. II.—Showing the cost of vaccination in the

Number.	CIRCLES AND DISTRICTS.	European Super- vising Officers.	Pay.	Native Supervising Officers.	Pay.	Paid Vaccinators.	Pay.	Licensed Vaccina- tors.	Pay.	Clerks.	Pay.	Peons.	Pay.	Total pay of establishment.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	<i>Burdwan Division.</i>		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.	Rs. A. P.
1	Burdwan	1	2,970 14 11	10	2,058 1 11	44	7,331 4 6	...	...	1	392 11 4	2	228 12 8	12,981 13 4
2	Birbhum ... ..	...	...	3	1,294 13 3	24	3,595 15 1	...	...	...	...	...	...	4,890 12 4
3	Bankura ... ..	...	...	3	1,260 8 0	...	...	51	209 13 0	...	...	...	...	1,470 5 0
4	Midnapur ... ..	...	...	7	2,658 0 0	1	240 0 0	112	353 12 0	...	...	...	...	3,251 12 0
5	Hooghly ... ..	...	...	4	1,334 12 6	...	...	36	183 0 0	...	...	...	...	1,517 12 6
6	Howrah ... ..	...	...	3	1,104 2 6	18	2,873 2 3	...	...	...	...	...	...	3,977 4 9
	Total of Burdwan Division	1	2,970 14 11	30	9,710 6 2	87	14,040 5 10	199	746 9 0	1	392 11 4	2	228 12 8	28,089 11 11
	<i>Presidency Division.</i>													
7	24-Parganas ... ..	...	...	8	3,620 7 5	64	8,559 5 9	...	...	...	...	...	...	10,179 13 2
8	Calcutta Animal Vaccina- tion Depôt.	...	...	7	6,444 8 0	...	...	...	...	1	247 9 9	2	435 0 7	7,127 2 4
9	Calcutta ... ..	...	...	14	inc'd in the pay of vaccinators. 2,193 14 11	94	27,368 0 0	...	...	...	...	...	...	27,368 0 0
10	Nadia ... ..	...	...	6	...	...	...	86	126 0 0	...	...	...	...	2,319 14 11
11	Murshidabad ... ..	...	...	5	1,986 6 1	...	...	45	82 12 0	...	...	...	...	2,049 2 1
12	Jessore ... ..	...	...	6	2,147 1 2	...	...	80	307 0 0	...	...	...	...	2,454 1 2
13	Khulna ... ..	...	...	4	1,665 7 6	5	609 2 8	48	...	...	...	...	...	2,274 10 8
	Total of Presidency Division	...	...	50	18,037 13 1	163	34,536 8 5	259	515 12 0	1	247 9 9	2	435 0 7	53,772 11 10
	<i>Rajshahi Division.</i>													
14	Rajshahi ... ..	...	...	4	1,637 0 0	8	952 12 9	41	...	...	...	...	...	2,589 12 9
15	Dinajpur ... ..	...	...	4	1,576 8 0	30	751 15 3	57	...	...	...	...	...	2,328 7 2
16	Jalpaiguri ... ..	...	...	3	1,204 9 4	24	2,737 5 5	...	...	...	...	...	...	3,941 14 9
17	Darjeeling ... ..	...	...	3	1,455 8 0	16	1,927 8 7	...	...	...	...	...	...	3,383 0 7
18	Rangpur ... ..	...	...	5	1,997 6 4	53 ^a	1,521 0 2	64	903 8 0	...	...	...	...	4,421 14 6
19	Bogra ... ..	...	...	2	818 8 0	11	2,064 15 10	13	23 0 0	...	...	...	...	2,906 7 10
20	Pabna ... ..	...	...	3	1,135 0 0	20 ^b	1,553 10 1	38	...	...	...	...	...	2,688 10 1
21	Malda ... ..	...	...	2	837 12 2	14	2,064 6 9	18	...	...	...	...	...	2,902 2 11
	Total of Rajshahi Division	...	...	26	10,662 3 10	176	13,573 10 10	231	926 8 0	...	...	...	...	25,162 6 8
	<i>Dacca Division.</i>													
22	Dacca ... ..	...	...	5	1,909 3 4 ^a	25	Not paid during the year. 750 0 0	120	183 12 0	...	...	...	...	2,092 15 4
23	Mymensingh ... ..	...	...	7	3,040 7 7	13 ^b	...	167	467 0 0	...	...	...	...	4,257 7 7
24	Faridpur ... ..	...	...	5	2,050 9 7	43 ^c	2,714 9 0	80	...	...	...	...	...	4,765 2 7
25	Bakarganj ... ..	...	...	10	4,185 10 1	47	2,574 2 8	12	...	1	138 9 3	1	58 0 0	6,956 6 0
	Total of Dacca Division	...	...	27	11,885 14 7	128	6,033 11 8	379	650 12 0	1	138 9 3	1	58 0 0	18,071 15 6
	<i>Chittagong Division.</i>													
26	Chittagong ... ..	...	...	3	1,135 0 0	50 ^a	1,500 0 0	50	...	...	...	...	...	2,635 0 0
27	Noakhali ... ..	...	...	4	1,500 0 0	...	...	52	287 14 10	...	...	...	...	1,787 14 10
28	Tippera ... ..	...	...	4	1,636 8 0	39 ^b	1,760 9 6	86	73 12 0	...	...	...	...	3,470 13 6
29	Chittagong Hill Tracts ...	...	...	3	1,495 0 0	11	1,017 10 5	...	...	...	...	...	...	2,512 10 5
	Total of Chittagong Division	...	...	14	5,766 8 0	100	4,278 3 11	188	361 10 10	...	...	...	...	10,406 6 9
	Total of vaccination circles.	1	2,970 14 11	147	55,362 13 8	654	72,467 8 8	1,256	3,201 3 10	3	778 14 4	5	721 13 3	1,35,503 4 8
30	Establishments of the De- puty Sanitary Commis- sioner.	4	25,810 1 6	...	...	...	...	...	...	5	2,655 7 5	7	776 11 10	29,242 4 9
	Total of the Presidency ...	5	28,781 0 5	147	55,362 13 8	654	72,467 8 8	1,256	3,201 3 10	8	3,434 5 9	12	1,498 9 1	1,64,745 9 5
31	Municipalities ... ..	...	...	8	1,168 10 3	161	21,551 12 6	...	...	...	...	2	259 8 0	22,979 14 9
32	Railway, Tea Gardens, etc.	...	...	...	...	25	...	...	...	...	...	...	...	...
33	Jails ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL ...	5	28,781 0 5	155	56,531 7 11	840	94,019 5 2	1,256	3,201 3 10 ^a	8	3,434 5 9	14	1,758 1 1	1,87,725 8 2

* These are practically not separate vaccinators but they belonged to the number of licensed vaccinators and were paid for some months by the District Boards.
(a) Deputation allowance paid to Vaccinators.
(b) Three permanent and 11 temporary for 4 months.
(c) Paid from cantonment fund.

districts of Bengal during the year 1919-20.

Travelling allowances.	CONTINGENCIES.		Total cost.	Imperial fund.	Provincial fund.	Local fund.	Municipalities and Railways.	Native States.	Total.	Number of successful vaccinations and revaccinations.	Average cost of each successful case.
	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.		A. P.
2,713 5 9	...	584 7 3	16,279 10 4	...	2,970 14 11	13,308 11 5	...	...	16,279 10 4	101,814	2 6
798 6 0	...	66 0 0	5,755 2 4	...	2,159 3 3	3,595 15 1	...	...	5,755 2 4	32,185	2 10
798 2 6	...	70 0 0	2,338 7 6	...	2,128 10 6	209 13 0	...	...	2,338 7 6	47,401	0 9
2,371 9 3	...	160 0 0	5,783 5 3	...	5,533 5 3	...	250 0 0	...	5,783 5 3	111,840	0 10
1,542 5 11	...	69 0 0	3,129 2 5	...	3,129 2 5	...	...	...	3,129 2 5	30,484	1 7
791 14 0	...	40 0 0	4,809 2 9	...	1,936 0 6	2,873 2 3	...	...	...	30,915	2 6
9,015 11 5	...	989 7 3	38,094 14 7	...	17,857 1 10	19,937 9 9	250 0 0	...	38,094 14 7	354,639	1 9
2,293 11 7	...	186 13 0	12,660 5 9	...	6,003 12 0	6,656 9 9	...	...	12,660 5 9	81,477	2 6
...	...	28,871 0 0	35,998 2 4	...	35,998 2 4	...	...	...	35,998 2 4	...	...
...	...	4,954 14 2	32,322 14 2	...	...	...	32,322 14 2	...	32,322 14 2	1,14,070	4 6
2,001 14 9	...	95 0 0	4,416 13 8	...	4,416 13 8	...	...	...	4,416 13 8	66,034	1 0
1,856 7 3	...	169 6 9	...	...	...	...	...	...	...	35,784	1 10
1,705 8 0	...	110 0 0	4,269 9 2	...	4,269 9 2	...	...	...	4,269 9 2	76,974	0 10
1,149 12 9	...	85 0 0	3,499 6 11	...	2,890 4 3	609 2 8	...	...	3,499 6 11	60,660	0 11
9,007 6 4	...	34,472 1 11	97,252 4 1	...	57,663 9 6	7,265 12 5	32,322 14 2	...	97,252 4 1	435,278	3 7
1,373 7 0	...	81 8 0	4,044 11 9	...	3,080 7 0	964 4 9	...	...	4,044 11 9	110,906	0 7
1,363 5 9	...	65 0 0	3,756 13 0	...	3,004 13 9	751 15 3	...	...	3,756 13 0	107,517	0 7
859 2 11	...	164 14 7	4,966 0 3	...	661 9 6	4,304 6 9	...	...	4,966 0 3	30,436	2 7
3,000 2 9	...	65 0 0	6,448 3 4	...	3,118 5 6	3,329 13 10	...	...	6,448 3 4	27,728	3 9
1,557 13 4	...	151 11 6	6,131 7 4	...	4,588 11 8	1,542 11 8	...	...	6,131 7 4	184,840	0 6
723 13 3	...	40 0 0	3,670 5 1	...	1,605 5 3	2,064 15 10	...	...	3,670 5 1	41,603	1 5
1,077 8 6	...	44 15 9	3,811 2 4	...	2,257 8 3	1,553 10 1	...	...	3,811 2 4	67,634	0 11
858 9 4	...	60 0 0	3,820 12 3	...	1,756 5 6	2,064 6 9	...	...	3,820 12 3	46,585	1 4
10,813 14 10	...	673 1 10	36,649 7 4	...	20,073 2 5	16,576 4 11	...	...	36,649 7 4	617,249	0 11
1,383 14 0	...	99 14 6	3,576 11 10	...	3,576 11 10	...	...	...	3,576 11 10	153,479	0 4
1,988 4 0	...	71 10 6	6,317 6 1	...	5,567 6 1	750 0 0	...	...	6,317 6 1	233,218	0 5
1,467 15 0	...	75 0 0	6,308 1 7	...	3,593 8 7	2,714 9 0	...	...	6,308 1 7	191,585	0 6
4,192 10 4	...	164 15 6	11,313 15 10	...	5,840 14 4	5,473 1 6	...	...	11,313 15 10	156,780	1 2
9,032 11 4	...	411 8 6	27,516 3 4	...	18,578 8 10	8,937 10 6	...	...	27,516 3 4	735,062	0 7
1,365 14 0	...	50 0 0	4,050 14 0	...	2,550 14 0	1,500 0 0	...	...	4,050 14 0	52,158	1 2
1,096 5 0	...	60 0 0	2,944 3 10	...	2,656 5 0	287 14 10	...	...	2,944 3 10	78,615	0 7
1,811 3 8	...	49 4 0	5,331 5 2	...	3,570 11 8	1,760 9 6	...	...	5,331 5 2	139,771	0 7
8 0 0	...	25 0 0	3,407 10 5	...	3,407 10 5	...	...	...	3,407 10 5	8,050	0 9
5,145 6 8	...	184 4 0	15,734 1 5	...	12,185 9 1	3,548 8 4	...	...	15,734 1 5	278,594	0 10
43,013 2 7	...	36,730 7 6	2,15,246 14 9	...	1,26,358 2 8	56,315 13 1	32,572 14 2	...	2,15,246 14 9	2,420,822	1 5
8,723 10 4	...	1,667 4 0	39,633 3 1	...	39,633 3 1	...	...	...	39,633 3 1	...	...
51,736 12 11	...	38,397 11 6	2,54,880 1 10	...	1,65,991 5 9	56,315 13 11	32,572 14 2	...	2,54,880 1 10	2,420,822	1 8
...	...	2,253 3 9	25,238 2 6	...	...	96 0 0 (c)148 10 0	24,993 8 6	...	25,238 2 6	159,416	2 6
...	40,910	...
...	15,441	...
51,736 12 11	...	49,655 15 3	2,80,118 4 4	...	1,65,991 5 9	56,560 7 11	57,566 6 8	...	2,80,118 4 4	2,636,589	1 8

STATEMENT No. III.—*Showing particulars of vaccination performed by vaccinators attached to municipalities, dispensaries, etc., in the Presidency of Bengal, during the year 1919-20.*

Number.	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.	
						Total.	Successful.			Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.	Primary.	Re-vaccination.
							Under one year.	One year and under six years.	Total of all ages.								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Burdwan ...	6	7	9,581	1,368	5,332	1,226	2,904	5,139	10	4,337	3,141	33	96·38	72·42	·18	·76
2	Birbhum ...	1	1	388	388	116	32	66	116	...	272	126	79	100	46·32	...	29·04
3	Bankura ...	3	3	5,974	1,991	2,701	680	1,186	2,274	230	3,273	1,320	123	84·19	40·32	8·51	3·75
4	Midnapur ...	7	8	4,430	553	2,195	545	1,487	2,191	...	2,235	1,451	24	99·81	64·92	...	1·07
5	Hooghly ...	10	13	23,419	1,801	9,249	1,964	5,580	9,096	115	14,170	10,324	821	98·34	72·85	1·24	5·79
6	Howrah ...	2	12	14,328	1,194	7,584	2,843	4,112	7,181	271	6,745	3,596	917	94·68	53·31	3·57	13·59
7	24 Parganas ...	28	39	46,505	1,194	17,926	6,451	10,694	17,719	146	28,540	12,106	5,142	98·46	42·41	0·81	18·01
8	Nadia ...	9	8	7,721	965	3,501	1,215	1,921	3,410	26	4,220	1,980	818	97·40	46·91	·74	19·38
9	Murshidabad ...	6	7	5,995	856	2,512	676	1,591	2,362	36	3,485	1,691	314	94·02	48·52	1·43	9·01
10	Jessore ...	3	3	2,512	837	828	285	422	816	12	1,684	859	218	98·55	51·00	1·44	12·94
11	Khulna ...	3	4	3,821	905	911	152	633	872	18	2,910	1,749	564	95·71	60·10	1·97	19·38
12	Rajshahi ...	2	3	3,696	1,232	1,068	305	661	1,043	16	2,628	2,041	227	97·65	77·66	1·49	8·63
13	Dinajpur ...	1	1	6,379	6,379	1,128	238	654	1,131	...	5,181	2,407	273	94·40	46·45	...	5·26
14	Jalpaiguri ...	1	1	2,403	2,403	740	214	334	617	1	1,752	755	13	83·37	43·09	·13	·74
15	Darjeeling ...	2	2	10,379	5,189	922	461	253	601	107	9,457	3,264	2,737	86·87	34·51	11·60	28·19
16	Rangpur ...	1	2	2,015	1,007	544	81	376	535	7	1,471	1,126	142	93·34	76·54	1·28	9·65
17	Bogra ...	2	2	2,166	1,083	1,281	685	451	1,190	47	885	471	76	92·89	53·22	3·66	8·58
18	Pabna ...	2	2	4,591	2,295	1,722	565	1,000	1,677	35	2,869	1,270	422	97·38	44·26	2·03	14·70
19	Malda ...	3	4	4,686	1,171	932	515	355	919	3	3,754	2,156	347	98·60	57·43	·32	9·24
20	Dacca ...	2	6	28,277	4,712	6,494	1,686	3,499	5,576	548	21,840	7,658	6,554	85·86	35·06	8·43	30·01
21	Mymensingh ...	8	13	13,949	1,073	5,302	994	3,349	5,053	159	8,647	4,873	1,627	95·30	57·51	2·99	18·70
22	Faridpur ...	2	7	12,410	1,773	4,052	551	2,583	3,879	66	8,427	6,580	582	95·73	78·08	1·62	6·90
23	Bakarganj ...	5	6	6,947	1,158	2,809	528	1,147	2,562	199	4,138	1,311	1,631	91·20	31·68	7·08	39·41
24	Chittagong ...	2	3	6,271	2,090	1,567	249	1,112	1,520	32	4,708	2,805	555	97·00	59·57	2·04	11·78
25	Noakhali ...	1	1	1,570	1,570	459	47	282	432	17	1,111	492	246	94·11	44·28	3·70	22·14
26	Tipperah ...	3	3	8,572	2,857	2,461	812	1,411	2,376	14	6,128	3,377	783	96·54	55·10	·56	12·77
	Total ...	115	161	238,985	1,478	84,476	24,000	48,083	80,487	2,115	154,867	78,929	25,268	95·27	50·96	2·50	16·31
	Vaccinations performed on railways, tea-gardens, etc.	...	...	40,160 17,962	...	8,852 3,286	2,374 ...	4,498 ...	7,799 3,566	319 179	31,341 14,676	23,928 6,117	3,342 639	88·10 93·30	76·34 41·68	3·60 5·44	16·66 4·35
	Jail operations...	...	25	26,610	1,064	547	7	24	486	31	26,067	14,955	2,537	88·84	57·37	5·66	9·73
	GRAND TOTAL...	115	186	323,717	1,740	97,161	26,381	52,605	91,838	2,644	226,951	123,929	31,786	94·52	54·66	2·72	14·00

* In Jails operations were performed by their medical men and each of them has been counted as an operator. In Railways and tea-gardens, etc., the operations were also performed by their own medical men.

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.

PERSONS PRIMARILY VACCINATED.

ESTABLISHMENT.	1910-11.		1911-12.		1912-13.		1913-14.		1914-15.		1915-16.		1916-17.		1917-18.		1918-19.		1919-20.	
	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 ...	6,204	5,900	6,907	4,986	6,618	6,481	7,085	7,032	6,387	6,255	8,082	7,984	7,466	7,198	7,473	7,295	7,261	7,108	5,646	5,581
Municipal ...	84,395	76,752	89,495	85,222	87,525	85,263	84,480	82,601	86,220	82,682	74,792	71,457	76,724	70,874	82,457	78,439	61,729	57,328	114,722	110,026
Local Fund ...	12,734	12,651	10,989	10,816	12,079	12,078	14,677	14,245	12,250	12,006	141,859	134,919	148,874	144,599	191,320	188,953	287,532	277,372	476,163	462,171
Dispensaries, etc. ...	223	153	1,428	1,247	2,777	2,535	2,788	2,532	1,296	1,230	2,458	2,140	2,084	1,803	7,083	6,915	6,419	5,973	13,893	12,590
Work done by ex-inoculators ...	1,593,351	1,540,951	1,693,179	1,630,184	1,665,033	1,636,325	1,457,815	1,438,277	1,026,427	995,636	1,050,972	1,004,570	1,065,434	1,009,887	1,061,246	1,025,332	923,479	917,348	1,031,025	1,006,245
Total ...	1,636,907	1,636,407	1,801,998	1,732,455	1,774,032	1,742,682	1,566,845	1,544,687	1,132,589	1,097,809	1,288,163	1,221,070	1,300,582	1,234,361	1,349,579	1,306,955	1,286,420	1,265,129	1,641,449	1,596,613

STATEMENT No. V—Showing particulars of vaccination verified by the Inspecting officers during the year 1919-20.

DISTRICT.	Total number of persons vaccinated.		PERCENTAGE OF INSPECTION TO TOTAL NUMBER VACCINATED—											PERCENTAGE OF CASES FOUND SUCCESSFUL TO TOTAL NUMBER INSPECTED—															
	Primary.	Re-vaccination.	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.	District Inspectors.	Sub-Inspectors.	Civil Surgeons.	Primary.	Re-vaccination.	District Inspectors.	Sub-Inspectors.	Civil Surgeons.	Primary.	Re-vaccination.	District Inspectors.	Sub-Inspectors.	Civil Surgeons.	Primary.	Re-vaccination.	District Inspectors.	Sub-Inspectors.								
	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	
Burdwan	69,333	56,492	39	1	a 2,960	5,828	b 22,305	14,119	...	...	05	00	5 92	19 76	44 67	47 86	...	...	100 60	100 00	1 00	45 91	99 46	56 85	...	...	99 34	73 78
Birbhum	21,146	17,625	...	...	...	735	8,700	8,700	...	2,296	...	...	...	4 17	c 57 18	37 17	36 01	13 02	...	...	...	92 78	99 93	76 85	...	...	97 28	71 02
Bankura	39,710	21,506	...	...	...	543	5,722	5,722	...	1,069	...	...	...	2 52	13 53	8 38	4 41	4 41	...	...	...	66 11	94 06	69 23	...	...	97 71	57 86
Midnapur	83,557	53,688	...	...	...	986	1,808	1,808	...	11,964	...	...	...	2 49	7 49	3 20	22 32	2 49	...	...	...	97 66	98 05	83 36	...	...	97 71	63 98
Hooghly	19,431	17,145	...	...	...	681	1,715	1,715	...	5,670	...	...	...	3 97	10 02	3 20	22 32	3 97	...	...	...	32 45	99 73	91 71	...	...	94 59	72 21
Serampur	11,917	8,852	...	...	...	...	5,143	5,143	...	3,299	...	...	...	...	40 47	29 99	58 96	31 60	...	...	...	...	99 30	90 95	...	...	98 79	77 43
Howrah	30,220	21,508	...	...	...	218	275	275	...	8,091	...	...	...	6 14	19 95	2 04	35 37	8 57	...	...	...	55 96	99 51	55 27	...	...	97 63	62 00
24-Parganas	84,958	60,857	...	...	...	495	...	...	...	632	...	...	...	8 87	8 33	...	f 11 53	10 70	...	...	...	96 56	...	...	...	...	98 66	44 92
Calcutta	30,494	208,563	...	...	...	5,889	2,218	2,218	...	5,439	...	...	...	...	...	...	29 62	13 19	...	...	...	...	60 59	...	...	...	96 55	40 51
Nadia	52,047	30,918	...	...	...	...	...	...	...	7,236	...	...	...	...	...	...	f 64 80	37 13	...	...	...	51 03	...	...	...	...	98 97	64 88
Murshidabad	35,396	9,041	...	...	...	103	85	85	...	2,355	...	...	...	...	...	...	8 13	26 04	...	...	...	68 93	100 00	44 70	...	...	98 48	62 08
Jessore	58,841	30,851	...	...	...	782	1,648	1,648	...	34,402	...	...	...	...	...	...	18 22	40 69	...	...	...	41 43	97 37	65 65	...	...	99 62	65 62
Khulna	43,802	27,315	...	...	...	464	3,057	3,057	...	6,807	...	...	...	...	...	...	12 13	15 54	...	...	...	81 46	99 18	71 52	...	...	99 37	73 30
Rajshahi	42,141	84,242	...	...	...	1,179	5,918	3,381	...	19,485	...	...	...	...	...	...	9 24	16 36	...	...	...	81 93	97 90	82 04	...	...	98 84	86 72
Dinaipur	45,595	88,195	...	...	...	1,101	10,277	10,277	...	13,882	...	...	...	...	...	...	...	...	...	...	...	84 28	...	...	...	...	98 84	86 72
Jalpaiguri	23,225	30,596	...	...	...	221	937	937	...	2,293	...	...	...	...	...	...	f 11 53	44 25	...	...	...	31 22	96 68	33 59	...	...	93 23	78 12
Darjeeling	12,847	44,152	...	...	...	98	3,746	3,746	...	3,592	...	...	...	...	...	...	24 24	11 74	...	...	...	47 95	88 13	33 47	...	...	84 82	63 42
Rangpur	71,931	132,418	...	...	...	943	9,569	9,569	...	9,479	...	...	...	...	...	...	21 67	39 21	...	...	...	79 36	99 58	42 82	...	...	93 48	44 19
Bogra	30,716	22,474	...	...	...	238	7,960	7,960	...	20,831	...	...	...	...	...	...	6 01	28 94	...	...	...	82 0	96 54	70 95	...	...	97 85	88 38
Pabna	45,801	37,701	...	...	...	1,847	5,350	5,350	...	8,376	...	...	...	...	...	...	16 62	23 06	...	...	...	62 18	91 09	62 28	...	...	97 25	62 40
Malda	25,556	30,816	...	...	...	2,833	5,060	5,060	...	7,279	...	...	...	...	...	...	6 80	18 24	...	...	...	76 55	97 25	78 47	...	...	97 53	70 42
Dacca	102,859	101,322	...	...	...	136	3,137	3,137	...	30,539	...	...	...	...	...	...	4 11	31 66	...	...	...	55 55	96 47	55 55	...	...	97 40	81 30
Mymensingh	166,141	106,868	...	...	...	2,598	...	...	...	3,178	...	...	...	...	...	...	f 53 93	37 61	...	...	...	43 91	...	...	...	...	96 11	67 56
Faridpur	105,870	133,551	...	...	...	2,272	7,227	7,227	...	94,929	...	...	...	...	...	...	6 76	57 13	...	...	...	42 56	...	...	...	...	95 84	79 20
Bakarganj	162,346	12,904	...	...	...	1,646	4,282	4,282	...	8,202	...	...	...	...	...	...	3 20	73 38	...	...	...	78 62	98 52	78 23	...	...	97 55	74 92
Chittagong	48,011	16,685	...	...	...	667	14,707	951	...	46,655	...	...	...	...	...	...	7 36	30 62	...	...	...	75 82	98 25	45 61	...	...	96 29	59 20
Noakhali	62,565	27,192	...	...	...	581	12,186	410	...	17,270	...	...	...	...	...	...	25 38	3 40	...	...	...	64 01	97 67	57 10	...	...	96 33	60 86
Tipperra	101,870	63,157	...	...	...	485	7,243	867	...	39,891	...	...	...	...	...	...	3 18	16 96	...	...	...	100 00	95 27	44 17	...	...	96 52	70 88
Chittagong	5,846	4,487	...	...	...	136	2,316	2,316	...	44,128	...	...	...	...	...	...	3 66	43 31	...	...	...	86 64	98 87	70 12	...	...	97 31	75 58
Tracts, Railways and Factories.	6,967	39,227	...	...	...	...	1,413	1,413	...	2,262	...	...	...	...	...	...	34 21	34 96	...	...	...	86 03	99 58	53 92	...	...	94 56	54 88
TOTAL FOR THE PRESIDENCY.	1,641,449	1,540,278	420	87	35,507	44,188	284,801	212,037	...	645,410	184,107	03	005	2 15	2 87	17 35	13 77	39 32	11 67	100 00	78 16	96 33	62 23	97 34	54 01	98 00	69 54	96 99	67 50

a District Health Officers, c Sanitary Inspectors, Asansol Mines Board of Health, e Municipal Sanitary Inspectors, b District Board Paid Inspectors, d Municipal Health Officers, f Municipal Inspectors and Sub-Inspectors.

STATEMENT No. VI—Showing, side by side, the ratios per 1,000 of population of deaths from small-pox and the number of successful vaccinations during the ten years ending 1919-20.

District.	1910-11.		1911-12.		1912-13.		1913-14.		1914-15.		1915-16.		1916-17.		1917-18.		1918-19.		1919-20.		
	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																					
Burdwan	.15	56,164	.11	60,238	.08	63,524	.04	56,740	.39	45,804	.66	47,602	.78	44,588	.41	54,268	.17	51,101	.45	110,575	
Birbhum	.05	31,925	.03	30,683	.05	31,652	.01	26,203	.19	15,306	.41	20,278	.25	20,836	.10	17,947	.07	17,947	.34	33,109	
Bankura	.63	46,157	.08	46,818	.02	38,463	.02	44,609	.25	37,188	1.02	39,497	1.07	43,040	.07	31,358	.06	20,640	.21	51,345	
Midnapur	.13	140,050	.02	130,263	.03	143,734	.14	135,437	.21	127,270	1.98	99,811	.35	92,034	.07	84,727	.10	84,727	.57	116,348	
Hooghly	.15	37,139	.08	39,248	.12	44,207	.12	38,601	.96	38,287	1.14	34,257	.22	33,685	.009	29,054	.13	26,625	.18	50,363	
Howrah	.07	25,404	.01	26,137	.10	26,068	.13	27,069	2.00	27,473	1.42	26,494	.15	28,983	.06	29,634	.54	27,650	1.48	42,839	
24 Parganas	.09	77,475	.02	77,839	.10	78,225	.05	74,646	1.60	117,601	1.94	123,968	.15	106,714	.18	84,884	.25	93,126	.83	111,302	
Calcutta	.05	22,657	.05	26,861	.10	27,981	.35	44,763	3.06	54,312	.28	21,029	.04	20,595	.10	24,349	.99	35,204	4.39	114,070	
Nadia	.20	58,241	.09	58,901	.01	62,467	.01	55,865	.12	51,295	.28	58,622	.16	48,351	.01	43,461	.13	37,235	.96	71,572	
Murshidabad	.12	49,257	.13	50,447	.02	42,344	.03	39,258	.58	35,302	.49	36,287	.17	38,785	.07	37,233	.01	29,208	.33	40,410	
Jessore	.005	45,056	.008	62,916	.001	51,502	.009	59,554	.11	55,642	.21	57,128	.13	51,379	.009	48,547	.02	46,542	.20	78,865	
Khulna	.16	52,092	.02	54,756	.01	49,617	.02	48,121	.06	47,342	.15	52,420	.12	56,544	.06	48,888	.07	50,533	.69	114,706	
Rajshahi	.35	51,975	.09	48,862	.07	53,455	.21	55,655	.11	46,834	.03	46,658	.14	47,058	.49	48,234	.96	59,557	.81	111,411	
Dinajpur	.40	21,129	.09	20,425	.01	18,933	.01	17,855	.09	16,930	.02	16,481	.54	32,053	.66	16,305	.66	24,720	.48	32,004	
Jalpaiguri	.07	15,106	.14	14,146	...	15,239	.03	18,005	.06	17,701	.09	22,226	.13	18,543	.09	16,346	.48	33,436	.48	32,004	
Darjeeling	.37	67,487	.12	67,898	.02	69,166	.04	84,912	.09	59,591	.10	55,900	.13	68,384	.33	71,428	.93	134,389	2.67	187,446	
Rangpur	.56	25,634	.03	20,925	.004	21,888	.06	23,076	.21	19,741	.77	20,380	.51	21,954	.11	23,716	.37	31,593	2.78	43,897	
Bogra	.06	51,043	.04	57,987	.05	52,351	.06	35,898	.07	31,704	.60	41,341	.22	37,762	.92	56,558	1.49	52,507	1.84	91,315	
Pabna	.20	35,497	.01	31,409	.02	26,956	.07	30,277	.07	28,361	.08	27,359	.06	31,043	.10	35,472	.21	29,471	.89	49,399	
Malda	.23	39,663	.35	31,409	.84	113,116	.70	100,275	.16	61,249	.09	81,346	.004	74,243	.02	80,898	.14	82,950	1.17	167,421	
Dacca	.96	102,201	.81	201,341	.68	209,144	.31	216,280	.09	107,653	.31	135,798	.56	136,373	.21	131,807	.13	132,400	.52	243,892	
Mymensingh	.07	128,733	.10	114,561	.13	123,702	.10	87,176	.05	36,224	.04	108,121	.002	50,024	.006	58,130	.07	62,794	.77	203,698	
Faridpur	.05	101,416	.03	127,943	.04	116,514	.07	49,921	.18	60,107	.13	108,121	.002	97,745	.03	130,228	.01	144,533	.19	182,083	
Bakarganj	.01	58,774	.06	75,837	.51	90,877	.97	80,161	.58	61,064	.55	46,426	.14	41,748	.04	43,677	.01	40,918	.46	56,912	
Chittagong	.008	58,999	.19	74,176	.13	78,368	.23	74,477	.29	53,559	.24	45,404	.02	36,911	.05	52,101	.07	43,657	.46	79,741	
Noakhali	.02	95,134	.13	110,608	.65	121,193	.17	111,764	.04	52,839	.06	72,819	.03	59,843	.02	74,241	.19	90,447	1.06	146,960	
Tipperra	...	6,005	...	5,399	not under registration.	6,655	7,224	not under registration.	7,212	10,087	not under registration.	10,087	7,755	not under registration.	8,404	not under registration.	8,075	not under registration.	not under registration.	8,000	
Chittagong Hill Tracts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Railway vaccination	...	1,076	...	1,725	...	2,270	3,052	...	4,223	...	4,978	...	1,918	...	1,428	...	15,726*	...	30,646*	...	
Total	.22	1,716,020	.14	1,813,440	.21	1,855,699	.17	1,720,691	.45	1,366,660	.52	1,455,420	.23	1,406,008	.15	1,481,921	.26	1,556,099	.90	2,636,589	

* Including vaccination operation performed in factories.

STATEMENT NO. VII—Showing the protection afforded to Infants in each Town in the Province of Bengal during the year 1919-20.

DISTRICT.	TOWN.	Number of births during the year.	Number of deaths amongst children under one year during the year.	Number of successful vaccinations on children under one year during the year ending 31st March 1920.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
BURDWAN...	Burdwan ...	303	41	382	1st July 1883.
	Kalna ...	101	37	75	1st " "
	Katwa ...	50	16	117	1st " "
	Dainhat ...	74	21	136	1st " "
	Raniganj ...	266	61	175	1st " "
	Asansol ...	400	57	341	14th September 1910.
	Total ...	1,194	233	1,226	
BIRBHUM ...	Suri ...	63	13	32	1st July 1881.
BANKURA ...	Bankura ...	480	77	250	1st " 1883.
	Vishuapur ...	383	81	305	1st " "
	Sonamukhi ...	158	59	125	6th " 1892.
	Total ...	1,021	217	680	
MIDNAPORE	Midnapore ...	459	59	269	1st July 1883.
	Ghatal ...	205	53	62	1st " "
	Kharar ...	101	22	86	16th August 1889.
	Chandrakona ...	145	55	16	1st July 1883.
	Ramjibanpur ...	124	44	7	1st " "
	Khirpai ...	97	17	50	1st " "
	Tamluk ...	158	22	55	1st " "
	Total ...	1,289	272	545	
HOOGHLY ...	Hooghly and Chinsura.	714	115	773	1st September 1881.
	Bansberia ...	99	21	50	1st July 1883.
	Arambagh ...	135	26	46	11th February 1889.
	Serampur ...	532	119	393	1st March 1883.
	Uttarpara ...	163	47	88	1st April "
	Kotrung ...	118	27	73	1st July "
	Baidyabati ...	345	78	255	1st " "
	Bhadreswar ...	119	59	156	1st " "
	Champdani ...	179	37	119	
	Rishra-Konnagar.	336	67	11	(It formerly formed a part of the Serampore Municipality)
	Total ...	2,740	596	1,964	
HOWRAH ...	Howrah ...	3,900	1,536	2,819	1st April 1882.
	Bally ...	299	78	24	1st October 1884.
	Total ...	4,199	1,614	2,843	
	Total of the Burdwan Division.	10,506	2,945	7,290	
24-PARGANAS	Cossipur-Chitpur.	834	172	875	1st October 1883.
	Maniktala ...	794	604	1,230	1st " "
	South Suburban	668	141	933	1st " "
	Tollyganj ...	485	56	517	1st " "
					(It formerly formed a part of the South Suburban Municipality.)

DISTRICT.	Town.	Number of births during the year.	Number of deaths amongst children under one year during the year.	Number of successful vaccinations on children under one year during the year ending 31st March 1920.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
24-PARGANAS— concl'd.	Garden Reach	752	175	953	1st October 1883. (It formerly formed a part of the South Suburban Municipality.)
	Budge-Budge	235	25	24	18th February 1902.
	Baranagar ...	523	145	238	1st October 1883.
	Kamarhati ...	204	50	216	1st " " (It formerly formed a part of the Baranagar Municipality.)
	Rajpur ...	312	57	87	1st October 1883.
	Baruipur ...	89	31	79	1st " "
	Jaynagar ...	125	18	60	1st " "
	North Dum-	128	27	11	1st " "
	Dum.				
	South Dum-	222	49	131	1st " "
	Dum.				
	Khardah ...	72	11	30	1st " "
	Barrackpur	151	21	193	1st " " (They formerly formed parts of the South Barrackpore Municipality.)
	including Barrackpur Cantonment.				
	Panihati ...	162	49	60	1st October 1883.
	North Barrackpur.	253	53	52	
	Titagarh ...	533	197	149	1st " " (It formerly formed a part of the South Barrackpore Municipality.)
	Garulia ...	91	11	24	1st October 1883. (It formerly formed a part of the North Barrackpore Municipality).
	Naihati ...	219	56	75	1st October 1883.
	Halisahar ...	73	13	...	1st " " (They formerly formed parts of the Naihati Municipality.)
Kanchrapara ...	59	11	2		
Bhatpara ...	517	85	109	1st October 1883.	
Barasat ...	109	8	14		
Gobardanga ...	105	18	23	1st " "	
Basirhat ...	435	90	301	1st " "	
Baduria ...	269	31	25	1st " "	
Taki ...	142	30	40	1st " "	
	Total ...	8,561	2,234	6,451	
CALCUTTA ...	Calcutta ...	16,171	6,403	15,762	1880.
NADIA ...	Krishnagar ...	302	40	147	1st October 1883.
	Nadia ...	253	58	112	1st " "
	Ranaghat ...	247	35	170	1st " "
	Birnagar ...	49	9	17	1st " "
	Santipur ...	721	124	502	1st " "
	Chakdaha ...	81	21	36	28th January 1887.
	Kushtia ...	127	10	82	1st October 1883.
	Kumarkhali ...	67	11	98	1st " "
Meherpur ...	87	15	51	1st " "	
	Total ...	1,934	323	1,215	

DISTRICT.	Town.	Number of births during the year.	Number of deaths amongst children under one year during the year.	Number of successful vaccinations on children under one year during the year ending 31st March 1920.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
MURSHIDABAD.	Berhampur ...	552	127	108	1st October 1883.
	Murshidabad ...	279	65	130	1st " "
	Azimganj ...	205	43	53	1st " "
					(It formerly formed a part of the Murshidabad Municipality.)
	Kandi ...	232	38	90	1st October 1883.
	Jangipur ...	275	27	163	1st " "
	Dhulian ...	243	28	132	26th June 1910.
	Total ...	1,786	328	676	
JESSORE ...	Jessore ...	62	14	57	1st October 1883.
	Kotchandpur ...	117	14	180	21st February 1884.
	Maheshpur ...	23	4	48	1st October 1883.
	Total ...	202	32	285	
KHULNA ...	Khulna ...	197	52	44	1st July 1887.
	Satkhira ...	65	19	86	7th " 1883.
	Debhatta ...	120	23	22	1st October 1883.
	Total ...	382	94	152	
	Total of the Presidency Division.	29,046	9,414	24,541	
RAJSHAHI	Rampur-Boalia	626	86	295	1st June 1881.
	Nator ...	141	25	10	1st January 1881.
	Total ...	767	111	305	
DINAJPUR ...	Dinajpur ...	185	34	238	1st January 1887.
JALPAIGURI ...	Jalpaiguri ...	204	36	214	1st " "
DARJEELING	Darjeeling ...	251	40	248	1st September 1884.
	Kurseong ...	132	29	213	1st January 1887.
	Total ...	383	69	461	
RANGPUR ...	Rangpur ...	278	34	81	1st July 1881.
BOGRA ...	Bogra ...	249	8	661	1st January 1882.
	Sherpur ...	50	3	24	1st October 1884.
	Total ...	299	11	685	
PABNA ...	Pabna ...	223	20	299	1st February 1882.
	Sirajganj ...	302	43	266	1st January 1887.
	Total ...	525	63	565	

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 1920.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
MALDA ...	English Bazar	251	46	221	1st March 1883.
	Malda ...	63	25	27	1st April 1887.
	Nawabganj ...	387	69	267	12th May 1904.
	Total ...	701	140	515	
	Total of Rajshahi Division.	3,342	498	3,064	
DACCA ...	Dacca ...	3,093	1,025	1,384	1st July 1887.
	Narayanganj ...	885	208	302	1st " "
	Total ...	3,978	1,233	1,686	
MYMENSINGH.	Mymensingh	290	65	208	1st October 1887.
	Muktagacha ...	147	40	40	1st " "
	Netrakona ...	266	34	108	20th January 1890.
	Jamalpur ...	630	117	229	1st October 1887.
	Sherpur ...	445	69	119	1st " "
	Kishorganj ...	450	50	153	1st " "
	Bajitpur ...	178	25	36	1st " "
	Tangail ...	308	68	101	19th February 1890.
Total ...	2,714	468	994		
FARIDPUR	Faridpur ...	271	42	128	1st October 1887.
	Madaripur ...	646	140	423	1st " "
	Total ...	917	182	551	
BAKARGANJ	Barisal ...	249	41	169	1st October 1887.
	Jhalakati ...	41	14	3	1st " "
	Nalchiti ..	25	5	18	1st " "
	Pirojpur ...	344	40	282	1st January 1890.
	Patuakhali ...	153	26	56	25th January 1894.
	Total ...	812	126	528	
	Total of Dacca Division.	8,421	2,009	3,759	
CHITTAGONG	Chittagong ...	1,025	240	192	1st April 1887.
	Cox's Bazar ...	107	13	57	14th November 1892.
	Total ...	1,132	253	249	
NOAKHALI ...	Sudharam ...	126	18	47	1st April 1887.
TIPPERA ...	Comilla ...	356	47	76	1st April 1887.
	Brahmanbaria	710	162	537	1st " "
	Chandpur ...	239	62	199	22nd July 1898.
	Total ...	1,305	271	812	
	Total of Chittagong Division.	2,563	542	1,108	
	Total for the Province.	53,868	15,408	39,762	

PROVINCIAL STATEMENT A—*Showing the degree of protection afforded to Infants during the year 1919-20.*

DISTRICT.	Rural population among which vaccinations were performed.	Estimated birth at 28 ¹ per 1,000 of population, being the birth-rate for the province during the year 1919.	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 1918-19.
1	2	3	4	5	6	7	8
1. Darjeeling ...	240,971	6.771	1,456	5,315	5,324	1,001.69	914.43
2. Malda ...	962,765	27,053	6,073	20,980	18,348	874.54	836.48
3. Khulna ...	1,337,579	37,585	11,456	26,129	14,030	536.95	489.73
4. Rajshahi ...	1,448,930	40,714	10,054	30,660	16,334	532.74	505.48
5. Nadia ...	1,521,928	42,766	9,748	33,018	15,980	483.97	413.62
6. Murshidabad ...	1,288,791	36,215	8,816	27,399	13,093	477.86	421.63
7. Jalpaiguri ...	890,895	25,034	6,559	18,475	8,777	475.07	308.10
8. 24-Parganas ...	1,885,590	52,985	9,144	43,841	20,478	467.09	398.47
9. Burdwan ...	1,444,185	40,581	9,079	31,502	13,101	415.87	163.64
10. Jessore ...	1,737,066	48,811	6,731	42,080	16,386	389.40	313.42
11. Midnapore ...	2,738,301	76,946	15,845	61,101	23,648	387.03	275.07
12. Dinajpur ...	1,671,918	46,980	14,864	32,116	12,120	377.38	323.60
13. Chittagong Hill Tracts. ^c	153,879	4,323	961	3,362	1,256	373.58	342.01
14. Bankura ...	1,081,464	30,389	6,188	24,201	8,665	358.04	176.75
15. Bogra ...	970,366	27,267	6,060	21,207	6,710	316.40	210.03
16. Hooghly ...	938,615	26,375	5,372	21,003	6,538	311.31	224.58
17. Noakhali ...	1,295,081	36,391	7,586	28,805	8,870	307.93	247.30
18. Tippera ...	2,372,434	66,665	11,617	55,048	16,251	306.34	198.68
19. Pabna ...	1,384,535	38,905	6,325	32,580	9,568	293.67	206.73
20. Howrah ...	741,719	20,842	4,495	16,347	4,057	248.18	282.01
21. Faridpur ...	2,089,710	58,720	12,001	46,719	9,888	211.64	117.30
22. Rangpur ...	2,368,901	66,566	17,117	49,449	10,427	210.86	202.37
23. Mymensingh ...	4,404,353	123,762	23,171	100,591	17,652	175.48	106.13
24. Chittagong ...	1,475,289	41,455	8,942	32,513	4,235	130.25	101.61
25. Dacca ...	2,823,975	79,353	15,604	63,749	8,137	124.50	83.84
26. Birbhum ...	926,342	26,030	7,623	18,407	1,843	100.12	100.53
27. Bakarganj ...	2,380,293	66,886	17,775	49,111	3,960	80.49	74.13
Total of the Rural Circles.	42,575,875	1,196,370	260,662	935,708	295,676	315.98	244.88
Calcutta ...	896,067	16,171	6,403	9,768	15,762	1,613.63	874.17
Mufassal Municipalities, etc.	2,011,184	37,697	9,005	28,692	24,000	836.47	579.06*
GRAND TOTAL ...	45,483,126	1,250,238	276,070	964,168	335,438	347.89	260.92

^c 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 (199.30) obtaining in this Presidency in 1919.

GOVERNMENT OF BENGAL.

MUNICIPAL DEPARTMENT.

Sanitation Branch.

CALCUTTA, THE 27TH DECEMBER 1920.

RESOLUTION—No. 1355San.

READ—

The reports of the Sanitary Commissioner, the Sanitary Board and the Sanitary Engineer, Bengal, for the year 1919.

READ ALSO—

The eleventh triennial report on vaccination in Bengal for the years 1917-18, 1918-19 and 1919-20.

1. **General results—Birth-rate.**—During the year 1919 the number of recorded deaths in Bengal exceeded the number of recorded births by 396,000, or 8·7 per mille of the population. The birth-rate was only 27·5 per mille, the lowest returned since 1892; it was 5·4 per mille less than the ratio of 1918 and 5·8 per mille less than the average for the preceding five years. Every district showed a reduction in the birth-rate, and only one province in India returned a lower ratio, viz., Madras, where it was 25·5 per mille. The decrease is attributed by the Sanitary Commissioner to economic pressure resulting from the poor harvest of 1918, combined with the effect of high prices, the prevalence of influenza and the consequent excessive mortality which occurred in the latter part of 1918 and the earlier months of 1919.

2. **Death-rate.**—The number of deaths was 226,000 above the quinquennial average, though it fell short of the previous year's figure by 86,000. The death-rate represented 36·2 per mille of the population and was higher than in any year since 1905 with the exception of 1918; it was, however, less than that returned by four other provinces in India. The heavy mortality of the year was the aftermath of the influenza epidemic of 1918 and was enhanced by virulent and widespread epidemics of cholera and small-pox. In the opinion of the Sanitary Commissioner it is difficult to trace any marked correlation between the range of prices and the mortality in Bengal, the increased prices of food-grains, though they bear heavily on certain classes of the community, tending, in the presence of reasonably good harvests, to benefit a large proportion of the population; but such a correlation is observable in the case of crop outturns and mortality, deficient harvests being almost invariably followed by an increased number of deaths.

The highest mortality in the towns of Bengal was returned by Howrah, where the death-rate was 55·1 per mille. It was closely followed by Baranagore with 54·8 of which over 20 per cent. was due to cholera, dysentery and diarrhoea. The Sanitary Commissioner remarks that it is significant that over 40 per cent. of the total mortality in the latter town should have been due to easily preventible water-borne diseases of this nature, while over 14 per cent. of the mortality was due to small-pox, another easily preventible disease.

3. **Infant mortality.**—The number of deaths amongst infants declined by 55,000, but owing to the fall in the aggregate of births the actual ratio of infantile mortality was nearly exactly the same as in 1918. A large and representative committee was appointed by the Governor in Council in May 1919 to advise upon measures to reduce infantile mortality and promote child welfare, and its final report is awaited.

4. **Cholera.**—The mortality from cholera aggregated 125,000, a figure which has only once been exceeded in the last 10 years. Only one of the 116 municipalities and only 4 out of 498 registration circles were immune from the disease. The high mortality was caused by the conditions which commenced in the cold weather of 1918, viz., short rainfall in October, the early cessation of the rains and the consequent deficiency of crops. These factors led to increased emigration, the effect of which was seen in the heavy incidence of cholera at centres where cooly labourers halted on their way to Assam and the Duars, and the manner in which infection spread along the river and railway routes. It is probable also that a considerable proportion of the enhanced mortality in the Burdwan and Presidency divisions was indirectly due to infection from pilgrims returning from Saugor Island, where there was an outbreak in January 1919.

The Governor in Council is pleased to notice that, in the opinion of the Sanitary Commissioner, although many local authorities are still very apathetic and slow to accept responsibility in regard to the prevention of cholera, there is evidence that they are gradually waking up to the importance of taking steps to investigate the cause of local outbreaks with a view to applying the simple means necessary for preventing the spread of infection. Action is, however, only too often belated, little or nothing being done to disinfect wells and tanks till cholera has become widespread. The Sanitary Commissioner rightly complains of the absence of concerted and systematic preventive measures and remarks:—"Cholera was reported from no less than 15,876 villages in the province, but only a few advanced districts, such as Burdwan, have as yet made any attempt to deal with this scourge of village life, and as a consequence of this neglect, every year sees many thousands of lives needlessly sacrificed and enormous economic loss occasioned to the province."

5. **Small-pox.**—Deaths from small-pox rose above the high figure of 33,000 recorded in 1915 and aggregated 37,000. Its ravages were general, but compared with last year a smaller number of children under 10 were attacked, and the enhanced mortality was chiefly among adults. In several mofussil towns it was found that the disease was imported from Calcutta and spread first among the sweepers, a class specially prejudiced against vaccination, and from them to the townspeople at large.

6. **Vaccination.**—Vaccination was stimulated by the prevalence of small-pox and by the efforts of the Sanitary Department to popularize preventive measures. Early in the season warnings were issued that an epidemic was likely to occur; illustrated leaflets and posters were circulated widely, which appear to have had a good effect; and local authorities and officers were urged to push on vaccination vigorously. The result was that the number of vaccinations increased by nearly 80 per cent, rising from 1,785,000 to 3,187,000. Free vaccination was introduced, at the cost of the District Boards, in Birbhum and Howrah and in the Patuakhali subdivision of the Bakarganj district. It was also continued in the districts of Burdwan, the 24-Parganas and Jalpaiguri as well as in certain thanas of Bogra and Malda. Several District Boards employed paid vaccinators, and this system proved successful wherever it was adopted.

7. **Fever.**—The mortality from fever, always high in Bengal, was 1,229,000 or 27.1 per mille, which was 2.9 per mille less than the rate recorded in the previous year. The effect of influenza, many of the deaths from which were returned under this head is reflected in the returns. The mortality was

especially heavy in the first six months, when also influenza was raging, fell in July and, after a slight rise in August, declined steadily each month.

8. **Anti-malarial measures.**—The four anti-malarial schemes, of which an account was given in last year's resolution, came into full operation and the results are reported to have been distinctly encouraging. Work was started on the Nawi-Sunthi and Jabuna schemes, two large drainage schemes of which the object is to resuscitate dead or dying rivers. Twenty-four municipalities having reported that they had undertaken special anti-malarial measures on lines laid down by the Sanitary Commissioner, a special enquiry was made to test the results. It was ascertained that with three exceptions (Birnagar, Panihati and Tangail) little or nothing had been attempted, and that very few of the municipal boards concerned had made any budget provision for anti-malarial work. In many of the towns moreover, the incidence of malaria was found to be so small that special measures were not really required. The special Deputy Sanitary Commissioner was, however, able to advise others as to the measures suitable to local conditions. These facts are significant of the need for local authorities enlisting the help of the Sanitary Department and having a malarial survey made before incurring expenditure. Malarial surveys were made in 276 villages, 4 collieries and one tea-garden in addition to these 24 municipalities. In spite of the increase of the price of quinine treatments effected in 1918, the issues rose by 27 per cent. Altogether 9,000 lbs of quinine were sold in this way to retail purchasers, besides which about 1,200 lbs of quinine in tablet form was issued by Government for free distribution among the poor by District Boards, municipalities and officers of the Sanitary Department.

9. **Influenza.**—The influenza epidemic of 1918 continued during the first half of the year, though in a less virulent form. Owing to deaths from it being largely ascribed to fever, it is impossible to gauge with complete accuracy the actual mortality, but the Sanitary Commissioner estimates that the total number of deaths in 1919 may be roughly taken at 200,000; and that the epidemic took a toll of nearly 600,000 lives in the two years. The incidence of the disease was far from uniform. The Burdwan and Birbhum districts appear to have suffered most severely, each probably losing an aggregate of 3 per cent. of their population during the two years; Bankura, Nadia and Murshidabad each lost $2\frac{1}{2}$ per cent. of their population; in Hooghly, Darjeeling, Jalpaiguri, Midnapore and Chittagong the deaths represent a loss of from 1.5 to 1.8 per cent.; in Noakhali, Malda, Mymensingh, Pabna and Tippera the loss is rather over one per cent; in Dacca, Rajshahi and Khulna it is rather less than one per cent; in Howrah, 24-Parganas and Dinajpur it is about .7 per cent; in Rangpur about .6 per cent.; in Bogra about .5 per cent.; and in Jessore and Faridpur between .3 and .4 per cent. only.

10. **Special enquiries.**—A resolution on the progress of anti-hook worm campaign was published on 31st May 1920, and it will be sufficient to state here that valuable investigation work has been done, knowledge of the disease and of its effects has been disseminated, and progress has been made in establishing centres for diagnosis and treatment. An investigation into the extent and causes of pollution of the water of the river Hooghly was commenced and special enquiry was made into the prevalence of *kala azar* in the districts of Dacca and Mymensingh. In the Tangail subdivision in the Mymensingh districts, it appears that there is a high rate of *kala azar* infection, and the District Board has been urged to start a campaign against the disease on systematic lines. In the Dacca district the result of the enquiry is to show that a severe stage of infection has not yet been reached, and it rests with the District Board to make a thorough survey of infected areas and to arrange for treatment, which should not only prevent the further spread of the disease but be effectual in eradicating it from the district.

11. **Asansol Mines Board of Health.**—The Governor in Council desires to acknowledge the continued good work done by the Asansol Mines Board of

Health, of the beneficial effects of which two instances may be mentioned. The ratio of infant mortality in the area under its jurisdiction was only 140 per mille compared with the rate of 342 in the district as a whole and the provincial rate of 228 : this satisfactory result is ascribed to the fact that the Board of Health employs a staff of trained midwives, who not only render gratuitous assistance to women during confinement but also act as health visitors. The effect of the efficient system of vaccination and revaccination in force is apparent from the fact that there were only 14 deaths from small-pox, all imported, and that there were only 200 local cases, none of which proved fatal.

12. **Sanitary Engineering.**—Altogether 14 schemes of water-supply, sewerage and antimalarial drainage were in course of construction during the year under the control of the Sanitary Engineer; six of these were completed, while the expenditure on new construction work amounted to four lakhs of rupees. The progress of work was impeded by several unavoidable causes. The rise in the cost of materials necessitated revision of the estimates and a consequent re-examination of the financial basis of the schemes; variations in rates of exchange and labour difficulties in England interfered with tenders for machinery and other materials, and after the acceptance of tenders there was uncertainty about delivery and delay in the fulfilment of contracts.

The growing realization of the importance of industrial housing in large labour centres congregated near the mills is evinced by the munificent contribution of 18½ lakhs, which has been made by the jute mill companies having mills along the Hooghly for schemes of sanitation in mill towns. Projects were prepared during the year under review for the sewerage of Titaghar, Naihati, Bhatpara, Kamarhati, Bhadreswar and Champdany, and for a town-planning scheme at Bhatpara, as well as for the improvement of its water-supply.

13. **Water-supply.**—Of late years the District Boards have given greater attention to the question of improving the sources of rural water-supply, and in the year under report over 6½ lakhs of rupees were spent on the construction of new tanks and wells in rural areas and over Rs. 68,000 on the upkeep of the existing sources of supply. The Governor in Council cordially appreciates the efforts of the District Boards in this direction, but doubts their sagacity in financing capital works of this nature from revenue. The Sanitary Commissioner himself points out in this connection that the practice of devoting a large portion of general revenue to items of capital expenditure, which might legitimately be met from loans, is seriously crippling the public health work of District Boards and preventing them from undertaking proper measures for the suppression of such epidemic diseases as cholera, which require a sufficiently numerous staff of suitably trained subordinates.

14. **Staff.**—The year under review witnessed a rapid expansion of the work of the Sanitary Department, the burden of which fell largely on the Sanitary Commissioner, Dr. Bentley. The thanks of the Governor in Council are due to Dr. Bentley for his devotion to duty and the untiring zeal and indefatigable energy with which he discharged the responsibilities of his office. The Governor in Council desires to express his appreciation of the efficient management of the sanitary engineering branch of the Department by Mr. G. B. Williams, and, on his proceeding on leave, by Mr. F. C. Griffin. He also desires to thank the Sanitary Board for the assistance which they rendered Government in advising on the schemes submitted by local bodies.

By order of the Governor in Council,

L. S. S. O'MALLEY,

Secretary to the Government of Bengal.

Memo. No. 1417San.

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- (2) The Surgeon-General
Inspector-General of Prisons, for information, and
Police
- (3) The Secretary to the Sanitary Board
Sanitary Commissioner, Bengal, for information.
Engineer

*For (1) and (2) only—Report on Sanitation in Bengal for the year 1919 and Triennial Report on Vaccination in Bengal for the years 1917-18, 1918-19 and 1919-20.

By order of the Governor in Council,

G. C. SEN,

for *Secretary to the Government of Bengal.*

CALCUTTA,

MUNICIPAL DEPT.—*Sanitation.*

The 31st December 1920.

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