SIXTY-FIRST ANNUAL REPORT

OF THE

DIRECTOR OF PUBLIC HEALTH

OF THE

UNITED PROVINCES OF AGRA AND OUDH

FOR THE YEAR ENDING DECEMBER 31, 1928

AND THE

THIRTY-FOURTH REPORT

OF THE

SUPDG. ENGINEER, PUBLIC HEALTH DEPARTMENT,

FOR THE YEAR ENDING MARCH 31, 1929

ALLAHABAD:

THE SUPERINTENDENT, GOVERNMENT PRESS, UNITED PROVINCES

1929

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1929

MAP OF THE

UNITED PROVINCES OF AGRA & OUDH

SHOWING

PUBLIC HEALTH ACTIVITIES

Scale 1" = 32 Miles.

REFERENCES.

- Districts with a District Medical Officer of Health
- Municipalities with a 1st Class Medical Officer of Health
- " " 2nd " " " "
- " that should employ " " " but do not do so.
- " with Sanitary Inspectors
- Magic Lanterns for Lecture
- Vaccinators with numbers in each District
- Sanitary Inspectors in district
- Public Health Travelling Dispensaries

Govt. Press, Allahabad.

GOVERNMENT OF THE UNITED PROVINCES

DEPARTMENT OF PUBLIC HEALTH

BOARD OF PUBLIC HEALTH

PROVINCIAL ORGANISATION

DIRECTOR OF PUBLIC HEALTH.

- ADMINISTRATIVE RANGES I–III
  - Inspection of sanitation of Municipalities, Notified Areas and Town Areas in their ranges.
  - Measures for prevention of epidemics.
  - Inspection of Vaccination.
  - Advice to local bodies on Public Health matters.
- MALARIA.
  - Training of M. O.'s H. in practical Malaria Prevention.
  - Anti-malarial measures at Sarda Canal Head works.
  - Administration of Hospital and Dispensary at Sarda Canal Head works.
  - Malaria Survey and anti-malarial recommendations.
  - Malaria Research.
- PROVINCIAL HYGIENE INSTITUTE
  - Training and examination of Public Health personnel for
    1. The Diploma and Licence in Public Health.
    2. Sanitary and Chief Sanitary Inspectorships.
    3. Grade examination of T. D. Officers.
    Lectures in Public Health course to medical undergraduates and post-graduates.
  - Routine and special analytical work—
    1. Chemical.
    2. Bacteriological.
  - Research, at present research is being carried on with the financial aid of Indl. Research Fund Association
    - Plague
    - Cholera
  - Production and Exhibition of Public Health motion Pictures.
- REGISTRATION OF VITAL STATISTICS.
  - Superintendent General for U. P. Dir. of Public Health.
  - Collection of vital statistics from District registrars registrars, Civil Surgeons or M. O.'s H.
  - Classification and compilation of vital statistics.
  - Publication of V. S. reports.
- VACCINATION
  - Supdt. Gen. for U. P. Dir. of Public Health
  - Government Bacteriological Depot Parel, Bombay.
  - Preparation and Distribution of Vaccine Lymph.
- EPIDEMIOLOGY.
  - A. D. P. H., Range II.
  - Collection of reports of Epidemics and informing of authorities.
  - General of services of the Travelling Dispensaries and Special Health Officers.
  - Supply of Vaccines, Medicines, and Disinfectants for Epidemics.
- HYGIENE PUBLICITY BUREAU
  - A. D. P. H. (H. P. B.)
  - Regular lectures and demonstrations in towns and districts by—
    1. Officers of the Central Bureau.
    2. District M. O.'s H.
    3. Municipal M. O.'s H.
    4. Officers of the Provincial Medical and subsidiary Medical Services.
    5. Travelling Dispensary and Special Health Officers.
  - Special Lectures and demonstrations at—
    1. Fairs.
    2. Baby Weeks.
    3. Health Weeks.
    4. Teachers' Conferences.
    5. Distrct Exhibitions.
  - Preparation of Public Health literature and its distribution—
    - Posters.
    - Booklets.
    - Leaflets.
  - Distribution of Arogya Lantern Equipment (10 sets) and slides (on 10 P. H. subjects).
- PUBLIC ANALYST
  - Analysis of samples of foods and drugs suspected of adulteration.

SUPERINTENDING ENGINEER
PUBLIC HEALTH DEPARTMENT.

- WATER-WORKS
  - Major. Advice.
  - Supervision of Plant and Machinery, collection and checking of Pumping statistics. Periodic inspections of Municipal Ledgers for Water-works.
  - Advice on appointment of qualified staff.
  - Investigating of complaints against charges.
  - Control of half-constructions.
- PUBLIC HEALTH WORKS
  - Ex. Engr. at Government Medical College, Allahabad.
  - Preparation of projects (Personal and Consultative) for Water-works, Drainage, Sanitary Storage, Artesian wells, Tube-wells, Slaughter houses and other Public Health works.
  - Constructions and improvements of the above.
  - Advice to the Local Bodies on Public Health Matters.
  - Maintenance of Workshop.
  - Water supplies to Melas.
- TECHNICAL ADVICE TO D. P. H.
  - Sanctioning of Public Health projects prepared by Local Authorities.
  - Recommendations for hospital aid to the above.
  - Preparation of Type Designs for consultation to Local Authorities.
- P. H. WORKS
  - Ex. Engr. Agra.
  - Inspections and advice on the above.
  - Supervision of Government works.
  - Collection and scrutiny of Progress Reports of the above.

LOCAL ORGANISATION

LOCAL BODIES.
Municipal and District Boards.

- MEDICAL OFFICERS OF HEALTH. 1st CLASS.
- MEDICAL OFFICERS OF HEALTH. 2nd CLASS.
- DIST. MEDICAL OFFICERS OF HEALTH. Assistant Medical Officers of Health.
- MEDICAL OFFICERS OF HEALTH. 3rd CLASS.

Chief Sanitary Inspectors.
Sanitary Inspectors.
Assistant Superintendents of Vaccination.
Vaccinators.
Sub-Registrars of Births and Deaths.

LOCAL BODIES.
Municipal and District Boards.

- WATER-WORKS SUPDTS.
- MUNIPL. AND DISTRICT BOARD ENGINEERS.

Advisory function - - - - - -
Administrative control ———

Government Press, Allahabad.

TABLE OF CONTENTS.

Sections I, II, III and IV—Omitted.

Section V.

GENERAL POPULATION—VITAL STATISTICS.

Section VI.

HISTORY OF THE CHIEF DISEASES.

Section VII.

GENERAL HISTORY OF VACCINATION.

Section VIII—Omitted.

Section IX.

MUNICIPAL WATER-SUPPLIES.

Section X.

PERSONAL PROCEEDINGS, PUBLIC HEALTH SERVICES, AND GENERAL REMARKS.

APPENDICES TO THE REPORT OF THE DIRECTOR OF PUBLIC HEALTH, UNITED PROVINCES.

STATISTICAL STATEMENTS.

(VITAL STATISTICS.)

STATISTICAL STATEMENTS AND APPENDICES.

(VACCINATION.)

Errata slip to the Annual Report of the Director of Public Health, United Provinces, for 1928.

Page.	*For—*	*Read—*	Remarks.
2 of the report.	68·27	38·27	In the table against "Bihar and Orissa" under "Birth-rate."
12	duly	only	In the 2nd lines of the remarks column against Allahabad city.
13	evers	fevers	In the 2nd line of the marginal heading of para 13.
21	79·96	76·96	In line 33 from the top.
23	decreases	decrease	In the 1st line of the page.
25	he	the	In line 21 from the top.
25	16·371½	16,371½	In line 4 of paragraph 20(*b*).
25	119,334,2	119,334·2	In line 10 from the bottom.
27	havings	having	In line 24 from the top.
35	fair's	fairs	In line 18 from the top.
37	D. P. H.	Dr. P. H.	In line 10 from the top.
41	December	December 1	In line 2 from the top.
52	to be	be	In line 28 from the top.
60	Schools' inspection.	school inspections.	In line 24 from the top.
71	26	175	In column 13 against Rae Bareli.
71	20	175	,, 14 ,, ,,
71	4917	5066	In column 13 against "total."
71	6020	6175	In column 14 against "total."
81	covering	converging	In line 12 from the bottom.
92	boards	board	In line 15 ,, ,,
105	1923	1928	In line 8 ,, ,,
105	me	the public analyst	In line 11 from the bottom.
110	childswelfare	childwelfare	In line 1 of the page.
112	563·63	518·18	In line 24 from the bottom.
117	Elementary	Ailmentary	In line 23 from the top.
117	Alimentary	Ailmentary	In line 7 from the bottom.

Page.	*For*—	*Read*—	Remarks.
4B	eaths	deaths	In the heading of the statement.
4B	33,787,745	23,787,745	In column 5 sub-column "male" against "Total for the Province."
4B	33·63	33·64	In column 6 sub-column "Birth-rate per 1,000 of population" against "Azamgarh".
4B	6,20	6,202	In column 7 sub-column "male" against "Almora".
10B	3,789,266	3,789,269	In column 8 sub-column "Female" against "population".
11B	6,970	6,978	In column 13 sub-column "Female" against "Etah".
11B	7,936	7,986	In column 13 sub-column "Female" against "Pilibhit".
11B	517,156	517,136	In column 13 sub-column "Female" against "Total for the Province".
19B	Rabiez	Rabies	In sub-column of column 11.
19B	Totas	Total	Ditto ditto.
22B	13,839	13889	In column 4 against "Sherkot".
22B	11,022	11,032	In column 4 against "Chandpur".
24B	and	of	In the 1st line at the top of the page.
41B	13·61	18·61	In column 8 against "Hardoi".
44B	2,142	3,142	In column 4 sub-column "number in each district" against "Mirzapur"
44B	50	20	In column 5 sub-column "June" against "Banda".
51B	7·74	67·74	In column 17 against "Sultanpur".
69L	23,310	26,310	In column "successful primary vaccinations" under 1921-22 against "Budaun".

1. *Add* the following note at the foot of statement printed on page 71:—

There are three Assistant Medical Officers of Health in the Gorakhpur district and two in each of the districts of Allahabad, Gonda, Azamgarh and Basti. The number of days they were on tour during the year has been shown collectively in column 14.

2. *Delete* "medical officers of health, 3rd class" occurring in the graph showing Provincial Organisation and attached at the beginning of the report.

3. *Delete* the red square denoting municipalities with a 1st class of medical officer of health in the Gonda district occurring in the map of the United Provinces of Agra and Oudh showing public health activities.

Sixty-first Annual Report of the Director of Public Health, United Provinces of Agra and Oudh, for the year ending December 31, 1928.

Under the orders of Government conveyed in G. O. no. 28/XVI—226, dated January 12, 1929, Annual Vaccination Reports will, in future, form part of the Annual Provincial Public Health Reports so that complete information regarding the working of the Public Health Department during a year may be available in one volume. The statistics relating to vaccination will, however, continue to be shown for the financial year. The vaccination report for the year ending March 31, 1929 is therefore printed as Section VII of this report.

(Sections I, II, III and IV are omitted in accordance with the orders of the Government of India, Home department, no. 9/257, dated September 4, 1878.)

SECTION V.

General population—Vital Statistics.

Population of the United Provinces on which birth and death-rates have been calculated and the area in square miles.

The population of the United Provinces, excluding the population of the Indian States of Rampur, Tehri-Garhwal and Benares, according to the census of 1921, is 45,375,787, and on this the provincial birth and death-rates shown in this report have been calculated. The area of the province is 107,167 square miles.

Registration of vital statistics.

2. The remarks made in the previous years' reports as to the unreliability of the vital statistics compiled owing to defective registration still hold good. The inauguration of the district health service in a number of districts in the province has resulted in some improvement in registration owing to a greater check being exercised and verification being carried on a larger scale than before by the public health staff, but the state of affairs is still far from satisfactory. Several cases of failure of promptly reporting outbreaks of cholera were brought to the notice of the authorities concerned, and as a result of inquiries instituted a number of chaukidars was dismissed and fined and disciplinary action taken against patwaris. Efforts are made to adopt all possible measures of improvement in this respect. During the year under report a scheme for giving a course of at least seven lectures to mortuary clerks of all the thanas in tahsil headquarters by the district health staff was introduced in consultation with the Inspector-General of Police who kindly issued necessary instructions to the police staff. Arrangements were also made with the various railways to notify by telegram cases of cholera, plague and small-pox occurring within the railway premises to the district medical officers of health or civil surgeons (as the case may be) and also to admit of early precautionary measures being taken to prevent the spread of the disease.

The birth and death-rates of 1928 compared with those of 1927 and the quinquennial period. (Statements I and II).

3. In 1928 the birth-rate for the province was 38·24 as compared with 36·72 in the preceding year and 34·88 the average of the previous five years. The death-rate for the province for the year exceeded that of the preceding year (which was the lowest on record) by 1·56, but was less than the previous five years by ·68, the actual rates being 24·15, 22·59 and 24·83 respectively.

The birth and death-rates and infantile mortality of the United Provinces compared with those of other provinces.

4. A statement comparing the birth and death-rates and the infantile mortality rates of the United Provinces with those of other provinces is appended below :—

Province.	Birth-rate.	Death-rate.	Infantile mortality.
United Provinces	38·24	24·15	159·90
Bombay	38·17	27·28	180·29
Madras	37·4	26·4	184·2
Bengal	Information not received.		
Bihar and Orissa	68·27	25·29	131·79
Assam	31·24	22·16	172·01
Central Provinces	46·51	33·66	238·41
Punjab	46·30	24·72	167·62
Burma	25·85	21·28	209·64
North-West Frontier Province	32·52	19·31	137·00
Delhi	48·31	29·21	190·68

BIRTHS.

Births and birth-rates. (Statement I.)

5. During the year under report the total number of births recorded amounted to 1,735,159 and represented a birth-rate of 38·24. The corresponding figures of the preceding year were 1,666,479 and 36·72, respectively. The average birth-rate of the previous five years was 34·88. This is satisfactory. An analysis of figures by months shows that the highest birth-rate (3·94) was registered in October and the lowest (2·45) in May.

Proportion of male to female births. (Statement I.)

6. The ratio of male to every 100 female births during the year under report was 112·01 or practically the same as in the preceding five years.

The different birth-rates considered. (Statement I.)

7. Among the districts returning the high birth-rates Bijnor stood first with a birth-rate of 50·24. Then came Moradabad with 49·90, Jhansi with 48·36 and Almora with 48·00. The first two interchanged their positions of the last year. Jhansi retained its position as third. The districts returning the lowest birth-rates were Gonda (26·91), Rae Bareli (28·83), Dehra Dun (29·60), Jaunpur (30·60) and Partabgarh (30·84).

Excess of births over deaths. (Statement I.)

8. The provincial birth-rate exceeded the death-rate by 14·09, the excess being contributed by all the districts except Naini Tal.

Births and birth-rates in municipalities.

9. During the year under report recorded births in municipal towns numbered 143, 020, giving a birth-rate of 49·27 per thousand of the population as compared with 139,523 and 48·02, respectively, in 1927. 46 municipalities out of 85 returned a birth-rate higher than the provincial average. As in the last five years, Jalesar recorded the highest birth-rate (77·99). Like the last two years the lowest birth-rate (14·99) was recorded in Mussoorie where the circumstances are peculiar.

Excess of births over deaths in municipalities.

10. The provincial birth-rate for municipalities exceeded the death-rate by 9·32. 71 out of 85 recorded an excess of births over deaths; this varied from ·03 in Dehra Dun to 34·33 in Orai.

Births and birth-rates in notified areas.

11. During 1928 the provincial birth-rate for notified areas amounted to 42·05 as compared with 39·47 in 1927, the number of births for the two years being 16,159 and 14,730, respectively. Out of 53 notified areas 28 recorded a birth-rate above the provincial average, Rath (Hamirpur) standing first with 62·21. The lowest birth-rate (10·18) was noticed in Rikhikesh (Dehra Dun) where the circumstances are peculiar.

Excess of births over deaths in notified areas.

12. An excess of births over deaths was noticeable in 42 notified areas and varied from ·88 in Mubarakpur (Azamgarh) to 33·64 in Fatehpur-Sikri (Agra).

DEATHS.

Deaths and death-rates. (Statement II.)

13. In the year 1928, 1,095,736 deaths (578,600 males and 517,136 females) were registered against 1,025,075 (550,457 males and 474,618 females) in the preceding year. The death-rates for the two years were 24·15 and 22·59, respectively. The quinquennial average for the previous five years was 24·88.

Incidence of mortality in districts including towns. (Statement II.)

14. 22 districts out of 48 returned a death-rate above the provincial average (24·15). Pilibhit recorded the highest death-rate (38·77) and Fatehpur the lowest (15·04). (For further details refer to Statement II.)

Mortality in municipalities.

15. During the year 1928 the total number of deaths reported from municipalities was 115,960 yielding a death-rate of 39·95 against 104,976 and 36·13 in the preceding year. Out of 85 municipalities, 28 recorded a death-rate higher than the provincial average.

Among the municipalities returning the highest mortality, Bisalpur (Pilibhit) stood first with a death-rate of 74·49 and was followed by Pilibhit with 66·81 and Najibabad (Bijnor) with 63·07. In Bisalpur and Najibabad the high death-rates were chiefly due to fevers and plague. In Pilibhit respiratory diseases were an additional factor. The lowest mortality was recorded in Mussoorie (11·05), Mainpuri (11·50) and Ballia (14·82).

Mortality in notified areas.

16. In 1928 the number of deaths recorded in the notified areas was 12,339 yielding a death-rate of 32·11 as compared with 10,400 and 27·87, respectively, in 1927. Out of 53 notified areas, 24 returned a death-rate higher than the provincial average 32·11. Kaimganj (Farrukhabad district) returned the highest death-rate (68·12) and was followed by Pihani (Hardoi) with 61·91 and Haldwani (Naini Tal) with 58·81. In all these notified areas the high mortality was chiefly due to plague and fevers. The lowest mortality was noticed in Auraiya in the Etawah district (10·35), Mainpuri civil station (11·15) and Deoria in the Gorakhpur district (11·29).

Mortality according to season. (Statement III.)

17. Considering the mortality by months, the highest death-rate (2·56) was recorded in April and the lowest (1·64), in January. (For further details refer to Statement III.)

Mortality by sexes at different age periods. (Statement IV.)

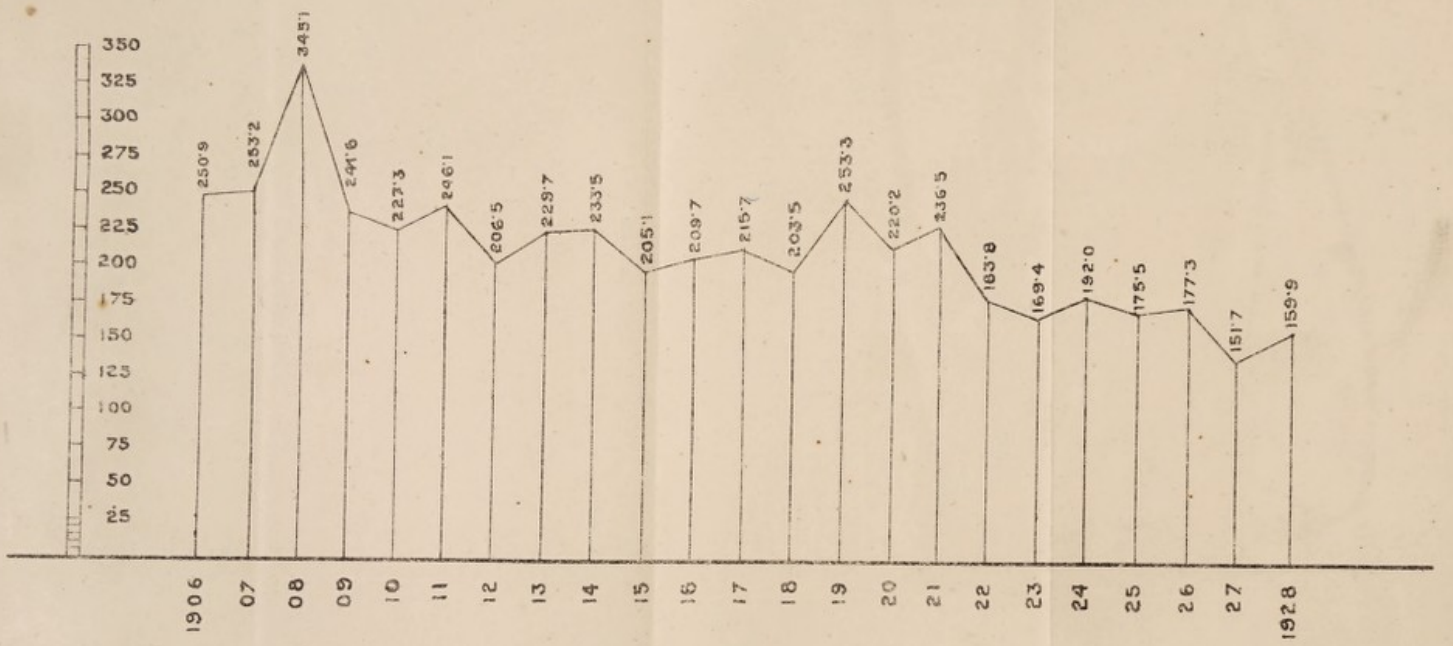
18. During the year under report the mortality recorded under all ages was 578,600 males and 517,136 females against 550,457 and 474,618, respectively, in the preceding year. The rates for the two sexes for the two years were 24·32 and 23·95, 23·14 and 21·98, respectively. The mortality among infants under one year of age amounted to 277,454 (152,134 males and 125,320 females) as against 252,885 in the preceding year. (For further details see Statement IV.)

Infantile mortality.

19. In the subjoined table are compared the deaths and death-rates among infants calculated on the births of the year for a series of years. A chart showing infantile mortality in the United Provinces from 1906 to 1928 is also attached:—

Year.	Births.			Deaths of infants.			Death-rates of infants.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female	Total.
Decennial average (1901—1910).	1,027,110	949,374	1,976,484	263,635	240,436	504,071	256·7	253·3	255·0
1911	1,068,248	985,076	2,053,324	271,575	233,771	505,346	254·2	237·3	246·1
1912	1,105,707	1,019,878	2,125,585	236,328	202,694	439,022	213·7	198·7	206·5
1913	1,160,280	1,072,719	2,722,999	275,228	237,675	512,903	237·2	221·6	229·7
1914	1,094,842	1,009 712	2,104,554	260,739	230,608	491,347	238·1	228·4	233·5
1915	1,060,779	975,342	2,036,121	222,603	195,095	417,698	209·8	200·0	205·1
1916	1,050,532	967,224	2,017,756	224,735	198,395	423,130	213·9	205·1	209·7
1917	1,122,101	1,035,541	2,157,642	247,104	218,363	465,467	220·2	210·9	215·7
1918	977,044	890,800	1,867,844	301,236	305,597	566,833	308·3	298·1	303·5
1919	795,870	720,627	1,516,497	201,368	182,720	384,088	253·0	253·6	253·3
1920	872,094	792,098	1,664,192	194,722	171,815	366,537	223·3	216·9	220·2
Decennial average (1911—1920).	1,030,750	946,901	1,977,651	243,564	213,673	457,237	237·2	227·1	232·3
1921	819,854	740,748	1,560,602	197,223	171,908	369,131	240·6	232·1	236·5
1922	769,516	690,272	1,459,788	145,928	122,384	268,312	189·6	177·3	183·8
1923	864,154	771,296	1,635,450	150,567	126,427	276,994	174·2	163·9	169·4
1924	833,889	741,421	1,575,310	165,194	137,248	302,442	198·1	185·1	192·0
1925	785,661	699,614	1,485,271	140,991	119,688	260,679	179·4	171·1	175·5
1926	820,921	731,133	1,552,054	150,514	124,746	275,260	183·3	170·6	177·3
1927	881,412	785,067	1,666,479	138,328	114,557	252,885	156·9	145·9	151·7
1928	916,760	818,399	1,735,159	152,134	125,320	277,454	165·9	153·1	159·9

INFANTILE MORTALITY (PER 1,000 OF BIRTHS) IN THE U. P. FROM 1906-1928.



Although the provincial infantile mortality during the year under report was slightly higher than that of last year, it was much less than that in other years and the decennial averages for 1901—1910 and 1911—1920.

Reports received from municipal medical officers of health show that out of 1,354 deaths reported as due to tetanus 756 were verified. Out of this 566 were found actually due to this cause. No deaths were reported to have occurred from this cause in the municipalities of Mussoorie, Meerut, Hapur, Muzaffarnagar, Brindaban, Chandausi, Amroha, Budaun, Jhansi and Naini Tal. This is no doubt due to defective registration and the attention of the medical officers of health will be drawn to this fact.

The Visweswar co-operative dairy at Benares was closed in 1928. The only co-operative dairy in existence now is the Katra co-operative dairy, Allahabad, but on account of an embezzlement and want of proper supervision it is running at a loss. It will be seen that the attempt to start co-operative dairies is not meeting with success.

Infantile mortality in districts.

20. The provincial infantile death-rate in 1928 was 159·90 as compared with 151·75 in 1927. Twenty-three districts returned infantile death-rates above and 25 below, the provincial average. As in the last two years, Naini Tal topped the list with a rate of 239·54 and was followed by Pilibhit with 218·65, Lucknow with 213·25, Shahjahanpur with 211·88 and Jhansi with 204·57. In all these districts malaria was chiefly responsible for the high rate. "Other fevers" also contributed to the increased infantile mortality in the districts of Lucknow, Shahjahanpur and Jhansi. Pneumonia, tetanus and convulsions, exhaustion and malnutrition were the additional contributing factors in the case of Lucknow, other respiratory diseases, tetanus and convulsions and "other causes" in Shahjahanpur, tetanus and convulsions, exhaustion and malnutrition, and "other causes" in Jhansi and tetanus and convulsions and exhaustion and malnutrition in Pilibhit. Muttra, Rae Bareli, Gorakhpur, Etah and Fatehpur exhibited the lowest infantile mortality, the rates being 107·05, 115·55, 115·62, 130·08 and 130·36, respectively.

Infantile mortality in municipalities.

21. The provincial municipal infantile death-rate in 1928 was 255·81 as against 233·77 in 1927. Out of 85 municipalities 31 recorded an infantile death-rate higher than the provincial rate. Among the municipalities returning the highest rates Cawnpore topped the list with a rate of 383·91 and was followed by Etawah, Jhansi, Soron and Bisalpur with death-rates of 379·35, 346·56, 337·98 and 335·34, respectively. "Other fevers" were the common cause of infantile mortality in the above municipalities with the exception of Bisalpur where the high rate was chiefly due to tetanus and convulsions and malaria. In Cawnpore pneumonia, "other causes" and other respiratory diseases also contributed to swell the rate, while in Etawah and Jhansi exhaustion and malnutrition, in Etawah "other causes" and in Soron malaria were the additional factors. Ballia returned the lowest infantile mortality (118·94) and was followed by the municipalities of Ghaziabad (135·27), Lakhimpur (161·40), Ujhani (167·40) and Ghazipur (167·85).

Infantile mortality in notified areas.

22. Notified areas (53 in number) returned an infantile mortality rate of 215·48 as against 197·08 in 1927. In 26 areas the rate was above the provincial average (215·48). Rajpur returned the highest rate (365·85). Bilsi came next with 353·15, followed by Jhansi with 350·56 and Madhoganj with 347·30. Gorakhpur (48·86), Shikohabad (56·43) and Deoria (62·99) exhibited a very low mortality. No deaths of infants were recorded in the Shahganj notified area like last year, which points to defective registration.

Infantile mortality in urban and rural areas. (Statement VI-A).

23. The infantile mortality rate in the urban areas was 252·67 and in rural tracts 151·34. In the preceding year the corresponding rates were 230·25 and 144·39, respectively.

Seasonal infantile mortality.

24. The maximum mortality among infants under one year of age occurred in June and the minimum in February, the actual figures for the two months being 29,576 and 17,911, respectively.

Mortality according to class. (Statement V.)

25. The death-rate according to class was highest (26·52) amongst Muslims. It was 23·99 amongst Hindus, 6·76 amongst " other classes " and 4·54 amongst Christians. (Further details can be seen in Statement V.)

Urban and rural mortality. (Statement VI.)

26. During 1928 the general mortality in the urban areas was 39·36 and that in the rural areas 23·06 as against 35·37 and 21·68 in 1927 and 37·13 and 23·95 the average for the previous five years, respectively.

STILL-BIRTHS.

Still-births in districts.

27. There was a decrease in the total number of still-births registered during the year under report as compared with the preceding year, the actual number of still-births during the two years being 14,499 and 14,612, respectively. As usual Gorakhpur returned the largest number of still-births (3,455). Azamgarh and Sitapur retained their second and third positions of the last two years with 908 and 871 still-births, respectively. No still-birth was recorded in Sultanpur. The attention of the district medical officer of health will be drawn to this.

Verification of causes of deaths.

28. Returns embodying the results of the verification of causes of deaths which occurred within the limits of the practice of government medical officers as well as in the medical institutions, the causes of which were verified by civil surgeons and their subordinates, were received as usual. During the year under report 3,414 deaths were verified against 3,147 in the preceding year. Of these 3,202 were reported to be due to " all other causes ", 273 to pneumonia, 216 to tuberculosis of the lungs, 184 to dysentery, 103 to cholera, 81 to other tubercular diseases, 48 to malaria, 44 to " all other infective diseases " and 33 to tetanus. Enteric fever claimed 32 deaths, plague 26, pyrexia of uncertain origin 18 and syphilis 15. Leprosy was responsible for 12 deaths, kala azar for 9, influenza for 8, gonorrhoea for 4, rheumatism and small-pox for 3 each. Of the 3,414 deaths, 435 occurred among children, 2,162 among adults between 16 to 45 years of age and 817 among adults of 46 years of age and upwards.

Registration as tested by the Assistant Directors of Public Health on general duty.

29. During 1928 the Assistant Directors of Public Health on general duty tested altogether 1,446 birth and death entries against 2,084 in the preceding year.

Registration as tested by the district health staff.

30. The district health staff checked 243,662 birth and death entries in 1928 against 211,341 during 1927. The percentage of omissions detected during the year under report was 6·22 as compared with 6·4 in the preceding year.

Registration as tested by local authorities

31. Altogether 143,319 entries (86,548 births and 56,771 deaths) were tested by the local authorities during the year under review as against 145,254 in 1927. This shows that the local authorities do not take sufficient interest in the matter. Verification showed that 3·69 per cent. of births and 2·70 per cent. of deaths were not registered as compared with 3·81 and 3·01, respectively, during the preceding year. The districts returning the largest number of entries tested were Gorakhpur, Jhansi, Bahraich and Agra while the districts returning the smallest number of entries tested were Etawah, Bulandshahr, Garhwal and Cawnpore. No testing was done in the districts of Muttra, Etah, Bijnor, Ghazipur, Azamgarh, Kheri, Gonda and Sultanpur. The issue of a circular by Government to district boards appears to be necessary.

Registration as tested by vaccination staff.

32. The total number of birth and death entries tested by the vaccination staff in 1928 was 1,279,919 (792,656 births and 487,263 deaths) against 1,215,334 in 1927, showing an increase of 64,585, which is very satisfactory. The percentage of omissions found was ·92 in respect of births and ·56 in respect of deaths as compared with ·95 and ·55, respectively, in the preceding year. Garhwal stood first with 58,416 entries tested followed by Hardoi with 55,475, Meerut with 50,507, Gorakhpur with 45,335 and Azamgarh with 44,958 Among the districts reporting small number of entries tested the most conspicuous were Dehra Dun (7,307), Jalaun (14,332), Naini Tal (15,394), Hamirpur (15,605) and Lucknow (15,648). In 27 districts the number of entries tested was below the provincial average (26,665). The attention of the district superintendents of vaccination concerned will be drawn to this.

Neglect to comply with registration rules.

33. During the year under report 2,294 persons were fined for neglect in complying with registration rules. The amount realized was Rs. 1,109. The corresponding figures for the preceding year were 2,251 and Rs. 1,394, respectively. This again shows the inadequacy of fines inflicted and calls for action.

Average dates of submission of statistical returns.

34. The statistical returns were received very late from the districts of Bijnor, Shahjahanpur, Farrukhabad, Allahabad, Hamirpur, Benares, Basti, Lucknow, Sitapur, Kheri and Gonda. The attention of the district mortuary registrars concerned will be called to the matter.

SECTION VI.

History of the chief diseases.

Deaths-rates from different causes. (Statement II.)

In the statement appended below are compared the death-rates per mille of the population from the most important diseases during 1928 and 1927 and the average death-rates for the preceding 10 years :—

Chief causes of mortality.	Death-rate per mille for 1927.	Death-rate per mille for 1928.	Average death-rate for preceding 10 years 1918—1927.	Increase or decrease as compared with 1927.	Increase or decrease as compared with decennial average.
Cholera	·62	·99	1·03	+·37	−·04
Small-pox	·17	·07	·12	−·10	−·05
Plague	·34	1·78	1·12	+1·44	+·66
Fever	17·33	16·88	27·71	−·45	−10·83
Dysentery and diarrhoea ..	·27	·29	·30	+·02	−·01
Respiratory diseases ..	·64	·75	·62	+·11	+·13
Injuries	·45	·47	·49	+·02	−·02
All other causes ..	2·76	2·91	3·60	+·15	−·69
All causes	*22·59*	*24·32*	*35·00*	*+1·73*	*−10·68*

The figures of 1928 as compared with 1927 show an increase under all heads except "small-pox" and "fever" while compared with the decennial average there are decreases under all heads except "plague" and "respiratory diseases" which show a slight increase.

CHOLERA.

Deaths and death-rate from cholera. (Statement VII.)

2. During the year under report cholera accounted for 44,941 deaths against 28,285 in 1927. The rates per 1,000 of the population for the two years were, respectively, ·99 and ·62 and the quinquennial average ·49. The maximum mortality (9,334) occurred in June and the minimum (36) in February. Annexed is a chart giving the total figures of mortality from this disease during a series of years 1912—1928.

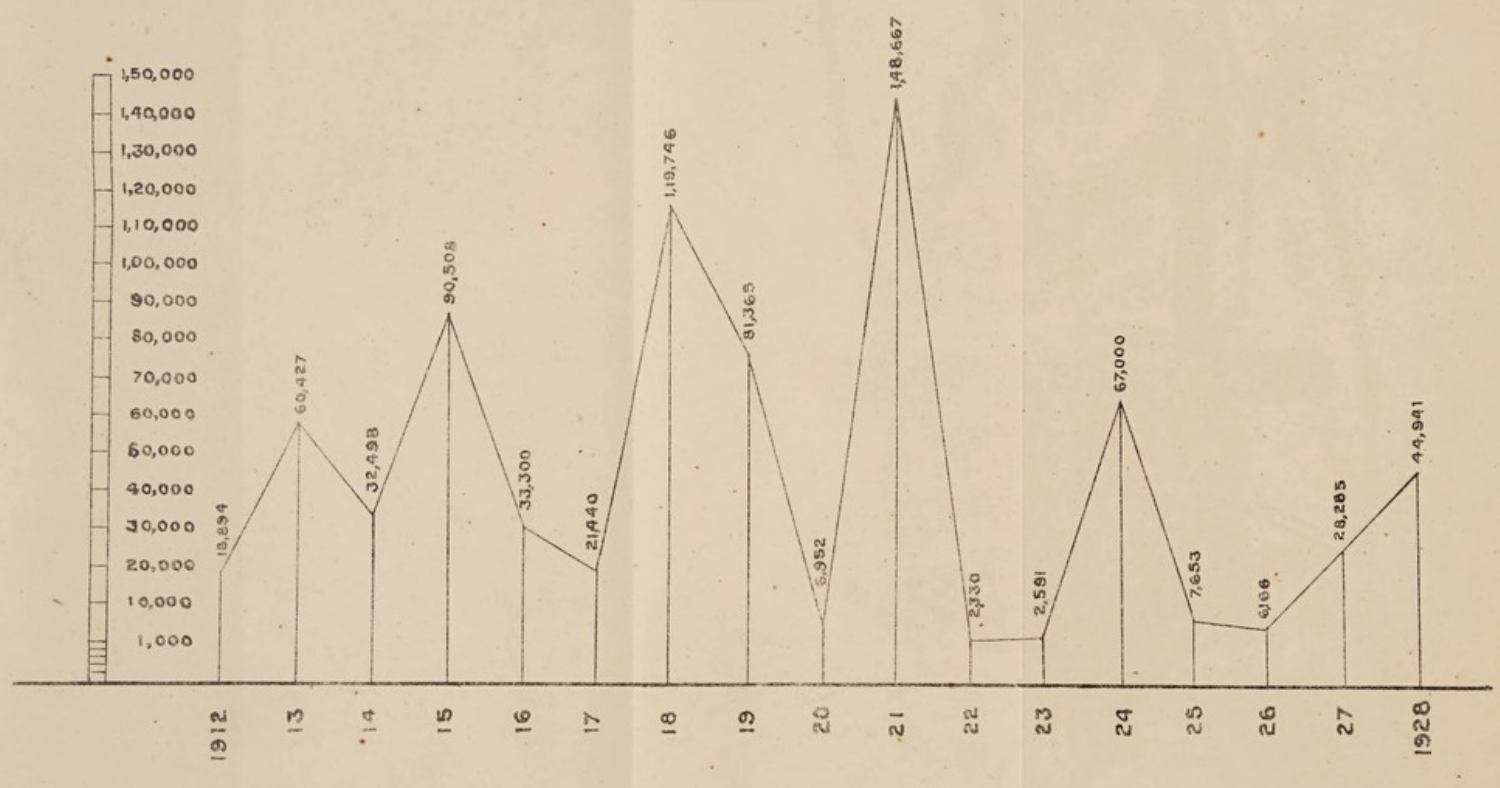
Cholera in districts and towns. (Statements VII and VIB.)

3. In 16 districts out of 48 the mortality from cholera was above the average for the province (·99). The district of Sultanpur with a death-rate of 3·51 was most conspicuous. It was followed by the districts of Hamirpur and Fyzabad with a death-rate of 3·28 and 3·12, respectively. The lowest mortality was recorded in the district of Muzaffarnagar where the death-rate was ·01. Bareilly, Shahjahanpur and Fatehpur with a death-rate of ·03 each, and Bijnor, Budaun and Almora with ·05 each were the next lowest.

17 towns out of 91 were entirely immune from the disease, while in 40 the number of deaths did not exceed 10. The highest mortality rate (9·44) was noticeable in Gaura Barhaj (Gorakhpur) followed by Hardoi (4·58) and the lowest (·01) in Meerut, followed by Agra, Budaun and Sambhal (Moradabad) with ·02 each.

As many as 60,880 inoculations against cholera were performed in the districts of these provinces in 1928 with the anti-cholera vaccine supplied

TOTAL NUMBER OF DEATHS DUE TO CHOLERA IN THE U.P. FROM 1912-1928.



by the department at a cost of Rs. 11,956 against 32,499 inoculations performed in the preceding year.

In the 20 districts of the Benares, Lucknow, Fyzabad and Gorakhpur revenue divisions in which the anti-cholera scheme is in operation for the control of cholera 36,131 deaths were recorded from cholera, while the remaining 28 districts returned 8,810 deaths. All the districts were adequately staffed with the public health *personnel* and equipped abundantly with medicines such as essential oils mixture, kaolin, permanganate of potash. Monetary grants were also sanctioned liberally for meeting other charges in connexion with anti-cholera measures. The measures adopted for the control and suppression of the disease are detailed in the summary of the reports of the district health services in section X of this report.

Early in the year infection was brought into the province from Calcutta by a person who arrived in a village in the district of Sultanpur from Howrah. But with the vigorous steps taken by the district health service the disease was not allowed to spread and was confined only to the family of the deceased and resulted in the death of five persons. In the district of Gorakhpur, where the disease was very prevalent, infection was originally brought from Nepal. The Assistant Director of Public Health of the range and the Cholera Research Officer were deputed to the district and everything possible was done to check the spread of the disease. Slackness on the part of police and patwaris in reporting outbreaks of cholera in several villages in the district which were detected by the circle sanitary inspector was brought to the notice of the district magistrate, and as a result the chaukidars of the villages concerned were dismissed.

Infection was also brought into the adjoining districts of the province by the returning pilgrims from the eclipse fair at Kashi in the district of Benares and by the pilgrims from the Kurukshetra fair (Punjab) into Saharanpur, Hardwar, Muttra, Brindaban, Naini Tal, Haldwani, Garhwal and Almora in November.

Owing to the danger of introduction of cholera in the province by pilgrims returning from Kurukshetra fair where the disease had broken out, the inspection of pilgrims in all pilgrim specials and slow passenger trains entering the United Provinces from the Punjab was carried out in November, 1928. Inspection posts were also established at Ballia, Captainganj (now Gorakhpur) and Bhatni on the Bengal and North-Western Railway and at Mogha! Sarai on the East Indian Railway for intercepting and segregating infected persons proceeding to the various religious fairs which are held in this province between December 15 and April 15 every year. Additional inspection posts were established at some more railway stations in connexion with the Magh mela at Allahabad, and travelling medical inspectors were also appointed for the incoming and outgoing trains to intercept infected passengers and segregate them in specially constructed huts. Every attempt was made to make the segregation huts reasonably comfortable and to carry out these inspections with the minimum discomfort to the public.

The three districts of Naini Tal, Almora and Garhwal where the anti-cholera scheme is also in operation in a modified form returned 183, 26 and 65 deaths from cholera respectively. In the Tarai and Bhabar Estates villages (district Naini Tal) patwaris were supplied with service postcards to supply the information of cholera at once. There were cases of

belated reports. These were promptly reported to the district authorities. The district medical officer of health and the medical officers working under him visited all the infected places. 2,265 inoculations against cholera. were performed and pamphlets and leaflets on cholera were distributed. 600 lbs. of permanganate of potash, 25 lbs. of kaolin and 8 lbs. of essential oil mixture supplied by this department were used in the infected areas. Almora was practically free from the disease, except that a few cases imported from Kurukshetra occurred amongst the pilgrims. A travelling dispensary and the vaccination staff were deputed on cholera duty.

In Garhwal infection was, as usual, first brought by the infected pilgrims going to Badrinath from all parts of India, and cases occurred on the pilgrim route, but the disease was brought under control by prompt preventive measures. Another outbreak occurred in November in the Bhabar and certain other villages of the district. In this case infection was brought by the local pilgrims who returned from the Kurukshetra fair. Immediate steps were taken. 303 anti-cholera inoculations were performed and no reports were received of any persons who died of cholera after inoculations. The Public Health department deputed a special health officer specially to take anti-cholera measures there. The total expenditure incurred out of the annual grant of Rs. 6 000 sanctioned for the special anti-cholera scheme in the district of Garhwal amounted to Rs 5,118.

The retention as a permanent measure of the scheme of the supply of two service postcards to each patwari in the United Provinces to enable him to report promptly cases of cholera to the district medical officer of health and the civil surgeon, which was up to this time in an experimental stage, has been sanctioned by Government. A reserve stock of 50 service postcards is now also maintained at each tahsili headquarters in the district and with the district medical officers of health to replenish immediately the supplies of patwaris in emergencies.

Three persons who assaulted a vaccinator while permanganating wells in a village in the district of Mirzapur were prosecuted by the district magistrate and sentenced to six months' simple imprisonment and a fine of Rs. 25 each.

The research on cholera financed by the grants made by the Indian Research Fund Association was, under the orders of the Public Health Commissioner with the Government of India, closed with effect from December 1, 1928.

Urban and rural mortality from cholera. Statement VI.)

4. The death-rates from cholera in urban and rural areas in 1928 were ·67 and 1·01 as compared with ·29 and ·65, respectively, in 1927.

In my opinion the increase in the number of cholera deaths as compared with 1927 was chiefly due to the failure of the monsoon. The number of cholera deaths in 1927 to the end of June was 18,893 and in 1928, 23,022, only a slight increase. In 1927, however, with a good monsoon there were only 9,392 deaths from July till the end of the year. In 1928 a second season climatically favourable to the spread of cholera was produced and 21,919 more deaths occurred before the end of the year. This is quite unusual and a great strain was thrown on the officers of the department by this second exacerbation of cholera.

SMALL-POX.

Deaths and death-rates from small-pox in districts and towns. (Statements VIII and VI-B.)

5. Small-pox claimed 3,012 deaths in 1928 against 7,894 in 1927, showing a decrease of 4,882. The death-rates for the two years were ·07 and ·17, respectively, and the quinquennial average ·14. Of the 3,012 deaths, 718 occurred among children under one year of age, 1,354 between the ages 1 to 10 years and the rest among adults. The heaviest mortality (606) was recorded in May like the three preceding years and the lowest (25) in October as in 1926. Mortality from this cause was most marked in the districts of Azamgarh (·39), Dehra Dun (·27), Ghazipur (·26), Lucknow (·25), Mirzapur (·21) and Jaunpur (·19). The district of Hamirpur was entirely free from the disease, while the number of deaths reported from the districts of Bareilly, Moradabad, Shahjahanpur, Pilibhit, Farrukhabad, Fatehpur and Gonda was too small to yield a ratio.

Altogether 715 deaths from small-pox were registered in the towns having a population of 10,000 and upwards. Forty-three towns were entirely free from the disease, while in 38 towns the number of deaths did not exceed 10. Full information on the subject is given in section VII of this report.

Urban and rural mortality from small-pox. (Statement VI.)

6. In 1928 the urban mortality from small-pox was ·24 against ·34 in 1927. In the rural tracts it was ·05 against ·16.

Small-pox hospitals.

7. As stated in previous reports there are no regular small-pox hospitals in these provinces. In the sub-joined table are given the particulars of the patients treated in the infectious diseases hospitals where such exist or in hospitals with infectious diseases wards :—

Serial number.	Name of place where the small-pox hospital is situated.	Number of patients treated in the hospital.	Vaccinal condition of the patients treated in the hospital.					Remarks.
			Vaccinated as evidenced by presence of one or more vaccination cicatrices.	Stated to have been successfully vaccinated, but no vaccination cicatrix present.	Stated to be unvaccinated or vaccinated unsuccessfully and no vaccination cicatrix present.	Previously unvaccinated, but vaccinated during incubation of small-pox.	Stated to have been successfully re-vaccinated.	
1	Dehra Dun city ..	51	35	..	16	..	5	
2	Hardwar ..	2	(1) Nil (2) Two scars present.	(1) Vaccinated but scars not visible. (2) Nil.	..	..	..	

Serial number.	Name of place where the small-pox hospital is situated.	Number of patients treated in the hospital.	Vaccinal condition of the patients treated in the hospital.					Remarks.
			Vaccinated as evidenced by presence of one or more vaccination cicatrices.	Stated to have been successfully vaccinated, but no vaccination cicatrix present.	Stated to be unvaccinated or vaccinated unsuccessfully and no vaccination cicatrix present.	Previously unvaccinated, but vaccinated during incubation of small-pox.	Stated to have been successfully re-vaccinated.	
3	Muttra city ..	1	..	..	1	..	..	The child was unvaccinated.
4	Agra city (Shahganj)	28	12	..	15	..	1	
5	Ditto (Boiluganj)	3	1	..	1	1	..	She was cured.
6	Shahjahanpur district hospital.	1	1	..	..	..	..	
7	Cawnpore Prince of Wales' Hospital.	1	1	..	..	..	..	
8	Naini Tal (Manora)	14	10	2	1	1	..	Two deaths occurred. One of these was not vaccinated but was vaccinated during incubation period and the other who had no cicatrix stated that he was successfully vaccinated.
9	Jhansi city ..	8	6	..	Two unvaccinated.	..	..	
10	Jhansi (Railway insolation huts.	2	1	..	1	..	..	
11	Haldwani (district Naini Tal) (Dispensary Isolation huts).	1	1	..	..	..	..	Cured.
12	Kashipur (district Naini Tal) (Dispensary Isolation huts).	2	2	..	..	..	..	Do.
13	Lucknow city ..	18	9	..	9	..	..	
14	Ajodhya (Fyzabad)..	1	..	..	Unvaccinated.	..	..	
15	Benares city ..	9	7	..	2	..	..	All cured and discharged.
16	Allahabad city ..	10	1	1	..	..	..	Of the 10 patients duly one had vaccination marks; others were unvaccinated.
17	Mussoorie ..	8	6	1	1	..	..	

PLAGUE.

Deaths and death-rate from plague. (Statement XII.)

8. Plague accounted for 80,943 deaths with a death-rate of 1·78 against 15,570 and ·34, respectively, in 1927. The quinquennial average was 1·11.

9. The highest mortality was noticed in the Muzaffarnagar district where the death-rate stood at 7·32. Then followed Ghazipur with a death-rate of 7·09, Saharanpur with 6·37 and Budaun with 6·06. The districts of Mainpuri, Etawah, Jhansi and Banda were entirely free from plague, while the number of deaths reported from the districts of Aligarh, Muttra, Jalaun, Hamirpur and Mirzapur ranged between 1 and 3.

Plague in districts. (Statement XII.)

10. In 31 towns out of 91 no deaths from plague were returned, while in 18 the number of deaths from this cause did not exceed 10. Of the remaining towns the highest death-rates were reported from Shahabad in Hardoi district (30·81), Laharpur in Sitapur district (30·31), Najibabad (25·07) and Sambhal 23·57).

Plague in towns (Statement VI-B.)

11. The urban mortality from plague in 1928 was 2·87 and the rural 1·71 as compared with ·43 and ·33, respectively, in 1927. The increase in plague over 1927 may, as in the case of cholera, be also attributed to the adverse climatic conditions.

Urban and rural mortality from plague (Statement VI.)

FEVERS.

12. During 1928, fevers accounted for 765,954 deaths as compared with 786,552 deaths in 1927, representing death-rates of 16·88 and 17·33, respectively. The quinquennial average was 18·77. The maximum mortality was recorded in June and the minimum in February.

Deaths and death-rates from fevers in districts and towns. (Statements IX and VI-B.)

According to sub-classification 687,001 deaths were reported to be due to malaria, 63,424 to other fevers, 9,194 to enteric fever, 5,348 to measles, 513 to relapsing fever and 474 to kala azar. For the reasons given in the previous years' reports, these figures are not reliable.

The districts recording the highest mortality from fevers were Pilibhit (29·82), Naini Tal (27·89), Saharanpur (24·38) and Shahjahanpur (24·21). The lowest rates were returned from Fatehpur (9·17), Allahabad (11·87), Cawnpore (11·96) and Rae Bareli (12·05).

In towns having a population of 10,000 and upwards the highest death-rate (29·87) was recorded in Saharanpur. The next highest death-rates were recorded in Benares (27·85), Jhansi (26·91) and Brindaban (26·86). Of the towns showing the lowest death-rates the most conspicuous were Mubarakpur in the Azamgarh district (·32), Mussooree (2·70), Naini Tal (4·01) and Ballia (4·39).

13. During the year the mortality from fevers in urban areas was 15·87 and in the rural tracts 16·95 as against 16·19 and 17·41, respectively, in the preceding year.

Urban and rural mortality from evers. (Statement VI.)

14. 513 deaths were reported from relapsing fever, 9,194 from enteric fever and 474 from kala azar. A comparative table showing the incidence of these diseases as reported by the verified as well as the unverified agencies is given in paragraph 25 of this section. Special reports received from the civil surgeons and the

Relapsing fever, enteric fever and kala azar. (Statement VI-A.)

district medical officers of health show that there was no epidemic of relapsing fever in any district.

There was an outbreak of enteric fever in the Lansdowne cantonment and the assistant director of public health, I range, was deputed to advise as to the action to be taken at the special request of the military authorities.

The Local Government contributed a further sum of Rs. 3,000 as their share of expenses required in connection with the Commission appointed by the Government of India in 1924 to enquire into the origin and progress of kala azar and the measures necessary to combat it.

Influenza.

15. There was no epidemic of influenza in the province during the year. Only mild sporadic cases occurred in some districts.

Tuberculosis.

16. The report of the Anti-Tuberculosis League, Lucknow, shows that through the strenuous efforts of the League Rs. 51,656 were received and Rs. 17,322 promised as donation for the establishment of a special tuberculosis hospital in Lucknow during the year. The total amount realized from 1916 upto the close of the year was Rs. 1,18,813.

It is expected that it will not be long before the construction of the building of the proposed hospital is started.

Dr. Sousa, Assistant Director of Public Health (Hygiene Publicity Bureau), made an investigation into the prevalence of tuberculosis in the schools of Lucknow. The results of this investigation are referred to under paragraph 6 of section X.

He also investigated the prevalence of the disease in Almora which is a very popular resort for tuberculosis patients. He found that the town was badly infected with tubercle cases, both indigenous and imported being found in practically every house, and high rents were being charged for the housing of such patients. I considered Dr. Sousa's reports so important that I have asked the sanction of Government to publish it separately for general notification and pointed out the necessity for early action to deal with the situation.

DYSENTERY AND DIARRHOEA.

Deaths and death-rates from dysentery and diarrhoea in districts and towns. (Statements X and VI-B).

17. The total number of deaths recorded from dysentery and diarrhoea during the year under report was 13,212 (6,044 dysentery and 7,168 diarrhoea) against 12,186 in 1927. The corresponding death-rates for the two years were ·29 and ·27, respectively, and the quinquennial average ·26. Like last year the maximum number of deaths (1,740) occurred in May, while February returned the minimum (502) as in the last seven years.

As usual Garhwal stood first in returning the higest mortality, the death-rate being 3·55. The next highest death-rates were recorded in Almora (1·41), Dehra Dun (1·12) and Lucknow (1·09). The districts returning the lowest mortality from these causes were Mainpuri with a death-rate of ·01, Gonda with ·03 and Banda and Partabgarh with ·04 each.

Two out of 91 towns did not return any deaths from these causes. In 15 the number of deaths did not exceed 10. Of the remaining towns

Atrauli, as usual, recorded the highest mortality with a death-rate of 10·75. The other towns returning the highest death-rates were Kashipur (5·58), Chandausi (5·05) and Benares (4·99). Gonda returned the lowest mortality (·07) and was followed by Ghaziabad (·08).

Urban and rural mortality from dysentery and diarrhoea. (Statement VI).

18. In 1927 the urban mortality from these causes was 2·32 and the rural mortality ·15 as compared with 2·14 and ·13, respectively, in 1927.

RESPIRATORY DISEASES.

Deaths and death-rates from respiratory diseases in districts and towns. (Statements XI and VI-B.)

19. Respiratory diseases were reported to have caused 24,300 deaths against 29,028 in the preceding year, the death-rates for the two years being ·75 and ·64, respectively. The mean for the previous five years was ·61.

The maximum number of deaths (3,566) from these causes was returned in March while the minimum (2,221) in September. Among the districts returning the high mortality from these causes Hamirpur with a death-rate of 6·14 and Lucknow with 4·92 retained their position as first and second as usual, and Dehra Dun and Agra third and fourth as in the last year with 3·55 and 2·60, respectively. Mainpuri and Basti returned the lowest mortality, the death-rates being ·04 and ·06, respectively, and were followed by Jaunpur and Kheri which returned a death-rate of ·08 each.

In two towns out of 91 no deaths from these causes were registered, while the number of deaths returned by eight towns did not exceed 10. Of the remaining towns the highest mortality was recorded in Farrukhabad-cum-Fatehgarh (16·26). The next highest mortality was noticed in Bulandshahr, Lucknow, Cawnpore, Dehra Dun and Pilibhit where the death-rates amounted to 15·53, 15·36, 14·91, 13·94 and 13·79, respectively. Among the towns returning the lowest mortality from these causes the most conspicuous were Mainpuri with a death-rate of ·07, Kandhla in Muzaffarnagar with ·10 and Gonda with ·15.

Urban and rural mortality from respiratory diseases. (Statement VI.)

20. The urban mortality from these causes during the year under report was 8·18 and the rural mortality ·23 against 6·95 and ·19, respectively, in the preceding year.

INJURIES.

Deaths from several minor causes. (Statement VI.)

21. During the year under report altogether 21,329 deaths were recorded under head "injuries." Of these 2,000 were suicides. Wounds or accidents claimed 1,408, snakes and wild beasts 4,817 and rabies 432. (Further details are given in statement VI.)

ALL OTHER CAUSES.

Deaths and death-rates under the heading "All other causes." (Statement VI.)

22. Deaths registered under this head numbered 132,045 giving a death-rate of 2·91 in the year under report against 125,141 and 2·76, respectively, in the preceding year.

23. During 1928 deaths from child-birth numbered 1,774 as against 1,518 in 1927.

Deaths from child-birth.
(Statement VI-A.)

24. The scheme submitted to Government for the establishment of a centre for free treatment of venereal diseases in Lucknow could not be introduced owing to paucity of funds, but the Government has asked the Inspector-General of Civil Hospitals, United Provinces, to repeat a sum of Rs. 14,724 for this purpose in the schedule of new demands for the year 1930-31. Some literature on venereal diseases has been prepared by the Provincial Hygiene Publicity Bureau.

Venereal diseases.

25. From the table indicating the ratios of deaths per cent. of the total number of deaths in the returns submitted by the expert agency and the ordinary registration agency as well as the calculated number of deaths on the data supplied by the qualified agency and the actual number of deaths reported by ordinary agency appended below, it will be observed that the death returns submitted by the unqualified agency in the case of dysentery, kala azar and pneumonia are much below what they should be, while in the case of malaria, small-pox, plague and relapsing fever the number of deaths returned by the unqualified agency is much over-reported :—

Accuracy of the returns.

Name of disease.	Percentage of total deaths by—		Calculated number of deaths on the data supplied by professional agency.	Actual number of deaths reported by ordinary agency.
	Verified agency.	Unverified agency.		
Cholera	3·02	4·10	33,055	44,941
Small-pox	·09	·27	963	3,012
Plague	·76	7·39	8,345	80,943
Dysentery	5·39	·55	59,055	6,044
Enteric fever	·94	·84	10,270	9,194
Relapsing fever	..	·05	..	513
Malaria	1·40	62·70	15,406	687,001
Kala azar	·26	·04	2,888	474
Pneumonia	8·00	·69	87,620	7,583

This table has now been prepared for nine years and the comparison made between the returns of the expert agency and the unverified returns of the chaukidars, etc. Owing to the small number of deaths verified by the expert agency compared with the total in the province, the limit of error is very large. I have, therefore, added this year a table giving the mean of the nine years' reports which is of course much more accurate. This proves my contention that only cholera, small-pox and plague are reported by the chaukidars with any reasonable degree of accuracy, while

the chief cause of death is not malaria as invariably reported by the chaukidars, but pneumonia and dysentery. The deaths from these two diseases were far more than from malaria. There is no doubt, however, that the *morbidity* from malaria is enormous and that malaria is a predisposing cause of deaths from the other common diseases.

Name of disease.	Mean of nine years (1920 to 1928 both inclusive).			
	Percentage of total deaths by—		Calculated number of deaths on the data supplied by professional agency.	Actual number of deaths reported by ordinary agency.
	Verified agency.	Unverified agency.		
Cholera	2·42	2·49	36,541	35,064
Small-pox	·29	·41	3,963	4,868
Plague	1·38	3·82	19,023	45,052
Dysentery	6·41	·47	82,568	6,004
Enteric fever	1·04	1·50	14,143	21,306
Relapsing fever	·21	·05	3,615	929
Malaria	3·71	63·96	53,361	802,694
Kala azar..	·23	·04	3,144	682
Pneumonia	11·02	·84	144,180	5,609

SECTION VII.

General History of Vaccination.

Period covered.

This section covers the triennial period 1926-27 to 1928-29, but deals specially with the work of the year 1928-29, as brief notes on the work of the preceding two years have already been submitted.

Charge of the department.

2. The charge of the department was held by me throughout the triennium.

Constitution and strength of the department. (Vaccination statement II.)

3. During the triennium under review the III and IV ranges were combined into one range with headquarters at Allahabad with effect from October 1, 1927, and the following officers held charge of the several ranges :—

I RANGE.

Rai Bahadur Dr. K. L. Chaudhri, O.B.E., D.P.H., throughout the trienninum, except for the period from January 20, 1929 to April 14, 1929, when he was on leave. Dr. H. S. Dube, D.P.H., from February 7, 1929 to April 14, 1929.

II RANGE.

Lieut.-Colonol W. A. Mearns, I.M.S., from April 1, 1926 to March 9, 1927, from November 7, 1927 to July 18, 1928, and again from November 1, 1928 to March 31, 1929. During the periods from March 10 to November 6, 1927, and from July 19 to October 31, 1928, he was on leave and the charge of the range was held by Major D. Clyde, I.M.S., Assistant Director of Public Health (Malariology), in addition to his own duties.

III RANGE.

Dr. A. Sousa, from April 1, 1926 to September 30, 1927, and Dr. K. P. Mathur, from October 1, 1927 to March 31, 1929.

IV RANGE.

Dr. K. P. Mathur, from April 1, 1926 to September 30, 1927, after which the IV range was amalgamated with the III range.

In 1928-29 the number of assistant superintendents of vaccination was 50—49 permanent and one temporary—against 49 in the preceding two years. The number of vaccinators was 898 in 1926-27, 917 in 1927-28, and 914 in 1928-29.

Expenditure on vaccination. (Vaccination statement II.)

4. In 1928-29 the total expenditure of the vaccination department including the charges on account of the Assistant Directors of Public Health and their offices amounted to Rs. 4,75,737 and that excluding these charges to Rs. 4,12,021 as against Rs. 4,71,005 and Rs. 4,06,950 in 1927-28 and Rs. 4,89 393 and Rs. 4,15,725 in 1926-27, respectively. The average expenditure under these two heads for the three years under report was Rs. 4,78,712 and Rs. 4,11,565, respectively, as compared with Rs. 4,65,682 and Rs. 3,97,732, respectively, in the preceding triennium. The increase in the average expenditure was due to the increased expenditure in 1926-27 and 1928-29 under the heads (1) Government Bovine Lymph Dépôt, (2) vaccination establishment, and (3) travel-

ling allowance. In 1926-27 there was an increase under contingencies also.

Average cost of each successful case of vaccination. (Vaccination statement II.)

5. The average cost per successful operation was annas four and pies two during the year under report as compared with annas four and pies four in 1927-28 and annas four and pies six in 1926-27. The average for the triennum under report was annas four and pies four as compared with annas four and pies eight in the preceding triennium.

In the table appended below, the cost per successful case of vaccination in these provinces for the three years under review is compared with that of other provinces in India :—

Province.	1926-27.	1927-28.	1928-29.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
United Provinces	0 4 6	0 4 4	0 4 2
Bihar and Orissa	0 2 1	0 2 3	0 2 6
North West Frontier Province.. ..	0 2 8	0 2 3	0 1 8
Delhi	0 6 10	0 5 4	*
Assam	0 3 3	0 2 8	0 3 4
Bengal	0 2 11	0 2 8	*
Punjab	0 5 1	0 5 0	*
Burma	0 11 7	0 11 1	*
Central Provinces	0 6 6	0 7 3	*
Madras	0 6 2	0 6 8	0 7 1
Bombay	1 0 10	1 1 9	..

* Information not received.

General operations. (Vaccination statement I.)

6. The total number of persons vaccinated in 1928-29 was 1,553,631 (1,415,235 primary and 138,396 re-vaccinations) as compared with 1,465,647 in 1927-28 and 1,433,056 in 1926-27, the average for the three years being 1,343,353 for the previous triennium. The total number of operations performed during the year under report numbered 1,583,025 (1,443,993 primary and 139,032 re-vaccinations) as against 1,484,111 as against 1,492,442 and 1,450,044 in 1927-28 and 1926-27, respectively. The average for the triennium was 1,508,504 against 1,372,715 in the previous triennium showing an increase of 135,789 which is very satisfactory.

The difference between the total number of vaccination operations performed and the total number of persons vaccinated represents secondary operations which numbered 29,394 in 1928-29 against 26,795 and 16,988 in 1927-28 and 1926-27, respectively, the average for the triennium under report being 24,392 against 29,362 in the preceding triennium.

The number and percentages of successful primary vaccinations and re-vaccinations in which the results were known were 1,342,716 and 94·22 and 59,350 and 46·69, respectively, in 1928-29 against 1,282,505 and 94·14 and 54,222 and 54·32 in 1927-28 and 1,219,979 and 94·79 and 70,621 and 53·83 in 1926-27. The average for the triennium was 94·38 in the case of primary vaccinations and 51·63 in the case of re-vaccinations against 93·58 and 59·60, respectively, in the previous triennium.

The average number of persons vaccinated by each vaccinator during the year under report was 1,698 against 1,598 in the preceding year and 1,594 in the year before, the average for the triennium under report being 1,630 against 1,507 for the previous triennium.

The table appended below shows the work done in the triennium under report as compared with the previous triennium :—

—	1926-27.	1927-28.	1928-29.	Average for the previous triennium.	Average for the present triennium.	(Increase +) or (decrease −).
Total number of persons vaccinated.	1,433,056	1,465,647	1,553,631	1,343,353	1,484,111	+140 ,758
Total number of vaccinations performed.	1,450,044	1,492,442	1,583,025	1,372,715	1,508,504	+135,789
Secondary operations..	16,988	26,795	29,394	29,362	24,392	−4,970
Primary operations ..	1,304,844	1,381,974	1,443,993	1,266,421	1,376,937	+110,516
Successful primary vaccinations.	1,219,979	1,282,505	1,342,716	1,168,581	1,281,733	+113,152
Re-vaccinations ..	145,200	110,468	139,032	106,294	131,567	+25,273
Successful re-vaccinations.	70,621	54,222	59,350	54,570	61,398	+6,828
Average number of persons vaccinated by each vaccinator.	1,594·30	1,597·93	1,698·49	1,507·20	1,630·24	+123·04
Percentage of successful primary vaccinations.	94·79	94·14	94·22	93·58	94·38	+·80
Percentage of successful re-vaccinations.	53·83	54·32	46·69	59·60	51·61	−7·99
Total number of persons successfully vaccinated per 1,000.	28·44	29·46	30·90	26·95	29·60	+2·65

An analysis of the above figures shows increases under all heads except under the head "percentage of successful re-vaccinations." The decrease under secondary operations is satisfactory.

Successful primary vaccinations in different districts. (Vaccination statement I.)

7. The provincial total number of successful primary vaccinations during the year under report shows an increase of 60,211 and 122,737, respectively, as compared with 1927-28 and 1927-27, the actual figures for the three years being 1,342,716, 1,282,505, and 1,219,979, respectively. The average for the present triennium is 1,281,733 as compared with 1,168,581 for the previous trennium or an appreciable increase of 113,152. Of the districts showing an increase compared with last year Rae Bareli occupied the first position with an increase of 8,796, followed by Meerut with 5,475, Bara Banki with 5,061, Gonda with 3,732, and Muttra with 2,738. It is gratifying to note that out of the 48 districts only five showed slight decreases as compared with last year, viz., Shahjahanpur of 1,787, Banda of 578, Kheri of 309, Fyzabad of 202, and Ghazipur of 197.

The decrease in Shahjahanpur was due to the employment of all vaccinators on cholera duty for over one month in October and November and in Banda to the abolition of one vaccination circle, slackness on the part of a vaccinator and continuance of vaccination in April, 1927 which increased the number of successful vaccinations in 1927-28. In Kheri and Fyzabad

it is attributed to the slackness on the part of a few vaccinators; the prevalence of malaria being an additional factor in the case of Kheri. The decrease in Ghazipur is reported to be due to the absence of two vaccinators on leave on account of ill-health.

Successful vaccination and degree of protection afforded. (Vaccination statement I.)

8. During 1928-29 the number of persons successfully vaccinated per 1,000 of population showed an increase of 1·44 and 2·46 as compared with 1927-28 and 1926-27, respectively, the actual rates for the three years being 30·90, 29·46, and 28·44, respectively. The average for the three years was 29·60 as compared with 26·95 for the preceding triennium. In 1928-29 the ratio of persons successfully vaccinated per mille of the population exceeded the provincial average (30·90) in 25 districts. The districts showing the highest degree of protection afforded were Garhwal (57·85), Almora (49·88), Mirzapur (41·38), Hamirpur (39·32) and Saharanpur (38·06). Garhwal Almora, and Saharanpur retained their positions of the last year as 1st, 2nd, and 5th on the list, while Mirzapur and Hamirpur interchanged their positions. The districts showing the least protection were Mainpuri (21·72), Allahabad (24·68), Kheri (25·37), Fyzabad (25·53) and Azamgarh (25·60). The first two show a slight improvement over last year, while the last three remained practically stationary.

Vaccination in proportion to births and according to age.

9. During the year under review the percentage of successful vaccination operations in proportion to births showed a slight decrease in the case of children under one year of age as compared with the preceding two years, the ratios for the three years being 50·85, 51·63, and 52·28, respectively. The percentage of success in the case of children of one and under six years was higher in 1928-29 as compared with that in 1927-28 and practically the same as in 1926-27, the figures for three years being 22·19 and 21·67 and 22·20, respectively.

Taking the percentage of success of all ages there was an increase in 1928-29 as compared with 1927-28 and a decrease in comparison to 1926-27, the figures for the three years being 77·38, 79·93, and 78·60, respectively.

Examining the figures by ranges, the percentage of successful operations on children under one year of age in proportion to births in the first range was 53·99 in 1928-29, as against 58·78 and 62·68 in 1927-28 and 1926-27, respectively. In the 2nd range they were 46·46, 43·59, and 43·70 and in the 3rd range 50·80, 50·48, and 48·56, respectively. As in the preceding two years, the first range showed the best protection in comparison to other ranges.

Mortality from small-pox.

10. The mortality from small-pox fell from ·26 in 1926 and ·17 in 1927 and ·07 in 1928, the number of deaths during the three years being 12,020, 7,894, and 3,012, respectively. The quinquennial average was ·14.

Diagram.

11. A diagram showing the relation between the mortality from small-pox and the proportion of the population protected by vaccination in each district is attached.

Vaccination in municipalities.

12. In 1928-29 vaccination in municipalities showed a considerable increase in comparison with the figures of the preceding two years, the total number of persons vaccinated and the number of operations performed

during the three years being 162,755 and 167,765, (118,724 primary and 49,041 re-vaccinations) in 1928-29 against 125,722 and 133,265 in 1927-28 and 141,801 and 145,100 in 1926-27, respectively. The ratio of persons successfully vaccinated per 1,000 of population during the three years was 39·81, 36·78, and 38·14 respectively. The results are very satisfactory.

The best protected municipalities were in order Mussoorie (122·08), Naini Tal (114·41), Etah (85·75), and Aligarh (83·96). Among those showing a low degree of protection, Kanauj, Mainpuri, Farrukhabad, Amroha were the worst with ratios of 25·79, 27·38, 28·84, and 28·35, respectively. The first three, however, showed an improvement over last year. The decrease in Amroha is reported to be due to slackness on the part of the vaccinator who has been dismissed. The statement showing the number of successful vaccinations performed on children under one year of age in different municipalities forms Vaccination appendix B

Vaccination in cantonments.

13. In 1928-29 the total number of persons vaccinated in the cantonments of these provinces was 18,389, of vaccination operations 18,523 (6,974 primary and 11,549 re-vaccinations), of successful primary vaccinations 6,197 and of successful re-vaccinations 6,035 as compared with 11,783, 12,195, 5,646, and 3,206, respectively in 1927-28 and 17,376, 17,404, 5,452, and 6,599, respectively, in 1926-27. The ratio of persons successfully vaccinated per mille of the population was 61·15 as against 44·25 in 1927-28 and 60·25 in 1926-27. These figures show a very satisfactory improvement in 1928-29 over the preceding year.

During the calendar year 1928, the military medical officers in cantonments performed 993 primary vaccinations and 10,282 re-vaccinations as against 1,171 and 11,891 in 1927 and 485 and 15,133 in 1926, respectively. The number of successful primary vaccinations and re-vaccinations was 820 and 7,337, respectively, in 1928, as compared with 1,055 and 8,469 in 1927 and 426 and 10,348 in 1926, respectively.

Vaccination in notified areas.

14. In 1928-29 the total number of persons vaccinated in the notified areas, the number of operations performed, and the number of successful vaccinations were, respectively, 15,780, 16,251, and 14,025 as compared with 14,752, 15,282, and 13,161 in 1927-28 and 13,583, 13,806, and 12,022 in 1926-27, respectively. The number of persons successfully vaccinated per 1,000 of population in 1928-29 was 36·69 as compared with 35·20 in 1927-28 and 34·45 in 1926-27.

Among the notified areas showing the largest protection afforded against small-pox, Chunar settlement (Mirzapur) stood first with a rate of 90·35, followed by Gorakhpur with 66·91, Bhinga (Bahraich) with 57·50, Bhim Tal (Naini Tal) with 53·67, and Sardhana (Meerut) with 51·03. Among the notified areas showing the least protection were Rikhikesh in the Dehra Dun district (11·05), Hasanpur in the Moradabad district (16·89), Haldwani in the Naini Tal district (18·82), Bilgram in the Hardoi district (23·92), and Auraiya in the Etawah district (24·57). Rikhikesh showed a slight improvement over last year but the place being a pilgrimage station people do not stop there all the time, hence no appreciable progress can be expected. In Hasanpur the decrease is attributed to want of special help from the notified area authorities in not engaging a whole-time vaccinator, while in Haldwani it was due to the prevalence of plague. The decrease in Bilgram was due to the fact that the number of children available was

less than last year owing to their illness. The cause of decreases in Auraiya was the defective registration of births.

Vaccination of school children.

15. During 1928-29 the public health staff visited 3,720 schools against 3,054 in 1927-28 and examined 120,247 scholars regarding their vaccinal conditions. As a result of the campaign that has been carried on in the past years the proportion of unvaccinated children in schools is going down. A large number of unvaccinated scholars was detected. Many of them were vaccinated in the presence of the health staff, while lists of others were sent to the vaccinators of the circles concerned with instructions to vaccinate them.

In municipal areas greater facility for vaccination in schools was provided by the instructions issued by the Director of Public Instruction to the effect that no boy under the age of 14 or girl under the age of eight years was to be admitted to schools maintained or recognised by local boards or aided by the Education department, unless he or she satisfied the headmaster or headmistress that he or she had been vaccinated or has had small-pox or that he or she would be vaccinated as soon as arrangements for vaccination could be made. The school authorities were also instructed to verify the students' statements by looking at the vaccination marks and to arrange for vaccination at the proper time and to report to the medical officers of health the names of children who were unvaccinated.

Towards the close of the year arrangements were also made for the vaccination of scholars in the girls' schools by health visitors and the staff of the maternity and child-welfare centres.

Application of the Vaccination Act.

16. The Vaccination Act is in force in all municipalities, cantonments, and notified areas, except in the notified areas of Jalaun, Bindki (Fatehpur district), and Hasanpur (Moradabad). Steps are being taken to extend the provisions of the Act to these areas. During the year under report the provisions of the Act were extended to the town areas of Saidpur, Zamania, Bahadurganj, and Mohammadabad in the Ghazipur district.

Compulsory vaccination in rural areas.

17. It is gratifying to note that in order to make vaccination compulsory in rural areas, the necessity of which had been emphasized by me in previous reports, the United Provinces Vaccination Bill has been drafted and published for general information. It is hoped that it will be presented to, and passed by, the Council before long.

General results of inspection. (Vaccination statement V.)

18. (*a*) *By Assistant Directors of Public Health and District Superintendents of Vaccination.*—The total number of vaccination operations inspected by the assistant directors of public health and district superintendents of vaccination during the year 1928-29 was 202,714 (200,642 primary and 2,072 re-vaccinations) as compared with 214,466, and 179,223 in 1927-28 and 1926-27, respectively, the average for the triennium under report being 198,801 as against 164,946 during the preceding triennium. This indicates a satisfactory increase of 33,855 inspections in the triennium under review as compared with the previous one. The number of inspections during the year under report however showed a decrease of 11,752 as compared with that in the preceding year.

The percentage of inspections to the total number vaccinated was 14·18 in the case of primary vaccinations and 1·51 in that of re-vaccinations in 1928-29 as against 15·31 and 6·38 in 1927-28 and 13·54 and 3·39 in 1926-27, respectively. Among the districts showing a large number of inspections, Jaunpur, which stood 2nd last year secured the highest position with 11,707 inspections and was followed by Hardoi (9,923 , Gorakhpur (9,489) Fyzabad (9,164), and Ghazipur (9,017). Among those showing the smallest number of inspections the most conspicuous were Garhwal (45), Aligarh (166), Banda (467), Mainpuri (713), and Cawnpore (735). No inspections were performed in the districts of Dehra Dun, Bijnor, and Shahjahanpur. The District Health Service has not been extended to any of these districts.

(*b*) *By assistant superintendents of vaccination and other inspecting officers.*—These officials inspected 632,235 (593,546 primary and 38,689 re-vaccinations) during the year under review as against 606,447 in 1927-28 and 603,884 in 1926-27. The average for the three years under review was 614,189 as compared with 587,994 in the previous triennium indicating an increase of 26,195. The percentage of inspections tototal number vaccinated in 1928-29 was 41·94 as regards primary and 28·16 as regards re-vaccinations as against 41·88 and 35·01 in 1927-28 and 43·36 and 31·60 in 1926-27, respectively. Gorakhpur where there are two permanent assistant superintendents of vaccination and one temporary as usual stood first with a total of 52,444 inspections followed by Agra (23,860), Almora (21,161), Bareilly (19,715), Basti (19,314) and Garhwal (19,163). The districts in which the smallest number of inspections were performed were Dehra Dun (3,493), Aligarh (3,904), Fatehpur (6,477), Mainpuri (6,675), and Kheri (6,940). Taking the districts individually Meerut, Bulandshahr, Agra, Bareilly, Bijnor, Budaun, Farrukhabad, Etawah, Cawnpore, Jhansi, Jalaun, Hamirpur, Banda, Benares, Mirzapur, Jaunpur, Ghazipur, Ballia, Gorakhpur, Naini Tal Lucknow, Unao, Rae Bareli, Sitapur, Gonda, Bahraich, Sultanpur, and Partabgarh showed increases, while Dehra Dun, Saharanpur, Muzaffarnagar, Aligarh, Muttra, Mainpuri, Etah, Moradabad, Shahjahanpur, Pilibhit, Fatehpur, Allahabad, Basti, Azamgarh, Almora, Garhwal, Hardoi, Kheri, Fyzabad, and Bara Banki showed decreases as compared with the preceding year. The district superintendents of vaccination concerned will be asked to warn the assistant superintendents of vaccination to devote greater attention to this part of their duties.

With regard to the percentage of inspections of primary operations performed by these officials to total number vaccinated, Banda as in the preceding year, topped the list returning high percentage of 84·76. Then came in order Naini Tal (79·10) Partabgarh (73·61), Etawah (73·32), and Ballia (71·15). Among the districts returning low percentages were Aligarh (10·33), Meerut (20·89), Moradabad (21·81), Bara Banki (25·76), and Azamgarh (27·04).

(*c*) *Verification of the percentage of successful vaccinations.*—According to the reports of vaccinators the percentage of successful primary operations for the whole province was 94·23 and that of re-vaccinations 46·67 during 1928-29 as against 94·14 and 49·36 in 1927-28 and 94·80 and 53·76 in 1926-27, respectively. The assistant superintendents of vaccination in their inspections found these percentages as 92·99 and 44·27 as compared with 92·76 and 50·51 in 1927-28 and 93·39 and

47·09 in 1926-27, respectively. The result of the inspections of assistant directors of public health and district superintendents of vaccination showed a percentage of 93·60 in the case of primary operations and 40·00 in the case of re-vaccinations as against 91·86 and 21·76 in 1927-28 and 93·54 and 43·22 in 1926-27, respectively.

Occurrence of cases of encephalitis following vaccination.

19. Like last year, no cases of encephalitis following vaccination were noticed by any of the inspecting officers of the department.

Provincial Bovine Lymph Dépôt, Patwa Dangar, district Naini Tal

20. During the triennium the supervising charge of the dépôt was held by me from April 1, 1926 to December 16, 1928, after which date my additional title of the Medical Officer in charge of the dépôt was abolished by Government and the charge was vested in the Superintendent of the Dépôt.

(*a*) *Supply of calves.*—During 1928-29 the contract for the supply of calves was given to a butcher of Bareilly, as in preceding year at the rate of Rs. 15-8-0 per calf. The contractor carried out the contract satisfactorily.

The number of calves purchased or obtained on fees locally was 529 (118 cow and 411 buffalo calves) as against 318 (81 cow and 237 buffalo calves) in 1927-28 and 499 (104 cow and 395 buffalo calves) in 1926-27. Out of he total number of calves (529), 519 were successfully vaccinated, 8 failed and died and 2 died before vaccination. Out of 519 calves which survived after vaccination 471 were sold and 48 returned to their owners.

(*b*) *Quantity of lymph obtained and manufactured.*—In 1928-29, 21,752 grammes of crude lymph were obtained from 519 successfully vaccinated calves, giving an average yield of 41·91 grammes per calf against 16·371½ grammes from 317 successful calves, with an average of 51·45 grammes per calf in 1927-28 and 19,024 grammes from 452 successful calves with an average of 42·09 grammes in 1926-27. The average yield of crude lymph per cow and buffalo calf was 15·97 and 49·38 grammes, respectively, as compared with 19·50 and 62·40 grammes in 1927-28 and 21·96 and 47·98 grammes in 1926-27. The decrease in the average yield per calf in the year under report as compared with that in 1927-28 and 1926-27 appears to be due to the calves supplied by the contractor being not good and healthy. The contractor will be addressed on the subject.

During 1928-29, 65,256 grammes of glycerinated lymph (including 2,538 grammes of glycerine paste) of the strength of (1—3) were manufactured. The total quantity of glycerinated lymph prepared for issue was 113,265¼ grammes— 30,701¾ grammes (1—5) and 82,563½ (1—7)—and 2,538 grammes of glycerine paste, as against 119,334,2 grammes of glycerinated lymph and 1,629½ grammes of glycerine paste in 1927-28, and 85,301 grammes of glycerinated lymph and 3,528 grammes of glycerine paste in 1926-27.

(*c*) *Issue of lymph.*—During the year under review 107,280 grammes in metal collapsible tubes, 143,843 grammes in glass capillary tubes, and three grammes of glycerine paste, sufficient to vaccinate 2,825,918 persons were issued as compared with 113,851¾ grammes in metal collapsible tubes, 136,259 in glass capillary tubes, and 15½ grammes of glycerine paste sufficient to vaccinate 2,982,943 persons in 1927-28, and 106,693 grammes

in metal collapsible tubes, 145,087 grammes in capillary tubes and 263 grammes of glycerine paste sufficient to vaccinate 2,693,987 persons in 1926-27. Out of the total quantity of lymph issued, 316½ grammes in metal collapsible tubes to the value of Rs. 170 were issued free for use in jails and charitable institutions in 1928-29 as against 141½ grammes in metal collapsible tubes and 186 glass capillary tubes to the value of Rs. 87 in 1927-28, and 14,325 grammes in metal collapsible tubes and 412 grammes in capillary tubes worth Rs. 104 in 1926-27.

Glycerine paste is mostly issued for vaccinating calves to obtain seed lymph and hence the issue is less.

(*d*) *Lymph set aside in the cold storage plant.*—25,690½ grammes of glycerinated lymph of the strength of 1—3 and 497½ grammes of glycerine paste have been set aside for issue in 1929-30 as against 16,621·2 grammes of glycerinated lymph of the strength of 1—3 and 963·5 grammes of glycerine paste in 1927-28 and 28,965 grammes of glycerine lymph of strength varying from 1—3 to 1—5 and 111 grammes of glycerine paste set aside in 1926-27.

(*e*) *Results of vaccination with the lymph issued.*—The *total* number of vaccinations performed in 1928-29 with calf lymph amounted to 1,569,529 (primary 1,437,870 and re-vaccinations 131,659) as compared with 1,492,101 (primary 1,381,781 and re-vaccinations 110,321) in 1927-28 and 1,449,108 (primary 1,304,368 and re-vaccinations 144,740 in 1926-27. The results of vaccinations performed during the year under report according to the returns received up to date of the submission of the report by the superintendent and the preceding two years are given in the table appended below:—

Period.	Primary vaccinations.								
	Successful.			Unsuccessful.			Percentage.		
	1928-29.	1927-28.	1926-27.	1928-29.	1927-28.	1926-27.	1928-29.	1927-28.	1926-27.
April to September..	13,976	22,589	27,237	10,482	5,546	6,891	57·14	80·20	82·21
October to March ..	519,840	702,642	544,443	38,617	48,928	35,373	93·08	93·49	94·02
Total ..	533,816	725,231	581,680	49,099	54,474	42,264	91·58	93·01	94·02

Period.	Re-vaccinations.								
	Successful.			Unsuccessful.			Percentage.		
	1928-29.	1927-28.	1926-27.	1928-29.	1927-28.	1926-27.	1928-29.	1927-28.	1926-27.
April to September ..	3,266	5,544	2,521	4,758	4,986	4,009	40·70	52·64	38·60
October to March ..	23,088	28,456	23,904	19,286	22,067	16,019	54·49	56·32	59·87
Total ..	26,354	34,000	26,425	24,044	27,053	20,028	52·29	56·26	55·94

(*f*) *Contract price of lymph.*—The contract rates for different local bodies in the United Provinces on account of cost of lymph supplied to them were revised in April, 1928, on the basis of actual supplies during the preceding three years and were sanctioned by Government in G. O. no. 667/XVI—125, dated October 26, 1928, with effect from the year 1928-29 and will remain in force up to the year 1930-31. When the system of payment at contracted rates for the price of lymph supplied to local bodies from the dépôt was introduced in 1925 it was expected that the local bodies would pay their bills promptly. But in many cases they did not do so, with the result that there were heavy arrears, to which the accounts officers drew the particular attention of the Government in auditing the accounts of the dépôt. To avoid the accumulation of arrears the Government therefore decided to realise the amount of the contracted price of book transfer by deduction from the Government grants payable in the Medical and Public Health departments to local bodies concerned. When the cheques for payments of the grants are issued by the Pay and Accounts Officer, he will deduct the amount of the lymph charges from the bill for the grant. In the cases in which the grant does not cover the bill or when no grants are paid, the local body concerned will make arrangement to pay up the amount early in the year. In case of default the supply after September will be sent by V.P.P. The notified areas were required to make arrangements for payment of the price of lymph direct to the dépôt.

Intimation of realisations of contract amounts for 1928-29 not havings been received from a number of local bodies the attention of the Pay and Accounts Officer has been drawn to the fact and he has been asked to realise the dues at once.

Lymph was supplied to the military authorities on the revised contract rate of Rs. 1,220.

(*g*) *Sales and expenditure of the dépôt.*—The total value of lymph and other articles sold by the dépôt during the year under report was Rs. 43,911 (Rs 38,294 by sale of lymph and Rs. 5,617 on account of sale of miscellaneous articles such as milk, fowls, eggs, and garden produce) as compared with Rs. 42,514 (Rs. 38,085 from the sale of lymph and Rs. 4,429 on account of sale-proceeds of miscellaneous articles) in 1927-28 and Rs. 37,603 (Rs. 34,330 from the sale of lymph and Rs. 3,273 from the sale of miscellaneous articles) in 1926-27.

The total expenditure of the dépôt in 1928-29, (including the non-recurring expenditure of Rs. 3,900 on account of the cost of motors, switch-boards, etc., for the new installations) amounted to Rs. 44,894 as compared with Rs. 43,340 in 1927-28 and Rs. 45,916 in 1926-27—an increase of Rs. 1,554 as compared with 1927-28.

It may be noted that the cost of the lymph stored in the cold storage chamber for issue during the next year has not been shown under receipts, as it is not certain whether the same will retain its potency at the time of issue. The apparent loss on the working of the dépôt therefore amounted to Rs. 983.

There would have been a remarkable profit this year, but for the heavy non-recurring expenditure incurred during the year under report in purchasing motors, switch-boards, etc., for the new installations at a cost of Rs. 3,900 which was met from the budget allotment of the dépôt for the

year under report. This was possible in view of the savings which accrued from the abolition of the Government poultry, milch, cattle, and vegetable garden. The table appended below shows the annual output of lymph and the income and expenditure of the dépôt since its establishment :—

Year.	Quantity of lymph issued.				Income.	Expenditure.
	Glycerinated lymph.		Glycerine paste.	Lanoline paste.		
	Tubes.	In bulk.				
		Grammes. Grs.	Grammes. Grs.	Grammes, Grs.	Rs.	Rs.
1904-5	21,049	Nil.	Nil.	79 0	106	3,300
1905-6	74,800	98 0	Nil.	120 0	2,057	7,789
1906-7	113,945	205 0	1,367 0	19 0	3,527	5,741
1907-8	198,224	Nil.	668 12	161 0	6,118	6,717
1908-9	243,722	3,806 3	749 0	4 0	8,572	12,573
1909-10	249,974	9,147 0	414 0	4 0	8,527	10,524
1910-11	358,939	9,392 0	45 0	6 0	14,211	12,097
1011-12	193,356	41,460 12	44 0	Nil.	18,780	13,030
1912-13	180,445	58,427 13	83 3	Nil.	24,019	14,894
1913-14	193,932	72,296 10	79 7	Nil.	28,867	17,247
1914-15	296,423	94,447 13	382 0	8 7	39,174	20,703
1915-16	150,347	83,110 7	66 0	Nil.	30,789	21,228
1816-17	169,880	82,960 0	36 6	Nil.	31,066	21,348
1917-18	172,462	86,658 12	Nil.	Nil.	32,681	21,910
1918-19	185,699	91,658 0	34 0	Nil.	32,836	25,297
1919-20	173,317	94,354 10	6 11	Nil.	35,430	31,547
1920-21	137,633	89,609 4	14 0	¼ 0	37,144	39,217
1921-22	135,448	87,093 12	6 0	Nii.	39,169	33,259
1922-23	331,668	69,436 12	5 0	Nil.	41,354	35,138
1923-24	89,693	86,993 12	11 0	Nil.	37,967	36,014
1924-25	108,281	86,332 8	4 0	Nil.	37,251	41,647
1925-26	123,047	93,056 4	4 0	Nil.	38,357	47,592
1926-27	145,087	101,693 0	263 0	Nil.	37,603	45,916
1927-28	136,259	113,851 12	15 8	Nil.	42,514	43,340
1928-29	143,843	107,280 0	3 0	Nil.	43,911	44,894

(*h*) *Plant and machinery.*—The compressor was purchased in 1914-15 and has run approximately 15 years, while those purchased at the same time by others have been replaced. Its upkeep and renewals of parts have involved a very considerable expenditure. As this type of compressor does not even carry the maker's name spares have been unobtainable and have had to be specially made. On the last occasion the Electrical Inspector to Government on inspecting the plant expressed his surprise that the plant in such a state had been running at all. It is now absolutely certain that the plant cannot be run another season and there is no alternative but to purchase a new plant. Government have sanctioned the purchase of a new plant. An endeavour will be made to meet the cost by re-appropriation in my current year's budget.

(*i*) *Electric installation.*—Last year it was considered necessary to replace the plates in electric storage battery, at a cost of approximately Rs. 2,500 during 1929-30. I consulted the Superintending Engineer,

Public Health department, and the Electrical Engineer, Naini Tal Municipal Board, with a view to taking electric current from the municipal board power house, instead of maintaining our own plant separately. After due consideration it was decided that it would be economical to do so, and there would be a considerable saving to Government financially. The municipal board agreed to lay down a high tension line and fit up a sub-power station in the dépôt, the cost of which would be borne by them, and that they would supply current at a contract rate of Rs. 3,000 annually, up to a maximum of 16,000 units per year.

Government was approached on the subject and sanction obtained to carry out the change.

Four new motors, one switch-board, starters, etc., were purchased at a cost of Rs. 3,900.

The whole of the work was carried out by the Electrical Engineer, Municipal Board, Naini Tal, and current laid on to the dépôt on April 1, 1929.

The post of the electrician was abolished with effect from March 1, 1929. The work is now being carried out, with a saving, by the dépôt mistri, who has been granted an increase of Rs. 2 per mensem from April 1, 1929, according to the new time scale of pay sanctioned by Government. An official of the Naini Tal Municipal Board's Electrical department is in charge of the sub-station at the dépôt and has been given free accommodation and an allowance of Rs. 10—2—20 per mensem, in addition to his substantive pay from the municipal board to control and look after the new motors installed.

(*j*) *Roads.*—The road leading from the Baldia Khan gate to the dépôt has been much improved during 1928-29.

(*k*) *Abolition of poultry, cows, and vegetable gardens.*—The maintenance of poultry, cows, and vegetable gardens was discontinued from May 6, 1928, October 1, 1928, and September 1, 1928, respectively, and the post of the head mali abolished from September 1, 1928.

(*l*) *Audit.*—The accounts of the dépôt were audited in May, 1928.

(*j*) *Staff.*—The staff of the dépôt has worked well during the year under report.

District annual vaccination returns.

21. The district annual vaccination returns were again received late from a few districts and had to be returned for corrections. The attention of the district superintendents of vaccination will be drawn to the matter.

General remarks.

22. (*a*) *Experiment with a modified method of vaccination.*—The District Medical Officer of Health, Naini Tal, carried out an experiment of vaccinating by three vertical incisions only and omitting the cross incision, in order to decrease the post-vaccinal ulceration. The experiment was conducted in two different areas and the district medical officer of health reports that the percentage of ulceration with the modified method was 1·96 in the case of primary and 1·40 in the case of re-vaccination against 8·21 and 5·26, respectively, with the usual method. The percentage of successful primary operations with this modified method was 96·03 against 96·23 with the usual method and of re-vaccinations 22·87 against 44·49.

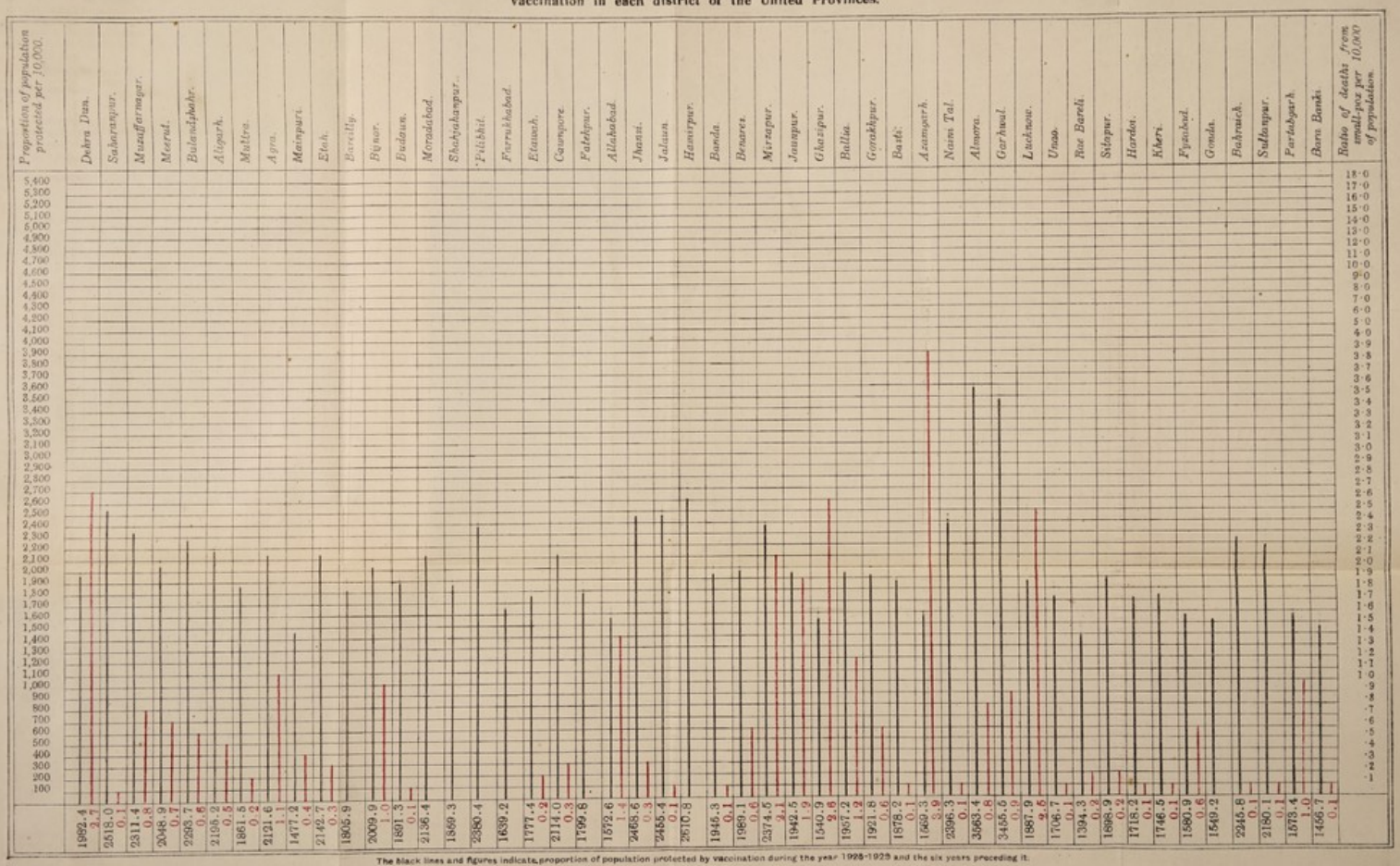
The cicatrix resulting from the modified method presented the usual typical characters, unvitiated by the process of ulceration. Further experiments will be carried out and if the results are as good as these, this method will be introduced in the whole province.

(*b*) *Refresher courses for vaccinators.*—In March, 1928, rules were approved by the Government for refresher courses for vaccinators once every five years. In recent years the scope of the duties of the vaccinators has increased; during the non-vaccination season they are employed on sanitary and epidemic duties. This has necessitated a widening of their training. In the refresher courses, they are therefore taught hospital duties, dressings, first aid, hygiene, and sanitation. The courses are conducted partly by the district medical officers of health and partly by the civil surgeons.

(*c*) *Cancellation of the certificates of vaccinators.*—Cases have occurred in which vaccinators have misbehaved themselves or have been guilty of falsification of their registers. In order to prevent their continuance in service Government at my suggestion framed a rule empowering district medical officers of health to cancel or suspend the certificate of a vaccinator on the basis of which he holds his appointment. The order of the district medical officer of health has been made appealable to the Director of Public Health through the chairman of the district board.

(*d*) *Omission of statement III from this report.*—Statement III appended to the vaccination report has been omitted under the orders of Government as the figures of dispensary vaccinations contained therein are given in statement 1 appended to the report.

Diagram showing the relation between the death-rate from small-pox and the proportion of population protected by vaccination in each district of the United Provinces.



The black lines and figures indicate proportion of population protected by vaccination during the year 1928-1929 and the six years preceding it.
The red lines and figures indicate the death-rate from small pox during 1928.

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SECTION VIII (omitted).

SECTION IX.

Municipal water-supplies.

Statements showing the results of the chemical and bacteriological analyses of municipal water-supplies for the year 1927-28 prepared in the Provincial Hygiene Institute were submitted to the Provincial Board of Public Health. The results in the case of Dehra Dun and Fyzabad were unsatisfactory and necessary action was taken. The number of samples taken at Mirzapur, Mussoorie, Naini Tal, Dehra Dun and Agra not being in accordance with the rules prescribed by Government, the Board of Public Health drew the attention of the municipal boards concerned to the fact.

Benares water-supply.

2. At Benares the daily consumption of water per head of the population during 1928 was 35·43 gallons as against 32·1 in the preceding year.

The total number of house connections is now 12,838 of which 114 were made during the year under review. 114 samples of water were analysed chemically and 547 bacteriologically by the medical officer of health.

Lucknow water-supply.

3. At Lucknow 23·2 gallons of water were consumed daily per head of the population during the year under report as against 20·5 gallons in 1927. 732 house connections were made in 1928 bringing the total number up to the end of the year to 9,344.

Two samples of water were examined chemically and both were declared to be potable. Of the 265 samples analysed bacteriologically, 59 were unsatisfactory. As in previous years, all the samples were analysed at the Provincial Hygiene Institute.

Cawnpore water-supply.

4. At Cawnpore the daily consumption of water per head of the population during 1928 was 33·08 gallons as compared with 31·1 gallons in 1927. The number of house connections rose from 8,031 in 1927 to 8,368 in 1928. Ten samples of water were analysed chemically all with good results. Of the 1,952 samples examined bacteriologically, 142 were found unsatisfactory. All the samples were analysed by the medical officer of health, Cawnpore.

Agra water-supply.

5. At Agra the amount of water consumed daily per head of the population in 1928 was 27·5 gallons as compared with 25·9 gallons in 1927. The total number of house connections is now 4,920 as compared with 4,530 up to the end of 1927.

All the eight samples of water analysed chemically were reported to be good. 405 samples were analysed for Colony Count and 102 for B. Coli tests Of the former 58 were unsatisfactory while all the latter were satisfactory. All the samples were analysed by the medical officer of health.

Allahabad water-supply.

6. At Allahabad the average quantity of water consumed daily per head of the population in 1928 was 29·84 gallons against 22·5 gallons in 1927. The increase is reported to be due to the efficient working of the plant and

reorganization of the water-works which resulted in the maintenance of a better supply of water throughout the year. According to a census taken in 1928 the correct number of house connections at the end of the year under report was 5,849 against 6,657 in the preceding year. The reduction is reported to be due to the demolishing of houses by the Improvement Trust for starting new roads and the consequent cutting off of connections.

Eight samples of water were examined chemically and 594 bacteriologically by the medical officer of health. Of the former all showed good results except that in seven free ammonia was a little higher than the standard while in the case of latter 26 were unsatisfactory,

Mirzapur water-supply.

7. At Mirzapur the daily consumption of water per head of the population during 1928 in the area having a piped water supply was practically the same as in 1927, viz., 18·03 gallons. House connections now number 2,497. Of these, 193 were made in 1928. Sixty-nine samples were analysed during the year—10 chemically and 59 bacteriologically by the medical officer of health all with good results.

Muttra water-supply.

8. At Muttra the quantity of water consumed daily per head of the population was 15·6 gallons as compared with 15·3 gallons in 1927.

The number of house connections rose from 1,401 in 1927 to 1,577 in 1928. Altogether 223 samples of water were analysed (5 chemically and 218 bacteriologically both for Coli and Count tests). The results were reported to be satisfactory except in the case of 5 samples analysed bacteriologically which contained over 100 colonies per c. c. The work was carried out by the medical officer of health in the municipal laboratory.

Meerut water supply.

9. At Meerut the daily consumption of water per head of the population during the year under report was practically the same as in 1927 viz. 14·8 and 14 gallons, respectively. The total number of house connections at the close of the year was 1,802 as compared with 1,718 in 1927. The medical officer of health analysed eight samples of water chemically and 408 bacteriologically. All gave satisfactory results.

Dehra Dun water-supply.

10. At Dehra Dun the daily consumption of water per head of the population during 1928 was 9 gallons as in the preceding two years. House connections now number 48. Only seven out of the 10 samples of water sent for chemical analysis could be examined. Of these two were declared potable, one was potable but hard and four were originally contaminated. 138 samples were analysed bacteriologically. Out of these only 13 were declared potable. All the samples were analysed at the Provincial Hygiene Institute with the exception of 24 which were examined by the officer in charge, Brigade Laboratory, Dehra Dun. There is a general complaint regarding the hardness of water. To remedy this a softening and chlorinating plant is being installed.

Mussoorie water-supply.

11. At Mussoorie the quantity of water consumed daily per head of the population during 1928 was 25·8 gallons against 24 gallons in 1927. The total number of house connections at the close of the year was 617 of which six were made during the year under report. Four samples of water were analysed chemically. The results were satisfactory except that water was

very hard. Out of the 167 samples analysed bacteriologically 26 were reported unsatisfactory. All the samples were examined by the medical officer of health, Mussoorie, except four which were done at the Provincial Hygiene Institute.

Naini Tal water-supply.

12. At Naini Tal 8·8 gallons of water were consumed daily per head of the population in 1928 against 7·6 gallons in 1927. At the end of the year under report house connections numbered 346 against 330 in 1927.

Three samples were analysed chemically. Although hard, they were declared potable. Of the 90 samples analysed bacteriologically 26 gave unsatisfactory results. The analyses were done at the Provincial Hygiene Institute and by the senior medical officer of health in charge Laboratory, Kailakhan, Naini Tal.

Hardwar water-supply.

13. During 1928 the quantity of water consumed daily per head of the population of the area using the piped water-supply in the Hardwar town proper to which water-supply has been extended was 9 gallons. The total number of house connections since the opening of water-works up to December 1928 was 136. Four samples of water were analysed chemically and 160 bacteriologically by the medical officer of health. The results were reported to be satisfactory except in the case of 17 samples analysed bacteriologically which contained over 100 colonies per c.c. or showed the presence of B. Coli.

Unao water-supply.

14. At Unao the daily consumption of water per head of the population during 1928 was 7·7. 161 house connections have been made since the opening of the water-works. Two samples of water were analysed bacteriologically by the Assistant Director of Public Health (Provincial Hygiene Institute) and were declared potable.

Fyzabad water-supply.

15. At Fyzabad during the year under report 12·8 gallons of water were consumed daily per head of the population of the area using the piped water-supply. The total number of house connections since the opening of the water-works up to the close of the year was 953. Four samples of water were analysed chemically and 56 bacteriologically by the medical officer of health. All the former were satisfactory while of the latter three gave unsatisfactory results.

Municipal laboratories.

16. As usual, in nearly all the towns with piped water-supplies, viz., Benares, Cawnpore, Agra, Allahabad, Muttra, Meerut, Mussoorie, Mirzapur, Fyzabad and Hardwar, the analysis of samples of water is now being done by the medical officers of health in municipal laboratories.

The Assistant Directors of Public Health of the ranges take samples of water from municipal water-works having their own analysts and send them periodically to the Assistant Director of Public Health (Provincial Hygiene Institute) or carry out the examination themselves to exercise a check.

SECTION X.

Personal proceedings, public health services and general remarks.

A.—Personal Proceedings.

The charge of the Public Health department was held by me throughout the year. I also held supervising charge of the Government Bovine Lymph Dépôt, Patwa Dangar.

During the year I visited Moradabad, Meerut, Allahabad, Mussoorie, Dehra Dun, Agra, Jhansi, Bareilly, Cawnpore, Bara Banki and Hardwar to discuss public health matters with the authorities concerned and to inspect sanitation or vaccination. Some towns and villages were also visited in connection with the village aid scheme, etc. I made the necessary arrangements in connection with the visit of the delegates of the Interchange of Health Officers to these provinces and accompanied them on their tours to Hardwar, Cawnpore, Allahabad and Benares. I organized a Public Health Exhibition for them in the King George's Medical College.

The Government Bovine Lymph Dépôt, Patwa Dangar, was inspected in April and October as usual.

I also inspected child welfare centres in various parts of the province.

I attended the meetings of the Board of Public Health, the United Provinces Branch of All-India Red Cross Society, the Building Board, the United Provinces Medical Council, the Faculty of Medicine, Lucknow University, the Lady Chelmsford League and the State Medical Faculty. I visited Palwal in the Gurgaon district (Punjab) to see Mr. Brayne's village uplift scheme.

During the monsoon tour I inspected candidates for the sanitary inspectors' class.

The examinations for the L. P. H. and sanitary inspectors' classes were conducted as usual.

I also attended the conference of the Indian Research Fund Association at Calcutta in December.

B.—Assistant Directors of Public Health.

2. *First Range.*—The charge of this range was held by Rai Bahadur Dr. K. L. Chaudhri, O.B.E., D.P.H., throughout the year. The chief work done was in connection with the epidemics of plague and cholera in the range and routine inspections.

He visited Shahjahanpur, Bareilly, Pilibhit, Tanakpur, Banbassa, Budaun, Amroha, Moradabad, Sambhal, Bhojeepura and Muzaffarnagar in connection with plague preventive measures and vaccination inspections. Vigorous anti-rat campaigns and the disinfection of plague-infected houses were the chief measures adopted to prevent the spread of the epidemic. Anti-rat campaigns having been successfully carried out for the last two years in the municipalities of Saharanpur, Bulandshahr, Meerut, Aligarh, Agra, Muttra, Moradabad, Hapur, Bareilly, Hathras, Ghaziabad and Amroha, they were extended to the towns of Sahaswan, Shahjahanpur, Pilibhit and Aonla with a view to eradicate the foci of plague there and the results achieved were highly satisfactory. The Assistant Director of Public

Health was also on cholera duty in the districts of Saharanpur, Muzaffarnagar, Muttra and Bulandshahr. He inspected Lansdowne in connection with an outbreak of enteric fever and advised the authorities as to the steps to be taken to effect the necessary improvements in the conservancy of the Cantonment Area.

He toured in the Moradabad, Muzaffarnagar, Bulandshahr and Muttra districts in connection with the rural uplift scheme.

He organised and supervised the sanitary and medical arrangements of the following fairs :—

Dikhauti fair (Hardwar).

Jain Puja fair (Saharanpur).

Piran Kaliar fair (Saharanpur district).

Deorania Exhibition (Bareilly district).

The sanitary arrangements of the fair at Garhmuktesar (Meerut) were also organised by him.

He visited Shahkumber Devi in company with the sub-divisional officer regarding the arrangements of the fairs and advised the district magistrates, Saharanpur and Agra, to suspend the fair's owing to the scarcity of water and fodder and accordingly both the Shahkumber Devi and Batesar fairs were suspended.

He attended meetings of the Hardwar Advisory Committee and of the District Board, Muzaffarnagar, to discuss various public health matters and visited Muttra in connection with the medical and sanitary arrangements for the annual and Kumbh mêlas on the Bombay, Baroda and Central India Railway stations.

Second Range.—The charge of this range was held by Lieutenant-Colonel W. A. Mearns, I.M.S., D.P.H., from January 1 to July 18, and again from November 1 to December 31, 1928. From July 19 to October 31 he was on leave on account of ill-health. Major D. Clyde, I.M.S., Assistant Director of Public Health (Malariology), held the collateral charge of the range from July 19 to October 31. Much of Major Clyde's time was spent in malarial investigations in different places, owing to which he could do very little touring in the range. Both the officers were in charge of the Epidemiology Branch in addition to their range duties.

Lieutenant-Colonel W. A. Mearns, I.M.S., inspected and supervised the anti-epidemic and vaccination work in the districts of Lucknow, Sitapur, Kheri, Hardoi, Bara Banki, Fyzabad, Gonda, Bahraich, Unao, Sultanpur, Partabgarh and Rae Bareli, including all the municipalities and a number of the town areas and organised the anti-plague measures in the Naini Tal municipality.

He inspected the sanitation of the Nawabganj (Bara Banki), Fyzabad, Sultanpur, Partabgarh and Rae Bareli municipalities.

The district health services and their work were inspected and supervised in the districts of Sitapur, Kheri, Hardoi, Gonda, Bahraich, Unao, Bara Banki, Fyzabad, Partabgarh, Rae Bareli and Sultanpur.

The sanitary villages (Mohibullahpur in the Lucknow district, Sidhauli, Bari, and Tarai in the Sitapur district and Mau and Ajgain in the Unao district) were also inspected by him—the first four in company with the Hon'ble

Minister in charge of Public Health and the Secretary to Government, United Provinces, Public Health department.

He also supervised the sanitation of the Ram Naumi fair at Ajodhya and conducted the oral examination for the D. P. H.

Major D. Clyde, I.M.S., supervised the sanitation of the Sawan Jhula fair at Ajodhya. He gave a lecture on anti-malarial measures to the Seva Samiti Boy Scouts at Allahabad and presided there over the deliberations of the annual meeting of the United Provinces Vaccination Association. He inspected the sanitation of the Imperial Institute of Veterinary Research, Muktesar, at the request of the Government of India. He inspected candidates for the sanitary inspectors' class at Fyzabad.

Third Range.—Dr. K. P. Mathur, D.P.H., held charge of the Third Range throughout the year.

He supervised the sanitary and medical arrangements of the Magh Mêla during the months of January and February. He visited Benares in connexion with the solar eclipse bathing festival arrangements and held charge of the medical and sanitary arrangements of the Dadri fair at Ballia. On the completion of the latter fair he was permitted, with the sanction of the Local Government, to visit Sonepur (Bihar and Orissa) with a view to enable him to study the sanitary and medical arrangements of the Hari Har Kshetra fair held there at the same time.

He inspected the districts of Benares, Gorakhpur, Basti, Allahabad, Jhansi, Jalaun, Hamirpur and Etawah in connexion with the epidemics of cholera, and the plague-infected areas in the districts of Cawnpore, Allahabad, Mirzapur, Jaunpur, Azamgarh, Basti and Gorakhpur were also inspected.

He inspected vaccination work in the districts of Allahabad, Fatehpur, Cawnpore, Banda, Gorakhpur, Jaunpur, Ballia, Ghazipur, Jhansi, Hamirpur, Etawah and Mirzapur and inspected the sanitation of the municipalities of Ghazipur, Orai, Banda, Lalitpur, Azamgarh, Naraini Town area (Banda district) and the Khand Nala at Mirzapur. A detailed inspection of the sanitation of the Ballia Municipality formed the subject of a special report called for by Government.

He also inspected the sites for the new police stations at Sajeti in Cawnpore and at Benares. Sites for the proposed leper settlement of the Salvation Army at Khajuri, Behri, Babatpur and Rajwari in the Benares district were also inspected.

He inspected the high schools at Jaunpur, Ballia, Banda, Azamgarh and Hamirpur and the intermediate college at Jhansi.

He conducted the examinations in Part I of the D. P. H. class in the months of April and November and selected candidates for the sanitary inspectors' class at Allahabad, Gorakhpur and Benares. He inspected 22 travelling dispensaries and checked 546 birth and death entries. He attended meetings held to discuss the sanitary arrangements for the Magh Mêla of 1929 and the Allahabad Kumbh fair of 1930.

C.—Public Health Services.

The Provincial Hygiene Institute.

3. Rai Bahadur Dr. D. D. Pandya, D.P.H., was Assistant Director of Public Health (Provincial Hygiene Institute), United Provinces, from January 1 to May 3, and from October 29 to the close of the year.

In the intervening period he was on leave ex-India. During this period he visited nearly all the important laboratories, institutions, and universities in the main cities of England and the Continent of Europe, such as London, Berlin, Frankfort, Paris, Vienna, Brussels, Geneva, Prague, Budapest, Zagreb, etc., and attended the meetings of the annual Congress of the Royal Sanitary Institute in Plymouth and of the Royal Institute of Public Health in Dublin. This visit gave him a real insight into modern public health activities and their organisation in those countries which will be of much advantage to the department. Dr. H. G. D. Mathur, M.B., B S., D.P.H., acted as first lecturer from January 1, to May 3, and from October 29 till the end of the year and officiated as Assistant Director of Public Health (Provincial Hygiene Institute) during the absence of Dr. D. D. Pandya. He has also been appointed a part-time lecturer of the Lucknow University from November, 1928. Dr. B. S. Yajnik worked as an extra lecturer from January 1 to May 3, and as officiating first lecturer in place of Dr. H. G. D. Mathur from May 4 to October 28, 1928, when he was appointed as officiating second lecturer, in the leave arrangement of Dr. J. T. Cornelius, who remained in England during the year to complete his research studies at the Lister Institute.

Dr. Pandya conducted the examinations of candidates for apprentice and sanitary inspectorship, chief sanitary inspectorship, for the L. P. H., Parts I and II, D. P. H., Parts I and II, and M.B., B.S., of the Lucknow and Patna Universities in Hygiene. In January, 1928, the students of the D. P. H., Part II, and L. P. H. classes accompanied him to Cawnpore, Allahabad and Benares for their practical demonstrations on sanitary works of importance. The work of moving into the new building was carried out by Dr. H. G. D. Mathur during his absence on leave. Dr. Mathur conducted in part the D. P. H. and L. P. H. classes and M.B., B S. classes in Hygiene. Dr. B. S. Yajnik conducted the sanitary inspectors' classes and the L. P. H. class in Practical Chemistry.

I. Building.—The new building for the Institute was not ready as was expected by April 1, 1928, but the class laboratories and other rooms were available by the end of August and the practical classes were commenced on September 1, 1928.

The opening ceremony of the Institute was performed by His Excellency the Governor on December 8, 1928. On this occasion demonstrations were given on the scientific and routine side of the work, as it is carried out in the Institute, for the information of the visitors present at the ceremony. Selections from two cinema films, " The Tragedy of Small-pox " and " The Lucknow Home," were shown, the latter being exhibited for the first time.

It is certain that if the Malariology Branch, the Public Analyst's Laboratory, and the Hygiene Publicity Bureau were accommodated in the proposed extension to the Provincial Hygiene Institute it would give them not only adequate and suitable accommodation, but all the technical branches of the Public Health department would be concentrated in one building, which would lead to better co-ordination and control of work.

Plans for this extension of the building have received the administrative sanction of Government, and, as soon as funds are allotted, the construction of the building will be commenced.

The Institute provides accommodation for the training of 20 students in Chemistry and Bacteriology, of Public Health, as well as separate laboratories for routine analytical and research work.

A museum has been provided for the purpose of instruction ; while the Institute library is being organised with a view to its becoming a central reference library for the department. There are, in addition, a lecture theatre with accommodation for 80 students, a tutorial room with 25 seats, common rooms for the students of the D.P.H., L.P.H., and sanitary inspectors' classes and offices for the staff.

II. Teaching Work.—The following statement gives the particulars of teaching work carried out at the Institute. Part I of the sanitary inspectors' classes under the new rules commenced in October. As the number of students was 76 the class was divided into two sections. There were 71 students in the sanitary inspectors' minor sanitary engineering class, and this was the last class held under the old rules.

Statement showing the numler of students trained and examined at the Provincial Hygiene Institute during 1928.

Name of class.	Number of students in the class.	Session, 1927-28.						Session, 1928-29.
		Examination, April, 1928.			Examination, October, 1928.			Number of students in the class.
		Month.	Number appeared, including those who failed at the previous examination.	Number of successful candidates.	Month.	Number appeared.	Number of successful candidates.	
Under-graduates undergoing training for the M.B., B.S. degree in Hygiene.	44	April	49	35	October.	18	14	38
Post graduates (members of the P. M. S.)	9	"	No examinations			..	..	2
D. P. H., Part I ..	8	"	9	7	"	2	2	18
D. P. H., Part II ..	8	"	9	6	"	3	2	8
L. P. H., Part I ..	9	"	10	9	"	1	1	20
L. P. H., Part II ..	9	"	10	9	"	2	..	
Apprentice Sanitary Inspectors' class (old rules).	70	February.	70	48	..	..	..	..
Sanitary Inspectors' class, Part I (new rules).	..	..	..	..	..	..	..	76
Sanitary Inspectors' Minor Sanitary Engineering class (old rules)	40	February.	30	27	..	..	..	71
Chief Sanitary Inspectors.	..	..	8	3	..	..	..	..
Laboratory attendants' training during 1928.	2	..	..	..	..	..	..	..
Health Visitors ..	..	..	..	..	..	..	..	4

On October 1, 1928, a Health School for the training of Health Visitors was opened. Funds for the school have been allotted by the United

Provinces Branch of the Lady Chelmsford Maternity and Child Welfare League, and the salary of the Lady Superintendent of the Health School is met by the All-India League.

Dr. D. F. Dass, L.M.P., who was deputed to Great Britain for training as a Health Visitor has been appointed superintendent of the school.

The school is located in a hired bungalow about half-a-mile from the Institute. The local maternity and child welfare committee has allowed the students the benefit of practical training at one of their centres till such time as the school can arrange a model centre of its own. There are four candidates under training.

III.—Routine and investigative work carried out at the Institute during the year—

(1) Chemical analysis of 27 samples of Ganges water from Hardwar and Allahabad as a part of the investigation on cholera in the province.

(2) Examination of 16 brands of patented disinfectants to determine the carbolic acid co-efficient in order to compare their bactericidal values.

(3) Laboratory investigation on samples of urine, blood and stools, sent by the Officer Commanding, Indian Military Hospital, Lansdowne, in connexion with an epidemic of fever in the civil population of Lansdowne Cantonment.

(4) Examination of a mouldy growth on stock vaccine lymph from Patwa Dangar.

(5) Routine examination of samples of water from public water-supplies in Lucknow, Dehra Dun and Naini Tal (both chemical and bacteriological).

Inquiries were made and advice was given on the reports which are now received at the Intitute of medical officers of health of various municipalities on the examinations of water-supplies carried out by them.

(6) Examination of samples of milk, *ghee*, and butter received from various places.

(7) Statistical investigation of the vital statistics of the various municipalities by Dr. B. S. Yajnik. This will be the subject of a separate report.

(8) Experiments on the technique of routine bacteriological analysis of water.

IV. Research Work.—The research work on plague and cholera was continued during 1928.

(*a*) *Plague Research Work.*—This work was continued by Dr. A. N. Goyle, M.B., Ph.D., and was financed by the Indian Research Fund Association.

Among other suggestions for research on plague the expert plague committee at its meeting of December 9, 1927, at Calcutta, recommended that an investigation into the conditions under which plague is carried over from one season of incidence to another should also be made. Work in connection with this problem has been now in progress for some time in

Azamgarh, one of the districts severely smitten by plague in the United Provinces. The objects of this investigation were to ascertain the reservoir of infection during the off season and to determine the conditions under which plague is carried over from one season of incidence to another. Rats, fleas, soil, and man may serve as reservoirs of the plague infection. There is no evidence that the infection can persist for any length of time in soil and man though Leger has recently shown that plague bacilli may be found in apparently healthy persons with enlarged glands in a plague-infected locality, but how these bacilli can infect other persons is not quite clear. With regard to the suggestion that the infection may persist in fleas apart from rats it may be pointed out that under the climatic conditions present in winter in India fleas generally die within a week when separated from their hosts and much earlier in summer. Fleas may, however, live much longer under low temperatures. It was at one time suggested that plague infection may continue to exist for some time in a chronic form among rats, and the infection may become acute under favourable conditions. Considerations based upon the morbid anatomy of the lesions of chronic plague do not, however, show this to be the case. This view has recently been revised by Kemmerer in America by his discovery of the plague bacilli in the blood of rats showing no sign of the acute infection. We have examined samples of the heart's blood of a large number of rats, with and without chronic lesions, but have failed to discover the plague bacilli. Nor is there any evidence of rats contracting acute plague in nature by feeding on the carcases of chronic or acute plague rats. We have not found any rat dead of acute plague with a mesenteric bubo.

The carcases of rats appear to cease to be infective after a fortnight in winter and much earlier in summer. Curiously enough, we have not yet been able to discover the presence of plague bacilli by microscopic examination or animal inoculation in the so-called chronic lesions met with in our investigations in the United Provinces. We have examined about 2,000 rats and only 124 presented lesions resembling those of chronic plague in spleen and glands.

It is believed that plague does not persist in a locality apart from infection among rats and that the infection is kept alive in a scanty rat population with a scanty flea population during the hot weather.

The conditions under which plague is carried over from one season of incidence to another are diverse. If a locality is very humid, such as the eastern districts of the United Provinces, including Ballia and Azamgarh, fleas on rats will be more numerous and consequently the chances of a successful carrying over of the infection are much greater. A much larger number of villages carry over the infection in the eastern districts than in the western districts where the climate is hotter and drier. The time of the commencement of the infection in a village exerts a marked influence on the recrudescence of plague, the villages infected later in the season are more likely to carry over infection than those infected earlier. A very small proportion of the villages carry over plague and most villages become infected by importation of the infection.

(*b*) *Cholera Research Work.*—This inquiry was conducted by Dr. Saranjam Khan, B. SC., M.B., B.S., DT. P.H., D.T.M. and H., under my direction and financed by the Indian Research Fund Association. In view of the fact that the Indian Research Fund Association started an

investigation on the bacteriophage of cholera in Patna they decided to stop the research on cholera in these provinces with effect from December, 1928.

Recent research work regarding cholera in this country has largely been directed towards the question of the "agglutinating" and the "non-agglutinating" vibrios. It is generally accepted that the essential cause of true Asiatic cholera is the classical vibrio originally discovered and described by Robert Koch. This is an "agglutinating" vibrio, that is to say, the vibrios isolated from cases in the numerous epidemics of Asiatic cholera are, almost without exception, found to agglutinate with the anti-serum of Koch's vibrio. This vibrio is present abundantly, but only during the period of the disease and to a lesser extent during convalescence, in other words no true "carriers" of Koch's vibrios have yet been shown to exist. The vibrio, by the present methods of examination, has so far never been demonstrated outside an epidemic of Asiatic cholera, either in human beings or in contaminated water, etc. But other vibrios that do not agglutinate with the anti-serum of Koch's vibrio are commonly found both in the stools of people and in drinking water throughout the year. The suggestion has, therefore, been put forward by some workers that these non-agglutinating vibrios constitute the reservoir of cholera—that owing to certain "biochemico-physical" conditions the nature of which is not known they undergo a change in the human intestine and become the agglutinating vibrios of Koch—the essential cause of Asiatic cholera. This is, according to them, how epidemics arise *de novo*.

Working on this hypothesis, as the possible explanation of the origin of epidemic cholera, an observation area was selected in the United Provinces. In certain villages the stools of the general population, including the survivors and contacts of cholera cases and also the drinking water were systematically examined for presence of vibrios. The technique followed was that adopted by Dr. Tomb and Captain G. C. Maitra in similar work in Asansol. In stools of healthy people and also in the drinking water in these villages "non-agglutinating" vibrios were found, though not so frequently as in Asansol, i.e., about 5 per cent. of the people had vibrios in their stools as compared with 30 per cent. in Asansol. In spite of these "non-agglutinating" vibrios every epidemic of cholera was proved to be due to importation. It appears that, so far as the United Provinces are concerned, in order that an epidemic of cholera should arise it is essential that the specific virus be imported. Conceding that the "non-agglutinating" vibrios are the harmless or, at any rate, the far less virulent descendants of the Koch's vibrio, they appear to have irretrievably lost their ancestral pathogenic power, at least under the climatic conditions prevailing in the United Provinces.

This view is put forward simply as an inference from field observations made in the United Provinces.

The following observations have been made :—

(1) The "non-agglutinating" vibrios are more frequently isolated from water containing sewage.

(2) Sometimes, though rarely, one comes across cases showing all the signs and symptoms of clinical cholera but yielding on culture only "non-agglutinating" vibrios. Such cases are isolated, often recover, and are usually met with during the non-cholera

season. These cases are not infectious at all in the sense that epidemic cholera is. It is possible that these cases are due to some other disease, malaria or food-poisoning, occurring in a "carrier" of "non-agglutinating" vibrios.

(3) There often occurs an appreciable increase in the number of the "non-agglutinating" vibrios during the cholera season, suggesting a relationship between the agglutinating vibrio causing the epidemic and the "non-agglutinating" vibrios found in stools of the general population and in the drinking water, etc. This, however, may entirely be due to a mere coincidence. It is possible that owing to the favourable conditions of temperature and climate and the concentration of the water, etc., the "non-agglutinating" vibrios are found more frequently during the cholera season than during the rest of the year.

On investigation, covering a period of two years, all outbreaks of cholera in the United Provinces were proved to be due to importation. No evidence was discovered to suspect that the "non-agglutinating" vibrios found in the drinking water or in the stools of the general population have ever given rise to an epidemic of Asiatic cholera. Although "non-agglutinating" vibrios are to be found throughout the year yet it can be stated at least with respect to the last two years that there would have been no cholera in the United Provinces if it had not been imported from outside.

On the other hand, there is evidence to show a definite connection between cholera and the annual fairs and pilgrimage. Because cholera is so frequently present in Hardwar, for instance, many people regard this important pilgrim centre as an endemic focus of this disease. Based on observations made in Hardwar it may be stated that the "non-agglutinating" vibrios found in the sewage water may possibly be the descendants of an agglutinating ancestor, yet it has been shown that if cholera is going to occur in Hardwar the true virus must be imported. It was found that the Ganges river water receiving the sewage of the town showed "non-agglutinating" vibrios much more frequently than the water from the part of the river receiving no such sewage. The vibrios were almost all of the "non-agglutinating" type. Up to date out of 6,745 samples of the water examined 865 showed "non-agglutinating" and only two showed agglutinating vibrios. It was also proved that this water was responsible for the infection of most of the cases of cholera that occurred there. Yet it has been shown *that cholera is not endemic in Hardwar. Very few inhabitants of Hardwar were found passing "non-agglutinating" vibrios in their stools—out of 2,600 people whose stools were examined only 42 showed vibrios. They became free from the vibrios within a short time. The Ganges river water also got rid of these vibrios very soon, i.e., after a flow of 6 or 7 miles. Then there is the observation that cholera in Hardwar is almost exclusively confined to the pilgrims and no outbreak of cholera has occurred without the first and early cases being imported—they being pilgrims found ill in the trains or who reached Hardwar ill with the disease. Hankin published some observations in 1896† and stated that

*Paper read at the Seventh Congress of the Far Eastern Association of Tropical Medicine.

† Hankin, E. "L'action bactericide des eux de la Jumna at due Ganges." *Ann. Inst. Past.* 1896, 10, 511.

the water of the Jumna and Ganges rivers possessed an extremely antiseptic action for bacteria in general and for the cholera vibrio in particular. Dealing more particularly with the cholera vibrio his laboratory findings showed that the vibrios added to such water died out very quickly (Jumna river water at Agra within four hours). He also made the statement that he was never able to demonstrate that the ingestion of the water of these rivers was responsible for the development of a single case of cholera. Observations made at Hardwar are not in agreement with this statement. Most of the cases of cholera that occurred in Hardwar were traced to the ingestion of the Ganges water (1). With regard to the laboratory findings of Hankin, similar experiments were carried out on the occasion of the Magh Mêla at Allahabad, when vibrios were added to the Jumna and Ganges river water, and it was found that a "non-agglutinating" vibrio lived on an average of $3 \cdot 25 \pm \cdot 88$ days in the Jumna river water and $7 \cdot 25 \pm 1 \cdot 61$ days in the Ganges river water. The cholera vibrio, however, lived for $1 \pm \cdot 62$ days in both the Jumna and the Ganges river water, i.e., for at least about 24 hours. This is the mean of several experiments in some of which the vibrio was found to live for several days, and in others for less than twenty-four hours. The duration of life seemed to vary at different seasons of the year. The vibrio lived longer in the Ganges river water than in the Jumna river water. In the favourable season the cholera vibrio lived in the Ganges water for a week or longer.

V.—Cinema films on health subjects.—The production of motion pictures on health topics was continued during the year.

A new film on tuberculosis, "A Lucknow Home," was prepared during the year and was first shown on the occasion of the opening of the Institute. This film was prepared by the Cinema branch working under the supervision of Lieutenant-Colonel C. A. Sprawson, I.M.S., Principal, King George's Medical College, Lucknow.

Preliminary stages in the production of the cinema film on malaria—"Our Greatest Enemy"—were finished during the year under report. In this production the department is co-operating with the Chief Publicity Officer, Railway Board, Government of India.

The demand for Public Health films produced at the Institute for exhibition in these provinces, as well as in others, is steadily growing. It is anticipated that it will go on increasing owing to the coming into use of the portable projector, recently purchased by the Hygiene Publicity Bureau.

The films produced were shown in Lucknow, Allahabad, Muttra, Gola Gokarannath, etc., in these provinces, and outside these provinces in Calcutta, Delhi, Indore (Central India), Gurgaon, Hoshangabad, etc.

The number of shows given with these films was 106, and the total attendance approximately estimated was 150,000.

A copy of each of the films, "Why Die of Cholera" and "A Pilgrimage to Hardwar Kumbh Fair, 1927," were sent to the League of Nations, Health Section, at the request of Dr. L. Rajchman, Medical Director, Health Section and Secretary, Health Committee, League of Nations, and shown at the summer session of 1928, and a quotation from a letter

(1) "Cholera in Hardwar"—paper read at the Seventh Congress of the Far Eastern Association of Tropical Medicine.

received from the Medical Director is given here :—" The films proved of very great interest to the members of the Health Committee."

As a result of the very favourable reception accorded to the films at the Seventh Congress of the Far Eastern Association of Tropical Medicine, Calcutta, last year the Bombay Sanitary Association purchased for Rs. 1,000 a copy of " Why Die of Cholera " with captions in English, Gujrati and Mahrati ; while orders for copies of " The Tragedy of Small-pox " and " Why Die of Cholera " with Hindi and Urdu captions have been received from the Sanitary Commissioner, Gwalior State. The former has been supplied and the latter will shortly be sent.

VI.—Miscellaneous.—A Public Health Exhibition was arranged in the King George's Medical College administrative building for the members of the League of Nations' Interchange of Health Officers, who visited Lucknow in January, 1928. The various aspects of the health worker, as organized in these provinces, were shown in detail and the exhibits were arranged under the following sections :—

(*a*) *Provincial Hygiene Institute.*—The models, obtained from England for the museum, contrasting the ideal hygienic conditions for towns and villages in this country with those actually obtaining were exhibited and evoked considerable interest. Besides this, the methods of analysis of water-supplies and foods were shown, particularly the results obtained.

The activities of the United Provinces Public Health department were shown by means of a schematic diagram and a spot map of these provinces, copies of both of which were included in the literature supplied to the visiting medical officers of health.

Some charts based on the statistical analysis of the birth and mortality figures of cities in the United Provinces were prepared specially for the occasion.

(*b*) Plague Research section exhibited by means of dissection, preparations under microscopes, pathological specimens and statistical diagrams illustrative of its various activities in these provinces.

(*c*) Cholera Research section exhibited particularly the nature of the problems that the department was faced with in preventing the outbreak of cholera at the Kumbh Fair at Hardwar in April, 1927, and the methods adopted for tackling these problems. Of particular interest in this connexion was the panoramic map of Hardwar and its environs showing the health circles, and the medical, sanitary and preventive arrangements made in them.

(*d*) Malariology branch exhibited maps of the United Provinces with small coloured flags showing the distribution of different varieties of mosquitoes and the malarial fevers in these provinces.

There were also a complete series of the malaria-carrying mosquitoes of the United Provinces as well as the mosquito larvae-eating fishes.

(*e*) Epidemiology branch exhibited their chief weapon in combating epidemic diseases, i.e., a travelling dispensary with its full equipment.

(*f*) The Public Analyst, United Provinces, demonstrated his methods of work and some of the statistics of the results of his work in connexion with the Food and Drugs Adulteration Act.

(*g*) Hygiene Publicity Bureau exhibited all their posters, placards, lantern slides and explained their methods of work.

(*h*) Maternity and Child Welfare League, United Provinces branch, exhibited the materials they utilize for arranging the exhibitions given by them in connexion with the Baby Weeks all over the province.

(*i*) Allahabad and Lucknow Town Improvement Trusts showed some plans, improvement schemes and illustrative photographs, while the British India Corporation showed by photographs the improved housing conditions in their two colonies.

(*j*) The Professor of Economics, Lucknow University, sent some statistical charts embodying the results of this investigation into the economic and health conditions in cities.

(*k*) Public Health films prepared by the Cinema department were exhibited, and the film depicting the arrival of the delegates that morning was very much appreciated.

4. The charge of the Malaria branch was held by Major D. Clyde, I.M.S., throughout the year.

Malaria branch.

Assistants.—Dr. B. M. Roy acted as first assistant up to October 4, when he reverted as second assistant on the return of Dr. A. C. Banerjea from study under the Rockefeller Foundation. Dr. Banerjea then resumed the post of first assistant. Dr. P. N. Chatterjee acted as second assistant until October 4, when he reverted as third assistant.

The following were the principal activities of the branch during the year under review :—

(1) *Post-graduate training in Malariology.*—Three post-graduates courses of instruction in Malariology, lasting one month each and including anti-malarial work, medical entomology and hæmatology were given to 30 medical officers of the public health department, United Provinces, and to eight officers preparing for the D.P.H., Part II, of the Lucknow University. This completed the training of all officers of the public health department in this work. It will in future be carried out as part of the courses for the D.P.H. and L.P.H.

(2) *Anti-malarial work in the Terai and Bhabar Government Estates.*—

(*a*) The anti-malarial work carried out in the province during the year included the important work of the superintendent and district medical officer in the Terai and Bhabar undertaken as the result of surveys carried out by Colonel Phillips and the officers of this branch in previous years. This consists of re-aligning canal distributaries, draining flooded areas, preventing wet cultivation and the excavation of pits in the vicinity of villages, improving village sites, especially by drainage, by filling in depressions, etc. Orders were

issued that all irrigation water would be cut off one day per week as an anti-malarial measure, but the partial famine conditions prevailing made these orders inoperable. A new feature is the free distribution of a three days' treatment of fever (90 grains quinine) issued through village headmen and the routine examination of school children. Re-surveys were made by the district medical officer in areas where works were carried out, but the great improvement in the malaria incidenee throughout the province this year, due to climatic conditions, precludes any consideration of the results of any work this year as the climatic factor cannot be estimated.

(*b*) The whole of the pargana of Rudarpur has now been surveyed and reports are being worked out.

(*c*) Government orders were passed in connexion with the anti-malarial survey of Kashipur pargana in the Naini Tal district.

Under the Northern India Canal and Drainage Act, 1873 (Act VIII of 1873) the formation of bunds and obstructions in the Lapka stream in the pargana was prohibited and the removal of the existing dams and obstructions enforced. The proposal of the Commissioner to spend the sum of Rs. 6,900 in the construction of 226 outlets for the canal systems of the pargana to control canal-irrigation was approved of by Government.

The work of realigning canals so as to do away with the innumerable guls which exist at present, forbidding the construction of guls near village sites and the over-irrigation of land has received the approval of Government. The question of foregoing all revenue in villages that have been removed from unhealthy to healthy sites on condition that village land site be cultivated but that no cultivators reside in condemned villages is under consideration of Government.

As has been pointed out in the last year's report, there has been a change of policy in the working of the branch. It was now possible to divert its activities towards the control of rural malaria in the province as the anti-malarial work of the Sarda canal zone became more or less simplified and the tract of the country comprising the Headworks division rendered more healthy and workable.

(3) *Anti-malarial work on the Sarda Canal.*—The anti-malarial work on the Sarda canal construction was continued throughout the year. The canal was opened by His Excellency the Governor on December 11, 1928, but work will continue until well into 1929. The area was visited and surveyed by the officers of this branch. The initial jungle cutting, etc., necessary more for sanitary than anti-malaria purposes, was carried out by contract labour and the anti-malarial gang employed in cutting jungle in smaller areas, clearing out streams, ditches, etc., and spreading Paris green.

Paris green is admittedly the best larvicide which has to date been discovered as far as construction areas of the Terai are concerned. Regular fumigation of houses was carried out and cinchona and quinine prophylaxis continued, not as a prophylactic measure as has been pointed out in previous reports, but as a method of assuring that cinchona reached the mass of labour, who show no desire to seek treatment until infection has been well established.

Several permanent anti-malarial drains have now been laid down in the area below the cliff at Banbassa, and it is contemplated to complete this permanent measure before the closure of the works. The recurring anti-malarial works in Banbassa have now been transferred to the canal authorities under the supervision, by periodic inspections, of the malaria branch.

(4) *Experimental schemes in rural areas.*—In addition to routine departmental work, the series of experiments in rural areas, which were undertaken this year to determine the suitability of any general measure in dealing with village malaria, were carried out. To suggest that any general measure is worth considering is against modern views, but the village problem must be kept distinct from the problem as it affects municipalities, small towns or notified areas where (1) byelaws exist and can be enforced by local boards, (2) rubbish and sweeping can be used for filling depressions, (3) wet cultivation round abadi can be restricted or prohibited, and (4) organized measures against malaria can form part of the daily work of the sanitary staff. In dealing with these towns separate and complete malarial surveys are required if only to indicate the chief breeding places which should be first brought under control.

In villages, however, the problem takes on a totally different aspect, especially in that (1) no legislation can be enforced even if it exists over these wide areas, (2) no provincial budget could stand the strain of undertaking controlled permanent, far less temporary and recurring anti-malarial measures in some 100,000 villages and (3) owing chiefly to illiteracy few voluntary organizations are available in villages, though the Seva Samiti organization this year collaborated in anti-malarial work in towns.

It is evident that no anti-malarial measures on general lines can be recommended as the local conditions, the anopheline fauna of the various parts of the province and other factors such as climate, soil, cultivation, etc., play an important part in determining the line of action. With a view therefore to find out the relative value of the different anti-malarial measures that could usefully be employed in rural areas of the plains of the United Provinces the following experimental schemes were taken up this year :—

(*a*) *Introducing larvæ-eating fish into breeding places.*—This work has been continued over some years. The opinion expressed in the last annual report is still held that no artificial stocking of tanks is necessary as tanks, depressions and ditches become automatically stocked during the rains. The larvæ-eating fish which exist in great numbers in almost all temporary and permanent collections of water are Badis, Trichogaster, Nuria, Ambassis and small species of Barbus, and in the eastern districts Haplochilus. The common predaceous fish are Anabas, Perilampus, Ophiocephalus, Notopterus, Macrones, Lebias and large species of Barbus, and these and the people rapidly exterminate large numbers of the smaller fish. All that is necessary or possible as a general measure to ensure the control of malaria by larvae-eating fish is to prohibit the netting of fish with nets of a mesh less than one inch and to encourage netting with such nets. Government have recently drawn the attention of local boards to the advisability of legislating for this.

(*b*) *Cinchona cultivation in the United Provinces.*—For sometime past the possibility of cultivating cinchona in the Terai and Bhabar regions of the United Provinces has been under consideration. While all conditions of soil, climate, etc., preclude the possibility of the growth of cinchona ledgeriana, yet it is not by any means certain whether cinchona succirubra and its hybrids would not only grow but would yield sufficient bark to become a factor of great economic importance. Any question of laying down plantations requires the sanction of the Government of India, but experimental work has been suggested in certain areas on a small scale.

(*c*) *Cinchonization scheme.*—This scheme consists of the free distribution of cinchona febrifuge 30 grains daily for three days to all fever cases through the village headman or the school teacher. As an experimental measure the cinchonization scheme was introduced in 22 villages in the districts of Allahabad, Gorakhpur, Fyzabad, Gonda, Moradabad, and Bulandshahr. In these villages any person complaining of "jara bukhar" or "tap" was given as a routine 30 grains per day until the fever abated. In only about 9 per cent. of such cases were more than 90 grains of quinine required to bring down the fever.

The total number of cases including children was 2,080. Any case that relapsed was put through a second and, if necessary, a third course of 90 grains.

The relapse rate after the first course of 90 grains was 28·6 per cent., the relapse rate after the second course 5·4 per cent., and after the third course 0·1 per cent. The scheme was very popular and Government is considering its extension to other districts.

This is by no means a method of perfection, nor is it possible to treat all the cases of malaria in the province in the present financial situation; but this experiment when further extended and fully confirmed might lead us to revise our ideas regarding what is considered to be a "cure of malaria". It is obvious that this line of treatment only embraces the clinical cure and not the parasitic. Judging from the existing conditions of the masses, their housing and insanitary surroundings it is futile to attempt a parasitic cure when chances of re-infection are always present, though such an attempt might lead to beneficial results in the case of the army and disciplined groups of population or the population of a non-endemic area.

All that we can hope to achieve is to reduce the incidence and severity of the disease with a minimum loss of efficiency and diminish the mortality rate especially amongst the new born and the children.

The scheme where started has already brought about an appreciable reduction in the spleen rate but to what extent this diminution could be attributed to the cinchonization is difficult to gauge owing to the unusually dry weather conditions this year.

Whatever may be the ultimate fate of this measure, it has certainly played a part in reducing the morbidity and mortality rates and in affecting the reservoir of infection. Though the general extension of this scheme is not practicable, the scheme before Government to revise the orders dealing with the sale of quinine and substitute an agency in every village for the sale of packets of cinchona febrifuge is up to date the best practicable method which can be advised for controlling village malaria. It

is essential that only complete packets of 90 grains and not separate pills be sold.

(*d*) *Seva Samiti work.*—At my instance and with the approval of Pandit Madan Mohan Malaviya Sahib the help of the Seva Samiti Boy Scouts organization was invited to carry out certain anti-malarial operations, and accordingly preliminary malarial surveys were conducted in certain towns where this organization promised their aid.

The lines on which the participating scouts were to be trained in anti-malarial work were indicated in detail to the medical officers of health, and the officers of this branch conducted the final survey of Allahabad town itself and organized practical demonstrations and lantern lectures in the various towns.

The aid of scouts in carrying out anti-malarial operations was promised in the following towns :—

Allahabad, Benares, Cawnpore, Fatehpur, Etawah, Fyzabad, Meerut, Mainpuri, and Jhansi.

The municipal boards were asked to sanction the money necessary to meet contingent expenses and the cost of oil, the expenditure being indicated by this branch to amount in no case to more than Rs. 150 for the whole autumn malaria season. It is gratifying to note that all these boards agreed to this except Etawah, where it was resolved that anti-malarial operations were not required as the season was very dry. Fatehpur sanctioned only Rs. 50.

It is obvious that unless the work of voluntary workers is carefully controlled by responsible persons who are prepared to treat the question of the prevention of malaria seriously, to give up a fixed period of their time on a fixed day each week without equivocation during the malaria season and to walk considerable distances on foot in inspection work, the use of such an organization will not lead to any great results. Medical officers of health of the cities where such temporary work was undertaken this year are of opinion that it is preferable to use their own sanitary inspectors against voluntary workers, but this attitude should change with propaganda and after the voluntary workers have had some years of experience.

(*e*) *Leguminous fodder crops.*—Sir William Willcocks gives a simple theory of disinfecting malaria mosquitoes by the plantation of clover. Just how the female anopheles is rendered immune is not definitely known, whether due to the active principle of clover "coumarin" or some change in the biological environment during the aquatic stage of the mosquito which renders the dangerous species innocuous. These questions need further investigation. But the fact remains that coincident with abundance of wild clover cultivated Egypt is immune from malaria although anophelism does exist.

In order to determine the value of this method in the United Provinces some eight groups of villages were sown with three species of clovers, but the deficient monsoon precluded the growth of these. It is yet to be determined which are the species of clover most suited to conditions existing in India, and therefore the co-operation of the agricultural department is necessary. In this connexion it may be mentioned that the whole of the Terai abounds with certain clovers and leguminous plants

including Melilotus, Trifolium and Oxalis and is yet notoriously malarious. The question of rank vegetation and other crops flowering at the same time of the year might render the effect of clover cultivation problematical.

The economic aspect of this question has yet to be determined because clover cultivation *per se* will never be taken up by the rural masses unless it is a paying proposition as a fodder crop. The Director of Agriculture, United Provinces, has offered to collaborate in experimental work and the Irrigation department to sow clover along canal banks.

(*f*) *The use of Paris green in villages.*—In the districts of Bara Banki, Muttra, and the Terai regions this scheme was introduced, using the sanitary gangs in groups of selected villages. Spreading was carried out once weekly from March 1 to April 30, and from September 15 to November 30. It would appear that the scheme is incapable of application to villages owing to its cost. overhead expenses, and the frequent close supervision that it entails. Paris green still remains, however, the larvicide of choice in municipalities and in construction camps.

(*g*) *Cactus scheme.*—This entails the maceration of pieces of wild cactus in tanks and depressions filled with water and is said to result in a surface film which prevents mosquito-breeding. This scheme was given a trial in some villages of the districts of Bulandshahr, Kheri, Gonda, and Fyzabad, but owing to the rapid drying up of tanks due to deficient monsoon and the fallacies introduced into the spleen rate figures by the climatic conditions the results cannot be considered final.

(*h*) *School scheme.*—As a part of a scheme for providing treatment for recurring diseases in schools, cinchonization was tried in 116 primary schools, the object being to give each child absenting himself for fever 10 to 30 grains chinchona febrifuge daily according to age for four days or till the remission of the fever.

The scheme is very popular and should be extended, but its extension to all schools is not financially practicable without strict inspection and control. In the more malarious zones in this province the treatment of school children should be assured by the extension of this scheme to these areas until at least such time—which will be very remote—when anti-larval works may be practicable.

(*i*) *Village tank treatment.*—Sir Malcolm Watson, while on a visit to the United Provinces, suggested that the village tanks should be cared for during the breeding season by trimming their edges, obliterating cattle hoofs and clearing out weeds once weekly. This old method of control has always been considered as being impracticable in villages. It was carried out in six districts in some 10 groups of villages on a more intensive scale than originally intended by Sir Malcolm Watson, whose aim was to ascertain the effect of a minimum amount of work for a short period each malarial season.

The scheme was not popular because it entailed a certain amount of hardship on the villagers and restricted some of the village industries, viz., soaking fibre for rope-making and growing of wild "narii," "singhara," and some other food crops. Certain administrative difficulties were encountered also.

The *role* of village tanks in the malarial problem is yet to be determined. While the old opinion was that village malaria was chiefly due to the tanks in non-irrigated areas, it is not certain that this is by any means correct. Tanks within and nearest to abadi are probably in almost all cases too foul to breed the carrier species, except during a short period at the end of the rains. While this would explain the autumn anophelism, it fails to explain the breeding of carriers found in certain tanks coincident with the breeding of Culex and A. rossi in spring. The more shallow tanks within abadi are less dangerous than the larger tanks with more vegetation.

(5) *Malarial surveys* :—

Rural surveys.—In order to determine the incidence of malaria in rural areas and to find out anti-malarial measures suited to the local conditions the following districts and villages were visited. In each district the preliminary consideration was first to find out a representative group of villages where the problem of malaria control was an economic and practicable proposition :—

District.	Number of villages surveyed.
(1) Allahabad	4
(2) Bara Banki	7
(3) Bulandshahr	9
(4) Fyzabad	10
(5) Gonda	12
(6) Gorakhpur	6
(7) Hardoi	2
(8) Kheri	9
(9) Moradabad	12
(10) Muttra	6
	77

The district medical officers of health of these districts have been duly advised as to the nature and the lines of anti-malarial measures that could be profitably employed in such areas.

It is needless to go into the preliminary findings of these areas as they have been embodied in separate reports.

Urban surveys.—There have been frequent demands on this branch from various quarters regarding malarial surveys in towns and notified areas, but owing to pressure of work and the training of the *personnel* of the department only the following urban areas could be visited and reported on. The various anti-malarial schemes that could be started in these areas have been duly dealt with :—

Lucknow.—A re-survey of the Ghaziuddin Hyder Canal was made during the year and Government has now completed the cunetting and re-aligning of the old canal. This will do away with the majority of the remaining potential mosquito-breeding centres in Lucknow and will eventually bring in a substantial income in providing building sites on the areas bordering the canal banks. It is already evident that the valuation of land in such areas is increasing and that people are being attracted to build houses on the land which a few years ago was lying waste and was a source of nuisance to the neighbouring areas. The construction of the Gomti weir some years ago which permits the weekly flushing out of the river and the cunetting of the Ghaziuddin Hyder Canal are probably

among the most important anti-malarial works which have been done to date in municipalities in this province.

Nagina.—A survey of the area surrounding the George Hindu Public School was conducted and a report submitted.

Kosi Notified area.—This area was surveyed and reported upon. In the course of the survey a new variety of *A. stephensi* hitherto unknown in the literature was found and specimens forwarded to the Central Malaria Laboratory Bureau, Kasauli.

Moradabad.—A survey of part of Moradabad in the vicinity of the Police Training School was carried out and reported upon.

Allahabad.—A survey of the municipal area of Allahabad was conducted and the medical officer of health advised accordingly.

(6) A series of examinations as to the usefulness of the quinine pills issued by Government through the Aligarh Jail was made. The pills examined were found hard, almost insoluble in very dilute acid and variable in quinine content. Further work is being done on this question, and it is not proposed to report fully on the matter at present.

(7) Comment has frequently been made that the mass of anti-malarial work done in the United Provinces is not published or reported upon as such, but is combined with general sanitary improvement. This policy, in the case of municipalities, has resulted in a large amount of anti-malarial work being carried out as part of other sanitary schemes, especially drainage schemes; and since the malarial problem is intimately connected with general sanitation, this policy is correct. Moreover, it is possible to get large grants for drainage and water-works schemes when no grant may be forthcoming for malarial control. In the same way a large amount of anti-malarial work is being automatically done where village aid schemes are in force, and the benefit of this cannot to be over-estimated. This, however, should not confuse the fact that malaria still remains a distinct and unsolved issue for the masses in rural areas.

(8) In addition to the departmental routine work in the ensuing year it is proposed to alter the method of working to some extent, in that each officer will concentrate as far as possible upon one line of research. This will be difficult, as touring and routine work interfere with connected work in special subjects. The following have, however, been considered and in some cases commenced :—

(1) An examination of the drugs in use by vaids and hakims in the treatment of malaria, especially in regard to the presence or absence of alkaloids related to quinine.

(2) An examination of the relationship of spleen rates and malaria. It has been reported by Colonel Graham that spleen rates in the east of the United Provinces are low, and it is definite that the spleen rates remain low though the majority of the population suffer from the regular spring and autumn malaria.

(3) Experimental work in rural areas as against towns.

Sale and distribution of quinine.—During the year under report quinine worth Rs. 5,969 was issued by the Aligarh Jail for sale through post offices, vaccinators, school masters, and court of wards. Of this, quinine worth Rs. 5,728 was issued to post offices only. In addition to

this 100 pounds were issued to the Epidemiology branch for the use of travelling dispensaries and 35 pounds to district medical officers of health, Gonda and Moradabad, chairmen, district boards, Muzaffarnagar and Etawah, the collector of Aligarh, the medical officer of health, Hathras, head masters of two schools in the Allahabad district, and to Miss H. E. Wylie, Empress Road, Lahore. Ten pounds were supplied to the municipal medical officer of health, Meerut, for free distribution and 26 pounds to district medical officers of health, Bahraich and Hardoi, to replenish their reserve stock. Six pounds of cinchona febrifuge were supplied to the district medical officer of health, Fyzabad.

About 22 pounds of quinine and cinchona febrifuge were distributed by the Jail department to the prisoners and the staff.

Epidemiology Branch.

5. The Assistant Director of Public Health of the II Range holds immediate charge of this branch.

There were 82,103 deaths from plague during the year 1928. Of these 80,943 were reported from British districts and 1,160 from Indian States.

The following table shows the total plague mortality in each epidemic and calendar year since 1903 :—

Epidemic years (from July 1 to June 30).

Year.	Deaths.
1903-04	139,524
1904-05	434,217
1905-06	60,767
1906-07	341,725
1907-08	26,646
1908-09	14,252
1909-10	166,360
1910-11	344,776
1911-12	120,271
1912-13	98,628
1913-14	116,561
1914-15	58,329
1915-16	45,528
1916-17	105,080
1917-18	206,190
1918-19	17,633
1919-20	24,002
1920-21	25,901
1921-22	18,268
Calendar years.	
1923	74,187
1924	56,210
1925	49,091
1926	57,297
1927	15,570
1928	80,943

After two years of comparatively low mortality, the upward tendency noticed last year continued and the figures for the year under review have been exceeded only once during the last decade, 1917-18 to 1927.

The monthly mortality from plague for the year 1928, as compared with 1927, was as follows :—

	1927.	1928.
January	1,871	5,413
February	2,676	12,895
March	4,062	26,064
April	2,863	24,315
May	854	7,368
June	90	668
July	36	234
August	30	306
September	95	97
October	127	137
November	603	760
December	2,263	2,686

Indications of a very severe general recrudescence of plague were noticeable throughout the province from the very beginning of the year. In the month of January 29 districts were infected and there were 5,413 deaths registered. In February 33 districts were badly infected and there were 12,895 deaths reported. March and April were the worst months in which a large number of districts were infected and the deaths reported were 26,064 and 24,315, respectively. After April there was a marked decrease in the mortality and as soon as hot weather conditions were established it became rapid. Mortality fell from 24,315 in April to 7,368 in May and 668 in June.

The lowest mortality was recorded in September, viz., 97 deaths. Azamgarh was the worst affected district in the province and it had 8,991 deaths. Next came Moradabad with 6,649 deaths. Other districts which suffered nearly as severely were Saharanpur, Muzaffarnagar, Ghazipur, Budaun, Bareilly, Gorakhpur, Basti, Bara Banki, Fyzabad, Meerut, and Shahjahanpur.

A chart showing plague deaths for a series of years is appended to this report.

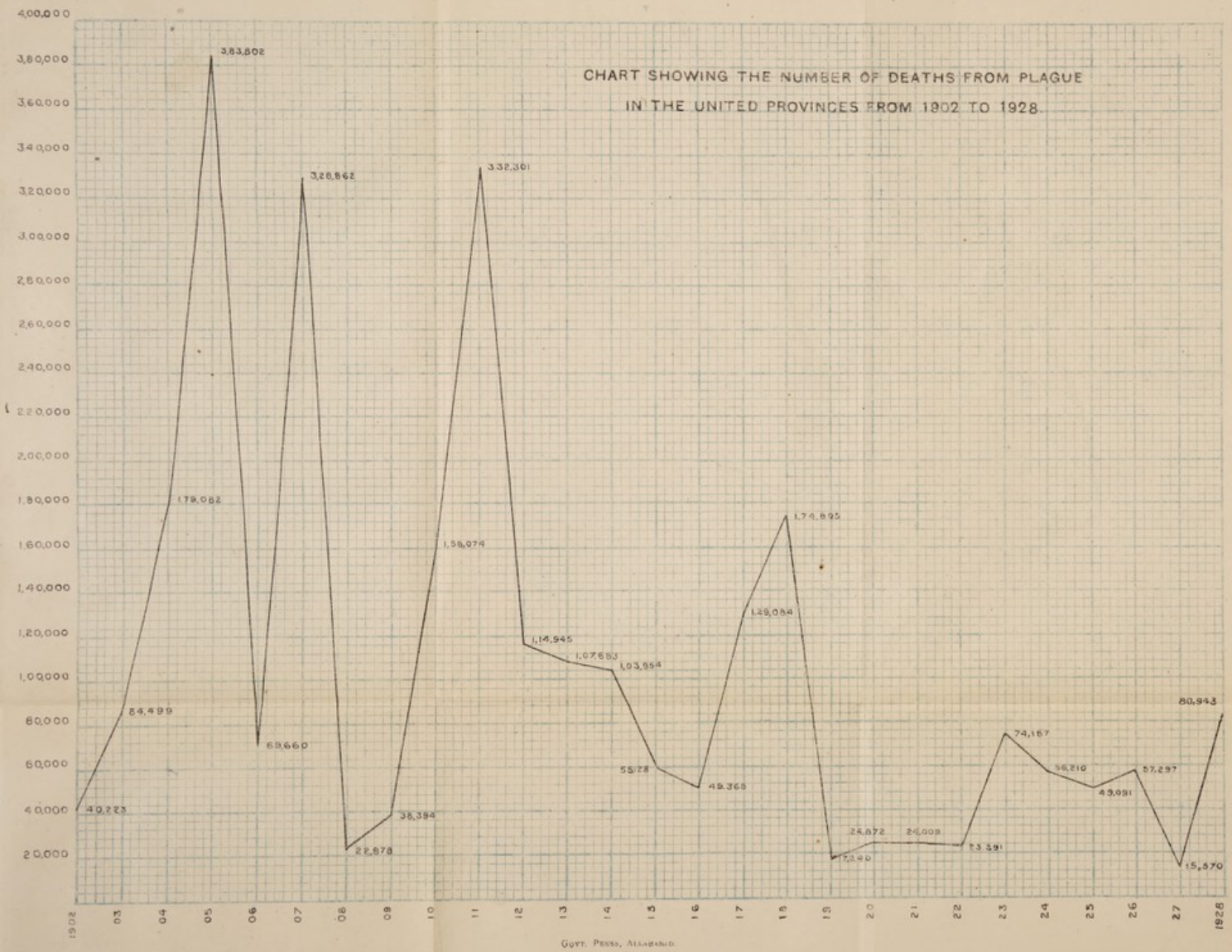
Plague by divisions.—Meerut division.—Saharanpur and Muzaffarnagar were the worst infected with 5,971 and 5,811 deaths, respectively; Meerut reported 2,454 deaths. The total mortality for the division was 14,418 against 1,557 last year.

Agra division.—The total deaths were 131 as against 125 last year. Etah was the only district infected, 120 deaths being reported. Aligarh, Muttra, and Agra reported 2, 3, and 6 deaths, respectively. Mainpuri remained entirely free.

Rohilkhand division.—This division was responsible for the heaviest mortality. Figures for the whole division were 24,950 against 2,493 last year. Moradabad reported 6,649 deaths against 534, Budaun 5,914 against 550, Bareilly 4,991 against 1,011, Bijnor 3,829 against 217, Shahjahanpur 2,181 against 169, and Pilibhit 1,386 against 12. The adjacent State of Rampur reported 628 deaths.

Allahabad division.—None of the districts in this division was severely infected—Farrukhabad 792 deaths, Allahabad 944, Fatehpur 121, Cawnpore 59, the total deaths from plague in the division being 1,916 as against 601. No death was reported from Etawah.

Jhansi division —This division returned only 2 deaths from plague against 5 last year. These deaths were recorded in Jalaun and Hamirpur



Govt. Press, Allahabad.

districts and the two other districts of the division remained entirely free. Of late years this division has been the least infected division.

Kumaun division.—The deaths reported from this division were 701 against 156 last year. The district of Naini Tal alone was responsible for this mortality, Garhwal and Almora reporting 7 and 6 deaths, respectively. No death was reported from Tehri State.

Benares division.—The divisional mortality was comparatively heavy, about three times that of last year, the actual figures being 7,681 against 2,755. The most heavily affected district was that of Ghazipur with a mortality of 5,541 against 1,881. Other districts in order of infection were Ballia, Jaunpur, and Benares with 1,588, 390, and 161 deaths against 642, 171, and 24, respectively. 532 deaths were reported from Benares State. Mirzapur district remained practically free.

Gorakhpur division.—The mortality of this division was next to that of Rohilkhand and much higher than it was last year, viz., 17,823 against 5,128. The district of Azamgarh with 8,991 deaths had the unenviable distinction of being the worst infected throughout the province. Gorakhpur and Basti reported 4,985 and 3,847 against 1,207 and 862, respectively.

Lucknow division.—The divisional mortality was about four times that of last year, being 6,575 against 1,668. All the districts reported a higher mortality this year except Lucknow which reported 76 deaths against 115. Hardoi, Kheri, Sitapur, Rae Bareli, and Unao reported 1,748, 1,534, 1,389, 953, and 875 deaths against 423, 316, 324, 259, and 231, respectively, during last year.

Fyzabad division.—The plague mortality of this division as of other eastern divisions was higher than that of last year, being 6,746 against 1,082. Bara Banki and Fyzabad were the worst infected districts of the division with a death roll of 2,963 and 2,768, respectively. Other districts suffered lightly except Gonda and Partabgarh, which recorded 737 and 252 deaths, respectively.

Inoculations.—The total number of inoculations performed during the year by the different agencies was 449,802 against 107,825 last year. 76,771 were performed by the travelling dispensaries, 13,649 by the staff of the special health officers, 222,606 by the district health staff, and the remaining 136,776 were carried out by different agencies. It is only in the presence of plague in epidemic form that inoculation is accepted by the people. Inoculation as anti-plague measure enjoys a certain amount of popularity in only some of the south-eastern districts such as Ballia, Azamgarh, Basti, Gorakhpur, and Ghazipur. Out of the total of 449,802 inoculations 100,957 were performed in the above-mentioned districts.

A table showing the preventive results of inoculation is attached to this report as appendix C.

Evacuation.—This preventive measure is the most popular among the people. They take to it readily on the appearance of plague in their villages, but unluckily the tendency is to evacuate houses too late and return to them too early. It needs to be brought home to the people that the best time to evacuate is before the actual appearance of the plague and at the first sign of rat mortality and that it is unsafe to return until plague has completely subsided. Rupees 17,300 were placed at the disposal of

the district magistrates and chairmen, district and municipal boards for providing hutting materials for the poor and for other anti-plague measures in the municipalities and the districts.

Anti-rat campaigns.—Rat destruction, which was started in 1927, in the following municipalities of the I Range was continued throughout the year :—

1.	Agra.	7.	Bulandshahr.
2.	Muttra.	8.	Hapur.
3.	Moradabad.	9.	Ghaziabad.
4.	Aligarh.	10.	Meerut.
5.	Chandausi.	11.	Bareilly.
6.	Hathras.	12.	Saharanpur.

In addition anti-rat campaigns were also carried on in the towns of Pilibhit, Aonla, Tilhar, Sambhal, and Shahjahanpur during the year under report, as plague had broken out in these towns and had taken a heavy toll of life and it is satisfactory to note that during the succeeding winter (1928-29) there has occurred no case of plague in any of these towns.

It is carried out through the agency of gangs of coolies in charge of a jamadar supervised by the sanitary inspector and medical officer of health (where there is one).

In Bareilly, Moradabad, Saharanpur, Muttra, Meerut, Shahjahanpur, Pilibhit, Sambhal, and Aonla, anti-rat campaigns were organized by the Assistant Director of Public Health, I Range, during his frequent visits to these places and it is satisfactory to note that no death occurred in any of these towns and not more than 17 cases have occurred in Bareilly during the succeeding winter season.

There has been no opposition to the anti-rat campaigns on the part of the orthodox Hindus. Anti-rat campaigns have been good propaganda work throughout this range and the majority of the municipal boards where this campaign is going on have now full belief that the killing of rats is the only effective measure that checks the spread of the disease and kills the foci of plague. The total number of rats killed during the year is about seven lakhs. Of these 251,384 rats were killed in the Bareilly municipality alone during the year 1928.

Anti-rat campaigns were also carried on in two municipalities of the II Range, viz. Shahabad (Hardoi), and Lakhimpur (Kheri) with the result that neither of these municipalities was infected with plague during the last cold weather.

Anti-rat campaigns were also carried on in certain rural areas in the districts provided with the district health personnel.

Rupees 7,700 were placed at the disposal of the chairmen, municipal boards, to meet the cost of the campaigns in their municipalities.

Travelling dispensaries.—No change has taken place in the number and constitution of travelling dispensaries. Out of the total number of 41 travelling dispensaries 36 are public health, 4 district board (viz., Bulandshahr, Pilibhit, Gonda, and Gorakhpur) and 1 forest travelling dispensary attached to the North Kheri division. Each district board contributes Rs. 1,000 per annum towards the upkeep of the travelling dispensaries

attached to their districts. The cost of the forest travelling dispensary is borne entirely by the Forest department. In addition to these there are two Tarai and Bhabar Government estates travelling dispensaries which are entirely maintained by the estate.

Under normal conditions these travelling dispensaries work in the districts to which they are attached, but on the outbreak of epidemic diseases such as plague, cholera, relapsing fever, etc., they are deputed to the district in which they are required. Out of 36 public health travelling dispensaries 31 were employed in plague and cholera-infected areas of the province and 5 worked on the Sarda Canal for the greater part of the year.

As indications of a severe plague epidemic became apparent, Government sanction was obtained to employ 20 additional temporary medical officers (G. O. no. 1753C/XVI—309, dated May 9, 1928), and 14 of these medical officers were put in charge of the reserve travelling dispensaries, the equipment of which is kept ready at the headquarters of districts and six were detailed on plague inoculation duty in the most infected districts of the province such as Azamgarh and Gorakhpur.

The ease with which these peripatetic dispensaries can be mobilized and concentrated makes them the most efficient agency for dealing with an outbreak of epidemic disease. Public confidence in these itinerant dispensaries is increasing every year as is amply testified to by the extent of their work. The total number of patients treated (new and old) by the permanent travelling dispensaries was 244,129 and those by the reserve travelling dispensaries was 16,8[illegible]7. All these dispensaries performed 2,476 minor operations during the year.

As the cantonment of Lansdowne was threatened with an outbreak of plague owing to its prevalence at Najibabad, Government sanctioned the institution of medical inspection of passengers at Kotdwara, the railhead for Lansdowne which was carried out by the medical officer in charge of Kotdwara dispensary for two months. (March 27 to May 27, 1928.)

Educational work.—Through the agency of these itinerant dispensaries a large amount of useful literature dealing with the prevention of epidemics reached the public. Leaflets and pamphlets dealing with the diseases of plague, cholera, small-pox, relapsing fever, tuberculosis, and influenza are freely distributed in the towns and in the interior of the district. They also gave magic lantern demonstrations on public health subjects in villages and towns.

Recognition of special services with regard to plague.—During 1928, twenty-eight sanads and twenty-one parwanas were awarded to Indian gentlemen for rendering assistance in carrying out anti-plague measures in 1927.

The chairman, municipal board, Bareilly, reports that special help and stimulus was given to the anti-plague campaign in the very severe epidemic in Bareilly city, through the personal daily supervision and inspection of the plague-infected mohallas by the district magistrate, Mr. C. F. Wood, I.C.S., who was "unsparing in his efforts to accentuate the energies of the health staff" and "to promote preventive inoculation amongst the people."

6. As a detailed and comprehensive report on the activities of this branch has already been submitted to Government and it is proposed to print and distribute copies thereof to all the members of the local Legislative Council and others, only a brief account of the work done in this direction is given here.

Hygiene Publicity Bureau.

The charge of the Bureau was held by Dr. A. Sousa, D.P.H., Assistant Director of Public Health. The post of the Senior Assistant Hygiene Publicity Officer was held by Dr. Abdul Hamid, B.Sc., M.B., B.S., D.P.H., and that of the Junior Assistant by Dr. Raj Narain Tandon, L.P.H., During the year these officers were on tour for 216, 167, and 211 days, respectively.

The circle of hygiene education is gradually expanding and the assistance of every conceivable agency is being enlisted for this work. At the request of the Inspector-General of Police a large number of officers and men at the police training school in Moradabad were given a series of lectures on the duties of police officers with regard to public health, epidemics, vital statistics, vaccination, and religious fairs. This training is proposed to be given every year. Copies of a booklet on "popular hygiene" dealing with personal hygiene, rural sanitation, etc., were also distributed to superintendents of police and the Principal of the Police Training School, Moradabad. A large number of inspectors and supervisors of co-operative societies were also trained in sanitation and first aid and these officers in their turn trained school teachers, members of the village co-operative unions, and sarpanches. A large number of lectures and demonstrations on hygiene were given by the officers of the Bureau themselves while district and municipal medical officers of health and sanitary inspectors gave lectures and demonstrations in their respective areas.

The boy scouts at some places signalled health maxims in the presence of large audience. Another special feature was that arrangements were made by some to give demonstrations to school boys and girls. The students were brought in groups and the exhibits were explained in detail. Prizes were offered to the students for the best essay on the exhibition. In some districts dramas on public health subjects were produced and created a good deal of interest.

The village aid scheme was started and organised by the officers of the Bureau and an account of the same is given in paragraph 7 of this section.

A very large number of posters, plans, and booklets was printed.

The following figures relating to the distribution of printed literature will indicate the growth of this educative work :—

	Posters.	Booklets.	Leaflets.	Total.
1927	10,908	21,995	184,427	2,17,330
1928	27,566	56,378	1,358,773	1,442,717

Considerable attention was devoted to the village schools and certain health posters have been specially prepared for exhibition in the class rooms so that the health maxims may always be before the boys. The Bureau purchased a number of copies of the "Village Uplift in India" by Mr. Brayne, I.C.S., Deputy Commissioner, Gurgaon (Punjab) and distributed them for information.

Copies of the book entitled "Public Health Organisation in the United Provinces" were distributed to all the members of the Legislative Council and those of "Truth about Leprosy" were sent to all the district medical officers of health.

Cinema films and live models were shown at several places and were much appreciated. Dr. Sousa was deputed to Lonavla to study Yogic Physical Culture and a report was submitted to Government, which is under consideration.

Equipment.—There are now 74 sets of magic lanterns as against 62 in 1927.

Slides, posters and leaflets on venereal diseases were made during the year.

Brass models on plague, cholera, and small-pox in portable boxes were also made. These were the new subjects taken up besides some posters made for the Education department.

Twelve sets of magic lanterns, 154 sets of slides on different subjects, and other accessories were purchased during the year. Besides these, 71 sets of slides were made by the artist employed in the Bureau.

The officers of the Bureau carried out the following special investigations during the year :—

1. *Tuberculosis in Lucknow.*—An analysis was made of the deaths recorded under this head in two wards of the Lucknow municipality and it was found that 75 per cent. of the cases occurred among purdah ladies. An investigation was also conducted in the primary schools of the same wards. No case of tuberculosis was found but ailments predisposing to tuberculosis were largely prevalent.

2. *Food census of the villagers.*—This was done to ascertain whether villagers consumed sufficient quantities of food and whether their diet was properly balanced. It was found that while the food consumed by them was sufficient so far as its caloric value was concerned, the diets were not properly balanced, fats, proteins, and vitamins being deficient. Further investigation and publicity work will be done on this subject.

Contributions from district and municipal boards aggregated Rs. 8,200 against Rs. 6,600 in the preceding year. The usual recurring grant of Rs. 12,000 was kindly made by the United Provinces branch of the Indian Red Cross Society.

District health service.

7. This service was extended to the Naini Tal district only in October, 1928, as owing to lack of funds further extension was not possible. On account of the failure of the monsoon and the consequent fall in the revenues of Government it is regretted that funds were again not available in the financial year 1929-30 for the extension of the scheme to the remaining districts of the province.

The service is rapidly gaining ground in districts, and villagers are coming into much closer touch with this organization. All authorities are agreed as to the value of this service for the improvement of rural sanitation. The sphere of the work of the district medical officers of health continues to expand in many directions. In addition to control of epidemics increasing attention is being directed towards creating a "sanitary conscience" among the rural masses, and to improving rural sanitation, school hygiene, industrial hygiene and many other subjects which have bearing on the health of the population.

When epidemics are not prevalent the improvement of rural sanitation claims the primary attention of the district medical officers of health. The problem is a difficult one, and in the present state of affairs it is

impossible to produce rapid results. There is no doubt, however, that as a result of the propaganda done by the health staff the villagers are beginning to evince some interest in sanitation and public health.

In many districts voluntary applications are now received by district medical officers of health for assistance in plague and cholera and for permanganation of water-supplies. In many cases district medical officers of health were able to enlist private help in obtaining epidemic reports.

Increasing collaboration is taking place with the Revenue department and other departments of Government engaged on rural welfare, and the District Health department has come to occupy a definite place in the district administration.

Appended are extracts from the reviews of commissioners, district magistrates and chairmen, district boards, on the annual reports of district medical officers of health expressing their opinion on the utility of the district health personnel.

Commissioner, Gorakhpur division (for the Gorakhpur district).—"I have, however, read the district medical officer of health's report with interest, and I agree with the district magistrate that Dr. Srivastava is to be congratulated on the results he has been able to achieve during the year."

District Magistrate, Gorakhpur.—"The sanitary gangs are fully justified, and the work done by them being free, is undoubtedly appreciated by the villagers. The result of their labours is definite and evident . . . The work done in connexion with schools' inspection is of pronounced and definite utility . . . On the whole, the work done during the year has been satisfactory. No startling results can be hoped for, but the steady pressure which is now applied year by year is making itself felt in familiarising the people with the requirements of better hygiene and with the methods of securing the same. Dr. Srivastava is to be congratulated on the work he has done and on the sensible and the practical methods he has adopted."

Commissioner, Gorakhpur division (for the Basti district).—"Very careful work is being done. I am glad to note the improvement in reporting outbreaks and the enormous progress in inoculations for plague."

District Magistrate, Basti.—"The district medical officer of health and his staff have been heavily worked throughout the year in combating the outbreaks of cholera and plague. The reduction in the number of the cholera deaths is very satisfactory. There was no doubt that it would have been increased very largely but for the measures taken by the medical staff as soon as outbreaks occurred in the various centres."

Chairman, District Board, Basti.—"The outbreak of cholera in the district was a very severe one and was widespread. But the number of deaths was below the figure of the previous year, chiefly on account of prompt measures taken by the staff to check the spread of the disease. There has been an enormous increase in the number of plague inoculations, and this is creditable to the health staff which has been able to win the confidence of the people in inoculation."

Commissioner, Gorakhpur division (for the Azamgarh district).—"A record of a year's good work. The experiment of starting village aid dispensaries is one that will be watched with great interest."

Deputy Commissioner, Fyzabad.—" The health officers worked throughout under my close personal directions and in co-operation with the local revenue authorities. Finally, I may note that both Dr. Caleb and Dr. Patney have carried out their duties with keenness, and that I have no complaint at all to make regarding their co-operation with the revenue authorities."

Chairman, District Board, Fyzabad.—" But for the prompt action taken by the district medical officer of health both cholera and plague would have played a great havoc . . . I would like to close my review with the remark that the health scheme has justified its existence here and the time is not far off when the rural public will consider it a boon."

Chairman, District Board, Ghazipur.—" There is no denying the fact that the scheme is a very good one. People seek more and more aid from this department, which shows that the utility of the department is realized more and more every day by the villagers."

District Magistrate, Ballia.—" Your department has done very creditable work in dealing with epidemics. What impressed me as the most valuable part of your work is first-aid training. Nothing could possibly be more useful . . . The year, on the whole, was not a particularly healthy one, and I am sure that but for the activities of your department the outlook would have been very bad. I especially acknowledge the assistance of the department in the matter of rural sanitation and preparation of rural sanitary projects."

Chairman, District Board, Ballia.—" There is no doubt, however, that had it not been for the careful activity of the district health department, the total number of deaths must have gone still higher . . . I am glad to notice that the activities of the department are not confined to the propaganda work and preventive measures only, but curative measures have also been taken in addition thereto. Your services as well as those of your able assistant, . . . in all the sphere of the activities of the health scheme are appreciated."

Commissioner, Fyzabad division (for the Bahraich district).—" . . . The district medical officer of health is obviously keen on his work, and he and his staff have good tangible results to offer in evidence of their labour."

Deputy Commissioner, Bahraich.—" . . . the district health staff did useful work during the year, both in the matter of suppression of epidemics and in the more important task of educating the ignorant villagers in the elements of sanitation."

Chairman, District Board, Bahraich.—" I have observed that the public do appreciate the attempts that are made to improve the surroundings."

Deputy Commissioner, Sultanpur.—" The health staff also did commendable work in connexion with the other duties entrusted to them."

Deputy Commissioner, Partabgarh.—" Results have proved the efficacy of the department's efforts in dealing with epidemics and in 'health propaganda'. I think the medical officer and his staff are to be congratulated on the year's work."

Chairman, District Board, Partabgarh.—" The district health staff have done an immense amount of useful work towards ameliorating the conditions prevailing in the rural areas."

Deputy Commissioner, Bara Banki.—" I have watched the scheme for the last three years in different districts and am very much struck by the excellent work which is slowly and steadily being accomplished. I have noticed good results both in town areas and big and small villages."

Chairman, District Board, Bara Banki.—" The report of the district medical officer of health is an interesting record of the work of the Public Health department in the district and shows how rapidly the scheme is getting popular in the rural areas . . . I place on record my sense of appreciation of the work done by the health staff and congratulate Dr. B. L. Tiwari for his efforts in ably managing his department."

District Magistrate, Mirzapur.—" . . . Once again the district medical officer of health has been most successful in dealing with epidemics. I was really much struck with the vigorous and successful way in which an outbreak of cholera near Ahraura in December was tackled . . . I can say that I have seen much improvement since I was last in a district."

Chairman, District Board, Mirzapur.—" Our thanks are due to both the health officers who are carrying on the work efficiently."

Commissioner, Rohilkhand division (for the Moradabad district).—" . . . the staff did good work in connexion with plague inoculation and it is to be hoped that the propaganda work done has had or will have some effect."

District Magistrate, Moradabad.—" The health scheme which has been enforced in this district for three years has progressed well and the district health staff has done good practical work on which it can be congratulated. It is gratifying to learn that the health staff is not looked upon with any feelings of aversion by the public which has by now begun to appreciate their work . . . I am glad that the district medical staff has given entire satisfaction to the district board."

Rai Bahadur Pandit Banarsi Prasad Misra, late Chairman, District Board, Moradabad.—" The year under report was the third year of the enforcement of this scheme, and I am pleased to note that the work was very satisfactory especially in the latter half of the year . . . The scheme, though still in its infancy yet has done much practical and useful work in the year under report."

District Magistrate, Allahabad.—Dr. Varma has again submitted an interesting and well-written report . . . I am glad to record my opinion that both he and his assistant have displayed commendable energy and considerable tact and ability in their work during the year."

District Magistrate, Bulandshahr.—" The district health scheme is in its very infancy at the present moment. The start made augurs well for the future."

Chairman, District Board, Bulandshahr.—" The report shows that there has been a steady progress in all directions during the year . . . The health staff proved very useful in suppressing the outbreaks of epidemic diseases like cholera, plague, and small-pox. The efforts of the health staff in educating the people and improving the sanitation of the villages are praiseworthy."

Commissioner, Lucknow division (for the Lucknow district).—" I have read your report with much interest and agree with the deputy commissioner and the chairman, district board, in congratulating you and

your staff on the good results achieved. The officers of your department are in the difficult but fortunate position of pioneers in a field of work which offers very great possibilities."

Deputy Commissioner, Lucknow.—"I would warmly congratulate the district medical officer of health on the admirable results achieved . . . Good progress seems to have been made in every department . . . Epidemics, cholera and plague have been combated with success, and a most encouraging start has been made in the direction of village uplift."

Chairman, District Board, Lucknow.—"Very satisfactory progress has been made in all directions, and especially in the case of inoculations . . . I congratulate the district medical officer of health and the entire health staff for the work done by them in the year under review."

Commissioner, Lucknow division (for the Unao district).—"I have read your report with interest and agree with the deputy commissioner and the chairman of the district board in congratulating you on the headway which you and your staff have made during the year under review. I am also glad to see the good work which the Public Health department did at the large fairs of Kusumbhi and Kartiki Purnmashi."

Chairman, District Board, Unao.—"The health scheme came into force only a year ago, and it is a matter of great satisfaction to me that it has claimed its own footing on account of the good work all round that it has done during the year under report."

Commissioner, Lucknow division (for the Rae Bareli district).—"I am pleased to note that the district health staff under you has achieved really useful work. The progress made was valuable though not spectacular. Rapid results cannot be expected, but the work is proceeding on sound lines and deserves every encouragement. I congratulate you personally on a useful year's work."

Deputy Commissioner, Rae Bareli.—"I have been following the progress of sanitation in this district under the energetic guidance of the district medical officer of health with great interest and satisfaction. Apart from his humdrum, unspectacular activities of his department in watching and arresting the course of epidemics the excellent show offered by Rahi demonstration village and by the Public Health and Maternity Court of Dalmau Fair Rural Exhibition deserves grateful acknowledgment."

Chairman, District Board, Rae Bareli.—"The vigorous attempts made to check the cholera and plague epidemics were simply laudable; and, had it not been for the prompt measures taken by the Public Health department, the consequences would have been worse . . . Looking to the excellent results I would take the liberty of recommending that the scheme be made a permanent one in the district in spite of the fact that the finances of the board are not likely to be very happy for at least another year."

Commissioner, Lucknow division (for the Sitapur district).—"I have read with interest the report and Mr. Cruickshank's review thereon. I am glad to see that he considers that you and your predecessor worked wish energy and enthusiasm. I have personally great faith in the good which your department can do for the rural areas . . ."

Deputy Commissioner, Sitapur.—"In conclusion I think the district medical officer of health's report is very interesting and shows he is himself interested. He and his staff have done more than I should have expected. One has to learn by trials, change methods and concentrate on those that require work, not money. Financially since the scheme helps the rural poor who get inferior schools and little medical help for their taxes the expenditure will, I hope, be well worth while. It seems to promise well, and there is not so much opposition as one might expect, when the villagers are reasoned with and their self-interest and self-respect touched."

Chairman, District Board, Sitapur.—"When all that can be said against the methods followed by this department and the very great possibilities of improvements being made even at the existing all too inadequate expenditure and staff is said the fact remains that a very good beginning has been made with possibilities of wonderful results in the near future . . ."

Commissioner, Lucknow division (for the Hardoi district).—"I have no doubt of the value of the work done by the district health staff under you. It has been dealt with in some detail by the deputy commissioner. Progress must, of course, be slow in raising the general standard of sanitation and hygiene, but a beginning has been made on sound lines. Much valuable work also was done in precautions and preventive work in connexion with epidemics."

Deputy Commissioner, Hardoi.—". . . Dr. Rajendra Shanker remained in very close touch with me and gave me detailed information as to the progress of his schemes in different parts of the district and he consulted me especially in regard to enforcing sanitation upon dirty villages by prosecution and promoting vaccination . . . The amount of work done by the health staff is amply indicated in the report. I am satisfied that propaganda has been carried on with the utmost possible energy in the district during 1928."

Chairman, District Board, Hardoi.—"The annual report of the district medical officer of health for 1928 is an appreciable record of the hard work and public service rendered by the public health staff . . . As an agency for the suppression of plague epidemic the value of the public health staff was fully realized . . . In my opinion it would be expedient if the Government see its way to make the scheme permanently established in the district."

Deputy Commissioner, Kheri.—"A very interesting and well-written report . . . Dr. Joffrey and his staff are keen and are doing good work."

District Magistrate, Fatehpur.—"In conclusion I wish to place on record my appreciation of the activity you and your staff have manifested in suppressing plague and in teaching the villagers the rudiments of sanitation."

District Magistrate, Muttra.—"It (district health service) affords a very potent weapon for combating epidemics . . . In the village panchayats . . . a genuine interest in village sanitation has been created . . . substantial improvement has been made in the improvement of village wells. The year has been one of distinct progress in improving the sanitation of the rural areas."

Chairman, District Board, Muttra.—" I am glad to note that there is improvement nearly in all branches . . . I congratulate you . . . for successfully combating the epidemic diseases."

District Magistrate, Muzaffarnagar.— . . . The district health staff has done a great deal of work in the way of inoculation and disinfection . . . I must mention with gratitude the extremely good work done by every member of the staff during the relief work occasioned by the disastrous dust-storm and fires at the end of May, 1928. In every way their services were invaluable. The travelling dispensaries settled down in some of the worst areas to treat those who had suffered from burning, and prompt measures were taken to organize gangs for the disinfection of villages and removal of dead cattle. It was a particularly unpleasant time of the year to have to do touring, but from personal experience I can say that none of the health staff spared themselves."

Deputy Commissioner, Naini Tal.—" . . . I note the measures which you, in co-operation with the Superintendent, Tarai and Bhabar, are taking to improve rural sanitation ; and I was interested to read about your village aid scheme . . . Your report shows that you and your assistants have accomplished a most useful year's work."

Officers have been struck by the diversity and magnitude of the duties of the district medical officers of health. When epidemics occur all other work has to be at a stand-still, because the staff, which is meagre, has to be concentrated on preventive duties. The chairman of the district board of Ghazipur remarks :—

> " I appreciate the efforts of the health staff which tries its best to cope with the epidemics, but on account of the hands being quite insufficient appreciable diminution of deaths cannot be achieved. The epidemic-stricken area of this district, which is apparently the home of almost all the epidemic diseases, is too vast, and the workers, being limited, cannot get sufficient time to stay at a particular place for sufficient period required therefor as they have to attend other infected areas at the very same time."

The chairman of the district board of Mirzapur remarks :—

> " The size of the district and vast jungle areas certainly make the work, with the meagre staff at the disposal of the health officer, rather trying."

The most pressing need is an increase in the number of sanitary inspectors ; but, although the necessity for this has been acknowledged and pressed by a number of district boards, funds have not been provided.

The lack of suitable engineering personnel under the district boards has been a special handicap to the district medical officers of health in preparing sanitary projects. The large amounts remaining unspent with district boards, panchayats, etc., out of the grants made by the Board of Public Health are, to a great extent, attributable to this cause. The District Magistrate of Allahabad remarks :—

> " This year's working, as far as sanitary works are concerned, is rather disappointing. The fact is that in the absence of expert advice for framing estimates and supervising petty works it is difficult to avoid considerable delay ; and, if a comprehensive programme

entailing considerable expenditure is to be undertaken, it seems to me that it will be necessary to have a sub-overseer attached to the district health staff to look after the work."

I am entirely in agreement with this view and pointed out the necessity for this in my last year's report.

Mention was made in previous years' reports of the lines along which improvement of rural sanitation was being tackled. The following is an account of the work that has been done in 1928 :—

(*i*) *Labour gangs.*—A large amount of petty sanitary improvements and anti-malarial works were carried out by these gangs which are employed under each sanitary inspector. In 1927 district medical officers of health were instructed to concentrate the operations of the gangs over limited areas, specially in villages where some form of sanitary legislation is in force, so that definite improvements may be produced. This was done in 1928. District Magistrates and chairmen, district boards, have expressed high appreciation of the work done by these gangs.

(*ii*) " *Village aid* " *scheme.*—This is a new scheme which was started in August, 1928, mainly to improve the general sanitation of the villages and provide first aid to villagers. The scheme consists of three parts. One consists in the establishment of co-operative " village aid " dispensaries with certain simple medicines with a view to provide remedy in cases of the commoner ailments and accidents. These dispensaries are placed in charge of the school teachers or other intelligent people in the villages and the medicines are sold at cost price. The other part consists in the training of inspectors of co-operative societies, who, in their turn, train at least two adult boys in each village in first aid, sanitation and common accidents. The object is that these " aiders " as they are called may render assistance in emergencies before the arrival of the district medical officer of health or any doctor. Teachers in village schools are also given similar training, and they, in their turn, train the boys of their classes. The third part of the scheme consists of sanitary improvement of " village uplift." Labour gangs under the supervision of sanitary inspectors cleanse the villages, construct soakage pits and drains, improve drinking wells and dig trenches outside inhabited area for storing village manure and refuse. The villagers are asked to keep their villages clean—the best results have been produced in the Court of Wards villages—and a feature of this year was the increasing collaboration with the Managers of Court of Wards, some of whom took commendable interest in the work.

Having regard to the short time that the scheme has been working the results have been very encouraging. From August to the end of December part of the scheme relating to general sanitation and training in first aid has been introduced in 1,040 villages in various districts, while the complete scheme, including the dispensaries, has been introduced in 260 villages. The district summaries will indicate the number of persons that have been trained in the various districts. Instances have been brought to notice in which this training has been used with success in cases of snake-bite and cholera and one panchayat in Ghazipur, where a case of drowning was saved by an " aider ", expressed in a resolution its appreciation of this form of work.

The scheme is being worked with the assistance of district officers all of whom are taking great interest in it. Mr. Cruickshank, Deputy Commissioner of Sitapur, remarks :—

"In one village I found two of the aiders very accurate in reproducing their knowledge of first aid, etc., and they seem to understand what to do in various emergencies. The village was very clean and some interest was taken."

Mr. Pedley, Deputy Commissioner of Partabgarh, remarks :—

"I have myself visited some of the schools and centres where it is in operation. There is no question of its popularity and educative value."

(*iii*) *Work through village panchayats.*—In 1926 District Officers were asked to try a scheme for the sanitary improvement of panchayat villages by the appointment, out of the panchayat funds, of part-time sweepers. The idea was that the introduction of a paid sanitary staff in such villages will lead to general cleanliness. The scheme has now had a trial for about three years and reports received indicate varying degrees of success. In some districts the scheme was not introduced at all, in some the funds were insufficient, and in some sweepers were not available. In some districts the work was indifferent, while in some it was remarkably good. In Bahraich, from where the scheme originated, 23 out of the 26 panchayats have their own sweepers and 13 panchayats have provided themselves with hand-carts of approved model for the removal of rubbish. Some district officers attribute lack of progress to the ignorance of panchayats as to what should be done. Others attribute it to lack of interest and many to lack of funds.

The agency of the panchayats offers a very suitable medium for furthering rural sanitation, and some of the panchayats seem to have considerably benefited by the visits and advice of the health staff. Mr. Dible, the District Magistrate of Muttra, remarks :—

"Generally speaking, they (panches) have responded most admirably to the advice and encouragement given them by my revenue officers of the district staff and the officers of the district health staff working in close co-operation, and the resultant improvement in the sanitation of these villages has been most marked as I have verified personally by personal inspections during my present cold weather tour . . . In fact, I am personally convinced that the main hope of achieving genuine improvement in the rural area lies in establishing successful panchayats which will function successfully, and in utilizing them for every scheme of improvement. The health staff have been extremely successful in securing the co-operation of the panches in introducing improvements."

In the district of Gonda arrangements are in progress for the construction of three model villages. Mr. Hallowes, the Deputy Commissioner, says :—

"Perhaps the most important feature of the year in this district from the point of view of improving sanitation in villages is the foundation of three model villages. The land for two of them has been put at my disposal by two landholders of the district, viz., the Raja of Utraula and the Thakurain of Dhanawan.

The third village is being built on Court of Wards' land. Each village is carefully planned with broad roads. In the centre of the village there is a panchayat house surrounded by a garden. Each house is separated from its neighbours and stands in its own garden. A broad belt of grass land surrounds the village, and neither cultivation nor building is allowed in the belt, which is reserved for grazing and use as a village play-ground. On the inner edge of the belt there will be pits for rubbish and manure on the Punjab system. The object is to induce people to pit their rubbish instead of leaving it in heaps inside the village, where it blows about in the hot weather and breeds flies all the year.

The houses are drawn up on the lines of those recommended by the Board of Public Health with local modifications."

The demonstrative value of such "model" villages is great, and, if large landlords in other districts would have the zeal that has characterized the taluqdars in the Gonda district, a great impetus would be given to rural sanitation and sanitary housing. District medical officers of health have been working through village panchayats for the improvement of the general sanitation of the panchayat villages. Where funds permit panchayats employ part-time sweepers for the general cleaning of the villages; while district medical officers of health advise the panches on questions of water-supply, etc. From the reports received it appears that the panchayats in some districts are taking a great interest in the matter and distinct improvement is noticeable in their villages. Continuous supervision and frequent visits are, of course, necessary to prevent the panches from lapsing into apathy, but as time goes on a demand for "better sanitation" will be created and when this takes place villagers will not need this supervision. The Public Health department is endeavouring, by educative propaganda and ocular demonstration, to foster the growth of this demand. Where the influence of the Co-operative department had penetrated the work of the health staff was comparatively easy, but in many villages officers have to work by themselves.

(*iv*) *Sanitary works.*—For the execution of sanitary works, which are beyond the capacity of the labour gangs the Board of Public Health invited definite schemes from all districts. In all 751 applications for assistance were received for works in notified areas, town areas, villages under the Village Sanitation Act, villages under the Village Panchayats Act and also for villages where no Sanitary Act is in force. The aggregate cost of the schemes submitted was Rs. 9,00,000; 561 schemes, estimated to cost Rs. 2,10,000, were passed after scrutiny by the Superintending Engineer, Public Health department, and were considered by the Board of Public Health who were required to allot Rs. 1,97,000. As the allotment at the disposal of the board was not sufficient to finance all these schemes those that related to the improvement of water-supplies were selected for priority and allotments aggregating Rs. 71,743 were made for these works in 1928-29.

(*v*) *Sanitary legislation.*—Bye-laws for regulating various matters, such as excavations, netting of fish, deposit of rubbish, and storage of manure, and in some cases for the regulation of noxious trades have been made by several district boards while some have the matter under consideration. There has been some interesting discussion in the various reports on

this question of legislation. Some officers have remarked that legislation on these objects is in advance of public opinion and will not be effective. Others state that the health staff should not rely on fines for the improvement of rural sanitation. A few suggest that the staff should work in a missionary spirit. The best way undoubtedly is to change the outlook of the masses by educative propaganda and ocular demonstrations, and officers of the Public Health department are already endeavouring to do this. Observance of sanitary regulations—however elementary—involves some slight inconvenience, the benefits of which a villager may not see of value. At present much quicker action results from an "order" from the petty village functionaries than by a week's preaching by the higher public health staff. In the present state of evolution of the department unpopularity is certainly to be avoided, but in the present state of knowledge of the masses "popularity" in many cases means suspended animation coupled with startling results. It is necessary for the officers to have the backing of bye-laws and rules to deal with specific cases of obstruction, but the greatest caution must be exercised in applying them. Here I must repeat my advice to my officers that where they have the power they should never use it except as a last resort—and that prosecutions should be solely to correct an individual and not to serve as an aid in rural development. For the latter they must rely on publicity and educative campaigns.

(*vi*) *Administration of the United Provinces Village Sanitation Act.*—During the year 1927-28, the Act was extended to 85 villages in eleven districts and withdrawn from three villages in three districts, and at the close of the year the total number of villages in the whole province where this Act was in operation was 768 against 592 in 1926-27. The Act is not in force in any village in the districts of Almora, Garhwal and Naini Tal, where the circumstances are different from those in villages in the plains districts. Inspection books were properly maintained in all the villages concerned except in two in Etah and one in Bijnor. The district officers issued necessary instructions on the subject. In Banda the Act is supposed to have been in force in eighteen villages during the year under report as in the previous year, but as there was no special health staff sanctioned for the district, it remained rather a dead letter. Periodical inspections of these villages were, on the whole, regularly carried out by the members of the district staff. Additional inspections were also carried out by the district medical officers of health and their assistants in districts in which the district health service has been established. The sanitary condition of the villages under reference is reported to be satisfactory on the whole. Good results are expected by the introduction of the health scheme as the efforts of the members of the district staff are augmented and greatly strengthened by the zeal and energy of the district health staff, on whose advice and suggestions various sanitary improvements such as the construction of soakage pits, removal of rubbish, stacking of manure outside the *abadi*, etc., are being carried out. Much propaganda work is, however, necessary, as until the village people are educated in the rudiments of sanitation and public health and the panches and sarpanches take keen and selfless interest, no appreciable progress can be made in this direction. The apathy of the panches in this connexion has been commented upon by several district officers. A certain district medical officer of health complains that panches often spend the

money allotted only on their own wells and leave the poor depressed classes to their fate.

During 1927-28 the total allotment for these villages from different sources (including the grants from the Board of Public Health) was Rs. 43,927 and the expenditure was Rs. 28,037 (Rs. 11,383 on the improvement of water-supply and Rs. 16,654 on miscellaneous sanitary improvements). The large unexpended balance, viz., Rs. 15,890 is accounted for by the fact that in the many cases grants were made at the close of the year and could not be fully utilized. Re-grants have, however, been made during the current year to complete the works. In the districts of Dehra Dun, Mainpuri, Shahjahanpur, Jaunpur, Azamgarh and Partabgarh no provision for expenditure for sanitary improvements in the villages concerned was made, while in Fatehpur, Hamirpur, Rae Bareli and Fyzabad no expenditure was incurred out of the allotments in hand. As in the last year, it is again reported by the District Officer, Bareilly, that a large amount of fines is still in deposit in villages with mukhias.

Acknowledgments.--I have again to express my indebtedness to the district officers for their guidance of my staff, for their assistance and for the interest that they have taken in their work. Many of them personally visited plague and cholera stricken areas, while others took personal interest in sanitary reforms. This was of considerable value in stimulating the interest of the subordinate officers. My thanks are also due to the superintendents of police and chairmen, district boards, for their co-operation and assistance.

To the Registrar of the Co-operative Societies I have to express my acknowledgments for the assistance that his officers and men have given to my officers in village uplift work.

The table given below sets out, in concise form, the work done by the health staff during 1928.

Serial number.	Name of district.	Number of villages visited.	Number of villages visited for epidemics.	Number of schools visited.	Number of scholars examined.	Number of villages where improvements were made on the advice of district medical officer of health.	Number of children inspected for vaccination.	Verification of births and deaths.		Number of plague inoculations done.	Number of cholera inoculations done.	Number of days on tour.		Number of village aiders trained.		Number of first aid dispensaries established.
								Number of entries checked.	Percentage of omissions.			D. M. O. H.	A. M. O. H.	Scholars.	Public.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Gorakhpur ..	7,020	3,070	90	3,570	618	4,647	5,335	·81	30,515	1,341	160	563	..	27	11
2	Basti	3,707	2,615	378	11,422	195	2,544	2,317	14·4	17,990	986	208	381	129	69	..
3	Azamgarh ..	2,577	1,616	409	10,509	83	11,332	63,565	5·00	24,769	1,322	165	369	72	116	20
4	Fyzabad ..	2,131	1,710	228	7,800	193	6,125	7,302	5·00	21,342	1,946	214	297	73	105	6
5	Gonda.. ..	2,010	1,090	124	5,677	178	8,212	4,522	31·00	7,362	2,392	210	357	534	241	..
6	Jaunpur ..	2,050	501	324	12,751	407	17,056	3,243	8·48	4,120	1,290	276	291	210	87	..
7	Ghazipur ..	2,361	1,437	385	6,504	93	24,586	13,801	4·82	12,320	3,733	190	224	6	127	6
8	Ballia	1,759	1,197	256	3,250	358	4,725	3,108	7·22	14,168	3,641	188	176	263	171	20
9	Benares ..	946	296	64	4,864	213	6,714	10,019	3·5	1,755	430	243	136	50	18	8
10	Bahraich ..	1,950	155	82	4,355	594	2,591	4,323	6·63	582	2,187	166	212	..	198	3
11	Sultanpur ..	2,146	690	64	3,282	771	4,503	11,872	·58	1,924	13,675	191	191	48	8	..
12	Partabgarh ..	1,872	1,148	204	3,366	144	9,487	1,685	7·1	1,654	2,104	226	237	70	33	3
13	Bara Banki ..	986	150	155	8,990	27	9,331	35,783	8·00	6,433	1,799	245	242	276	203	34
14	Mirzapur ..	1,863	212	143	5,278	91	4,390	4,373	2·7	228	2,709	172	145	68	114	16
15	Allahabad ..	7,520	266	218	6,979	56	2,410	3,662	4·01	2,250	193	160	274	..	226	6
16	Moradabad ..	1,803	589	50	2,647	495	4,512	10,129	3·08	19,185	89	184	202	467	270	1
17	Bulandshahr ..	997	80	149	3,356	283	2,664	13,403	1·33	1,712	797	227	139	6	23	..
18	Lucknow ..	2,133	540	227	7,321	136	2,162	6,995	1·44	551	620	217	239	458	229	3
19	Unao	1,137	119	106	2,030	218	1,391	3,656	6·26	4,331	265	142	156	40	148	4
20	Rae Bareli ..	1,776	398	37	2,755	423	2,699	1,795	0·61	4,706	15	26	20	10	..	5
21	Sitapur ..	1,551	317	93	4,755	324	907	3,640	4·5	6,023	355	151	201	148	188	2
22	Hardoi ..	2,187	119	139	3,649	73	8,881	7,223	4·1	10,436	108	154	169	96	241	1
23	Kheri	857	123	135	3,552	412	9,980	2,409	7·4	5,443	20	196	202	409	42	3
24	Fatehpur ..	413	35	42	2,598	186	6,944	10,265	13·01	769	..	181	144	57	68	3
25	Muttra ..	1,443	98	160	7,357	246	2,824	5,978	5·20	416	..	108	201	44	40	3
26	Muzaffarnagar ..	521	262	95	3,348	71	517	3,009	7·4	19,990	43	169	190	..	5	..
27	Naini Tal* ..	523	182	42	508	9	150	250	4·4	1,632	2,055	148	62	..	61	8
	Total ..	56,239	19,015	4,399	142,513	6,897	162,284	243,662	6·22	222,606	44,115	4,917	6,020	3,534	3,058	166

* From October 1 1928.

A *résumé* of the work done in various districts is given below.

(1) GORAKHPUR.

Registration of vital statistics.—Registration of vital statistics in the town areas was again unsatisfactory; 5,335 entries of births and deaths in the rural areas were checked by the health staff; the percentage of omissions discovered was ·8. The vaccination staff checked 45,335 entries. A number of chaukidars was dismissed for failing to make reports and disciplinary action taken against the patwaris.

Epidemics. (*a*) *Cholera.*—6,320 deaths occurred in 1928 against 1,992 in the preceding year. This was the biggest epidemic in the district since 1924. The first case was imported from Benares, but the disease did not assume an epidemic form. The second case was imported from Nepal, followed by many more from the same direction, which were responsible for a widespread outbreak. The whole of the public health staff was concentrated in the affected areas and every possible measure was adopted; 1,341 inoculations were performed.

(*b*) *Plague.*—4,985 deaths occurred from this disease in 1928 against 1,207 in 1927. 226 villages were affected. Anti-rat campaigns were started in certain of the endemic centres. In certain areas the attitude of the people towards anti-plague inoculation was satisfactory; 30,515 inoculations were performed. Evacuation was also popular.

(*c*) *Small-pox.*—The appointment of an extra temporary assistant superintendent of vaccination and 18 extra vaccinators evidently resulted in substantially reducing the balance of unvaccinated children and the result is reflected in the smaller number of deaths from this disease which accounted for only 207 deaths in 1928 against 1,204 in 1927.

(*d*) *Malaria.*—23,301 patients were treated for malaria in the various hospitals and dispensaries in the district against 29,825 in 1927. The number of deaths returned as due to this disease was, however, 38,982 in 1928 against 37,410 in 1927. The hospital figures are far more reliable: 216 lbs. of cinchona was distributed free, and all the schools were supplied with the drug. The cinchonization scheme, started at four places in 1927, was in progress during the year under report; 989 persons were supplied with cinchona under this scheme.

Sanitation.—A grant of Rs. 24,163 was received from the Board of Public Health during the year for expenditure on public health works. The smaller type of tube well with pumps costing Rs. 100 has proved an undoubted success. The larger type of pumps on wells that are largely used is not very popular.

The district health staff visited 7,020 villages, of which 3,070 were visited for epidemics only. In 618 villages improvements were carried out on the advice of the health staff. The "Village Aid Scheme" was started in 274 villages; 71 teachers, 27 dais, 47 patwaris and chaukidars and 22 inspectors of co-operative societies were trained in first aid and sanitation.

School inspections.—3,570 scholars in 90 schools were medically examined in 1928. Ear diseases, ring-worm, itch, bad teeth, granular eyelids, enlargement of spleen, etc., were the common ailments noticeable.

Half an hour every week for teaching of hygiene in all district board schools has been fixed, but satisfactory progress cannot be achieved unless the teachers obey the instructions given.

Maternity and child welfare work.—There are child welfare centres at Gorakhpur and Deoria. The two centres conducted 188 cases and paid 475 visits; 14,201 children attended these centres for treatment.

Adulteration of foods and drugs.—47 samples were forwarded for analysis of which 15 were of milk, 29 of *ghee*, and one of edible oil. Seven of these were certified to be adulterated, while the analysis of 15 were pending with the public analyst. Defaulters were fined.

Inspection of factories.—There are 13 factories in the district. Four of these were inspected. Draft bye-laws have been submitted to the district board for regulating offensive trades and are under their consideration.

Fairs and exhibitions.—37 fairs were held in the district during the year and section 34 of the Police Act was applied in seven of them. Sanitary arrangements were made by the district medical officer of health and were satisfactory. A district exhibition with a baby show was also held.

Hygiene publicity work.—Hygiene publicity work was done in all the villages and schools visited. Altogether 35 magic lantern demonstrations and 1,561 lectures were given. Classes were held for the training of school teachers and inspectors and supervisors of the co-operative societies. Lectures were also given at the patwaris' school. A special feature this year was the offer of assistance received from the local boy scouts associations for anti-cholera duty. The offer was gladly utilised.

Medical relief work.—Three indigenous dispensaries were opened—two in charge of qualified vaids and one under a hakim. Their working is directly controlled and supervised by the district medical officer of health. These vaids and hakims were also deputed on epidemic duty near their dispensaries. They are doing useful medical relief work.

(2) BASTI.

Registration of vital statistics.—2,317 entries were checked by the health staff and 27,611 by the vaccination staff. The percentage of omissions discovered by the former was 14·4 and by the latter 2·62. Lectures given to chaukidars on their duties in this connexion have produced some improvement.

Epidemics—(*a*) *Cholera.*—3,662 deaths were returned under this head in 1928 against 4,610 in 1927. The disease was widespread in April after the dispersal of the Ram Naumi fair in Ajodhya. Infection was also imported from Nepal at the same time. The district magistrate deputed two qanongos and 26 patwaris on epidemic duty, and the chairman of the district board placed the services of 40 school teachers at the disposal of the health staff and provided a sum of over Rs. 1,000 for disinfectants, medicines, etc. The district medical officer of health and his assistants supervised the work of all the centres.

(*b*) *Plague.*—3,847 deaths were reported under this head against 862 in 1927. As many as 17,990 inoculations were done in 1928 against 5,439 in 1927. An anti-rat campaign was carried on in Basti town area for a few months.

(*c*) *Small-pox.*—The incidence of mortality from this disease was considerably lower during 1928, the total deaths being 24 against 342 in 1927.

(*d*) *Goitre.*—Certain villages are infected up to 40 to 50 per cent., and there is much field for research in this direction. The health staff have so far been unable to tackle the matter owing to heavy work connected with epidemics.

(*e*) *Malaria.*—The incidence of this disease was slightly less than last year—the number of deaths being 27,707 against 28,331 in 1927. 49,000 cinchona tablets and pills were freely distributed through the public health staff and members of the board. Filling up of excavations inside the villages continues both by the labour gangs and the villagers themselves. A survey of tanks in regard to larvæ eating fish was made in some selected villages.

(*f*) *Elephantiasis.*—This disease is prevalent in parts of the district. The public health department of the district is endeavouring to lessen its prevalence by removing the breeding places of mosquitoes which are the carriers of filariasis of which disease elephantiasis is an advanced symptom.

Sanitation.—The town areas in the district were all visited by the health staff and necessary advice given. The sanitation of the villages under the Village Sanitation Act was also closely supervised. The revenue officers took interest in the sanitation of these villages and much improvement was effected.

Out of the 6,921 villages in the district the sanitary inspectors visited 1,970 villages, district medical officer of health 351, and assistant medical officers of health 684. Labour gangs worked in 2,784 villages, where they made 319 soakage pits, 149 kachcha jagats of wells, removed 1,683 manure heaps and filled up 163 excavations. They also made 9,412 r. ft of kachcha drains and removed rank vegetation from the inhabited area and from the vicinity of wells. The gangs worked in all the fairs in the district and permanganated 7,323 wells on the pilgrim routes. Improvements on the advice of the public health staff were made in 195 villages. The district board spent Rs. 1,822 on the improvement of rural sanitation.

Owing to the prevalence of epidemics much attention could not be given to "village aid" work; 198 "aiders," 104 indigenous dais, and 107 school teachers were, however, trained.

Hygiene publicity work.—Sanitary inspectors gave 3,614 lectures on the various epidemic diseases. District and assistant medical officers of health gave 75 magic lantern demonstrations. Teachers and students were given practical training in anti-cholera measures and in first aid and elementary hygiene.

School inspections.—4,288 scholars in 120 schools were medically examined by the district and assistant medical officers of health. Pyorrhœa, ring-worm, trachoma and goitre were most prevalent. Sanitary inspectors visited 258 schools and inspected 7,134 scholars for vaccination and general cleanliness only.

Maternity and child-welfare work.—The district board midwife visited over 400 houses and conducted 47 cases in the Basti town area. The health staff imparted instructions to 104 indigenous dais in different villages.

Fairs.—Pilgrims to Ajodhya pass through the district three times in the year. On each occasion the wells on the pilgrim routes were permanganated before and after the mêla traffic. The six important fairs held in the district were supervised, sites were cleaned by the labour gangs and sale of eatables was supervised. All the fairs passed off without the occurrence of infectious disease.

Food adulteration.—Four samples of milk, one of oil and 28 of *ghee* were submitted to the public analyst. Two samples of milk were declared adulterated and the offenders were fined.

Medical relief work.—Vaids and hakims continued to work under the district medical officer of health, and their services were utilized in cholera and plague epidemics.

General.—The rural public is now recognizing the utility and advantages of the health personnel. Plague inoculations, which were formerly very much resented, are now accepted by thousands.

(3) AZAMGARH.

Registration of vital statistics.—7,565 birth and death entries were checked by the district and assistant medical officers of health. The percentage of omissions found was 4.

Epidemics.—(*a*) *Cholera.*—All investigations in connection with cholera were conducted by the district medical officer of health or his assistants. The first case was imported from the Ghazipur district. The disease assumed epidemic form three times during the year, the last outbreak being definitely traceable to the solar eclipse fair in Benares. Reporting was fairly prompt both by patwaris and the police except in a few cases. These were reported to the authorities concerned, and the persons concerned were suitably punished. The co-operation of the revenue staff is specially acknowledged by the district medical officer of health. A large number of persons suffering from cholera were treated by the health staff with kaolin and essential oils mixture with successful results. A large number of permanganate of potash pills and other medicines were distributed; 1,322 inoculations were performed. There were 1,588 deaths from this disease against 233 in 1927.

(*b*) *Plague.*—8,991 deaths occurred in 1928 against 3,059 in 1927; 24,769 inoculations were performed by the health staff alone out of a total of 27,251. Anti-rat campaigns were started in several centres.

(*c*) *Malaria.*—22,829 deaths were returned under this head against 18,519 in 1927. These figures are, however, not reliable as the highest number of deaths were reported in June when the disease is at its lowest.

(*d*) *Small-pox.*—600 deaths were reported under this head against 1,027 in 1927.

(*e*) *Snake-bite.*—Sanitary inspectors, medical officers of travelling dispensaries and vaccinators were supplied with snake-bite lancets, with instructions to give assistance in snake-bite cases they might come across on their tours. The "village aid" dispensaries also treated a few cases of snake-bite with success.

Sanitation.—The continued labours of the health staff seem to be beginning to bear fruit. Villagers of many villages have now got into the

habit of storing manure and rubbish heaps outside the abadi. The labour gangs disinfected 7,600 wells, constructed 480 soakage pits, cleaned 370 villages, constructed parapets to 300 wells and destroyed about 6,000 rats.

The health staff visited 2,577 villages (1,616 for epidemics alone). Improvements in 83 villages were carried out on the advice of the health staff.

The town areas, notified areas, and the villages under the Village Sanitation Act were all inspected. The village panchayats are taking some interest in public health and some of them have done good work; 20 "village aid" dispensaries were established during the year; 72 scholars and 116 villagers were trained as "village aiders" while 204 village dais were trained in the villages.

Inspection of schools.—10,509 scholars in 409 schools were medically examined. Advice was given where necessary. The teaching of hygiene in the schools is being gradually pressed.

Hygiene propaganda.—A systematic monthly programme of lectures and magic lantern demonstrations was drawn up. In fairs hygiene publicity work formed one of the important duties of the public health staff.

Fairs and exhibitions.—Labour gangs and sanitary inspectors were deputed to all the fairs before their commencement and proper sanitary arrangements were made. No case of any epidemic disease occurred in any of them. The solar eclipse fair at Benares was responsible for a severe outbreak of cholera in the district in November.

A district exhibition was organized by the district magistrate in February and along with it was also a public health exhibition. A baby week was also held at that time and babies from all parts of the district were collected and prizes given.

Maternity and child-welfare work.—Funds for five centres were available, but only two centres could be started in the year owing to midwives not being available.

(4) FYZABAD.

Registration of vital statistics.—7,302 birth and death entries were verified by the health staff, and the percentage of omissions detected was 5.

Epidemics.—(*a*) *Cholera.*—3,655 deaths were reported from this disease against 4,343 in 1927. The disease was at its highest in May after the dispersal of the Ram Naumi fair at Ajodhya. A second outbreak occurred in October—due to importation from the Sultanpur district—a number of villages near the border line between the two districts in one straight line being infected. The disease was kept under control till about the middle of November, when reports of infection from about 40 villages were simultaneously received. On enquiry it was found that the first cases in nearly all the villages had visited the Benares eclipse fair held on November 12, 1928. The disease in the Akbarpur tahsil gave some trouble. In all 1,946 anti-cholera inoculations were performed.

(*b*) *Plague.*—2,768 deaths were reported from this disease against 560 in 1927. Parts of the district which adjoin Azamgarh are endemic areas of this disease. A tehsildar and a qanongo were specially deputed by

the deputy commissioner to assist the health staff in enforcing preventive measures. The deputy commissioner himself moved into camp in the infected villages and persuaded the villagers to get inoculated. A sum of money was also provided by the deputy commissioner to assist those who were too poor to erect huts for evacuation. The number of anti-plague inoculations performed was 21,342 against 4,899 in 1927. Anti-rat campaign was carried out in the endemic areas from December, 1927, to April, 1928, and 4,985 rats were killed.

(*c*) *Small-pox.*—67 deaths were returned under this head against 503 in 1927.

(*d*) *Malaria.*—9,491 deaths were reported under this head in 1928 against 9,709 in 1927. Various measures for the reduction of malaria were adopted. Cinchona tablets were distributed in the affected areas. The cinchonization scheme was most popular.

(*e*) *Kala-Azar.*—28 deaths were reported from this cause, but the district officer of health doubts if these figures are correct.

Sanitation.—The district medical officer of health is in charge of the sanitation of the Tanda municipality. This was visited from time to time and necessary advice was given to the municipal authorities. The town areas and the villages under the Village Sanitation Act were also visited.

There are 2,951 villages in the district out of which 2,131 were visited by the health staff. The labour gangs were very useful in demonstrating to the villagers how to clean the villages or construct soakage pits.

A village uplift scheme has been started in villages of the Ajodhya Court of Wards estate. The special manager is taking a keen interest in the matter. Stress is laid on digging manure pits outside villages so that all manure and rubbish may be stored in them. About 2,000 such pits have already been dug, 200 wells have been cleaned or deepened, and a large number of soakage pits have been made. In addition eleven villages have been selected where the public health staff is working in co-operation with the village people in widening village paths, adding parapets and pulleys to wells, making soakage pits or nabdans and filling up small excavations. It is intended to make these "model villages" for the other villages to emulate.

Progress in the "village aid" scheme which was started in August received a temporary check in November and half of December when epidemics were prevalent. In this brief period 105 villagers, 73 school teachers, and 6 inspectors and supervisors of co-operative societies were trained in sanitation and common accidents, while 7 sanitary wells were constructed and 5 are under construction. Fifty-seven village dais were also trained. The complete scheme was introduced in 8 villages and part of the scheme in 45 villages.

School inspections.—7,800 scholars in 228 schools were examined by the health staff. Fifteen per cent. of these were unprotected against small-pox, 7·5 had defective teeth, 25 per cent. defective eyes of which trachoma alone accounted for 15·8 per cent., 12·0 per cent. were with poor nutrition, 18·3 were found with contagious diseases (including trachoma), 3·3 with skin diseases, 0·47 with defective hearing, 0·33 with anæmia, and 0·23 with tuberculosis. Necessary advice was given in all cases.

Fairs.—35 fairs were held in the district. Assistance was given to the municipal health staff of Fyzabad in the sanitary arrangements of the three

large fairs held in Ajodhya. Section 34 of the Police Act was applied to certain fairs held in the rural areas.

Hygiene publicity work.—Special attention was paid to the schools where lectures on specific diseases or on hygiene were delivered, often with magic lanterns. Posters containing health maxims were hung up in the class rooms. Lectures and demonstrations were also given in the villages and in fairs.

(5) GONDA.

Registration of vital statistics.—4,522 birth and death entries were checked by the district health staff. The percentage of omissions discovered was 31.

Epidemics. (*a*) *Cholera.*—3,394 deaths were returned under this head against 480 in 1927. Reports were received from 414 villages, but on investigation only 316 of these were found to have been affected with true cholera. The others reported acute diarrhœa as cholera. The disease started just after the termination of Ram Naumi fair. Besides other precautionary measures 2,392 anti-cholera inoculations were performed.

(*b*) *Plague.*—737 deaths were returned under this head, mostly from one registration circle on the border of the Basti district ; 7,362 anti-plague inoculations were performed by the public health staff.

(*c*) *Malaria.*—18,587 deaths were reported as due to this cause. Cinchonization and other schemes for the reduction of malaria were carried out in several villages.

Sanitation.—The district medical officer of health is in charge of the sanitation of the Gonda and Balrampur municipalities. Public health works in these areas were carried out on his recommendations. In the town areas a number of soakage pits was constructed and wells were repaired.

A large number of wells in the Balrampur estate was repaired, chiefly through the interest evinced by the special manager of the Court of Wards, Kunwar Jasbir Singh. Manure heaps were removed in 954 villages.

Under the " village aid," scheme, which was started in September, 808 dais and 775 village " aiders " were given the necessary training in addition to cleaning 954 villages above referred to. Bye-laws framed for regulating various public health matters are under the consideration of the district board.

School inspections.—5,677 scholars in 124 schools were inspected during the year.

Fairs.—Adequate sanitary arrangements were made at all the fairs held in the district as well as at Lakarmandi Ghât in connexion with the three important fairs held at Ajodhya. Two imported cases of cholera were detected by the public health staff on the bridge on the Gogra among the pilgrims returning from Ajodhya. Hand pumps installed in the fairs were very useful.

Hygiene publicity work.—This was carried out in the usual manner in schools, markets, fairs and in villages. Posters were hung up in prominent places and lectures given.

(6) JAUNPUR.

Registration of vital statistics.—3,243 entries were checked by the health staff. The percentage of omissions discovered was 8·5.

Epidemics. (*a*) *Cholera.*—The disease was imported from Azamgarh in April, 1928, in the Shahganj tahsil. Infection was re-introduced in the district again in November after the eclipse fair in Benares. The total number of villages affected was 157, causing 2,520 deaths against 592 in 1927. The strength of beldars was increased during the epidemics by engaging temporary men for disinfection work. The district medical officer of health and the assistant medical officer of health themselves inspected nearly all the infected villages; 1,290 anti-cholera inoculations were performed against 21 in 1927. Altogether 14,590 wells were disinfected.

(*b*) *Plague.*—The disease prevailed in more or less severe form from January to May. It again broke out in November, the first case being an imported one; 23 villages were affected, causing 390 deaths against 171 in 1927. Anti-rat campaigns were started in the endemic centres and 1,453 rats were destroyed in the notified area of Badshahpur; 4,120 inoculations were performed.

(*c*) *Malaria.*—13,440 deaths were returned from this cause against 11,826 in 1927.

(*d*) *Small-pox.*—22 villages were infected and 216 deaths were returned under this head against 261 in 1927.

Sanitation.—The sanitation of the notified and town areas is supervised by the health staff.

Out of 3,139 villages in the district 2,050 villages were visited by the health staff, in 407 of which more or less improvements were made on their advice.

Owing to epidemics much could not be done with the "village aid" scheme. Part of the scheme is in force in 46 villages. All the vaccinators in the district, 87 adults, 72 school teachers, and 210 students have been trained in sanitation and first aid. Some of the school teachers have taken considerable interest in this work and appreciable headway was made with the scheme in their villages; 177 village dais were also trained.

Hygiene publicity work.—216 lectures were given by the health staff to about 3,000 persons. Sanitary inspectors gave 335 lectures to nearly 3,500 people.

School inspections.—324 out of the 673 schools in the district were visited by the health staff and 12,751 students were medically examined. Enlargement of spleen, skin diseases, defective teeth, and eyes were chiefly noticeable. Medicines and advice were given in all cases both to the teachers and the parents of the children.

(7) GHAZIPUR.

Registration of vital statistics.—13,801 entries were checked by the health staff and 16,453 by the vaccination staff. The percentage of omissions discovered by the former was 4·8 and by the latter ·8. In selected villages the non-official agency has also been entrusted with registration work as an experiment.

Epidemics. (*a*) *Cholera.*—1,142 deaths were reported in 1928 against 731 in 1927. Reporting was not good in the beginning, but with the assistance of the district magistrate and the superintendent of police it improved later. At the suggestion of the district medical officer of health, the chairman of the district board directed the school teachers to report outbreaks and this also was helpful. 3,733 anti-cholera inoculations were done, but inoculation is not popular among the low caste people.

(*b*) *Plague*—continued throughout the year and was responsible for 5,541 deaths against 1,881 in 1927. Evacuation is practised voluntarily; 12,320 inoculations were performed in 1928 against 3,752 in 1927.

(*c*) *Small-pox.*—206 deaths were reported this year against 535 in 1927. Difficulty is still experienced in certain parts to persuade parents to get their children vaccinated. The chairman of the district board has made vaccination compulsory in every school.

(*d*) *Malaria.*—10,852 deaths were reported in 1928 against 9,259 in 1927. A malarial survey of the Muhammadabad town was done and anti-malarial measures are proposed to be undertaken in this area.

Sanitation.—A five years' programme of sanitary works was prepared for the town areas.

2,361 villages were visited by the health staff, of which 1,437 were visited for epidemics only. In 93 villages improvements were made on the advice of the health staff. A number of insanitary pits was filled and soakage pits constructed. The "village aid" scheme has been started in 58 villages and six first aid dispensaries have also been established; 69 villagers, 53 teachers, and 6 inspectors and supervisors of the co-operative societies have been trained in first aid, sanitation, and common accidents; 133 dais were also trained.

School inspections.—6,504 scholars were medically examined, and 385 schools were inspected. Ringworm, itch, trachoma, and bad teeth were chiefly noticeable.

Fairs.—Four days before the commencement of the Chochakpur fair cholera was imported in the fair area and surrounding villages. Extra precautions had, therefore, to be taken with the result that only one case occurred on the last day of the fair. Public health exhibitions were organized in this and the Uchauri fair.

Hygiene publicity work.—Lectures were given in all the villages visited by the public health staff. It is proposed to hold public health exhibitions and health weeks periodically in different villages where students and persons representing their schools and villages will be examined and prizes will be given.

(8) BALLIA.

Registration of births and deaths.—3,108 entries were checked by the health staff, and the percentage of omissions discovered was 7·2.

Epidemics. (*a*) *Cholera.*—The first cases occurred in villages Pritam Chapra and Karan Chapra where it was imported from Dumraon fair in the Chapra district in Bihar. On the western side the disease was imported from Buxar. The total number of deaths was 2,168 against 1,262 in 1927. Cholera inoculation was introduced for the first time and 3,641 inoculations.

were done. The district magistrate was asked to promulgate temporary orders under section 144 of the Criminal Procedure Code for preventing the throwing of cholera corpses into rivers and *jhils* while some persons were also prosecuted for obstructing permanganation work.

(*b*) *Plague.*—The disease is endemic in the district and 1,588 deaths occurred against 642 in 1927. Anti-rat campaigns were started in the endemic areas with cynogas in some cases. Rat traps are in great demand, but barium carbonate pills are unpopular. Although inoculation is not yet very popular 14,168 persons were inoculated in 1928 against 8,613 in 1927.

(*c*) *Malaria.*—7,498 deaths occurred in 1928 against 6,764 in 1927. The labour gangs filled up a large number of pits and depressions inside the inhabited area. Quinine was distributed in the schools and some of the villages, while people were advised to have rice cultivation away from habitations.

Sanitation.—In villages not under the Village Sanitation Act some improvement was made by persuading the villagers to improve their wells, drains, and to store rubbish outside the village. Many wells were improved by the owners themselves, while many were improved by the district board and the village panchayats on the recommendation of the public health staff. Altogether 1,759 villages were visited, of which 1,197 were visited for epidemics. In 358 of these villages improvements were made on their advice.

A five years' programme of sanitary works was made out for the notified and town areas of the district.

Progress with the "village aid" scheme was handicapped by epidemics, which are a permanent feature of the district. Still, every effort was made to push the scheme and 171 village aiders (mukhias, panches, etc.), 198 school teachers, 65 scouts, 1 inspector of the co-operative society, 237 patwaris, 71 constables and 488 chaukidars were trained in first aid, sanitation and common accidents; 253 dais were also trained while 20 "village aid" dispensaries have been established.

Hygiene publicity work.—The usual publicity methods were followed.

School inspections.—3,250 scholars in 256 schools were examined. Pyorrhœa, ear diseases, and conjunctivitis were the most common ailments noticed. Advice and instructions were given in all cases.

Fairs and exhibitions.—A large number of pilgrims pass through this district to and from Benares. A number of large and small fairs are also held in the district. The roads covering from the fairs were disinfected, the food-supply was supervised, and other sanitary arrangements were made. No outbreaks of cholera or any other disease occurred.

A public health exhibition was held in the Dadri fair and attracted large crowds.

Maternity and child welfare.—A midwife was appointed to work throughout the year; 75 cases in the villages were conducted by this midwife and a large number of cases were also conducted by the 75 dais trained by the health staff.

(9) BENARES.

Registration of births and deaths.—10,019 birth and death entries were checked. The percentage of omissions discovered was 3·5.

Epidemics—(*a*) *Cholera.*—All the earlier cases were traced to outside importations from Bihar and the disease was spread into the rural areas by pilgrims and was at its height in April and June. The first wave died down in October, but a second wave occurred in November after the solar eclipse fair in Benares. In all 1,600 deaths occurred in the district, of which 288 occurred in the Benares Municipality; 20 lbs. of essential oils mixture was distributed free. The number of anti-cholera inoculations performed was 430.

(*b*) *Plague.*—39 villages in all were affected causing 161 deaths against 24 in the previous year.

(*c*) *Malaria.*—12,150 deaths were returned under this head against 10,483 in 1927. Vaccinators were supplied quinine pills for distribution in their circles and in all 30,000 pills were distributed. Many pits inside the abadi were filled up by sanitary gangs or the villagers themselves.

(*d*) *Small-pox.*—61 deaths occurred in 1928 against 417 in 1927.

Sanitation.—The notified and town areas were all inspected by the health staff, and necessary recommendations were made.

Out of 2,274 villages in the district 946 were inspected by the health staff, and in 213 of these improvements were made on their advice.

The "village aid" scheme has been started in 4 centres, 18 village aiders, 6 scout masters, and 44 school teachers were trained in first aid and sanitation, 68 dais were also trained by sanitary inspectors and 448 dais were given instructions by the vaccinators. Manure heaps were removed outside the abadi and soakage pits were constructed.

School inspections.—4,864 scholars in 64 schools were medically examined. Enlargement of spleen, eye disease, ring-worm, etc., were the chief diseases noticeable. Teachers and boys were given necessary instructions.

Child welfare and maternity work.—A trained dai was appointed last year at Chandausi under the Kashi Anathalaya scheme. Another centre was started at Gangapur, but had to be closed shortly after, as the midwife resigned.

Fairs.—Many fairs are held within the limits of the Benares municipality and special arrangements had therefore to be made for the rural areas. Sanitary arrangements for the Panchkosi Jatra were made by the district health staff.

(10) BAHRAICH.

Registration of vital statistics.—4,323 birth and death entries were checked by the health staff, and the percentage of omissions discovered was 6·63. Lectures were given to all the mortuary clerks at the tahsil headquarters on the common diseases.

Epidemics.—(*a*) *Cholera.*—The disease started in the district in April and 52 villages were affected. Reporting of outbreaks was defective; 391 deaths were reported under this head against 23 in 1927; 2,187 anti-cholera inoculations were performed and all possible anti-cholera measures were adopted.

(*b*) *Plague.*—Only eleven deaths were reported from plague. The disease was imported from Basti and the Nanpara notified area was the only area affected. 582 anti-plague inoculations were performed.

(c) *Small-pox.*—Only 8 deaths were returned under this head against 207 in 1927.

(d) *Malaria*—Was severe in 1928 and 17,731 deaths were returned against 13,986 in 1927. Quinine and cinchona tablets were freely distributed through sanitary inspectors, vaccinators, sarpanches, etc. Oiling of tanks was also done as far as possible.

Sanitation.—All the villages under the Village Sanitation and Village Panchayats Acts were visited by the health staff; 1,950 villages and hamlets were also visited, of which 155 were for epidemics only. All the panchayat villages in the district have engaged sweepers on Rs. 3 per mensem and most of them are now supplied with rubbish hand-carts. The surface cleanliness of these villages has markedly improved.

The "village aid" scheme was in operation in 48 villages. All the inspectors and supervisors of co-operative societies, the students in patwaris' schools, and all the mortuary clerks were given lectures in sanitation and epidemic diseases. About 200 villagers and 134 school teachers were trained in sanitation and first aid; 60 village dais were also trained.

School inspections.—4,356 scholars in 82 schools were inspected by the health staff; 15 per cent. of the boys were unprotected against small-pox. Defective teeth came next with 10 per cent., poor nutrition with 2·8 per cent. and ear diseases with ·48 per cent. Advice was given in all cases in which a disease or defect was noticed.

Fairs and exhibitions.—All the fairs in the district were attended by the health staff and necessary sanitary arrangements made. A public health exhibition was held where sanitary models were exhibited.

Hygiene publicity work.—About 17 magic lantern demonstrations were given. In addition, lectures and instructions were given to the villagers in all the villages visited.

(11) SULTANPUR.

Registration of vital statistics.—The public health staff checked 11,872 entries. The percentage of omissions detected was ·6.

Epidemics. (a) *Cholera.*—3,520 deaths were reported from this cause against 1,620 in 1927. The first case was an imported one from Calcutta in March, but infection was reintroduced in the district in the third week of April from Ajodhya after the dispersal of the Ram Naumi fair. The first wave died down by July, but the disease broke out again in October and assumed a serious form; 13,675 anti-cholera inoculations were performed.

(b) *Plague.*—15 deaths were reported from this disease against 34 in 1927. The disease was of a mild type and remained confined to ten villages. 1,924 anti-plague inoculations were performed. Anti-rat campaigns were carried out in two places which were endemic foci last year. About 12,096 rats were killed in three months.

(c) *Small-pox.*—Ten deaths were reported under this head against 122 in 1927. Only seven villages were affected.

(d) *Malaria.*—The district is not particularly malarious; yet 16,567 deaths were returned under this head against 15,969 in 1927. This is obviously owing to wrong diagnosis. Quinine and cinchona were distributed for curative purposes.

Sanitation.—The district medical officer of health is in charge of the sanitation of the Sultanpur municipality, and in that capacity made inspections of the municipal area and made necessary recommendations.

The public health staff visited 2,146 villages (690 for epidemics only). The villagers themselves cleaned about 770 villages.

Progress with the "village aid" scheme was retarded by the epidemic of cholera which was prevalent in the latter part of the year. The complete scheme is in force in four villages and part of the scheme in 24 villages. The health staff trained about 100 "village aiders;" 33 school teachers, 6 supervisors of the co-operative societies, 8 patwaris and 6 chaukidars in sanitation and first aid.

Hygiene publicity work.—In all the villages visited—whether for sanitation or for epidemics—lectures were given on the infectious diseases, sanitation and personal hygiene; demonstrations were also given at fairs.

Maternity and child-welfare work.—A baby show was held at the district headquarters and shows were also held at Gauriganj, Dera and Musafirkhana. The attendance was fairly large. Midwifery boxes were supplied to panchayats for the use of local dais.

School inspections.—3,282 boys in 64 schools were medically examined by the health staff; 33 per cent. of the scholars were found unvaccinated. Trachoma was noticeable in 3·2 per cent., ear diseases in 7 per cent., tonsilitis in 6 per cent., and dirty teeth in 4·2 per cent.

Fifty sets of medical equipment were supplied to schools situated away from the local dispensaries.

(12) PARTABGARH.

Registration of vital statistics.—The district health staff checked 1,685 entries and the vaccination staff 27,531. The percentage of omissions found by the former was 7·1 and by the latter ·24. Lectures were given to the chaukidars and thana muharrirs on the subject of registration of vital statistics.

Epidemics—(*a*) *Cholera.*—Two serious outbreaks of cholera—both due to importation—occurred. Altogether 338 villages were affected, causing 1,453 deaths; 11,456 doses of essential oils mixture were distributed free, and over 5,000 wells were disinfected. 2,104 anti-cholera inoculations were also performed. The second outbreak was traced to the solar eclipse fair at Benares which was attended by a large number of people from the eastern half of the district. In view of the gravity of the situation the routine public health work was suspended and attention was concentrated on anti-cholera work. Several reports of outbreaks were received from the village schoolmasters, and one school undert he village aid scheme gave necessary aid in the cholera epidemic.

(*b*) *Plague.*—64 villages were affected causing 252 deaths; 1,654 anti-plague inoculations were performed. Anti-rat campaigns were carried out in four of the endemic areas (three of which were "village aid" centres under the charge of school teachers), and about 6,670 rats were destroyed.

(*c*) *Small-pox.*—84 deaths were reported from 15 villages. During inspections of schools 24 per cent. of the boys were found unvaccinated of which 17 per cent. had small-pox marks. The chairman issued instructions to the school teachers to get all the school children vaccinated, and as a result 1,885 scholars were vaccinated in 155 schools.

(*d*) *Malaria.*—11,442 deaths were returned under this head against 11,821 in 1927. The dispensary records show that 8,993 patients were treated for malaria in the district against 10,308 in 1927; 82 pits and depressions were filled up by the labour gangs. A number of tanks were surveyed and the varieties of the fish found in them were identified. Cinchona tablets were also distributed.

Sanitation.—The district medical officer of health is in charge of the sanitation of the Bela-Partabgarh Municipality. He made necessary recommendations and these were generally carried out by the municipal board. Attention was particularly directed to the purity of food stuffs, i.e., detection of adulteration, protection from flies, etc., and articles found unfit for human consumption were destroyed.

The three town areas and the three villages under the Village Sanitation Act were all visited by the health staff.

Out of the 2,188 villages in the district, sanitary inspectors visited 1,046 villages, the assistant medical officer of health 349, and the district medical officer of health 399. The medical officer of the travelling dispensary visited 78 villages. Definite improvements have been made in 144 villages. The labour gangs cleaned 281 village sites, filled up 82 excavations, removed about 800 manure heaps, made 27 soakage pits, dug out 26 manure pits and cleaned 10 and improved 16 wells, besides cleaning old drains and carrying out other minor sanitary improvements. Special attention was devoted to the question of manure heaps. Thousands of copies in vernacular of a notice stating the proper method of storing manure and the advantages resulting therefrom were distributed to the public through patwaris, ziladars, and school teachers. In some cases zamindars were prevailed upon to permit villagers to pit manure on the barren land. In places where villagers are keen on the subject little difficulty is experienced in obtaining suitable land for the purpose. At the lowest estimate 500 manure pits have already been dug out by the villagers themselves; 17 wells were provided in different parts of the district as models.

The "village aid" scheme is in operation in certain villages and a large number of teachers, scholars, students in the patwaris' school and middle school, inspectors and supervisors of co-operative societies and students in the supervisors and auditors' training class of that society were trained in sanitation, first aid, common accidents, etc. Special attention was concentrated in three villages in order to convert them into model villages. The results have been encouraging.

91 indigenous dais were trained by the health staff and 18 of them were supplied with packets of potassium permanganate, pairs of scissors, and bottles of dusting powder.

Hygiene publicity work.—Considerable attention was directed to this work, and the services of school teachers, scout masters, officials of the co-operative department, sarpanches, and private individuals were enlisted; 16 magic lantern demonstrations were given by medical officers to approximately 2,575 persons and 212 lectures without lanterns to an audience totalling 16,848. Sanitary inspectors delivered 505 lectures to nearly 10,075 people.

School inspections.—The health staff visited 204 schools and examined 3,366 scholars. Many of the teachers were supplied with medicines to

treat commoner ailments. Seven per cent. were found unprotected against small-pox. Defective teeth were detected in 8·4 per cent., defective eyes in 11 per cent., poor nutrition in 10·8 per cent., and skin diseases in 12·5 per cent. of the boys.

Some of the teachers held "teeth-brushing parades" at which they demonstrated to the scholars the proper way to clean the teeth. Instructions were given for a week to 34 school teachers in school hygiene, etc.

Fairs, exhibitions, etc.—The sanitary arrangements at nearly all the fairs were supervised by the health staff.

Special arrangements were made at the Kartiki Puranmashi fair which in the past years was responsible for spreading cholera in the district. The attendance this year was over 60,000. No case of cholera occurred. A large amount of hygiene publicity work was done at this fair, and posters on health subjects were put up at the bathing ghâts which people were noticed reading interestedly. A public health exhibition was held and was a great success.

(13) BARA BANKI.

Registration of vital statistics.—35,783 entries were checked by the health staff. The percentage of omissions discovered was 8.

Epidemics.—(*a*) *Cholera.*—The first case occurred in the Fatehpur tehsil and was imported from the Ram Naumi fair at Ajodhya. Altogether 1,394 deaths occurred in 1928 against 184 in 1927; 1,799 anti-cholera inoculations were performed and about 5,000 wells were permanganated.

(*b*) *Plague.*—2,963 deaths were reported under this head against 459 in 1927; 6,433 anti-plague inoculations were performed.

(*c*) *Malaria.*—15,741 deaths were reported under this head. The Gogra tarai is notorious for malaria and the spleen index which was taken confirmed this fact. Paris green was spread over a number of tanks in certain selected areas with good results.

(*d*) *Small-pox.*—Only 9 deaths were recorded.

Sanitation.—The district medical officer of health is in charge of the sanitation of the Bara Banki Municipality and gave advice and assistance to the board. The health staff visited all the notified and town areas and villages under the Village Sanitation Act, as well as 986 other villages. The labour gangs constructed 462 soakage pits and 16 kachcha drains, filled up 723 excavations and constructed parapet walls to many wells. The village panchayats constructed six pucca wells and the zamindars six pucca drains on the advice of the health staff.

The "village aid" scheme was enforced in 36 villages and 479 village aiders were trained. 122 dais were also trained and were supplied with boxes containing necessary requisites; 34 village aid dispensaries were opened at various centres.

School inspections.—8,990 scholars in 155 schools were medically examined. Defects of the eye and teeth, skin diseases, and absence of protection from small-pox were chiefly noticeable.

Fairs and exhibitions.—13 fairs were held during the year. The attendance at them varied from 1,850 to 45,000. Necessary sanitary and

medical arrangements were made and supervised by the public health staff and lectures and demonstrations given.

A public health exhibition was also organized where various sanitary models, etc., were exhibited and magic lantern demonstrations given.

One of the fairs was held in November when cholera was prevalent in the vicinity of the fair area and extra precautions were taken to prevent the occurrence of the disease.

Hygiene publicity work.—Lectures on first aid and sanitation were given to scouts, members of the co-operative societies, students of the patwari school and to chaukidars.

(14) MIRZAPUR.

Registration of vital statistics.—Lectures on different diseases were delivered to several mortuary clerks and chaukidars; 4,373 entries were checked by the health staff and the percentage of omissions discovered was 2·7.

Epidemics.—(*a*) *Cholera.*—The disease is generally imported from the Benares district which adjoins it. Villages along the Ganges were generally more infected chiefly because of the practice of the villagers of throwing dead bodies into the river. The total number of deaths was 628 against 2,435 in 1927; 2,709 anti-cholera inoculations were performed, and all possible anti-cholera measures were taken.

(*b*) *Plague.*—The district was entirely free from plague, only one imported case being reported from the Mirzapur municipality. Anti-rat campaigns were carried out in the villages adjoining other districts and 228 anti-plague inoculations were performed.

(*c*) *Small-pox.*—155 deaths were reported against 486 in 1927. A fair percentage of school children was found unvaccinated.

(*d*) *Malaria.*—The series of pools and streams and wide stretches of jungles make the district very malarious; 14,884 patients were treated for malaria in the various hospitals and dispensaries in the district. The total number of deaths returned under this head was 11,391 against 11,428 in 1927. For the villages under the Village Sanitation Act rules have been framed prohibiting fresh excavations while old excavations are being gradually filled up by the villagers or by the labour gangs. Quinine and cinchona tablets were distributed.

(*e*) *Influenza.*—There was a small epidemic, and 366 patients were treated.

Sanitation.—There are 3 notified areas, 3 town areas, and 21 villages under the Village Sanitation Act. All these were visited by the health staff and recommendations were made from time to time. Under the orders of the district magistrate most of the villages under the Village Sanitation Act were visited jointly by the district health staff and the tahsildars and in the majority of cases action was taken on the spot.

The district health staff visited 1,863 villages. On their advice, 66 panchayats purchased medicines worth Rs. 5 for free distribution in their villages and the district medical officer of health supplemented these by quinine pills, essential oils mixture and permanganate of potash from his stock. In some villages manure pits and sokage pits were constructed,

excavations were filled up, rubbish heaps were removed outside the abadi, and other minor sanitary improvements were carried out by the labour gangs, chiefly by way of demonstration to the villagers.

School inspections.—5,278 scholars in 143 schools were medically examined. Enlargement of spleen was chiefly noticeable in the schools in the Dudhi and Robertsganj tahsils and in the villages situated at the foot of the hills. The other defects noticed were skin diseases, eye diseases (granular lids and conjuctivitis), and ear diseases. Children with enlarged spleen were supplied quinine or cinchona tablets.

Fairs.—Several fairs were held in the district, the attendance varying from 2,000 to 15,000. The sanitary arrangements were supervised by the health staff.

Hygiene publicity work.—Lectures and magic lantern demonstrations were given in the various schools and fairs and pamphlets and posters were also distributed. A special pamphlet on village sanitation and common accidents was printed and distributed freely. A number of village dais were trained under the "village aid" scheme and were supplied a small midwifery set.

(15) ALLAHABAD.

Registration of vital statistics.—3,662 entries were checked by the health staff, and the percentage of omissions discovered was 4·01. Lectures were delivered on infectious diseases and the advantages of early notification to chaukidars and patwaris. The superintendent of police and the district magistrate dealt with departmentally cases of neglect in reporting, which were brought to their notice.

Epidemics.—(*a*) *Cholera.*—Was first imported into Chail tahsil from Allahabad town and in Meja and Karchana tahsils from the Rewa State. All preventive measures were adopted and the disease died down in September. The disease was, however, again imported into a few villages of Handia, Phulpur, Karchana and Soron tahsils in November after the dispersal of the solar eclipse fair in Benares and continued to December. In all 132 villages were infected; 767 deaths were reported in 1928 against 498 in 1927.

(*b*) *Plague.*—Was responsible for 944 deaths against 326 in 1927; 2,250 anti-plague inoculations were performed.

(*c*) *Small-pox.*—This was responsible for 203 deaths in 1928 against 573 in 1927; 65 villages were in all infected.

(*d*) *Malaria.*—11,843 deaths were returned under this head against 13,939 in 1927. Quinine was distributed in the affected areas.

Sanitation.—In most of the villages manure is stored in the fields and the village water-supply is now well protected. The health staff inspected 7,520 villages. Improvements were carried out in 56 villages. The sanitation of the town areas shows distinct improvement.

Under the "village aid" scheme 226 village aiders, 120 school masters, 9 scout masters, 11 inspectors and supervisors of co-operative societies, 326 patwaris, 52 constables, and 301 chaukidars were trained in sanitation, first aid and common accidents. Six village aid dispensaries were opened and 172 village dais were trained; 54 sanitary wells have been provided.

School inspections.—6,979 scholars in 218 schools were medically examined; 1,309 of these were found unvaccinated.

Hygiene publicity work.—The district and assistant medical officers of health delivered 1,404 lectures to about 20,000 people. Sanitary inspectors gave 606 lectures to an approximate gathering of 9,000 persons.

Fairs.—The sanitary arrangements at all the fairs were supervised by the health staff. Cholera was prevalent in the adjoining villages of one fair, but only one imported case occurred at that fair, due to the strict watch kept by the health staff.

(16) MORADABAD.

Registration of vital statistics.—The total number of entries checked by the health staff was 10,129 and the percentage of omissions found was 3·08.

Epidemics.—(*a*) *Cholera.* 39 deaths were reported from this disease in 1928 against 76 in 1927. Reporting of primary outbreaks was satisfactory.

(*b*) *Plague.*—6,649 deaths occurred from this disease in 1928 against 534 in 1927. The epidemic was severe in the Thakurdwara tahsil. In all 35,440 inoculations were perfomed in the district of which the health staff alone performed 19,185. Anti-rat campaigns were carried out in endemic areas, and about 9,100 rats were destroyed.

(*c*) *Small-pox.*—No deaths were reported from small-pox in the rural areas while only 3 deaths occurred in the Moradabad municipality.

(*d*) *Malaria.*—26,192 deaths were returned under this head against 29,483 in 1927. Various anti-malarial measures are being carried on the most popular being the cinchonisation scheme. A large anti-malarial work consisting of filling up of a large tank has recently been completed at Dehri with the assistance of a grant from the Government, while a series of excavations made by a zamindar in the Moradabad tahsil are being filled up by the zamindar under the orders of the city magistrate to whom the matter was referred by the health staff. The labour gangs filled up 423 excavations and constructed 18 kachcha drains Larvae-eating fishes were introduced in some of the tanks to reduce the breeding of mosquitoes.

Sanitation.—The district medical officer of health is in supervising charge of the sanitation of the Sambhal municipality, 1 notified area, 9 town areas and 21 villages under the Village Sanitation Act. All these were visited and necessary recommendations were made. Three wells have been made "sanitary" in one of the villages under the Village Sanitation Act from the income of the tebhazari of the weekly market held there. Four sweepers have also been engaged in this village. Improvements were carried out in some other villages.

Out of the 2,644 villages in the district the health staff visited 1,803 villages in which no sanitary legislation was in force. Of these 589 villages were visited for epidemics alone. In 495 villages the staff succeeded in getting 12,844 rubbish heaps and ghooras removed outside the abadi. In 33 villages 67 model rubbish dépôts have been constructed by the labour gangs and all these are being used by the villagers. Owing to lack of interest by zamindars difficulty is felt in obtaining land to store rubbish.

The health staff, however, succeeded in obtaining 67 sites for the purpose. The district board is contemplating the acquisition of land in two villages in each tahsil for constructing model rubblish dépôts. A beginning has also been made to prepare trenching grounds in villages to preserve manure, but the measure being new is not liked by villagers.

The labour gangs constructed 86 soakage pits, dug 19 kachcha drains, and converted 39 insanitary wells into sanitary. They also filled up 223 pits, and trimmed the edges of seven tanks, while the villagers themselves filled up about 200 pits and improved 11 wells. The Court of Wards have improved a number of wells and have constructed some new ones. The water-supply of 11 wells have been improved by boring.

Under the " village aid " scheme 467 boys, 270 villagers, 197 patwaris, 440 chaukidars and 18 constables and a number of inspectors and supervisors of co-operative societies were trained in first aid, sanitation, and common accidents ; 94 dais were also trained.

Fairs and exhibitions.—The Ganges fair at Tigri and another at Bujpur Asa were held in the district during the year. The health staff supervised the sanitary arrangements at both which passed off without the occurrence of any infectious disease. An exhibition was organized at the Tigri fair.

School inspections—2,647 scholars in 50 schools were medically examined. The prevailing diseases were trachoma, malaria, skin diseases, and bad teeth. Advice and medicines were given in all cases. Teachers were instructed by the deputy inspectors of schools to devote 5 minutes every day to instruction in hygiene. Twenty-five pumps were installed in schools on the advice of the district medical officer of health.

Hygiene publicity work.—128 magic lantern demonstrations were given in various villages, towns and schools and in fairs to approximate gatherings of 17,000 ; 1,640 lectures were also given to approximate gatherings of 48,000 in all.

Medical relief in rural areas.—The work of the hakims and vaids working in subsidised dispensaries was supervised by the public health staff.

(17) BULANDSHAHR.

Registration of vital statistics.—The district health staff verified 13,403 entries and the vaccination staff 29,293. The percentage of omissions discovered was 1·33 and ·99, respectively. Teachers of village schools were instructed to assist chaukidars in prompt reporting.

Epidemics—(*a*) *Cholera.*—Reporting of cholera was defective. The cooperation of private medical practitioners in the rural areas was enlisted in obtaining earlier information from the areas in which they worked, 360 deaths were reported under this head, out of which 23 occurred in the municipalities; 797 anti-cholera inoculations were performed.

(*b*) *Plague.*—118 deaths in 8 villages occurred during the year against 110 in 1927. The district and assistant medical officers of health visited all the affected areas ; 1,712 anti-plague inoculations were performed against 403 in 1927. Anti-rat campaigns were carried out in the Bulandshahr municipality and 25,359 rats were destroyed.

(*c*) *Small-pox.*—64 deaths were reported under this head against 62 in 1927.

(*d*) *Malaria.*—22,090 deaths were returned under this head against 22,743 in 1927. The cinchonisation scheme was in force in four villages. Kerosining and paris-greening of tanks was also carried on.

Sanitation.—There are two notified areas, 13 town areas and 21 villages under the Village Sanitation Act and 65 under the Village Panchayats Act. Almost all these were visited by the health staff and necessary recommendations were made.

Out of the 1,667 villages in the district health staff visited 997 villages. In 283 of these improvements were made on the advice of the health staff. 80 villages were visited for epidemics alone.

The "village aid" scheme was in operation in 22 villages towards the close of the year; 679 enclosed pits for the storage of rubbish and manure heaps were constructed by the villagers themselves and 25 wells were provided with pucca parapet walls and iron pulleys. 29 "village aiders", were trained in sanitation, common accidents and first aid. Bye-laws have been approved by the Government for the regulation of the construction of new wells, for the storage of bones and hides and the curing of raw skins.

School inspections.—3,356 scholars in 149 schools were medically examined by the district and assistant medical officers of health. Defective teeth was noticeable in 6·02 per cent. of the boys, enlarged spleen in 5·03 per cent., defective eyes in 4·44 per cent. and skin diseases in 4·62 per cent. Advice was given in all cases. Many of the teachers were supplied with cinchona tablets for treating scholars suffering from malaria.

Hygiene publicity work.—50 magic lantern demonstrations and 634 lectures were given on various diseases.

Fairs.—All the important fairs were supervised by the health staff. No case of infectious disease occurred. A public health exhibition was organized in connexion with the district exhibition and was attended by many people. Mr. F. L. Brayne, I.C.S., Deputy Commissioner of Gurgaon who attended the fair gave one magic lantern demonstration on village uplift in the public health exhibition camp.

Inspection of factories.—Some of the factories were inspected and recommendations made.

(18) LUCKNOW.

Registration of vital statistics.—126 lectures were given to the chaukidars and 32 to the thana muharrirs on the subject of registration of vital statistics and some improvement in the quality of the work is noticeable. 6,895 birth and death entries were checked. The percentage of omissions discovered was 1·44.

Epidemics.—(*a*) *Cholera.*—497 deaths occurred from this cause of which 132 occurred in the Lucknow municipality. 620 anti-cholera inoculations were performed and 409 patients were treated by the health staff. Infection in the rural areas was mostly from the municipality. The disease died down in September but stray cases occurred in October, November and December. The infection was traced to importations from the solar eclipse fair at Benares and another fair in Bengal.

(*b*) *Plague.*—76 deaths occurred from this disease against 115 in 1927. Of these, 19 occurred in the Lucknow municipality. Intensive

anti-rat campaigns were carried on in the affected areas and about 3,600 rats were destroyed; 83 patients were treated by the health staff.

(c) *Small-pox.*—184 deaths occurred from this cause of which 169 occurred in the municipality.

(d) *Malaria.*—8,315 deaths were returned under this head against 8,276 in 1927. Scout masters, adult villagers and boys in village schools were taught to run cattle in collections of water, burn *neem* leaves and oil ponds and tanks. Anti-malarial survey of the Malihabad town area was also carried out.

Sanitation.—The district medical officer of health supervised the sanitation of the town areas. Schemes for the proper disposal of night-soil and rubbish have been drawn up and will shortly be enforced, Wire gauze doors for the sale of sweetmeats have been introduced. Five sanitary wells were constructed in the Goshainganj and Amethi town areas and 20 soakage pits in two town areas and a new kerb and channel drain in one.

2,133 villages were visited by the health staff. Emphasis was laid on the removal of rubbish heaps outside the *abadi* and on the construction of soakage pits. About 800 such pits were made while 6,043 feet of pucca kerb and channel drain were constructed in three villages in addition to many pucca drains for house and street connexions. Wire gauze frames for the sale of sweetmeats were introduced in most of the villages under the Village Sanitation Act. Four sanitary wells were also constructed in two such villages.

Under the "village aid scheme" 61 village aiders, 112 school teachers, 458 scholars, six scout masters, one inspector and 16 supervisors of co-opertive societies and two chaukidars were trained in sanitation, first aid and common accidents; 31 dais were also trained; four sarpanches and four headmasters are maintaining registers of births and deaths. Three first aid dispensaries were opened and 26 sanitary wells were provided.

School inspections.—227 schools out of the 314 schools in the district were visited during the year and 7,322 scholars were medically examined. A high percentage (28·55) of the boys was found unprotected against small-pox. Defective teeth came next with 10·33 and defective eyes with 2·70. The district boards have agreed to set apart one period once a week in all schools for sanitary parade and practical instruction in personal hygiene.

Hygiene publicity work.—14 magic lantern demonstrations with an approximate attendance of 3,600 and 1,009 lectures with an approximate attendance of 2,600 were delivered in schools and villages by the district health staff.

(19) UNAO.

Registration of vital statistics.—The total number of entries checked by the district health staff was 3,656 and the percentage of omissions detected was 6·26 against 15·1 in 1927. Leaflets were distributed to the thanas for the benefit of the chaukidars, describing typical symptoms of a few of the common diseases.

Epidemics.—(a) *Cholera.*—50 villages were infected with cholera and 273 deaths were reported in 1928 against 17 in 1927. The disease was at

its worst in the Safipur tahsil. In all 4,867 wells were permanganated and essential oils mixture was distributed.

(*b*) *Plague.*—875 deaths from 69 villages were reported from this cause against 231 in 1927. 4,331 anti-plague inoculations were performed by the health staff. Evacuated villages were cleaned by the labour gangs before the inhabitants were permitted to return to them. Anti-rat campaigns were carried on in a couple of villages in the endemic area.

(*c*) *Small-pox.*—Only eight deaths were reported from this cause in 1928 against 84 in 1927.

(*d*) *Malaria.*—10,922 deaths were returned under this head against 11,305 in 1927. Anti-malarial surveys are in progress in some of the important villages. The labour gangs filled up many pits and excavations.

Sanitation.—The district medical officer of health is in charge of the sanitation of the Unao municipality. He made necessary inspections and forwarded his recommendations to the municipal board. There are five town areas and 28 villages under the Village Sanitation Act in the district all of which were inspected. On the suggestion of the district medical officer of health the deputy commissioner framed rules for the villages under the Village Sanitation Act to regulate the storing of rubbish and manure, carrying on offensive trades, burying dead bodies and removal of earth from tanks.

The health staff visited 1,137 villages. The labour gangs constructed 409 soakage pits, provided katcha drains, repaired many wells and cleaned many villages. In many villages villagers are now keeping "ghooras" outside the abadi.

Under the "village aid" scheme two inspectors and eight supervisors of the co-operative societies, 38 schools teachers and scout masters and 36 village aiders were trained in sanitation, first aid and common accidents. 46 dais were also trained and sets of boxes containing sterilised ash, knife and some thread and potassium permanganate were issued to some of the dais. Vaccinators trained 112 village aiders.

School inspections.—Out of the 341 schools in the district 106 schools were visited by the health staff and 2,030 scholars were medically examined.

A large number of boys was found unprotected against small-pox while many scholars had small-pox marks. Defective teeth, defective eyes, enlargement of spleen, anaemia and skin diseases were also common.

The teaching of hygiene was introduced in the upper primary schools for half an hour once a week.

Fairs.—The sanitary arrangements at all the fairs were supervised by the public health staff. The *Durga Kushari* fair was held in March when there was plague in villages where this fair is held. Attendance at the fair was, therefore, discouraged and the infected areas was cut off by a distance of 200 yards from the mela area. Pilgrims were also prevented from encamping in the infected basti. Section 34 of the Police Act was applied in certain fairs.

Hygiene publicity work.—The usual publicity methods were followed.

(20) RAE BARELI.

Registration of vital statistics.—1,795 entries were checked by the health staff and the percentage of omissions discovered was ·61.

Epidemics—(a) Cholera.—760 deaths were reported from this cause against 427 in 1927. The services of school teachers, mukhias and other reliable persons in villages were utilized for promptly reporting cholera cases. Vaccinators were also required to report cases they noticed in their tours. All necessary steps were taken.

(*b*) *Plague.*—953 deaths were reported against 259 in 1927; 4,706 anti-plague inoculations were performed.

(*c*) *Small-pox.*—Only 18 deaths occurred during 1928 against 28 in 1927. During the medical examination of scholars it was found that 50 per cent. of the boys bore small-pox marks.

(*d*) *Malaria.*—10,453 deaths were returned under this head against 9,646 in 1927. The labour gangs filled up 882 pits, chiefly for demonstration purposes. Rules were made under the Village Sanitation Act for preventing fresh excavations in the villages under the Act.

Sanitation.—The district medical officer of health is *ex-officio* medical officer of health of the Rae Bareli municipality and in that capacity obtained samples of ghee suspected of adulteration. Prosecutions were instituted in four cases in which samples were certified to be adulterated. The sanitation of the Dalmau town area which the district medical officer of health supervised showed marked improvement.

Thirty-seven new villages were brought under the Village Sanitation Act. All these and the existing villages under the Act were visited by the health staff and their advice and suggestions were carried out by the district officials.

In all 1,776 villages were visited by the health staff of which 398 were visited for epidemics only. In 423 villages improvements were made on the advice of the health staff. The labour gangs constructed 570 soakage pits and 56 katcha drains and cleaned 50 wells. A large amount of work was also done by the villagers themselves.

Under the "village aid" scheme 10 village "aiders" and 10 school masters were trained and the scheme was extended to 15 villages. The five dispensaries started under this scheme are popular.

School inspections.—37 schools out of 348 in the district were inspected by the health staff and 2,755 scholars were medically examined. 6·24 per cent. of the boys had defective teeth and 5·11 defective eyes. Skin diseases came next with 4·21 per cent.

Fairs and exhibitions.—The Dalmau fair was held on the bank of the Ganges in October and was attended by about one lakh pilgrims. Sanitary arrangements were made and supervised by the health staff who also organized a public health exhibition. Another large fair was held at Kurri-Sidhauli which was attended by about 40,000 pilgrims. An exhibition was organized at this fair also and proved of considerable demonstrative value to the villagers.

Hygiene publicity work.—The usual publicity methods were followed. In addition, the district medical officer of health composed small couplets

and songs in rural language and dialogues for the students and distributed these in the villages.

Physical culture.—A grant was received from the local Government for the promotion of physical culture. The district medical officer of health is secretary of the district physical culture committee. Under the auspices of this committee a number of clubs have been formed all over the district and the oriental games are being revived. Interest has also been kindled in swimming, etc.

Child welfare and maternity work.—Two centres were opened in Rae Bareli municipality while sufficient funds have been realized for starting some centres in rural areas. This has only been delayed for want of trained dais and health visitors.

(21) SITAPUR.

Registration of vital statistics.—A course of seven lectures was given by the district medical officer of health and assistant medical officer of health to the mortuary clerks of all the police stations of the district on the symptoms of the common diseases. The district health staff checked 3,640 birth and death entries and the percentage of omissions discovered by them was 4·5. Two chaukidars were found to have no entries in their registers one for six months and another for over a year. They were suitably dealt with by the police authorities. The vaccination staff tested 27,465 entries with a percentage of omissions of ·24.

Epidemics (*a*) *Cholera.*—294 deaths occurred from this disease against 35 in 1927. Bodies of persons dying of cholera are buried near tanks or near drinking wells and those of children thrown into tanks. This was prohibited early in the outbreak but where burial had already taken place the wells were closed and their water was not allowed to be used. Reporting was defective and one patwari was dismissed. The services of mukhias, school masters and other respectable persons of the villages were enlisted for reporting fresh out-breaks direct to the district medical officer of health. This had the advantage of putting the official agencies on the alert. 355 inoculations were performed.

(*b*) *Plague.*—1,389 deaths occurred from this disease in 1928 against 324 in 1927. Inoculation was not popular but nevertheless 6,023 inoculations were performed against 1,047 in 1927. Anti-rat campaigns were carried on in endemic areas and about 5,000 rats were destroyed.

(*c*) *Malaria.*—18,872, deaths were returned under this head against 18,606 in 1927. 19,132 patients were treated at the various dispensaries in the district. A number of pits and depressions was filled.

(*d*) *Small-pox.*—Only 20 deaths occurred from this disease in 1928 against 83 in 1827.

Sanitation.—All the town areas and villages under the Village Sanitation Act and 1,551 ordinary villages were visited by the public health staff. Byelaws for the regulation of manufacture and sale of sweetmeats and for the registration of dogs have been passed in all the town areas.

Before the introduction of the "village aid scheme" 48 villages were selected for special sanitary work to serve as models for other villages.

The village aid scheme is in operation in 4 patwari circles. The complete scheme is in operation in 63 villages and partial scheme in 86 villages.

147 adult villagers, 21 school teachers, one scout master, 10 scouts and 13 patwaries have been trained as "village aiders," 38 village dais have also been trained. A course of 15 lectures in sanitation and first aid was given to six supervisors and one inspector of co-operative societies. The special manager of the court of wards sanctioned Rs. 400 for the repairs of wells in the four court of wards villages in which the scheme is also being worked. The scheme is also in operation in some of the co-operative society villages.

Fairs.—The sanitary arrangements at the *Paikarma* fair (attendance 1½ lakhs), the *Somwati amawas* fair (attendance approximately 100,000) and the *Kartiki ashnan* fair (attendance 60,000) were supervised by the district medical officer of health, The sanitary arrangements at the smaller fairs were supervised by sanitary inspectors under his orders.

Hygiene publicity work.—Lectures and demonstrations were given at the fairs where exhibitions were also organized. During inspections of schools the teachers and boys were instructed in simple rules of hygiene; and simple rules have been dictated in the exercise books of the boys. Teachers were directed to ask one question on hygiene in the classes each day before beginning the day's work. 30 lectures with magic lantern demonstrations were delivered by the district and assistant medical officers of health while 150 lectures were given without lantern demonstrations. The sanitary inspectors delivered 750 lectures.

School inspections.—4,755 scholars in 93 schools were medically examined by the district and assistant medical officers of health. The percentage of scholars found unprotected against small-pox was 20. A high percentage of scholars suffer from poor nutrition, defective teeth and anaemia.

The teaching of hygiene in schools left much to be desired mainly through the apathy of the teachers who regarded this as a side show. The deputy commissioner is, however, making this a special point in his school inspections.

The scheme of supplying certain simple medicines to the school masters with instructions for their use was introduced in this district in the beginning of the year. Supplies were first made to 116 schools but the scheme has attained considerable popularity and applications for inclusion in the selected list are being received every day from other schools.

(22) HARDOI.

Registration of vital statistics.—The chaukidars of the district have been taught the main symptoms of the ordinary diseases and seem on the whole to have exercised more judgment in reporting cases. Reporting of infectious diseases was fairly good. 7,223 entries were checked by the health staff and the percentage of omissions found was 4·1.

Epidemics—(a) Cholera.—214 deaths occurred in 1928 against 75 in 1927. The disease was imported into the district in April from the Lucknow district. About 3,000 wells were disinfected but anti-cholera inoculations could only be done in the municipal area.

(b) Plague.—1,748 deaths were reported from this cause against 423 in 1927. Shahabad and Hardoi tahsils were heavily infected. 10,436 anti-plague inoculations were performed. Extensive rat trapping

was carried on in the Shahabad town all the year round. About 4,326 rats were destroyed.

(*c*) *Malaria.*—17,039 deaths occurred in 1928 from this cause against 17,778 in 1927. Certain special anti-malarial measures were applied in selected parts of the district, while certain villages were selected for regular quininization. Smaller excavations were filled up by the labour gangs.

(*d*) *Small-pox.*—17 deaths were reported from this disease against 47 in 1927. A fair percentage of school children was found unvaccinated.

Sanitation.—The district medical officer of health is in charge of the sanitation of the three municipalities, four notified areas and three town areas in the district. All these were visited by the public health staff and necessary recommendations made.

The health staff also visited 2,187 villages (119 for epidemics only). Improvements were made in 73 villages on their advice. 108 wells were cleaned. The village aid scheme is in operation in 29 villages and 337 village aiders have been trained.

School inspections.—3,649 scholars in 139 schools were examined by the district and assistant medical officers of health. The common prevailing diseases were bad teeth, enlargement of spleen, granular eyelids, etc. Advice and in some cases medicines were given to those found suffering while others were advised to visit the dispensaries.

Hygiene publicity work.—The usual methods were adopted. Magic lantern demonstrations and lectures were given. The sanitary inspectors carried on regular propaganda work in villages.

Fairs.—The sanitary arrangements at all the important fairs were supervised by the public health staff. Hygiene propaganda work was vigorously carried on at these fairs.

Child welfare and maternity.—There is a centre in Hardoi with a trained midwife who successfully conducted 10 labour cases during the year.

(23) KHERI.

Registration of vital statistics.—2,409 birth and death entries were checked by the health staff and the percentage of omissions discovered was 7·4. Lectures were given to mortuary clerks and chaukidars.

Epidemics—(*a*) *Cholera.*—Two distinct waves of cholera passed over the district. The first was highest in May and the other in October. The first outbreak was traced to importations from Nepal. 730 deaths were in all reported in 1928 against 232 in 1927. All necessary precautions were taken.

(*b*) *Plague.*—1,534 deaths were reported from this disease in 1928 against 316 in 1927. 50 villages were infected. 5,443 persons were inoculated. Anti-rat campaigns were also carried on.

(*c*) *Small-pox.*—This was markedly less, only seven deaths being returned in 1928 against 50 in 1927.

(*d*) *Malaria.*—19,829 deaths were returned under this head. Quinine was freely distributed and certain anti-malarial schemes were tried.

Sanitation.—The district medical officer of health is the *ex-officio* medical officer of health of the Lakhimpur municipality and made inspections every now and then. The health staff visited all the notified and town areas, villages under the Village Sanitation Act, and 857 villages. Some of the managers of the court of wards and some of the landlords in the district were persuaded to allot permanent sites for the storage of manure heaps outside the abadi. Manure heaps were removed outside habitations by the villagers themselves by persuasion.

Complete village aid scheme is in force in 16 villages and part of the scheme in 195 villages. 451 village aiders, 88 school teachers, 21 scout masters, 10 vaccinators, 60 patwaris and 20 constables were trained in sanitation, first aid and common accidents. 28 village dais were also trained. Three dispensaries were opened. Mr. Bonnerjee, a taluqdar of Rampur Grant placed a sum of Rs. 1,000 for the furtherance of public health activities at the disposal of the district medical officer of health.

Inspection of schools.—3,592 scholars in 135 schools were medically examined; 33 per cent. of the boys had poor physique and 25 per cent. were unprotected against small-pox. The other diseases found were trachoma, ringworm, carious teeth, enlarged tonsils, etc. The district medical officer of health detected a few cases of leprosy in the early stage. He advised the parents to send the children to the Naini Leper Asylum for a systematic course of treatment and his advice was followed.

Lectures on first aid and infectious diseases were given at the time of inspection.

Hygiene publicity work.—In all 1,029 lectures were given by the health staff of which 46 were illustrated by magic lanterns. About 58,900 persons attended these lectures.

Fairs.—The sanitary arrangements at all the big fairs were supervised by the district medical officer of health. They passed off without the occurrence of an infectious disease.

(24) FATEHPUR.

Registration of vital statistics.—Lectures were delivered to the mortuary clerks and chaukidars in which the importance of correct registration of vital statistics was emphasised and some improvement in the monthly returns is now noticeable. The district health staff checked 10,265 entries in addition to 175 chaukidars' books and the vaccination staff 17,670. The percentages of omissions discovered were 13·01 and 1·65, respectively.

Epidemics.—(*a*) *Cholera.*—Only 20 deaths were reported.

(*b*) *Plague.*—121 deaths were reported from this disease against 61 in 1927. A large number of patients were treated by the health staff. Anti-rat campaigns were carried on in endemic areas.

(*c*) *Small-pox.*—Reporting of this disease in this district was particularly bad. Only two deaths were reported.

(*d*) *Malaria.*—5,564 deaths were reported from this disease against 6,252 in 1927. Quinine and cinchona were distributed through the members of the district board as well as by the public health staff. A malarial survey was made of the municipal area of Fatehpur and breeding places of mosquitos were oiled with the aid of boy scouts. In the rural areas the

labour gangs filled up many excavations and drained up many collections of water.

Sanitation.—The district medical officer of health is in charge of the sanitation of the Fatehpur municipality, and in that capacity gave necessary advice and assistance to the municipal board. The district medical officer of health also inspected the sanitation of the notified and town areas in the district and made necessary recommendations for improvement.

There are 72 panchayats in the district to all of which the Village Sanitation Act applies. Due to the frequent visits of the health staff the panchayats are beginning to show interest in sanitation and with a few exceptions manure and rubbish heaps have been removed outside the abadi. The villagers and labour gangs together constructed about 400 soakage pits in such villages.

The health staff paid 1,245 visits to 413 villages; manure heaps were removed outside the abadi in about 75 per cent. of the villages and soakage pits were constructed by the villagers themselves.

The "village aid" scheme is in operation in two patwari circles; 40 school teachers and 57 scholars were trained in sanitation, first aid and common accidents. Eleven village dais have also been trained.

School inspections.—6,944 scholars in 112 schools were examined for vaccination and 961 were found unprotected. 2,598 scholars were medically examined in 42 schools. Trachoma and defective teeth were common. The booklets "Popular hygiene" and *dehat-ki-tandurasti*" have been introduced in some schools. Instructions on hygiene are daily given by teachers for ten minutes. First aid classes have been opened in the town schools at Bindki, Fatehpur and Khaga.

Hygiene publicity work.—In all 877 lectures of which 60 were with magic lanterns were delivered by the health staff to audiences totalling about 36,000. Special arrangements were made for purdah ladies. Five public health exhibitions were held at various centres in the municipality and the rural areas. In three of these actual size soakage pits and manure trenches were shown along with other exhibits. The district medical officer of health invited essays from the school boys and awarded prizes, devising a novel and easy way of financing the scheme by putting up a weighing machine at the entrance to the exhibition and charging a small sum from those who had themselves weighed.

Fairs.—The health staff supervised the sanitary arrangements of all the fairs in the district. The attendance at one of the fairs was 100,000 and assistance was received from the boy scouts in the sanitary arrangements which the health staff made.

Maternity and child-welfare work:—This work was this year extended to the town area of Kishanpur and the notified area of Bindki. A child-welfare and baby show was held at Fatehpur and some models were exhibited at Khaga. The health staff gave 10 lectures to the indigenous dais in the city the average attendance at which was 30.

(25) MUTTRA.

Registration of vital statistics.—Lectures to chaukidars and registration muharrirs were given by the health staff describing symptoms

of the common infectious diseases. The health staff checked 5,978 birth and death entries and the vaccination staff 20,138. The percentages of omissions discovered were, respectively 5·20 and 0·9.

Epidemics (*a*) *Cholera.*—77 deaths were reported from this disease in 1928 against 155 in 1927. Of these 72 cases occurred in the Muttra and Brindaban municipalities and only 5 in the rural areas. The largest number of deaths occurred in November among imported cases in the Muttra and Brindaban municipalities after the dispersal of the Kurukshetra fair in the Punjab and the Solar eclipse fair in Benares. As a precaution against the spread of the disease to the pilgrim centres situated in the rural areas the health staff adopted protective measures and only one case occurred in one of the town areas.

(*b*) *Plague.*—Only three deaths occurred from this disease (of this two occurred in the Muttra municipality) against 44 in 1927. Reports of rat mortality were received from several villages in February, March and April. These were visited and houses were disinfected. 416 anti-plague inoculations were performed. Rat trapping was started in the town areas and cynogas and barium carbonate pills were used in the rural areas. 11,509 rat-holes were filled up in the villages of two tahsils by cynogas while 25,829 rats were killed in the Brindaban municipality, Kosi notified area and 11 of the town areas

(*c*) *Small-pox.*—12 deaths were reported from this disease in 1928, of which 11 were in the Muttra and Brindaban municipalities. 4,000 more vaccinations were performed this year as compared with last year.

(*d*) *Malaria.*—7,417 deaths were reported from malaria in 1928 against 8,131 in 1927. Quinine and cinchona were distributed free in the malarious tracts and a travelling dispensary was also stationed in that part of the district during the malarial season.

Cinchona and spleen tablets were distributed amongst school children and the villagers. In addition to lectures, advice, etc., anti-malarial measures carried out consisted in providing kutcha and pucca drains to remove water from inside the villages and filling up of small pools. Paris-green was thrown in the smaller pools and collections of water in one village while in Kosi the tanks were oiled, large predaceous fishes were taken out and larvae eating fishes were introduced.

Sanitation.—The district medical officer of health was in charge of the sanitation of the Brindaban municipality up to October, 1928, when a whole-time medical officer of health was appointed for that municipality. The district and assistant medical officer of health visited the Kosi notified area and all the 12 town areas in the district. Byelaws for the regulation of sweetmeats and meat-shops were enforced and seven samples were taken under the Prevention of Adulteration Act from the town areas of Sadabad and Chhata where the Act was extended. Action was taken against those whose samples were certified to be adulterated.

The health staff visited all the villages under the Village Sanitation Act and 1,443 ordinary villages. The panchayats co-operated with the public health staff in carrying out sanitary improvements. Seven panchayats employ sweepers. Attention in sanitary improvements was chiefly concentrated in the villages under the Village Sanitation or Village Panchayats Act, where 27 pucca and 34 katcha wells were made sanitary.

230 soakage pits and 189 manure pits were constructed and 6 trench pattern and 7 female latrines were made.

In ordinary villages also manure pits were constructed by way of demonstration to the villagers.

The "village aid" scheme is in operation in 22 villages and 3 village aid dispensaries have been opened; 47 village aiders and 49 school teachers were trained in sanitation, first aid and common accidents. One inspector and three supervisors of the co-operative societies were also trained and asked to give lectures to the members of the co-operative societies in their circle. 20 patwaris, 2 constables, 14 chaukidars and 112 dais were also trained, copies of Hindi translation of the "village aid" scheme were printed and distributed to sarpanches, etc.

Fairs.—24 fairs and 2 *Banjatras* were held in 1928. The sanitary arrangements at these were supervised by the health staff. Special arrangements were made for the *Banjatras*. All the wells en route and on the halting places were disinfected before and after the *jatris'* stay; temporary latrines and urinals were also put up. Medical arrangements for the *jatris* were made. 1,337 patients were treated for various ailments. Sales of sweatmeats and fruits were subjected to inspection.

Hygiene publicity work.—30 magic lantern demonstrations with an approximate attendance of 11,000 and 93 lectures and health talks with an approximate attendance of 9,200 were given by the district and assistant medical officers of health. The sanitary inspectors gave 820 lectures to approximately 49,200 people. A public health exhibition was organized at the district exhibition and was visited by thousands of people.

School inspections.—The health staff visited 160 out of the 261 schools in the district and medically examined 7,357 scholars. Of the 3,236 scholars whose records were kept, 29·54 per cent. were found unprotected against small-pox, 8·19 were poorly nourished, 7·51 had enlarged spleens, 4·40 had defective eyes, 3·73 per cent. were anaemic and 2·01 per cent. had skin diseases.

Defective teeth was noticeable in ·71 per cent. only. Necessary advice and medicines were given to the teachers with instructions for use. Charts on health maxims were hung up in the schools and scholars found unvaccinated were vaccinated in the presence of the officers.

(26) MUZAFFARNAGAR.

Registration of vital statistics.—The health staff checked 3,009 birth and death entries. The percentage of omissions discovered was 7·4. The vaccination staff tested 27,412 entries, and the percentage of omissions discovered by them was 0·31.

Epidemics—(a) Cholera.—Ten deaths were reported from this cause, against 16 in 1927. Wells in the infected area were disinfected and the usual preventive measures were adopted.

(*b*) *Plague*—Was responsible for 5,811 deaths in 1928 against 787 in 1927. The epidemic was a continuation from 1927 but died down in June, 1928. It broke out again in August. 19,990 anti-plague inoculations were performed during the year and disinfection of the infected premises was carried out.

(c) *Small-pox.*—65 deaths were reported under this head against 30 in 1927.

(d) *Malaria.*—14,646 deaths were returned under this head against 16,031 in 1927.

Sanitation.—By the appointment of a wholetime medical officer of health in the Muzaffarnagar municipality the district medical officer of health was relieved of its supervisory charge from November, 1928. The municipality of Kairana was inspected by the district medical officer of health and necessary recommendations were made.

There are 34 villages under the Village Sanitation Act. The majority of these were visited by the health staff. The health staff also visited 521 villages of which 262 were for epidemics. Manure heaps were removed outside the abadi at their direction in many villages. Model pits were constructed at places for demonstration. In the villages under the Village Sanitation Act sites were fixed for the dumping of rubbish. Wells were improved in a number of villages.

School inspections.—The health staff examined 3,348 scholars medically in 95 schools ; 350 boys were found unvaccinated.

Hygiene publicity work.—Lectures were given in schools and fairs and homely talks were given by the sanitary inspectors. The magic lantern lectures were attended by about 3,700 persons. 333 lectures were given without lanterns and were attended by about 50,700 persons.

Fairs and exhibitions.—The sanitary arrangements at the district exhibition were supervised by the district medical officer of health. The sanitary arrangements at the Khatauli, Jansath and several other fairs were also supervised by the health staff.

Relief work in fire and dust storm.—A fire and dust storm occurred on May 29, 1928, in several villages in the district. The district health staff took their share of the relief operations by performing dressings, cleansing etc., and rendered medical aid to those who were burnt or injured.

(27) NAINI TAL.

The district health service was extended to this district from October 1, 1928, and the Chief Medical Officer of the Tarai and Bhabar Government Estates was made district medical officer of health of Naini Tal in addition to his duties.

Registraticin of vital statistics.—The number of entries checked and the percentage of omissions discovered were as follows :—

			Number of entries.	Percentage of omissions.
Public health staff	..	..	250	4·4
Vaccination staff	..	..	15,894	3·3
District board staff	..	..	3,928	2·5

Epidemics.—(a) *Cholera.*—183 deaths were reported from this diseases in 1928 against 191 in 1927. Stray cases occurred during the first six months of the year. In August and September the disease was imported from the Piran Kaliar fair in the Saharanpur district. Infection was also imported in November from the Kurukshetra fair in the Punjab. Local inspection agencies were deputed at Lalkua, Haldwani and Kathgodam and six cases of cholera were detected and isolated at Haldwani. The

water-supply in the Bhabar is from the open canals and the problem of disinfection is extremely difficult. Police constables were deputed to prevent people from bathing and washing in the canals. 2,055 anti-cholera inoculations were performed by the health staff and other necessary measures were taken.

(*b*) *Plague.*—The epidemic was a continuation from the year 1927 and Haldwani was the chief disseminating factor. Anti-rat campaigns were carried on in this area and 7,120 rats were killed. The health staff performed 1,632 inoculations and the medical staff in the district 6,376.

(*c*) *Malaria.*—7,208 deaths were reported from this cause in 1928 against 6,478 in 1927. The Government Estates have been spending large sums of money (Rs. 13,041 in 1927-28 and Rs. 4,280 up to the end of December, 1928) in filling up tanks, re-aligning canals and draining swamps. Excavation of fresh pits have been prohibited and the village headmen have been made responsible for cutting down all rank vegetation inside their villages.

Anti-malarial measures.—The following anti-malarial measures were carried out during the year.

(1) 45 lbs. of quinine and 100 lbs. of cinchona were supplied by the Government Estates to the Kham tahsils for distribution to the tenants in packets of 90 grains each with instructions to use 30 grains a day for three days.

(2) The scheme of malaria control by Sir Malcolm Watson was tried in one village. It consists of keeping village tanks clear of weeds and overhanging trees and trimming their edges.

(3) (*a*) Paris-green method was tried in Kichcha, where the canals and guls, borrow-pits, rice fields and pools were treated weekly. The splenic index in this village showed a continuous decline between April and October, and compared well with villages where no work was carried out.

(*b*) A modification of the above method was tried in another village where Paris-green and castor oil were mixed with kerosine oil and the canals, guls, rice fields, etc., were treated with this. The splenic indices showed a continuous decline from 71 per cent. in April to 68 per cent. in August and 63 per cent. in October and compared well with other villages where it was 83 per cent. in April and 86 per cent. in October.

(*c*) Another modification of this scheme was tried by mixing Paris-green and earth and kerosine oil and canal guls, rice fields, etc., were treated with this.

(4) *School scheme.*—A pound of cinchona was given to the teacher of a school with instructions to use it in adequate quantities in case of fever among the children. The results were not conclusive as the scheme was started in September and the figures of absence from the school, which is the index from which to judge of the efficiency of this means of malaria control, were vitiated by the sowing season and other causes which synchronised soon after.

(5) *Cactus scheme.*—Three pools of a village were treated with cactus. Prior to putting the cactus leaves, the pools were found full of anopheline larva. No larvae were found breeding in them after the leaves were put in the pools, except that of *A rossi*. The spleen rate in the village in

October was 52 per cent. against 80 in another village where this scheme was not tried.

(*d*) *Other diseases.*—Scarlet fever was prevalent in the Naini Tal municipality during the summer of 1928. 185 deaths were reported from bowel diseases. Goitre is very common in the lower ranges of the hills and a large number of patients from this disease was treated at the dispensaries.

Sanitation.—The health staff visited 523 villages.

Part of the "village aid" scheme was introduced in 31 villages, and 43 villagers, eight schools teachers and eighteen chaukidars were trained in sanitation, first aid and common accidents. Seventeen village dais were also trained.

School inspections.—508 children in 42 schools were medically examined. A large proportion of these was found unvaccinated. Enlargement of the spleen was almost always found. Affection of the teeth was the commonest disease in the Bhabar.

Fairs.—Many fairs were held during the year, the attendance varying from 500 to 6,000. Unwholesome articles of food were destroyed and other sanitary arrangements were made by the health staff.

Hygiene publicity work.—34 magic lantern demonstrations were given to about 3,500 persons. 314 lectures were given without lanterns. 62 lectures were delivered to about 1,800 persons with the help of charts.

Expenditure on Public Health by district boards.

8. During the year 1927-28 the total income of the district boards in the United Provinces from all sources was reported to be Rs. 1,95,28,202 of which Rs. 1,04,35,752 were from their own sources (i.e. excluding all Government grants). Out of the Government grants these boards received Rs. 3,48,081 for public health purposes alone and the revenues of the boards under "Public Health" for the services rendered or from other causes was Rs. 18,446. Total receipts of the district boards in the United Provinces specially earmarked for public health purposes was therefore Rs. 3,66,527.

During the above year the total expenditure of the boards on the various public health purposes was as follows :—

	Rs.	
(i) Vaccination	3,07,553	
(ii) Public Health establishment (other than vaccination), their travelling allowance and contingencies	2,56,916	(includes expenditure on the subordinate district health establishment provided by Government but disbursed through boards).
(iii) Epidemics	42,120	
(iv) All other public health purposes (water-supply, drainage, sanitation, etc.) ..	1,26,011	
Total ..	7,32,600	

Deducting the Government grants, the boards therefore spent Rs. 3,84,519 from their own sources or 3·68 of their own income, on public health. If, however, the expenditure on vaccination is excluded, which is

a charge laid on the board by law, the amount spent by them from their own sources for rural sanitation, water-supply and epidemics comes to Rs. 77,566 only and forms 0·74 per cent. of their own income.

Medical officers of health in municipalities.

9. During 1928, medical officers of health were appointed in the municipalities of Pilibhit and Bahraich which had so far declined to make these appointments. The income of the municipalities of Muzaffarnagar, Amroha and Brindaban, for the last three years, was over Rs. 50,000 and Government brought these towns on the list of III class municipalities for the appointment of medical officers of health, and officers were appointed during 1928. Medical officers of health have also been appointed in the municipalities of Jaunpur and Ghazipur since the close of the year. Of the municipalities required to employ medical officers of health, the municipality of Sitapur in the III class and Gorakhpur in the II class now remain without such officers. The appointment at Sitapur will be filled during 1929 and possibly also the one at Gorakhpur.

The income of the municipalities of Bulandshahr, Khurja, Kasganj, Sambhal, Banda, Ballia and Lakhimpur has been over Rs. 50,000 for the last three years and Government were asked to include these towns also in the list of III class municipalities. Government sanctioned the proposal in the cases of Sambhal, Kasganj and Banda. The cases of Bulandshahr and Khurja are under consideration. On the representation of the municipal boards, regarding their finances, the proposal was temporarily dropped in the cases of Ballia and Lakhimpur.

In the districts where the district health service is in force district medical officers of health are *ex-officio* medical officers of health of the smaller municipalities which are without such officers. This arrangement was extended to the Bulandshahr municipality during 1928 and the expert advice of the district medical officer of health is now available to the board at no cost. In many cases executive powers have been delegated by these boards to the district medical officers of health.

With the provincialisation of the service of medical officers of health the present rules governing their appointment have become inapplicable. A set of new rules have been submitted to Government and are under their consideration, including certain amendments to the United Provinces Municipalities Act.

Public Analyst and his work.

10. The office of the Public Analyst to Government, United Provinces, was held by Mr. P. S. MacMahon, M.Sc., from January 1, 1928 to April 30, 1928, and again from August 1, 1928, to the end of the year. During his absence on extraordinary leave and the University vacation from May 1 to July 31, 1928, his Assistant Dr. B. M. Gupta, M.Sc., PH.D., acted as Public Analyst. Mr. S C. Roy, M.Sc., was appointed to act as Assistant Public Analyst from May 1 to July 31, 1923.

Although the appointment of two analytical assistants and one laboratory attendant was sanctioned by Government during the year under report, there is still need of a further increase in staff to cope with the ever increasing routine work, due to the continued extension of the provisions of the Prevention of Adulteration Act. The Government has been addressed on the immediate requirements of this branch of the department. The three assistants appointed this year have been trained in laboratory work. Some

of the municipalities are now sending samples in sufficient number to justify the appointment of municipal analysts. Cawnpore, for example, sent 440 samples this year. This is more than the total number received from the entire province in any one year up to 1924 and more than the total number received during 1915, 1916 and 1917 from the whole province taken together. The figures for the years 1915—1928 are given below :—

Year.	Number of samples received.
1915..	77
1916..	58
1917..	196
1918..	290
1919..	360
1920..	317
1921..	240
1922..	335
1923..	412
1924..	260
1925..	504
1926..	968
1927..	1,611
1928..	1,938

With the increase in staff and analytical work largely increased accommodation has been provided in the new Chemistry building of the Lucknow University, and since January last the public analyst's laboratory has been transferred and work commenced immediately after completion of the laboratory equipment. Ample provision has been made in the laboratory for preserving a large number of samples, and also for stores and apparatus, a larger supply of which will be required in the near future. But at the present rate of increase, a centralised laboratory at Lucknow will prove inadequate, so far as the accommodation likely to be provided is concerned. This remark applies equally to the present housing and to the future accommodation, set apart for the Public Analyst in the extension to the Provincial Hygiene Institute. I have submitted proposals to Government in my letter no. 9107/XI—5928, dated April 22, 1929.

During the year under report the provisions of the Prevention of Adulteration Act were extended, in respect of different common articles of food, to the municipalities of Unao, Tilhar, Sikandrabad, Gonda, Lakhimpur, the notified areas of Haldwani (district Naini Tal), Colonelganj and Nawabganj (district Gonda), to all the town areas in the district of Allahabad and to several rural areas in the district of Rae Bareli. They were also extended to the district of Jaunpur and to the town areas of Sadabad and Chatta (in the district of Muttra) in respect of ghee alone.

Besides these, the provisions of the Act were further extended to the Bahraich municipality, in respect of all articles of food, in addition to the articles published with Government notification no. 3136/XI—53, dated December 23, 1927.

The Government also made amendments to rule 1 of the rules published with notifications nos. 97/XVI—80, dated March 18, 1914 and 203/XVI—188, dated May 5, 1926, regarding the appointment of official inspectors. By these amendments all the municipal and district medical officers of health, assistant medical officers of health and all chief sanitary inspectors and sanitary inspectors appointed by the boards were made official inspectors under the Act. Where no such officers were employed, the boards were empowered to appoint either the executive officer, or the secretary or a registered medical practitioner as an official inspector.

During the year under report, the total number of samples received for analysis was 1,938 against 1,611 in the preceding year. The large increase in the number of samples is due to the fact that the medical officers of health have been directed to devote more time to the detection and prosecution of offences involving the adulteration of food stuffs under the Act, and also to the extension of the Act to more places. These samples consisted of 287 samples of milk, 10 of butter, 1,566 of ghee, 30 of edible oils, 24 of flours and 21 miscellaneous (5 of colour, 3 of honey, 2 of sweetmeats, 1 each of puri, tobacco, sugar, ice-cream, vegetable ghee, curd, fish, sharbat, buzuri, pea, gram, and wheat). Of these samples 46 of ghee, 20 of milk, 2 each of oils, sweetmeats, honey, and 1 each of puri, tobacco and sharbat-buzuri could not be analysed as they were received either in a damaged condition or they were found unfit for analysis for various reasons. Of the remaining 1,863 samples, 105 of milk, 5 of butter, 350 of ghee, 3 of oils, and 8 of flour were certified as adulterated. Five samples of colour were analysed and found to contain colouring matter not authorised for preparing sweetmeats. The remaining 1,387 samples were declared genuine.

Four hundred and fourteen persons were prosecuted under the Act, of whom 297 were fined and 30 acquitted. One person was warned, one imprisoned in default of payment of fine, and one person died. Five persons absconded, the cases against 14 were withdrawn, while 65 cases were pending before the courts at the time of the submission of the report.

The amount of fines realized was Rs. 7,921 against Rs. 8,339 realized last year. It is regretable that there does not appear to be any improvement so far as the infliction of deterrent fines is concerned.

No samples having been received from certain places, enquiries have been made from the local bodies concerned.

The total number of samples (1,938) mentioned above included eight samples (seven of ghee and one of Vilayati atta) received from the Special Magistrate, Brindaban, the Secretary, municipal board of Kairana, the Subdivisional Officer, Roorkee, and the District Magistrate, Agra (one sample of ghee each), the District Magistrate of Meerut (three samples of ghee) and the district medical officer of health, Benares (a sample of Vilayati atta). The samples of ghee from Kairana and Agra and the sample of Vilayati atta from Benares were certified to be genuine. The sample of ghee from Roorkee was certified to be adulterated. The samples of ghee sent by the court from Brindaban and Meerut were of particular interest. The sample from Brindraban was alleged to be the duplicate of a sample which was analysed and certified by me in 1927 as grossly adulterated. But the duplicate sample was analysed and the contents were found genuine. Similar was the case with Meerut, the original samples from the medical officer of health being adultered, but the duplicate samples submitted by the defence being found genuine. In the latter case, the medical officer of health sent the third portions of the samples retained by him for analysis. These were found to be adulterated and identical with the first portions of the samples. There is thus clear evidence of serious defect in the operation of the Act at these places. It is evident that some essential precautions in the collection and submission of samples are missing.

The Government has been asked to institute confidential enquiries into the matter through the Criminal Investigation department.

A sum of Rs. 150 was deposited into Government treasuries at Muttra (Rs. 30), Meerut (Rs. 90), and the sub-treasury at Kairana (Rs. 30).

A large number of samples of quinine were also received for analysis, but as the majority of them came in 1929 the results of their analyses will be mentioned in the next annual report.

During the year under report two samples of ghee which were received from tahsil Chatta (district Muttra) were analysed by the Chemical Examiner to Government, Agra. One was certified as adulterated and the other as genuine. One person was prosecuted under section 273 of the Indian Penal Code and was fined Rs. 25 only.

Inadequacy of fines imposed by honorary magistrates in cases instituted by medical officers of health under the Prevention of Adulteration Act.

11. As stated in the preceding paragraph, there has been little or no improvement in respect of the imposition of adequate punishment by trying magistrates in cases prosecuted for the adulteration of ghee. It is a known fact that merchants dealing in adulterated ghee are making large profits and the small fines imposed on them for adulteration do not affect them in the slightest as they find it easy to pay the small fines imposed, which they generally prefer to do rather than give up their lucrative business. I have already laid emphasis on this matter in my previous reports but it is regretted that in spite of the fact that it is common knowledge that it is very difficult to obtain pure ghee in the bazars, some of the trying magistrates do not realize their responsibilities in this respect. I am afraid that the sale of adulterated ghee and milk can not be stopped until the maximum penalties prescribed by the law are imposed. Quarterly statements of cases prosecuted for the adulteration of ghee were received from medical officers of health and the cases in which inadequate fines were inflicted were brought to the notice of Government for necessary action.

Maternity and Child Welfare Work.

12. Most of the information given here has been taken from the annual report of the Lady Chelmsford and Red Cross Society Maternity and Child Welfare League, United Provinces Branch, for 1928 which was kindly furnished by the Organizing Secretary of the League which has been supplemented by reports from municipal medical officers of health as far as possible.

During the year under report one meeting each of the Council and the Executive Committee of the League were held and certain changes in the personnel of the Council of the League were made. The United Provinces Government further increased their grant and sanctioned a sum of Rs. 1,21,600 against Rs. 59,600 for the last year. Out of this grant the Council of the League sanctioned the sum of Rs. 11,300 for improvement of indigenous dais and Rs. 80,400 for donations and grants to local centres. As the amount sanctioned by the Government formed the major portion of the income of the local branches, it was considered desirable to have more control over the local branches and therefore certain rules for the better control and management of the local branches were framed.

As in 1927, the chief functions of the League during 1928 were (i) maternity and child welfare, (ii) improvement of indigenous dais, (iii) training of midwives, dais, health visitors, and maternity supervisors, and

(iv) propaganda work such as holding of baby weeks or other shows conducive to the attainment of these objects. The objects of the League are being carried out satisfactorily by the local child-welfare and maternity societies started for the purpose. The total number of maternity and child-welfare centres with which is also associated the improvement of indigenous dais in the United Provinces now is 45 as compared with 33 up to the end of 1927, 12 new centres having been opened during 1928 at Allahabad, Bareilly, Lucknow cantonment, Basti, Jalaun, Lansdowne, Mussoorie, Mirzapur, Mainpuri, Rae Bareli, Sitapur, and Shahjahanpur. The establishment of centres at Bara Banki, Bulandshahr, Etawah, Fyzabad, Jaunpur, Moradabad, and Pauri (Garhwal) is under consideration and it is hoped that by 1929-30 all the district headquarters in the province will have been provided with maternity and child-welfare centres.

Many of these centres were inspected by the Inspector-General of Civil Hospitals, United Provinces, Dr. A. C. Scott, C.M.O., W.M.S, and myself. The Superintendent, Medical Aid to Women, checked the work in all important districts and paid about 1,500 house-to-house visits.

The maternity and child-welfare work done by district medical officers of health is given in the district summaries of their work in paragraph 7 of this section ; that done by municipal medical officers of health is mentioned below.

Allahabad.—There are two centres in the city. The Red Cross Centre known as the Provincial Training Centre is housed in a rented building. All the expenses of this centre are borne by the Provincial League. This centre has 24 candidates receiving scholarships from the Provincial League funds for Dais Certificate Training. There are also four candidates of the Nepal Government receiving training at this centre at the expense of that Government. The other centre at Hewett Road has got a building of its own purchased for Rs. 26,300. This centre is financed by the Provincial League, the municipal board, and the United Provinces Branch Indian Red Cross Society.

The total number of births attended by the maternity and child welfare staff was 1,482 and that not attended 5,693; the number and ratios of deaths per thousand in the two cases were 153 and 664 and 103·23 and 116·63, respectively.

Bareilly.—This centre has carried on its work very satisfactorily and has a building of its own. Its funds amount to Rs. 30,000. Mrs. Stubbs is the president and the medical officer of health is the secretary of the society. In all 1,310 cases were conducted by the society out of which more than half were delivered with the help of the indigenous dais. 192 ante-natal cases were visited and supervised by the staff. 18,392 house-to-house visits were made; 12,669 by the maternity staff and 5,723 by the infant welfare workers. In addition to this, 608 infants and 342 mothers were treated at the centre. Amongst the cases conducted by the staff with or without indigenous dais 63 infants died within the first 10 days of delivery. The infant welfare workers looked after 1,373 infants under one year of age, of whom 707 were born in 1928 and 666 in 1927. The number of deaths in these was 61. The infantile mortality rate among infants looked after by both the sections of the society was 44·43 per mille. 3,543 infants born in 1928 were not attended by the society and the number of deaths and the ratio per mille were 628 and 177·28, respectively.

Benares.—The maternity and childswelfare centre at Benares was started in the beginning of the last year. Children's clinic has also been opened at the Kashi Anathalya at which children upto the age of 5 years are treated and looked after.

The total number of births in the municipality was 10,731, out of which 920 were attended by the staff amongst whom there occurred 160 deaths. The death-rate per mille in these was 170·39.

The number of deaths of infants and the rate per mille in cases which were not attended by the staff were 2,656 and 270·72, respectively; 3,304 visits were paid by the staff at patients' own houses and 9 cases were sent to the hospital by the staff.

Agra.—There were two baby clinics in the city, the Balka Basti Red Cross clinic and the Nai Basti clinic. At both these centres bathing and washing of children, treatment of minor ailments, and talks upon infant feeding and domestic hygiene formed the main items of the child-welfare programme. The total number of new cases attending the Balka Basti Red Cross clinic was 6,241 of which 972 were infants under one year of age.

The total attendance during the year was 34,830. The numbers of the sick and healthy children attending the clinic were 12,077 and 5,118, respectively. 127 house visits were paid by the supervisor of the clinic.

The total number of new cases attending the Nai Basti clinic was 619. The total attendance during the year was 12,746. 76 house visits were paid by the supervisor.

Muttra.—Maternity and child-welfare work in Muttra has been extended to rural areas as well and seven centres have been opened in the district including the city. The main centre is accommodated in a rented building at Rs. 60 per mensem and the city centre in a rent-free building given by the municipal board. Sadabad centre works in a building presented by Kunwar Karamat Ali Khan Sahib while others are housed in rented buildings. The midwife at Gobardhan is paid by the Dufferin Fund and the expenses of the centre at Brindaban are borne by the municipal board. A grant of Rs. 400 was given by the provincial league during 1928. The work of the society is regulated by a managing committee of 22 members with the district magistrate as president and the civil surgeon as secretary.

At the two centres in the Muttra city the staff attended 9,633 infants and mothers at their homes and 2,473 mothers and infants attended the centres. In 105 normal and 50 abnormal confinements attended by the staff there were eight deaths. The rate of infantile mortality amongst the cases attended by the staff was 51·6 per mille while the general infantile mortality rate of the town was 232·8. The rate of maternal mortality amongst cases attended by the staff was 1·9 per cent., while the percentage of mortality from child-birth in the town was ·99. 60 lectures were given to the dais during the year. Dais trained belonged to the higher caste and five of them have qualified.

Dehra Dun.—The centre at Dehra Dun known as Ross Maternity and Child Welfare Centre which has been in existence since 1924 has now been better organized. There is a managing committee consisting of 15 members with the district magistrate as president, civil surgeon as vice president, and the medical officer of health as secretary. The work is

carried in a rented building. A sum of Rs. 757 was earned by the staff as their fees and credited to the funds of the society. A sum of Rs. 2,700 was contributed by the Lady Chelmsford League, Rs. 1,300 and Rs. 101 by the municipal and district boards, respectively and Rs. 700 by the Red Cross Society. The total expenditure of the society during 1928 was Rs. 9,748. Three probationer dais passed out in 1928. The total number of births in the municipality was 1,293, out of which 526 were attended by the staff with or without indigenous dais. The infantile mortality was 212·68 per mille for the whole municipal area, whereas amongst the cases attended by the staff it was 62 per mille only. The number of visits paid at patients' homes was 13,633, while 1,037 patients were treated at the centre.

Meerut.—The maternity and child-welfare centre is situated in the town hall. The activities of the society are controlled by a managing committee with the district magistrate as president and the medical officer of health as secretary. 151 cases were conducted by the maternity staff, amongst whom eight deaths occurred. The death-rate per mille in these was 52·98. In the municipality 2,843 births, with 497 deaths under one year of age, were registered, and the rate per mille in this case was 174·81. 412 infants and 304 mothers were treated at the centre and 473 visits were paid by the staff at the patients' homes. 27 cases were sent by the staff to the hospital. 171 indigenous dais attended 25 classes. The average attendance at these was 34.

Lucknow.—There are six centres in the city, each being in charge of a health visitor with a medical superintendent holding British qualifications at their head. The work of the centre is supervised by a committee with medical officer of health as its secretary. Six probationer dais, four of whom are receiving scholarships from the League funds, and two private candidates are under training. Lectures to indigenous dais are also given. The total number of births in the municipality was 11,270 and the deaths under one year of age 3,397. 1,773 cases were attended by the child-welfare staff amongst whom there occurred 351 deaths. The deaths rate per mille in these was 197·97. The number of deaths of infants and the rate per mille in cases which were not attended by the staff, were 2,294 and 241·55, respectively.

Bahraich.—The work of the centre is controlled by a managing committee of seven members with the deputy commissioner as president and the civil surgeon as secretary. The municipal board has lent a building to the Society for its use. 4,366 births were registered in the municipality during 1928. The number of deaths and the death-rates per mille, in cases attended and not attended by the maternity staff, were 24 and 78·68, and 842 and 207·34, respectively.

Jhansi.—The maternity and child-welfare centre at Jhansi is in its infancy. The centre is located in a rented building. The civil surgeon is the president of the society and the medical officer of health the secretary. In all 536 cases were conducted by the staff and 16 sent to hospital. 51 patients were treated for minor ailments and 18 abnormal cases were attended.

Budaun.—The work is managed by a committee with the district magistrate as president, the chairmen, district and municipal boards, as vice presidents, and the civil surgeon as secretary. There are seven centres in seven towns. The number of deaths and the death-rate per mille in cases attended by the midwife, who worked in the Budaun municipality

from March 7 to July 31, 1928, was 3 and 3·02 against 556 and 805·79, respectively, in cases not attended by her. These figures are doubtful and an enquiry has been made.

Pilibhit.—The maternity and child-welfare centre continued its progress. There are two midwives working under the local league. In all, 4,322 deaths were registered under one year of age, out of which 544 occurred in the area in charge of midwives, and 3,778 in the other rural town and municipal areas. The infantile death rates in the cases attended and not attended were 114·46 and 294·94 respectively.

Ghazipur.—The managing committee consists of 21 members with the district magistrate as president, and the civil surgeon and the chairmen, municipal and district boards, as members and a private gentleman as secretary. The centre is housed in a rented building in the heart of the city and has been recognized for dais' certificate training. The number of dais' classes held was 49 and the average attendance of dais was 790. Out of 541 births in the municipality 315 were conducted by dais in which 31 deaths occurred. 109 cases were also conducted by the child-welfare staff. 2,447 re-visits and 180 pre-natal visits were made by the staff.

A number of patients were also treated. The death-rates in the cases attended and not attended were 98·47 and 313·62, respectively.

Gonda.—The centre is situated in Nawabganj notified area. During the year under report 20 patients—seven normal labour cases two abnormal, and 11 gynæcological cases—were admitted into Mrs. Thompson's maternity ward which is attached to the Nawabganj dispensary. 51 labour cases were conducted by the resident midwife and 51 by the indigenous dais. In the 102 cases attended by the staff there occurred only eight deaths. The death-rate per mille in these cases was 78·43 against 563·63 in cases not attended by the child-welfare staff. 1,006 cases were visited and relieved by the midwife at the houses of the patients. 84 patients were treated at the centre and 65 were sent to the hospital. A propaganda was carried on against administering opium to children.

"Training of probationer dais and midwives."

Probationer dais and midwives are trained at a number of maternity and child-welfare centres which are recognized by the United Provinces State Medical Faculty and the Womens' Medical School, Agra. As usual, two examinations were held during the year under report and out of the 26 candidates who appeared for dais and midwifery examinations 21 came out successful. At present there are 60 candidates under training and they are receiving scholarships from the League's funds. There are also four private candidates deputed by the Nepal Government who are receiving training at the Provincial Training Centre, Allahabad, at the expense of that Government.

Due to the opening of maternity and child-welfare centres in almost all the districts of the province the public has begun to realize the advantages of engaging trained qualified midwives and the demand for them is gradually increasing. The United Provinces Government have, therefore, increased their grant for the scholarship of these candidates and a sum of Rs. 15,600 has been provided in the League's budget for the purpose.

The system of training of the indigenous dais by imparting practical instruction on the spot at the time of delivery has been found more bene-

ficial than theoretical training and is being acted upon as far as possible. Byelaws regulating the control on the indigenous dais and midwives have been made by the municipal boards of Gorakhpur, Dehra Dun, and Mau and confirmed by commissioners while a few others are considering them. I have addressed all the divisional commissioners, on the subject and asked them to advise municipal boards in their divisions to frame similar byelaws with necessary modifications to suit local conditions.

Baby weeks.

13. As usual the officers of the Hygiene Publicity Bureau of this department attended baby weeks and gave interesting and instructive practical demonstrations with exhibits on hygiene and sanitation and magic lantern lectures. The Baby or Health Weeks formed part of the district fairs and exhibitions wherever these were held.

These functions have served their purposes well in arousing public interest and have resulted in the establishment of good many new maternity and child-welfare centres.

The Superintendent, Medical Aid to Women, United Provinces, attended all the functions and gave demonstrations on the maternity and child-welfare models and by magic lantern whenever and wherever called for.

The travelling cinema has been purchased but for want of films it is not being used. It is hoped that in the near future this difficulty will be overcome.

The number of Baby Weeks is now decreasing as the centres have been opened in good many places. This is what these functions aimed at.

D.—General remarks.

Sanitary progress.

14. Section IX and appendix A of this report as well as the report of the Superintending Engineer, Public Health department, which is annexed to this report, give the details of sanitary improvements carried out or in progress in the province during the year under report.

The Provincial Board of Public Health.

15. Seven meetings of the Board of Public Health were held during the year; four at Lucknow, two at Naini Tal, and one at Allahabad. The report of their proceedings forms appendix A.

Improvement of water supplies in rural areas.

16. For the reasons given in the last year's report, only a grant of Rs. 10,800 was made by the Board of Public Health for installing pumps in wells in a number of villages in a district, which are important places of fairs and bazars. Grants aggregating Rs. 71,183 were however sanctioned for the construction of, and repairs to, wells in rural areas. Appendix B attached to this report gives details of the grants made to district boards for rural sanitation, balances of previous grants in hand and the amounts spent by them during the year under report.

At the instance of the Hon'ble Minister for Public Health I issued a circular to all district medical officers of health requiring them to compile gradually registers of all drinking wells showing (*a*) the wells in villages in good condition and reasonably protected from pollution, (*b*) the wells

requiring jagats or coverings to protect them from droppings of trees, and (c) villages requiring construction of new wells. Government also circularised all district officers ordering them to issue instructions to the touring officers under them to render necessary assistance in the compilation of these registers. In order to obtain a uniform and systematic information on the subject, a sample form for the census of drinking wells in villages and instructions giving definitions of certain types of wells have recently been forwarded to all district medical officers of health and district magistrates. These registers on being completed will facilitate the preparation of a regular programme for the construction of masonry jagats of important drinking wells and submission of demands for grants for the repair and construction of wells to district boards who can transmit these, with the approval of district magistrates to the Board of Public Health for grants-in-aid.

Leper Asylums.

17. The question of establishing a leper colony at Benares by the Salvation Army has been hanging fire for a considerable time. Four sites were suggested by the collector of Benares in consultation with the Assistant Director of Public Health, III Range. The proposal was discussed by the Territorial Commander with the authorities at International Headquarters, but owing to prevailing conditions in London no final decision could be arrived at. The authorities were, however, of the opinion that first class land was an absolute essential to the economic success of a leper colony and that in view of the difficulty of securing a suitable site in the Benares district and of openings in other provinces of India there was a tendency to entirely drop the Benares proposal. I have brought this to the notice of Government and have emphasised on them the necessity of having a leper colony and of acquiring land and meeting the wishes of the Salvation Army. The matter is still under the consideration of Government.

Important Fairs

18. The medical and sanitary arrangements of the Magh mela at Allahabad, which was held from January 4 to February 5, 1928, were as usual supervised by the Assistant Director of Public Health, III Range. There was no outbreak of an infectious disease at the fair. The members of the League of Nations, Health Delegation, visited the Magh mela. Cinema films "Why die of Cholera" and "Tragedy of Small-pox" were shown by the Public Health department at the fair ground from January 20 to 25. The Medical Officer of Health, Allahabad, as usual conducted the routine bacteriological analysis of the drinking water supply, while the cholera research officer and his assistant conducted the special research work and examined a number of samples of water, stools, and flies, etc.

The sanitary and medical arrangements of the Dadri fair at Ballia were also supervised by the Assistant Director of Public Health, III Range. No case of an infectious disease occurred. Four patients suffering from diarrhoea of choleric type were treated in the infectious diseases hospital of the Dadri fair and all recovered. The medical officer on duty detected three cases of cholera and one of dysentery in the trains. He also detected one case of cholera on the railway platform. All of them were removed to the Sadar hospital and recovered. The infected carriages were side-tracked and disinfected. All these patients were pilgrims who had visited Benares on the occasion of the last Solar Eclipse fair. Two pilgrims suffering from cholera who were returning to their homes from

Ajodhya were detected on bridge no. 2 at the Lakarmandighat railway station (district Gonda) in a precarious condition by the district public health staff who were posted there on passenger inspection duty in connexion with the Ram Naumi fair at Ajodhya. They were removed to the isolation hut Both succumbed to the disease.

At the Chaiti fair at Gola (Kheri) which was held from March 17 to 23, 1928, a few cases of vomiting and diarrhoea occurred. Although the cases could not be diagnosed as cholera, yet to be on the safe side they were treated as cholera cases by the district public health staff and removed to isolation huts where they were given the necessary treatment. One typical case of cholera occurred under very dramatic circumstances. It was a clinically true case of cholera, which was brought in a boy scout stretcher led by the assistant medical officer of health into the public health exhibition tent. Immediately the intravenous saline outfit which was one of the exhibits was made use of before a crowd of about 500 who watched it with great interest. The patient revived. The public health exhibition then required no further advertisement and the crowd came in larger numbers, saw it and listened to the lectures delivered by the public health staff. The cinema film " Why die of Cholera " was also exhibited at the fair before a gathering of 5 to 6 thousaud people through the generosity of Mr. Bonnerji, a talukdar of the district, who donated a sum of Rs. 1,000 for the purpose. The medical and sanitary arrangements of the Ram Naumi and the Sawan Jhula fairs at Ajodhya, the Dikhauti fair (Hardwar) the Jain Puja fair (Saharanpur), the Piran Kaliar fair near Roorkee in the Saharanpur district, and the Garhmuktesar fair (Meerut) were either organized or supervised by the range assistant directors concerned. A medical officer of health was specially deputed to supervise the arrangements of the Garhmuktesar fair and to carry out the bacteriological test of water. During the year under report the Shahkumber Devi fair (Saharanpur) and the Batesar fair (Agra) were suspended owing to the scarcity of water and fodder in those districts.

A sum of Rs. 3,277 was sanctioned by the Board of Public Health to meet the cost of extra staff, disinfectants, sanitary conveniences, tools and plants and the infectious diseases hospital equipments required for the Piran Kaliar fair (Saharanpur). Out of this only a sum of Rs. 115 was spent, as the expenditure of the fair amounting to Rs. 3,787 was met by the Sajjada Nashin from the income of the fair. The balance of Rs. 3,162 is proposed to be utilized for other projects for the improvement of the fair area.

A fair project amounting to Rs. 39,837 for the Piran Kaliar water supply scheme was sanctioned by the Board of Public Health and a sum of Rs. 9,513 was placed by them at the disposal of the Executive Engineer, Well Boring Operations, Division, Cawnpore, for the construction of a tube well in connexion with the above scheme.

Since the introduction of the district health services in the province in 1922, the sanitary and medical arrangements at all the fairs and religious gatherings in towns and villages are organized and supervised by the district health staff. This is a great improvement as previously no such arrangements were or could be made on account of the paucity of the staff. These arrangements were organized and supervised in the year

under report also, and fuller details will be found in the résumé of the work of the district health staff given in paragraph 7 of this section.

The officers of the Hygiene Publicity Bureau of this department visited most of the fairs held in the province and gave magic lantern and cinema demonstrations at them.

As there was an apprehension of the importation of cholera into the United Provinces from the province of Bengal where a very virulent and widespread epidemic had broken out by pilgrims going to the Lunar Eclipse fair at Kashi in the district of Benares in December, 1927, and to the Magh Mela, Allahabad, in January, 1928, medical inspection of passengers was started at Moghal Serai, Captainganj, Bhatni, and Ballia, with effect from December 15, 1927, and continued up to April, 1928. In view of an outbreak of cholera at the Kurukshetra fair (Punjab), the inspection of pilgrims in all pilgrim specials and slow passenger trains entering the United Provinces from the Punjab was carried out in November, 1928. Inspection posts for the detection of pilgrims suffering from an infectious disease were again instituted this year from December 15, 1928 at the Saharanpur, Moghal Serai, Ballia, Gorakhpur, and Bhatni railway stations. In addition travelling medical inspectors were also appointed for the incoming and outgoing trains, to intercept infected passengers and segregate them in specially constructed huts.

Inspections of schools and the medical examination of scholars.

19. The scheme for the medical examination of school children under the Education department, an outline of which was given in the last year's report, was continued during the year 1928. Government have sanctioned its continuation for another three years as an experimental measure from October 1, 1929. Details of the work done by the ten medical officers and the number and percentage of the children among those examined by them who were found suffering from various diseases are not available. The School Medical Officer of Benares however reports that only 11·1 per cent. of the boys examined have no medical defects whatever and that the average health of hostel students was far better than that of day scholars. A conference of these medical officers held in January, 1929, recommended that in emergent cases their prescriptions should be honoured at the local dispensaries. This was approved by the Inspector-General of Civil Hospitals.

In the Public Health department these examinations are carried out by medical officers of health in municipal towns where such officers are employed and by district and assistant medical officers of health in the rural areas of the district where the district health service is in force.

During 1928 medical officers of health in the municipalities visited 472 schools and examined 44,085 scholars. In June, 1928, instructions were issued by me to all municipal and district medical officers of health to maintain records of these inspections and to furnish at the end of the year the numbers and percentages of the scholars found suffering from various diseases. As the orders were issued in the middle of the year the information supplied is not complete for the whole year. In some cases records were not kept properly. The figures below will, however, convey

some idea of the health of the school children in the municipal towns in the United Provinces during 1928:—

	Number.	Percentage.
1. Number of schools in the 27 municipalities in which medical officers of health carried out the inspection of children	739	..
2. Number of schools visited	472	..
3. Number of scholars examined	44,085	..
4. Diseases discovered:—		
(i) Unprotected against small-pox	3,918	8·89
(ii) Protected by vaccination or revaccination ..	31,111	70·57
(iii) Defective teeth	3,192	7·24
(iv) Defective eyes	2,320	5·26
(v) Good nutrition	6,496	14·73
(vi) Fair nutrition	10,671	24·20
(vii) Poor nutrition	6,746	15·30
(viii) Enlarged spleen	701	1·57
(ix) Contagious disease	175	0·39
(x) Skin disease	956	2·17
(xi) Defective hearing	219	0·50
(xii) Anaemia	1,111	2·52
(xiii) Tuberculosis	32	0·07
(xiv) Elementary disease	749	1·67
(xv) Heart disease	36	0·08
(xvi) Lung disease	220	0·50

Medical officers of health also inspected the sanitation of the school buildings and hostels. Seating arrangements in some of the schools were unsatisfactory while in some the furniture required adjustment. Hired building in which municipal schools are generally housed had bad ventilation, defective drainage, and unsatisfactory latrine and urinal accommodation. Overcrowding existed in some schools and in the class rooms and the water-supply and arrangements for the distribution of water were not satisfactory in many. Recommendations were made in all cases to the authorities concerned.

District and assistant medical officers of health visited 4,399 schools and examined 142,513 scholars. The results of their inspections, since records were kept, are tabulated below—

	Number.	Percentage.
1. Number of schools in the 27 districts where district medical officers of health are employed	11,975	..
2. Number of schools visited	3,617	..
3. Number of scholars examined	115,260	..
4. Diseases discovered:—		
(i) Unprotected against small-pox	17,270	14·98
(ii) Protected by vaccination or revaccination ..	89,236	77·42
(iii) Defective teeth	7,130	6·18
(iv) Defective eyes	7,346	6·37
(v) Good nutrition	21,363	18·53
(vi) Fair nutrition	33,980	29·48
(vii) Poor nutrition	16,770	14·55
(viii) Enlarged spleen	4,114	3·56
(ix) Contagious disease	3,429	2·97
(x) Skin disease	4,217	3·66
(xi) Defective hearing	949	0·82
(xii) Anaemia	3,720	3·23
(xiii) Tuberculosis	113	0·10
(xiv) Alimentary disease	1,898	1·65
(xv) Heart disease	249	0·22
(xvi) Lung disease	1,165	1·01

Further details will be found in the district summary on the district health service in paragraph 7 of this section.

The question of the treatment of the diseases and defects revealed by these medical examinations has been before me for some years past.

Mention was made in last year's report of the scheme of supplying simple medicines to the rural school teachers which was enforced in the Sitapur district in October, 1927, as an experimental measure. The result of its working in 1928 has been very satisfactory and the scheme is popular. Lieutenant-Colonel W. A. Mearns, I.M.S., Assistant Director of Public Health, II Range, who inspected 30 schools remarks :—

> "I may say in brief that I am convinced of the usefulness of the scheme—both from the number of children treated for simple ailments and from the opinion expressed by the school masters themselves which was unanimously favourable. The number treated reached in Khairabad to the enormous total number of 1,760. The analysis (of the vaccination work inspected) revealed that 58·5 per cent. of scholars had been vaccinated, 30·5 per cent. had had small-pox and 11·0 were unprotected. Arrangements were made for the district health staff to vaccinate the latter at an early date. Very few cases of itch were seen but several had been treated in some schools. Very few dirty children were seen but there were certainly some".

Proposals were submitted to Government for an extension of this scheme to the village schools in the Lucknow and Rohilkhand divisions but for lack of funds this had to be deferred.

In order to ascertain how far the existing medical institutions met the requirements of the school children in regard to treatment disclosed by these medical inspections the Inspector-General of Civil Hospitals, at my request, kindly issued instructions to his medical staff to keep records in the out-door admissions register of the number of school students who attended the hospitals and dispensaries for treatment and the number among such students who attended specifically on the advice of the health staff. In 1928, 113,973 school students attended the various institutions in the United Provinces for medical treatment and of these only 2,444 attended on the advice of the health staff. This extremely small attendance for treatment on the recommendation of the inspecting officers illustrates the apathy of the parents and scholars to *seek* treatment and proves the necessity for the provision of some sort of "follow up" in the schools themselves, as a corollary to medical examinations. For this reason the school medical officers of the Education department have annually urged the establishment of central dispensaries for groups of schools in the towns solely for the treatment of scholars as a sequel to the examinations, although their work at present is solely confined to the ten largest towns in the Province where facilities for medical treatment are ample.

In March, 1928, on my representations the Director of Public Instruction commended to the notice of the inspectors of schools and chairmen of the district and municipal boards the practice in some schools of giving talks on hygiene for half an hour every week and recommended that it may be adopted in all the vernacular schools in which there is a trained teacher competent to give the instructions. A beginning has been made in some districts to impart health instruction in this way but the teaching provided is neither adequate nor satisfactory. I am strongly of opinion that the only way of teaching this subject with a degree of success is to include it in the school curriculum as a separate and compulsory subject with examinations. Only then will the teachers and boys take to the subject seriously. The teaching should of course be graduated. I have recently taken

up this question with the Education department and proposals will be submitted to Government as soon as possible.

Adult Education Co-operative Societies.

20. In November, 1927, the Education department forwarded to me proposals for the establishment of Adult Education Co-operative Societies in certain districts. The object of the scheme was the spread of useful information in rural areas and widening the outlook of agriculturists. Night schools were opened for adults under this scheme and the co-operation of my department was asked in the shape of giving lectures on public health subjects. Instructions were accordingly issued to the district medical officers of health of all the districts concerned except Mainpuri where there is no district health service to visit these schools and give lectures. For Mainpuri lectures were arranged through the inspector of co-operative societies. No regular records were kept of the work done in various districts. The following is, however, an account of the work that has been done in some districts up to the end of March, 1929 :—

Name of village.	Number of magic lantern lectures given.	Number of other lectures delivered.
Lucknow district.		
Dhanwara	..	2
Mahgawan	..	1
Chandpur	..	1
Partabgarh district.		
Katra (Khajuri)	2	2 Posters and leaflets were supplied.
Bishunathganj (Pure Ajmer Shah)..	4	4 } Eight adults have also been trained in first aid, in sanitation and common accidents.
Newari	1	1 }
Mandhata	..	2 }

Benares district.

Four villages where there are adult night schools were selected as village aid centres and two adult students were taken and instructed in the village aid scheme.

In the Fatehpur district the adult school was closed down.

Public Health Essays.

21. In 1925 Rai Shimbhu Dayal Sahib, Honorary Magistrate, Ghaziabad, intimated to me his intention to offer annually a gold medal to the best essay writer in Hindi on hygiene. He also requested that the subject of the essay for each year should be suggested by me and that I should judge the merits of the essays and award the medal in his name. With the permission of Government I gave my consent to the proposal. Accordingly the Rai Sahib placed a sum of Rs. 60 for the purpose at my disposal and promised to invest sufficient money to make it permanent after a trial of one year.

Originally the competition was made open to the lay public only and the subjects of the essays as well as the conditions of competition were advertised in papers and circularised otherwise. The response was very disappointing as none of the essays received were of a reasonably high standard. On the request of Rai Sahib the competition was then made

open to the medical and public health men also. The subject of the essay for 1928 was "How can the public best co-operate with the Public Health department in the prevention of cholera in rural areas." Twenty-nine essays in all were received. Amongst these the essay written by Rai Sahib Dr. Jhamman Lal, Medical Officer, Incharge Secrole dispensary, Benares, was declared the best. A gold medal will be awarded to him as soon as the donor has approved of the design of the medal proposed to be awarded.

Budget grants for the department.

22. The activities of the Public Health department have been severely restricted for the last two years owing to lack of funds with the result that the United Provinces, although the pioneers in starting a rural health service, have been left behind by Madras, Bengal, and the Punjab and probably by Bombay also, as the rural health service has been extended to every district in those provinces, while the United Provinces after seven years have only provided for slightly more than half the province. The budget allotment for the year 1927-28 under the heads administered by the Director of Public Health, was Rs. 11,23,118 and for 1928-29, Rs. 13,00,675. Against these grants the expenditure during the two years was Rs. 10,89,300 and Rs. 13,02,441 respectively. For the year 1929-30 the new demands of the department amounted to Rs. 6¼ lacs recurring and 1¼ lacs non-recurring. They were mostly approved by Government and accepted as the most essential demands for the efficiency of the department. It was, therefore, considered that they would be given adequate consideration and priority over the demands of other departments in order that the Public Health department might make up the leeway of the last few years, but, as in previous years, owing to paucity of funds a sum of Rs. 65,653 only was allotted to this department for new expenditure. This money will be utilized for those new items on which expenditure was already incurred in the last financial year under the temporary sanction of Government and for the creation of a reserve of officers for the Provincial Public Health Service of classes I and II. A sum of Rs. 14,24,107 has been allotted for ordinary expenditure during 1929-30.

Between the years 1925-26 and 1927-28 there was a gradual increase in this portion of the public health budget but no provision having been sanctioned for the district health services for the years 1928-29 and 1929-30, a set-back has occurred in this respect. In spite of this every effort has been made to improve the sanitation of rural areas as far as possible. It is hoped that greater consideration will be paid to the demands of the Public Health department in the future.

The departmental receipts for the years 1927-28 and 1928-29 amounted to Rs. 57,545 and Rs. 1,01,033, respectively. For the year 1929-30, the receipts are estimated at Rs. 1,18,900.

Visit of officers to the United Provinces.

23. Sir Malcolm Watson, a member of the Council of the Ross Institute and Hospitals for Tropical Diseases, London, had paid a visit to these provinces in 1927, in connexion with the 7th Congress of Far Eastern Association of Tropical Medicine and various malarial schemes were discussed with him. He and Major H. Lockwood Stevens, the organizing secretary, were sent out to India again in 1928, to enquire into the malarial position from the industrial standpoint. They visited these provinces in December and were given every facilities and supplied with

all the information they wanted. They inspected a few villages in which anti-malarial work was being done accompanied by me and Major Clyde, the Assistant Director of Public Health (Malariology), and were pleased with what they saw.

Lieutenant-Colonel F. P. Mackie, O.B.E., I.M.S., Officiating Public Health Commissioner with the Government of India, also visited Lucknow and inspected the plague and cholera research work that was being carried out here by the grants made by the Indian Research Fund Association.

Principal meteorological and weather conditions.

24. A note on the principal meteorological conditions in the United Provinces kindly furnished by the Director-General of Observatories, as usual, is appended below :—

The cold weather period, January and February.—Rainfall for both the months was in excess, that of February being markedly so. A low pressure area, which appeared over the central parts of India under the influence of a disturbance from the west, gave extensive rain in the province between February 2 and 4. Roorkee had 4″ on the 3rd and there was again nearly general rain in the plains on the 12th and 13th. Rainfall in February, under these conditions, was five times the normal amount in the eastern half and somewhat more than thrice the normal in the other half of the division. Skies were more clouded than usual in January. Humidity was in excess in both the months. Maximum temperature was below normal in January and the minimum above it in February.

The hot weather period, March to May.—March was almost dry in the eastern half, while the other sub-division received only a fifth of the normal amount. In April, the United Provinces East had a little over double the usual total rainfall and the United Provinces West an excess of over a quarter of the normal amount. The excess in April was largely due to the western disturbances which gave rain along the western Himalayas and to the widespread rain caused by a secondary depression which appeared over Central India on the 7th. On the other hand, May was a month of moderate defect. Cloud proportion was in defect during the season. A cold wave, which followed the eastward passage of a western disturbance on April 19 and 20, extended up to the province. Maximum temperature was above normal in May.

The monsoon period, June to September.—The Bay current was on the whole feeble in June. A depression over South Bengal extended it on the 19th into the East United Provinces which thus suffered only a slight deficiency while rainfall in the western sub-division was only a little over half of the normal amount. The rainfall for July, however, was normal. Monsoon established itself by the 6th and became vigorous from the 7th to 10th. Some heavy individual falls were recorded; 5″ on the 4th at Mussoorie, 6″ at Roorkee, and 5″ at Bareilly on the 8th, and 4″ at Gorakhpur on the 12th. The second Bay depression of the month extended the monsoon into the province and also gave some heavy falls; 8″ at Dehra Dun on the 16th and 6″ at Roorkee on the 22nd. The monsoon strengthened again in the last week under the influence of a third depression from the Bay. Rainfall in August and September was in large defect. There was a break of rains after July till the monsoon strengthened towards the end of August when Mussoorie received a fall of 5″ on the 20th and 6″ on the 23rd. The break continued throughout September

resulting in a keenly felt drought. The percentage departures from the normal of rainfall in the two sub-divisions were—

Sub-division.	June.	July.	August.	September.	Total for the period.
United Provinces East	-11	-7	-63	-64	-37
Ditto West	-39	+5	-60	-77	-38

Corresponding to the large defect of rainfall in August and September, skies were also less clouded than usual, and humidity was in defect in those months. Maximum temperature was above normal in the last two months of the period.

The retreating monsoon period, October to December.—October had an excess of over 50 per cent. of the normal rainfall. In November only the western part of the division received an excess of rain owing to the effect of a remarkably active western disturbance which induced a spell of wet weather from the 27th. This widespread rain continued on the first three days of the next month also. There were again appreciable local falls on the last two days of the month associated with disturbances from the west. Thus on the whole, December had an appreciable excess of rainfall. Cloudiness was markedly more than usual throughout the period. Humidity was in excess in December. Maximum temperature was above normal in November and the minimum in October.

Corruption in the public service.

25. No case of corruption in my department was brought to notice during the year under report.

Office.

26. No changes in my office have taken place during the year, as the increase in the number of clerks required owing to the expansion of the department has been postponed by Government owing to financial stringencies. Similarly the new scale of pay proposed to Government has also been postponed, although Government have recognized the justice of the proposals. Khan Sahib Hafiz Mohiuddin was in charge of the office throughout the year and, as usual, maintained a high standard of work and discipline. My head clerk and second clerk, M. Abdul Hakim and Babu Brij Lal, have carried out their duties satisfactorily.

C. L. DUNN, C.I.E., D.P.H.,
LIEUT.-COL., I.M.S.,
Director of Public Health, United Provinces.

NAINI TAL:
Dated June 14, 1929.

Thirty-fourth Annual Report of the Superintending Engineer, Public Health Department, United Provinces, for the year ended March 31, 1929.

ALTHOUGH the activities of this department were detailed in the 32nd annual report for the year ended March 31, 1927, there still remains considerable ignorance regarding the work of this branch. Questions are frequently asked as to why the establishment charges are not covered by fees realized for projects prepared and works carried out. It is, therefore, necessary once more to set forth in the present annual report the manner in which the establishment of this branch is employed; why it is not possible to meet the whole establishment charges by the fees earned and why at the same time there is not sufficient staff to meet all demands.

The work undertaken by this department falls under the following heads:—

1. *Duties under the Local Authorities Loans Act*, 1914, *and the Municipalities Act*, 1916.—Under this head, the supervision and inspection of all open waterworks and drainage pumping stations is carried out. The total turn-over in revenue and expenditure of waterworks alone is in the neighbourhood of Rs. 40 lakhs annually.

2. (*a*) *Preparation of projects for local authorities.*—This comprises the preparation of projects for water-supply, electric-supply, drainage, anti-malarial schemes, and town improvements. During the financial year 1928-29, projects amounting to Rs. 110·02 lakhs have been prepared and others amounting to Rs. 13·87 lakhs are in hand. Demands under this head cannot be fully met with the number of staff employed.

(*b*) *Carrying out of construction works for local authorities.*—Works amounting in value Rs. 33·71 lakhs are being constructed.

3. *Provincial and Imperial works.*—Projects amounting to Rs. 20·38 lakhs have been prepared and construction costing Rs. 7·11 lakhs is in hand.

4. (*a*) *Advice free to local authorities.*—Forty-eight forecasts of cost amounting to Rs. 99·23 lakhs have been supplied to the different local authorities. With this work also it has proved very difficult to meet all requirements owing to the small staff employed.

(*b*) *Examination of projects for urban works received from the Board of Public Health, United Provinces.*—Nineteen projects amounting to Rs. 4·74 lakhs were scrutinized and advice furnished.

(*c*) *Examination of rural sanitation projects.*—Seven hundred and seventy-eight projects amounting to Rs. 4·53 lakhs have been examined.

5. *Supervision of works carried out by the local authorities themselves.*—Though projects for such works are prepared by this department, sometimes the construction is carried out by the local authorities through their own agency. Such works are also supervised. Works amounting to about Rs. 46 lakhs are under construction at present.

Thus the total of projects including preliminary proposals and forecasts of costs which have been prepared and which are under preparation during the period under review amounts to Rs. 244·48 lakhs, while the construction in hand amounts to Rs. 40·82 lakhs.

Of these five items, fees are recoverable only on item (2); this explains how fees recoverable from local authorities cannot defray the cost of the whole establishment.

A total sum of Rs. 23·65 lakhs was spent during the year on works of a health nature under the supervision of this department.

The programme of work undertaken clearly shows that the divisions of this branch are responsible for more work than their strength in staff justifies.

During the year under review three divisions were again maintained with headquarters at Meerut, Allahabad, and Cawnpore, respectively.

The establishment charges of this department amounted to Rs. 3·07 lakhs. An amount of Rs. 1,12,574 was earned as fees on projects completed during the year, against an amount of Rs. 50,928, realized. Including the arrears of the previous year a sum of Rs. 57,680 was realized as fees on the preparation of projects. Earnings for construction carried out departmentally amounted to Rs. 71,572. For local works a total sum of Rs. 1,29,252 was thus realized.

For provincial works no fees have been realized as orders of Government have not yet issued. Projects for provincial works were prepared amounting to Rs. 20·38 lakhs and construction costing Rs. 7·11 lakhs was carried out by this department. If fees were leviable on provincial works as on local works a sum of Rs. 98,169 would have been credited in addition to the earnings of Rs. 1,29,252 above mentioned.

Departmental work has been very heavy during the year and the Executive Engineers have been overtaxed with demands. There is a growing list of works which cannot be attended to with the available staff. The multitudinous duties undertaken by the divisions are sometimes not fully realized, I refer particularly to the extent of territory covered and the variety of work undertaken, both in projects and construction. All Executive Engineers report the difficulty of obtaining suitable subordinates which is traceable to the less favourable terms offered as compared with other departments.

The highly technical work of this department requires more skill than ordinary maintenance work, and the conditions of work are more arduous. Lack of competent subordinates, therefore, throws much additional work on the Executive Engineers, who are already fully taxed. This matter has been specially reported to Government.

No qualified specialist officers have been recruited to this branch since 1920.

The contract system of carrying out work developed during the last few years has proved successful beyond expectations. This success is in no small measure due to the labours of the specialist officers of this department in adapting the accepted methods of work in the British Isles to local conditions. The lump sum or lump sum-cum-item rate type of contract is used. Technical skill of no mean order is required in framing the specifications and working drawings which throw great responsibilities on the Executive

Engineer. But reliable contractors have been discovered who compete on these conditions and employ their own technical staff, the liabilities are known as soon as the contract is completed and much time and correspondence is saved in carrying out works. But for this system it would be impossible to undertake the programme of work now in hand in the divisions or to obtain such good work at such favourable rates.

The work of the Well Boring Division has increased and much useful work has been done. A new type of well has been developed which will replace strainer wells in future, which offers a longer life, increased yields, and lower depression heads at reduced cost.

A striking feature of the work of this department is the great discrepancy between the value of the works projected and works eventually carried out. There is at the present time a waiting list of projects sanctioned aggregating Rs. 107 lakhs. The total value of work done from funds allotted on other sanctioned projects (estimated at Rs. 62 lakhs) which have only been partly financed amounts to Rs. 26·83 lakhs. This may be explained by one of two hypotheses; either the preparation of projects is needlessly and perhaps wastefully demanded, or works which are really required do not succeed in being financed.

The first cannot be true as projects are not lightly undertaken by this department, the staff is small and fees which have to be deposited act as a deterrent. The second is the real cause and the financing of works urgently required deserves more consideration than it has hitherto received.

Maintenance of local works.

The manner in which local authorities maintained their water-supplies and the drainage systems and other works have frequently received unfavourable notice in the administration reports of this branch and the present year has shown no improvement, the surprising feature being that works like water-supply should function so long in spite of the complete lack of interest and diligence exercised in maintaining them. The staff employed by municipal boards does not possess either the technical qualifications or the experience in most cases that the duties undertaken require. No foresight is exercised in anticipating or meeting new demands and works are allowed to atrophy, and revenue to decrease whilst extensions are found necessary in the public interest and whilst a return is assured from such extensions capable of meeting the capital and running charges involved in their execution. Government in the past have been indulgent to local authorities and grants have been given for public works which in many cases the local authorities could never have initiated on their own behalf. The results have been disappointing. The generosity of Government instead of being accepted as an encouragement is used as a lever to secure more grants-in-aid in the majority of cases.

The public look upon increased taxation with the deepest misgivings and little wonder can be expressed at this attitude in view of the manner in which the local authorities carry out their works. Faulty projects are prepared and the specifications and tender forms do not receive proper attention. There is little competition for works carried out by local authorities and the quality of work in general is indifferent.

Except for a few praiseworthy exceptions, the general situation is depressing to contemplate.

The officers of the local authorities do not receive the assistance and encouragement from the members of their boards which they are entitled to, and in consequence most of them are disheartened. There is no inducement for them to put forth their best efforts.

If there is to be any improvement in the public service, a radical change in administration is necessary. For this improvement it will be necessary to bring home to members their responsibilities to the public by making them individually liable for the loss, inconvenience, and damage which is traceable to their shortcomings. As an alternative to this, the important services such as water-supply might be removed from their control and put under a committee of management or made over to reliable private agency.

The audit of the accounts of such services as water-supply is insufficient and an audit more detailed in character and extending continuously over all transactions during the year would result in great savings to the public.

Local authorities generally are not able to obtain the services of competent technical officers, the reason being that the condition of service and method of work are not such as to attract men of standing. This feature explains, to some extent, the unsatisfactory state of local works.

WATER-SUPPLY. GENERAL.

The Mechanical Adviser has again recently reviewed the business of water-supply as far as it affects the municipal public in these provinces. In a report, dated March, 1929, the main points which this officer stresses are as follows:—

(1) Of all the boards, Benares, Meerut, and Mirzapur show the least inclination to make their waterworks self-supporting.

(2) The periodic returns which Government has required the boards to submit to this office has resulted in a very appreciable improvement in collection of water dues.

(3) All municipal boards have failed to carry out Government orders concerning the contribution towards cost of water supplied for municipal purposes. The sum of Rs. 3·72 lakhs thus was unaccounted for in the waterworks returns of the local authorities during last year.

(Since this was written Benares has shown an amount estimated to cover the cost of water used for municipal purposes.)

(4) Too great latitude has been permitted to local authorities to deviate in their rules from those laid down in the Municipal Manual. The necessity for revising these rules in the case of some towns is imperative.

(5) The number of mistakes detected and the time taken by the staff of this branch in verifying waterworks returns renders it necessary that a special staff be appointed for this work. The services of a specially qualified accountant and two clerks are required to trace out discrepancies in municipal registers and ensure that the returns received are *bonâ fide*.

(6) The Mechanical Adviser recommends that all private connections of one half-inch size and upwards be metered. He points out that there are over 12,000 services in the municipalities of these provinces unmetered and that the metering of such connections is now a commercial possibility without any capital outlay on the part of the local authority concerned.

All the above recommendations are brought to the notice of Government so that necessary orders may issue concerning this question which vitally affects all water-supplies.

In those towns where recent re-organization work has been undertaken the result has been a large increase in the number of private connections whereby the total capacity of the new plant has already been outstripped. In each of these cases the shortage now is almost as grievous as that which existed before the re-organization work was undertaken. The water supplied has increased by 50 per cent., whilst the revenue has not increased in anything like the same proportion though the increase in the number of private connections has been pronounced.

The disparity in supply has become more marked than ever. In all the large towns the same results are evident. The outlying areas are starved even of a small quota, while these same areas seem to be chosen particularly for the application of water meters. At the same time other areas which by their position are favoured with high pressure and continuous supply are allowed unlimited water, most of which runs to waste.

The manner in which vital essentials such as the repairs of fittings, the procuring of proper fuel, employment of proper staff, and the provision of necessary funds to meet running charges are dealt with by local authorities shows clearly that the water-supplies of the large towns are far beyond the capacity of the boards to manage and the time has now come to consider whether the public interest would not be better served by the boards making over their water-supplies to private companies or to committees of management who are competent to administer them The health as well as the prosperity of the urban public is vitally affected by this issue.

As anticipated in my last report, there has been a further increase in the total income on waterworks of over a lakh bringing the margin of income over expenditure to above six lakhs.

This increase has been mainly due to the re-assessment in rating on house and property taxes.

If the recommendations of the Mechanical Adviser on metering and other defects in the control of distribution were acted upon, an additional large increase is possible.

The consumption per head per day, which has alarmingly increased in the case of Allahabad, Cawnpore, Lucknow, and Benares, will soon necessitate further large capital expenditure if these recommendations are not given effect to immediately.

If allowance is given for water supplied for municipal purposes, a further increase of 75 per cent. in the profits would result.

The increases in profits as shown above as soon as effected will not only make all the waterworks self-supporting but will enable the boards to pay back interest and sinking fund charges on all future loans that may be required for extensions.

It is not possible for the staff to compile the necessary appendices for this report in time, as the boards still fail to submit correct returns on the appointed dates.

WATER-SUPPLY MAINTENANCE AND EXTENSIONS.

Agra.—Mr. H. R. Patel, who was waterworks superintendent for thirty years, died when on short leave at Bombay. Despite many vicissitudes and inadequate support from his board, Mr. Patel managed to maintain the waterworks and plant in exemplary condition. His experience was often of great help to the municipal board.

The plant was well maintained during the year, principally by work undertaken in the waterworks workshops. The maintenance of settling tanks has been neglected; this is due to the refusal of the board to provide funds necessary for regular cleaning. The quality of the coal supplied was satisfactory.

The sand bank formed four years ago in front of the waterworks intake although somewhat reduced in depth still makes it necessary to maintain a channel cut across the river bed almost to the opposite bank of the river.

The census of connections which was started three years ago has been completed. The value of this work cannot be overestimated, as it is only by means of this information that proper assessment of the service connections can be made and the water tax can be adjusted so that the works may be self-supporting.

The old geared pumps "Vulcan" and "Medusa," part of the original waterworks plant, have been dismantled to make room for the new electro-motor-driven centrifugal pumps for the raw water-supply to be installed under the waterworks extension scheme now in hand.

Agra water-supply improvements (*Rs.* 3·70) *lakhs*).—The necessity for increasing the filter capacity at Agra has been under consideration for some time and it has been decided to instal a Paterson plant with coagulating tanks to afford 1,000,000 gallons of pure water daily. The contract for building work has been given to Messrs. Gyan Chand Vidya Dhar and that for the mechanical filters to the Paterson Engineering Company. The work is well in hand, and is expected to be finished by October next.

Contracts for extending the unfiltered water pumping plant have also been let to Messrs. Mather and Platt and the work is in progress. This board does not exercise sufficient control over the distribution, does not insist on a sufficient number of meters, and tends to starve its water-supply as regards repairs and maintenance. This neglect is now becoming evident by the increasing number of complaints.

Allahabad.—At Karellabagh, the riverside pumping station, there is little to report on the conditions of the previous year. There was fortunately only very slight movement in the "C" suction gallery and practically none at all in the "A" and "B" suction pipe culverts and the old pumping plant was maintained in running order without difficulty. The vertical spindle electro-motor-driven centrifugal pump installed as a semi-permanent plant in the old inlet well was worked for four months and was eventually put out of action owing to the low water level in the river.

Under the re-organization scheme it was anticipated that one of the two intake wells, so long delayed, would be completed in time for this hot weather. These hopes did not materialize.

At Khusrubagh, the filtered water pumping station, the works have been well maintained with the exception of the clear water reservoirs which, as reports show, have been cracked for a number of years, the leakage causing undermining of the foundations, yet this important work has been repeatedly postponed by the board and it is now proposed to carry it out as part of the re-organization. The condition of four of the slow sand filters is serious and no time should be lost in re-conditioning them with Jumna sand throughout their entire depth.

The Paterson mechanical filtration plant gave entire satisfaction throughout the year.

Under the re-organization scheme the three electro-motor-driven horizontal centrifugal pumps were started up in October, 1928, and since that date have maintained the filtered water pressure enabling the old boilers and beam engine pumping plant to be shut down. The new plant was supplied by Messrs. Mather and Platt, Limited.

The Mayo Hall tube-well electro-motor-driven centrifugal pumps worked satisfactorily throughout the year and gave a useful additional supply at increased pressure to the district.

The collection of water-rates and taxes for the half-year shows improved results; the amount outstanding was only Rs. 633. Credit is due to those responsible for this fine performance.

Grievous inequalities in supply take place owing to want of control and the unwillingness of the board to meter connections in those areas where pressure and supply is high. Some outlying areas get no water at all; yet they are provided with meters. Until the Board have courage to attend to their defects, these complaints will continue to occur.

Allahabad water-supply improvements (*Rs.* 31·17 *lakhs*).—This work is being carried out by the board's own agency. The new plant at Khusrubagh has been set to work, while the work at Karellabagh is progressing slowly. Until the Karellabagh work is completed properly, there is bound to be the regular annual shortage so often noted. The expenditure to date amounts to Rs. 12·01 lakhs.

Allahabad Magh Mela water-supply.—The work of supplying water to the mela of 1929 was successfully completed and a plentiful supply was maintained for the pilgrims from the new tube-well and pumping plant by the Executive Engineer, 2nd division.

This well, however, will not be sufficient to cope with the demand of the Kumbh mela coming next year, and the necessity of having another well has been reported to Government for orders as there is slight hope of any assistance from the municipal system.

Benares.—The waterworks superintendent, as in former years, maintained the plant in good running order. At Bhelupura, two additional slow sand filters have been partially constructed and the banks of the settling tanks raised to increase their capacity. The new waterworks pumping station at Bhelupura, including the four new electro-motor-driven centrifugal pumping sets, was completed and started in January, 1929, and has maintained pressure in the filtered water-supply since that date, enabling the boilers and old beam pumping sets to be shut down.

At Bhadaini, the riverside pumping station, the vertical H. D. Worthington practically maintained the whole of the supply, the old geared

pumping sets being seldom used except during the overhauling of the Worthington set. The new intake well is being rapidly sunk and it is hoped that this work will be completed before the monsoon to enable the work of installing the new electro-motor-driven vertical spindle centrifugal pumps to be commenced.

The re-organization of the distribution is being carried out by the board themselves and so is the construction of the two new slow sand filters. This latter work has been the subject of complaint, the quality of the work being questioned and leaks reported.

Regarding the foul water drainage into Assighat about four hundred yards above the intake wells, no effective measures have been taken to prevent this contamination of the raw water.

The census of connections has not been completed and the postponement of the work for a period of two months, said to be due to the monsoon, has now been extended to seven months.

This board is one of the worst offenders in showing no real effort to make its waterworks self-supporting.

A startling excess of revenue over maintenance charges was reported this year amounting to Rs. 1·45 lakhs. In the two previous years deficits of Rs. 0·53 and Rs. 0·64 lakhs were recorded and an examination of the revenue returns reveals the fact that there has been little change in the items making up the totals such as sale of water, water-rate, and other receipts but that a large amount of Rs. 1·87 lakhs has been added to allow for cost of water used for municipal purposes. The profit is, therefore, a phantom unless the board pay this from their other municipal revenues.

No effort is made otherwise to control the distribution by applying meters or to adjust revenue to cover expenses. This neglect will, in a short time, result in shortage in supply in spite of the new work about to be completed.

Cawnpore.—So far as the running of the old works is concerned, the principal points to be noted are as follows :—

Owing to the delay in letting the contract for the removal of the silt from no. 1 reservoir, about 25,000 cubic feet of silt were left as there was no time for this excavation. The channel wall between settling tanks nos. 1 and 2 collapsed and was not repaired before raw water was turned into no. 1 settling tank. While efforts have been made during the last few years to staunch two leaks in the embankment of no. 3 reservoir near the compressor house, it was noted at the last inspection that these leaks had again opened up and a new leak has developed in the bank of the same settling tank facing the pumping station.

The board have carried out the re-organization work themselves through Messrs. Lane Brown and Hewlett, Consulting Engineers.

Under the re-organization scheme the two old vertical Worthington pumps at Bhaironghat, the riverside pumping station, have been dismantled and, together with the two Lancashire boilers, this old plant is for disposal. The rotary triple expansion engine and the Babcock and Wilcox boilers are being retained as stand-by plant. Two vertical spindle electro-motor-driven centrifugal pumping sets have been installed in place of the two old vertical Worthington pumps. These sets have worked for about

three months, but the supply of raw water will, in future, be taken in preference from the canal by arrangement with the Irrigation department.

At Benajhabar, the filtered water pumping station, under the re-organization, the whole of the steam plant has been shut down and is only maintained as a stand-by. Raw water is pumped by three horizontal electro-motor-driven centrifugal pumping sets taking water from the canal and delivering into the settling tanks. Four horizontal spindle electro-motor-driven centrifugal pumps have been installed and set to work to pump the filtered water-supply into the elevated tanks and the distribution system. One additional clear water reservoir has been constructed, two Puech-Chabal rapid filter beds and two slow sand filter beds have been completed and brought into operation. These extensive additions have relieved the serious state of Cawnpore water-supply.

Additional meters have been ordered for the supply connections and the increase in revenue is satisfactory.

Dehra Dun.—The quantity of water supplied was satisfactorily maintained, but the complaints received since the Baldi springs were brought into use has made it desirable to chlorinate and to soften this water.

Dehra Dun water-supply improvement. (Rs. 0·65 lakhs).—An estimate amounting to Rs. 0·53 lakhs for a water-softening and chlorinating plant was sanctioned and tenders were invited. Some excess was anticipated as a result of these tenders so a revised estimate amounting to Rs. 0·65 lakhs was sanctioned. This also includes some additions and alterations proposed by the municipal board. The work, however, could not be started this year owing to the very long time taken to acquire the land required for the works.

Fyzabad water-supply.—An accident occured to one of the Diesel engines which, though simple in nature, resulted in the set being shut down for over two weeks. This did not interrupt the supply however. The plant at the waterworks has been well maintained in spite of this accident and its state reflects credit on the superintendent.

The plant works at a certain disadvantage owing to the failure of yield obtained from the tube-wells constructed many years ago.

This will be remedied during the next year by the additional pumping set for the fifth well recently constructed.

Fyzabad water-supply improvements. (Rs. 0·50 lakhs).—A new tube-well has been constructed of the strainerless type which is now replacing strainer wells and has proved very successful. The test results show that this well is capable of yielding 425 gallons per minute under a depression head of only 24 feet. This well is, therefore, equivalent to three of the old wells.

Gola Gokarannath.—This waterworks primarily intended for the maintenance of the water-level in the bathing tank, received inadequate attention from the district board and the plant, although otherwise in satisfactory running order, was frequently stopped through delays in the purchase of stores.

Hardwar.—This waterworks was maintained in good order throughout the year and the pumping plant ran satisfactorily. The seepage through the walls of wells nos. 2 and 3 was practically completely staunched by a casing of thin brick run up with cement grout and plaster rendering. The

yield from well no. 3 has been increased by about 50 per cent. by the removal of silt which had accumulated in the bottom of the well.

While private connections are popular in all other towns which have municipal water-supply the same popularity does not appear to exist in Hardwar. Possibly this is due to a large portion of the population being a floating one. Although the supply has been in regular use for over two years, there are to date only 148 service connections existing.

It is proposed to extend the supply to Kankhal for which purpose a forecast of cost amounting to Rs. 66,444 was sanctioned by the Board of Public Health. The Hardwar Union Board, however, decided, vide their resolution no. 262, dated January 20, 1929, that Jwalapur should be taken up first. The Board of Public Health has already allotted Rs. 22,000, and arrangements are being made to put this work in hand.

Jhansi.—The maintenance of pumping plant showed no improvement compared with former years and this waterworks is still by far the worst maintained of any in these provinces. The blame is entirely due to the action of the board in delaying all matters pertaining to the waterworks. This case has been specially brought to the notice of Government.

Jhansi water-supply improvements. (*Rs.* 20·82 *lakhs*).—The final proposals from the Great Indian Peninsula Railway authorities are still awaited, who have agreed to construct the dam and conduit.

Lucknow.—The generating plant at Aishbagh and the electro-motor-driven filtered and unfiltered water-supply pumps, both at Aishbagh and Gaughat, worked satisfactorily throughout the year. The principal difficulty arose from the bad quality of the coal supplied which fused and clinkered on the brickwork of the boilers and caused considerable damage to the brick-work and grates and mechanical stokers, not to mention the unsatisfactory working of the boilers. In consequence there was a restricted output of water on the advent of hot weather. The Green's steam economiser plant has been neglected for months and further restricts the steaming power of the boiler plant. The existing Paterson filtration plant worked satisfactorily throughout the year, though forced far beyond its rated capacity by the failure of the slow sand filters.

Special attention has been drawn to the condition of the slow sand filters on numerous occasions. Owing to the delay in re conditioning these filters a shortage in the supply has also taken place from this cause.

At Gaughat, the riverside pumping staion, some improvement has been effected in reducing the high suction lift by restricting the number of hours during which the Gomti weir gates are lowered.

The distribution system shows much inequality of pressure and supply and sufficient attention has not been given to controlling waste.

The manner in which this waterworks is now being maintained leaves much to be desired and the board has been warned of this state of affairs.

Mr. H. T. Carter, the superintendent of waterworks, retired after over eighteen years' service with the board and has been succeeded by Mr. Elder, the Electrical Engineer.

Lucknow water-supply improvemen is. (*Rs.* 15·65 *lakhs*).—Contracts for the duplication of the mecha nical filters and the building work pertaining thereto (Rs. 3·28 lakhs) ha ve been let to Messrs. Paterson

Engineering Co., and Messrs. Noorullah Ghazanfarullah respectively and the work taken in hand.

The work of laying the Cantonment main (Rs. 1·88 lakhs) as a part of the re-organization of the distribution mains has been let to Messrs. Martin and Company and has also been started. The remaining portion of the distribution scheme is to be carried out by the municipal board itself, but they have not yet decided on any programme of work.

To augment the supply and give relief to the Bandaria Bagh area and the Civil Lines a scheme for two tube-wells (Rs. 0·53 lakhs) has been sanctioned. Although the Board of Public Health was ready to meet half the cost of this work by giving a grant and had actually placed Rs. 10,000 at the disposal of the municipal board yet the latter delayed to respond, and the grant was resumed.

Meerut.—The pumping plant is well maintained by the waterworks superintendent and his staff. The greater part of the repair work is executed in the waterworks workshop. The new shaft and wheels obtained in the previous year for one of the water turbines was fitted by the suppliers, Messrs. Worthington Simpson, Limited, and this has improved the running of the set.

The settling tanks, filters, and works were generally very well maintained. The fourth slow sand filter was re-conditioned during the year and all four filters have been re-conditioned in the last four years.

This board steadfastly refuses to make its water-supply revenue cover necessary expenses and the supply is stationary in amount in spite of the material growth of the town.

Mirzapur.—The reckless provision of standposts and granting of private connections has overtaxed the distribution mains and the leading main from Lanka reservoir, and a shortage is threatened.

It is possible that the capacity of the storage reservoir may also be taxed if the mains are increased to cater for the wasteful demand which has been permitted to arise owing to lack of control.

This is a serious matter for Mirzapur, the earnings of the water-supply are poor and a large sum in capital will have to be found for increasing the storage. The board's attention has been drawn to these matters on more than one occasion.

Moradabad water-supply.—The bore-hole pump had to be dismantled and this occasioned a shut-down for about six weeks. In a previous report it was stated that the municipal board was slow to carry out the recommendations in regard to the running of the plant and the present year shows no improvement in this respect.

Moradabad flushing improvements.—(*Rs.* 0·12 *lakhs*). An estimate amounting to Rs. 0·12 lakhs for further improvements to the flushing work was sanctioned. This work is being carried out from the savings of the original estimate.

Mussoorie.—The pumping plant was maintained in good running order at the three pumping stations. The long postponed supply for Landour was completed early in 1929 and is now in satisfactory working order. This pumping station is a "booster" station and obtains its supply from

the municipal mains and not from springs as at the other three pumping stations. The new plant was supplied by Messrs. Worthington Simpson, Limited, and the work was carried out by the board's engineer in a very satisfactory manner. The estimated cost is Rs 3·79 lakhs.

The distribution system was generally well maintained and an adequate supply is now obtainable at all levels at Mussoorie.

The installation of the new plant and the substitution of a large distribution main has relieved the anxiety over water shortage.

Arrangements are also being made with the Cantonment authorities to augment the supply of some portions of the municipal area in connection with the Landour supply.

No further metering has been possible this year for want of funds.

The manner in which the pumping plant has been maintained in this complicated system of supply with high lifts reflects great credit on the board's staff.

Muttra.—The greater part of the pumping is now done by the electrical motor coupled to one of the original centrifugal pumps and taking energy from the Electric Supply Company. This set has been in work since last July. The alterations were carried out by Messrs. Mather and Platt, Limited. The Diesel oil engine generating sets are worked occasionally and are maintained as stand-by plant. No. 1 tube-well is to be abandoned as the strainer is choked and a new tube-well will be sunk through the existing culvert and coupled to the present suction pipe. This well will then restore the supply to its original amount, and permit the centrifugal pump to work at its rated capacity. A fifth tube well is to be sunk having an independent pumping unit.

The trouble between the waterworks superintendent and municipal board ended in Government ordering the board's resolution for his dismissal to be rescinded, but considerable friction still exists which has been carried through to the operating staff.

A remarkable instance of loss in pumping costs has occurred at this pumping station. An excessive consumption of electric energy was noticed from the records against the quantity of water pumped which could not be explained by the reports. A detailed examination of the pumps and connections which was conducted, revealed the fact that water was leaking through defective valves and was being circulated through the stand-by pump connections. The Mechanical Adviser had, many months previously, recommended the replacement and repairs to the faulty fittings.

The board has made little effort during the past year to make the waterworks self-supporting and failed to re-organise its waterworks staff as recommended. Since power for pumping is now taken from the Electric Supply Company there will be unnecessary expense owing to this neglect in addition to that brought about by the inadvisable agreement for power-supply.

Muttra water-supply improvements.—As the Muttra municipal board had made arrangements with the Electric Supply Company to take power for water-supply pumping purposes it became necessary to replace the old D. C. motors by A. C. motors to suit the new supply. The work of installing one A. C. motor was given to Messrs. Mather

and Platt and it has been completed by the Executive Engineer, 1st division.

An estimate for two more tube-wells—one to replace the old well no. 1 and another for a new tube-well—was sanctioned. The municipal board has taken a loan of Rs. 82,000 for this work which will be put in hand at an early date.

Muttra district Banjatra route water-supply.—Five wells with handpumps have been constructed for the use of pilgrims and were handed over to the district board after completion.

Naini Tal.—The electro-motor-driven pumping plant was maintained in good running order and old steam pumping plant kept as stand-by. The lake side pumping plant and chlorinating apparatus was overhauled and also kept in working order.

Owing to scanty winter weather rain, the springs show early sign of reduction in yield and care will have to be exercised in preventing waste.

Unao.—With the exception of three days when a slight breakdown occurred on the governor gear of the engine, these works were kept in satisfactory running order and the two tube-wells have maintained the supply. These works were taken over by the municipal board in June, 1927, and were intended to cater for a standpost supply. Despite repeated warnings the board have given 161 service connections and the demand is increasing to such an extent that an extension of these works is imperative. The project for this is in hand.

Due to the late notification of assessments, the revenue in 1927-28 was only Rs. 1,517. But the revenue this year amounts to Rs. 7,567 against an expenditure of Rs. 6,895 which shows that the municipal board are making some endeavour to render the supply self-supporting.

Aligarh water-supply improvements (Rs. 7·49 lakhs).—The revised estimate amounting to Rs. 7·49 lakhs was finally sanctioned and the contract for pipe-laying and building work has been given to Babu Udai Singh Jain of Aligarh, whilst that for the pumping plant has been a matter of discussion with the board and has been delayed.

Almora water-supply improvements (Rs. 1·76 lakhs).—The project has been finally sanctioned by the Board of Public Health and Rs. 47,000 have been provided in the budget of 1929-30 for starting the work.

Ajodhya water-supply improvements (Rs. 4·27 lakhs.)—A tube-well costing Rs. 0·11 lakhs of the new type has been constructed and has proved a success, yielding 400 gallons per minute with a depression head of about 20 feet. The water-supply project amounting to Rs. 4·27 lakhs has also been sanctioned and the question of financing it is under consideration of Government.

Bareilly district jail water-supply improvements (Rs. 0·06 lakhs).—The work was completed satisfactorily and handed over to jail authorities.

Brindaban water-supply.—The construction of the two percolation wells estimated to cost Rs. 0·10 lakhs was completed during the year. Very disappointing results were obtained owing to the impermeable

nature of the strata. The fact that the proposals for training the dry weather bed of the Jumna are held in abeyance puts the consideration of further percolation wells out of the question.

In consequence of this, permission has been obtained to devote the balance of the grant towards making further borings with a view to discovering some water-bearing strata in the vicinity of Brindaban capable of supplying the needs of the town.

Farrukhabad flushing scheme.—This work has been held in abeyance for want of funds.

Fatehpur Sikri water-supply improvements (*Rs.* 0·43 *lakhs*).—The tube-well that was under construction has been successfully completed so that the supply to the town is now assured. Tenders for the work of pipe-laying and pumping plant were invited, and the contracts have been let. It is expected that the works will be completed in 1929.

Gorakhpur water-supply improvements (*Rs.* 3·27 *lakhs*).—The question of this town's water-supply is linked with that of the drainage. Preparation of the project will shortly be taken in hand.

Hathras water-supply improvements (*Rs.* 5·32 *lakhs*).—Two tube-wells have already been constructed, for three more wells, tenders have been invited, while for the pipe-laying work and pumping plant contract documents are under preparation. This work has been delayed owing to the long time taken by the municipal board in coming to a decision about their electric-supply.

Jaunpur water-supply improvements (*Rs.* 3·84 *lakhs*).—The work of trial tube-well was started in February, 1928, but the progress has been very slow due to want of experience on the part of the contractors and also to very hard strata encountered. The boring was carried down to 320 feet below ground level, but no good water-bearing strata was obtained. It has, therefore, been decided to utilize the fine sand strata found at a depth of 240 feet, and to construct a well of the new type from which it is expected that an yield of about 150 gallons will be available.

Kanauj police station water-supply (*Rs.* 0·03 *lakhs*).—This estimate was prepared to sink a tube well in the existing masonry well in the compound of a new police station to improve its yield. The estimate was sanctioned and the tube-well was handed over complete.

Khurja water-supply improvements (*Rs.* 0·21 *lakhs*)—The construction of this tube-well has been undertaken to ascertain if sufficient supply is available from this source for supplying the town with potable water. A grant of Rs. 20,536 was sanctioned by the Board of Public Health and tenders were called for for this work. The contract has been placed with Messrs. Scott and Saxby. The work will be started as soon as the site is acquired by the municipal board.

Kosi water-supply improvements (*Rs.* 1·02 *lakhs*).—The contract for the supply and erection of pumping plant was given to Messrs. Jessop and Company, Limited, and that for the building and pipe-laying work to Messrs. Narain Dass Hansraj. The pumping station building, pipe line, and service tank are nearly complete. The acquisition of land caused

some delay. The pumping plant has been erected and arrangements are being made to set it running.

Piran Kalliar water-supply (*Rs.* 0·40 *lakhs*).—An estimate for the water-supply has been sanctioned. Tenders for constructing a tube-well were called, but as no contractor agreed to complete the work before the end of the financial year it was decided to carry out this work departmentally. Boring has been carried down to 200 feet below ground-level. Sufficient depth of water-bearing strata has been obtained and it is expected that the required yield will be available.

Rae Bareli water-supply improvements (*Rs.* 4·00 *lakhs*).—The estimate has been sanctioned and a trial bore was carried down to 400 feet below ground-level. Good water-bearing strata was not discovered even at this depth, so that recourse must be had to several wells about 150 feet deep for the town-supply. A supply of about 100 gallons per minute has been secured by a well of the new type.

Besides the works mentioned above, construction works for an experimental well at Dayal Bagh (Rs. 0·13 lakhs), a well at the police station at Garhmuktesar (Rs. 0·03 lakhs) are under construction and proposals for a water-supply to the Agricultural College, Cawnpore, Bhowali, Bhimtal, and Etawah have been drawn out.

Estimates for a tube-well for the Government High School, Najibabad, and a well for the Kutchery at Etawah, together with numerous other forecasts of costs, were prepared.

Electric-supply. General.

The electric-supplies at Mussoorie and Naini Tal show a steady growth and there is reason to believe that if the local authorities were more active in encouraging the use of electricity, a much greater increase in demand would be recorded.

Public electric-supplies are being completed by this department for Roorkee, Khurja, Meerut, and Muzaffarnagar, in collaboration with the Irrigation branch.

The Hardwar electric-supply completed in 1926 has proved a compelling advertisement for local authorities to undertake similar work. Signs are not wanting in municipal electric-supplies that complaints exist which would receive more prompt and adequate attention if the supplies were managed by a reliable private company.

Electric-supply. Construction and Projects.

Aimora hydro-electric-supply (*Rs.* 3·50 *lakhs*).—A forecast of cost has been presented to the board who have decided to postpone this work until their water-supply scheme is completed.

Bhowali electric-supply (*Rs.* 0·42 *lakhs*).—The project has been sanctioned and the contract documents prepared. There is, however, little hope of getting funds in the coming financial year for this work.

Fyzabad electric supply (*Rs.* 4·20 *lakhs*).—Preliminary proposals were prepared and presented to the board. It is understood, however, that a private company is negotiating a licence for the electric-supply to this municipality.

Ghaziabad electric-supply.—The Irrigation department will supply electricity in bulk, and the board have decided to carry out the distribution through a private company.

Hapur electric-supply (*Rs.* 0·71 *lakhs*).—The project for this work was long held up for want of staff and has been completed and presented to the board for approval.

Khurja electric-supply (*Rs.* 1·86 *lakhs*).—The project for this work has been sanctioned and tenders have been invited.

Meerut electric-supply (*Rs.* 3·7 *lakhs*).—The project for this work has been sanctioned and contract documents completed. Tenders have also been invited and the work of construction will shortly be taken in hand.

Muzaffarnagar electric-supply (*Rs.* 1·04 *lakhs*).—The project for this work has been forwarded to the municipal board for approval.

Roorkee electric-supply (*Rs.* 0·58 *lakhs*).—The work of distribution which was undertaken by this department has been completed and the work handed over to the municipal board after being passed by the electric inspector. The revised project for an extension of the line to supply an industrial demand has also been sanctioned, and the work will shortly be taken in hand.

Drainage. General.

If the management of water-supply is depressing, that of drainage is even more so. In some of the large towns where by the munificence of Government miles of sewers have been constructed, one may see kerb and channel drains overflowing on the street surface and hydrants and stand-posts causing stagnant pools where the outlay of a few hundred rupees would enable proper trapped connections to be made to the sewers that exist. The use of sanitary appliances is not making the progress which it should. This is due to the ignorance of the municipal staff generally and in particular cases to intermittent and scant water-supply.

As regards the disposal of sewage, little interest is evinced and sewage farm land is often recklessly over-dosed with sewage at the taste and fancy of the tenants. The conditions on which the farm land is let out for cultivation are also not in the public interest. The rents seldom bear any reasonable relation to the produce obtained.

One marked advance must be recorded and that is the treating of the main road surfaces inside urban areas. Tar spraying has reduced the dust nuisance in an amazing manner and has made life tolerable to a large number of town-dwellers in spite of the great increase in motor traffic which has taken place during the last year or so.

Municipal authorities exercised the same laxity as formerly in permitting insanitary buildings to be erected and in steadfastly refusing to insist on property-owners connecting their foul water drains with the underground sewers, where such exist.

Drainage construction and projects.

Agra (*Rs.* 49·56 *lakhs*).—The project for sewerage and sewage disposal of this important city, which has been divided into instalments, has been finally sanctioned. As a preliminary to the construction, the Bombay, Baroda and Central India Railway authorities were approached to allow this sewage main to be carried on their bridge to the other side of the Jumna

river to a sewage farm for which there is ample land on that side. This permission has been refused on the ground that the bridge is an old one and cannot carry any extra load. The sewage main will be carried in the bed of the river if this proves a cheaper course than the outfall below Taj-gunj. This drainage work is one of the most desirable on the list of sanctioned projects.

Ajodhya drainage improvements (*Rs.* 4·60 *lakhs*).—The project has been finally sanctioned by the Board of Public Health, and the question of allotment of funds is under consideration.

Allahabad sewerage and sewage disposal.—The construction of the Katra Colonelgunj drainage (Rs. 0·92 lakhs) which is being carried out by the municipal board has been much delayed. The original contract has been rescinded and fresh tenders have been called for to complete the remaining portion of the work.

Benares drainage and paving scheme (*Rs.* 26 *lakhs*).—A forecast of cost has been prepared and forwarded to the municipal board. The first instalment of Rs. 2·87 lakhs, when completed, will do away with the pollution of the main ghats. The second instalment will cost about Rs. 10 lakhs and the complete drainage and paving scheme will amount to about Rs. 26 lakhs.

Owing to the loss of drainage plans of this town, the expense of a new survey will have to be incurred before the final project can be prepared.

Budaun drainage (*Rs.* 0·89 *lakhs*).—The fair project has been prepared and presented to the municipal board.

Bareilly anti-malarial works (*Rs.* 1·27 *lakhs*).—The decision of the railway authorities regarding the completion of the storm channel through their land is still awaited. Without their co-operation this work cannot be satisfactorily completed.

Cawnpore sewerage and sewage disposal (*Rs.* 3·87 *lakhs*).—The Board of Public Health approved of the proposal for the disposal of a part of the sewage of this town by the activated sludge method and the detailed project has been put in hand.

Agricultural College, Cawnpore (*Rs.* 0·70 *lakhs*).—A fair project for the disposal of sewage by the activated sludge method has been forwarded to the Director of Agriculture for sanction and allotment of funds.

Dehra Dun drainage.—The proposals for drainage of the western portion of the town could not be put in hand for want of staff.

Gorakhpur drainage improvements.—The municipal board is alive to the necessity for efficient drainage of the city, but there are difficulties dealing with it satisfactorily without heavy expenditure, owing to the flooding of the inhabited area during rains. Preliminary proposals for lining the main storm channels have been prepared. The board has decided to have the fair project prepared on the lines of the preliminary proposals and the necessary survey work will shortly be put in hand.

Gokul drainage improvements (*Rs.* 0·60 *lakhs.*)—Gokul is an ancient sacred town on the banks of the river Jumna about three miles from Muttra. The streets and lanes of Gokul are generally unpaved. Almost every house has a cesspit and the foul water either soaks into the soil or spreads on the earthen surface of the lanes, rendering the whole locality very insanitary. It is proposed to construct proper kerb and channel drains,

to pave the lanes and to line one storm water channel. Some of the drainage will be intercepted and discharged into the river below the town and some will be collected in a cesspit at Athkhamba ghat and will be pumped into conservancy carts and disposed of at a distance from the town. This system, which is not ideal, is imposed on account of lack of funds but will greatly improve the existing state and tide over the transition period till a complete drainage system is possible.

Hardwar sewerage and sewage disposal (*Rs.* 8·14 *lakhs*).—The estimate has been sanctioned and allotment of funds is awaited. A forecast of cost amounting to Rs. 0·88 lakhs for laying a Trinidad asphalt surface on the Hardwar station road was prepared at the request of the Municipal Board, Hardwar. Later on, at the instance of the Chief Engineer, Buildings and Roads, a forecast for a concrete road has also been supplied to the board.

A forecast of cost for the improvement of the Har-ki-pairi (Rs. 11·71 lakhs) has been prepared.

The project for the general lay-out of Bhopatwala has been delayed for want of sufficient staff and will be taken up as soon as other urgent works are completed.

Jhansi drainage.—The municipal board has requested this department to prepare a detailed project for their drainage and the work will be taken in hand as soon as staff is available.

Jhansi Intermediate College drainage (*Rs.* 0·93 *lakhs*).—A detailed project has been prepared and forwarded to the Director of Public Instruction for sanction and allotment of funds.

Kaimganj drainage improvements (*Rs.* 0·60 *lakhs*).—This work, which is to improve the surface drainage of the notified area of Kaimgunj, district Farrukhabad, is well in hand. About 85 per cent. of the work has been completed. Delays have been reported owing to the difficulties in acquiring land and property.

Lucknow sewerage and sewage disposal.—The repairs to the intercepting sewers have not yet been completed. The breaches in the sewers necessitate the discharge of sewage into the storm channels of the inhabited areas of the town and the river is appreciably fouled by such overflows.

The working of the sewage pumping station has been adversely noted on, on many occasions, and the sewage farm does not receive the attention it deserves. The state of Lucknow sewerage is most unsatisfactory and is affecting the health of the public.

Lucknow anti-malarial works.—Ghazi-ud-din Hyder canal (*Rs.* 5·62 *lakhs*).—This work consisting of a 24-inch sewer and a masonry lining to the Ghazi-ud-din Hyder canal between the Canning Street bridge and the Gomti each about 190 chains in length was undertaken early in April, 1928, and is now nearing completion and has already resulted in a marked improvement in the sanitation of this part of Lucknow.

Pumping plant for the 5-inch tube-well constructed for flushing the sewer has been received at site, and the erection will shortly be completed. Another anti-malarial scheme for dealing with the Gomti inlets (Rs. 1·27 lakhs) has been sanctioned and the work will be put in hand as soon as funds are available.

Meerut drainage improvement. (*Rs.* 11·54 *lakhs*).—This scheme is still pending, due to the pressure of other work and want of staff. A project for paving and drainage of the Kaisargunj Mandi and grain market (Rs. 1·66 lakhs) was also prepared at the instance of the Assistant Director of Public Health. Another forecast of cost (Rs. 0·23 lakhs) for doing away with flooding on the main road at Nauchandi gate, Meerut, was also prepared at the request of the District Magistrate, Meerut.

Muttra sewerage and sewage disposal. (*Rs.* 0·24 *lakhs*).—The contract for the additional pumping sets has been let and the building work has been completed. The question of further extension of drainage is receiving consideration.

Deeg Darwaza storm-water drain, Muttra (*Rs.* 0·17 *lakhs*).—A 39 inches diameter concrete sewer with side walks has been proposed to relieve the flooding complained of at this place.

Sewage Farm, Muttra (*Rs.* 7,926).—The Board of Public Health have made a grant on the recommendation of the Superintending Engineer, Public Health department, to meet the cost of a farm overseer for a period of three years and also for terracing the farm land and laying *guls* so that the sewage can be distributed in a proper manner and not left to the haphazard methods of the cultivators.

Valuable information will be forthcoming from the experience gained by the management of this farm departmentally.

The contract has been let for this work and it is expected that the farm will be under cultivation this *kharif* season.

Muzaffarnagar Mandi drainage improvements (*Rs.* 4·63 *lakhs*).—The project for this work has been sanctioned and a portion of the necessary funds allotted. Contract documents are being prepared.

Naini Tal sewerage and sewage disposal (*Rs.* 2·47 *lakhs*).—So far the preliminary proposals have only been completed and the question of finding funds is under consideration.

Rae Bareli drainage improvements (*Rs.* 1·50 *lakhs*).—The survey work is in hand with a view to preparing a forecast of cost for this scheme.

Saharanpur drainage improvements (*Rs.* 1·70 *lakhs*).—It was not possible to take up this work owing to shortage of staff. The municipal board also do not exhibit much keenness about this work.

Shahjahanpur drainage improvements (*Rs.* 11·95 *lakhs*).—A forecast of cost arranged in suitable instalments was supplied to the municipal board, but they have not yet been able to decide on steps to put this work in hand.

Srinagar drainage improvements (*Rs.* 0·96 *lakhs*).—This forecast was taken up at the instance of the District Magistrate. During the rainy season parts of the town are flooded, putting the inhabitants and pilgrims to great inconvenience. This project was found to be beyond the means of the Notified Area Committee.

Unao drainage improvements (*Rs.* 1·89 *lakhs*).—The fair project for this work is nearly complete and will shortly be presented to the municipal board.

In addition to the works noted above, drainage proposals for Agra Central Jail, Aligarh District Jail, Aligarh Muslim University, Brindaban,

Khatauli, Kashipur, Gola Gokaran Nath, Bhowali, Shamli, Sikandrabad, Kosi, Atrauli, and Jhansi notified areas were considered. Anti-malarial works such as that at Basti, the draining of hollows and filling of tanks near the police lines at Muttra and Garhmuktesar and the filling of hollows and constructing drains at Piran Kalliar have been completed. Proposals for town-planning of the Nagla Khurd, district Saharanpur, were also supplied to the Sub-divisional Officer, Roorkee.

A report on improvements in the drainage and sanitary conditions of the Veterinary Research Institute at Muktesar was also prepared at the instance of the Government of India.

Staff.—The post of the Superintending Engineer, Public Health department, United Provinces, was held throughout the year by Mr. G. McC. Hoey and that of his Personal Assistant by Mr. H. G. Trivedi.

Mr. F. J. Mallett held the post of Waterworks Engineer and Mechanical Adviser to Government till March 23, 1929, when Mr. Hoey took over this work in addition to his own duties, Mr. Mallett proceeding on leave.

A new Assistant Engineer was appointed in October, 1928, to help the Mechanical Adviser.

Mr. W. Saise continued as Executive Engineer, 1st division, till March 23, 1929, when he handed over charge to Mr. S. B. Mathur before proceeding on leave.

Charge of the 2nd division, Allahabad, was held by Mr. Mathur from March 21, 1928 to October 29, 1928, when Mr. F. D. Tunnicliffe, on return from leave, replaced him. Mr. Tunnicliffe then held charge of the division till the close of the year.

Mr. N. D. Chowdhury held charge of the Well Boring Operations division, Cawnpore, throughout the year.

In addition to the above, eight assistant engineers, twenty-five subordinates, and the requisite number of computors, draftsmen, and clerical staff were employed.

The Superintending Engineer inspected all important municipal works including waterworks, and the Mechanical Adviser recorded his periodical inspection reports of all open waterworks and gave assistance in preparing specifications, advising on tenders, and in testing plant.

The Superintending Engineer took over administrative charge of the Agricultural Engineering Section, Cawnpore, on July 27, 1928, in addition to the ordinary work of the department.

The Superintending Engineer wishes to record his thanks to the staff who almost without exception laboured arduously and well and without whose whole-hearted efforts this year's demands could never have been so fully met.

G. McC. HOEY, M.INST. C.E.,
Superintending Engineer,
Public Health department,
United Provinces.

LUCKNOW:
June 10, 1929.

APPENDICES.

APPENDIX

Statement of operations of various water-works

Particulars.	Agra.	Allahabad.	Benares.	Cawnpore.	Lucknow.	Meerut.
Population.						
1. By census of 1921 in municipality.	163,902	145,653	195,373	195,085	217,167	77,711
2. By census of 1921 in cantonments.	22,044	11,567	3,074	21,351	23,399	44,898
3. Inhabitants drawing their supply from mains.	185,946	157,220	198,447	216,436	201,334	77,711
Consumption of water.						
4. Metered supplies—						
(*a*) Cantonments. Gallons.	163,051,400	98,306,100	1,049,200	10,288,500	107,460,000	Nil.
(*b*) Trade. ,,	59,829,100	16,132,000	924,300	291,118,400	63,088,200	14,919,200
(*c*) Domestic ,, (bungalows, etc).	70,018,500	35,998,500	13,550,900	377,529,900	133,084,800	530,200
(*d*) Buildings, ,,	1,067,400	7,225,900	15,246,900	22,129,000	56,893,400	1,642,700
Total metered supplies. ,,	293,966,400	157,662,500	30,771,300	701,065,800	360,526,400	17,092,100
5. Unmetered supplies—						
(*a*) Domestic (assessment or ferrule). Gallons.	1,190,394,100	1,087,781,000	1,582,633,500	1,816,514,000	1,148,083,900	198,873,900
(*b*) Municipal purposes (road watering, irrigation and flushing, etc.). Gallons.	175,950,500	338,608,400	746,832,000	194,846,200	542,442,900	3,977,900
(*c*) Standposts. Gallons.	243,289,000	266,654,000	438,947,800	172,864,000	218,792,000	199,728,100
(*d*) Buildings. ,,	4,781,000	9,367,100	399,400	5,763,000	4,809,800	Nil.
Total unmetered ,, supplies.	1,614,414,600	1,702,410,500	2,768,812,700	2,189,987,200	1,914,128,600	402,079,900
6. Total quantity pumped during the year (Items 4 and 5). Gallons.	1,908,381,000	(*a*) 1,860,073,000	2,799,584,000	2,891,053,000	2,274,655,000	419,172,000
7. Daily average supply. Gallons.	5,228,441	5,096,090	7,670,093	7,920,693	6,231,931	1,148,416
8. Maximum daily average in any one month. Gallons.	5,461,290	5,417,626	9,222,962	10,349,732	6,652,581	1,355,683

(*a*) Includes Mayo Hall tube well pumping 75,618,000 gallons.

. I.

the United Provinces for the year 1928-29.

ussoorie.	Naini Tal.	Dehra Dun.	Jhansi.	Mirzapur.	Muttra.	Fyzabad.	Hardwar.	Unao.
12,943	16,517	34,092	54,385	54,994	42,615	51,342	9,024	11,147
2,346	802	Nil.	12,069	Nil.	10,285	5,278	Nil.	Nil
15,289	17,319	34,092	25,000	38,400	42,615	30,000	9,024	9,000
554,900	1,909,200	Nil	Nil.	Nil.	Nil.	Nil.	Nil.	Nil
Nil.	178,900	471,600	449,600	13,623,400	1,747,100	Nil.	184,100	Nil
26,657,100	17,166,500	5,768,900	2,569,400	Nil.	1,550,500	9,096,000	799,700	88,900
Nil.	480,800	Nil.	Nil.	Nil.	Nil.	310,000	800,700	Nil
27,212,000	19,735,400	6,240,500	3,019,000	13,623,400	3,297,600	9,406,000	1,784,500	88,900
11,965,200	15,055,000	103,759,500	1,414,000	161,654,100	155,222,800	65,783,600	13,092,800	34,836,100
15,953,600	11,598,200		14,264,000	138,567,400	27,499,500	19,735,000	12,215,500	
47,860,800	14,347,400		24,280,000	48,456,100	87,600,000	39,470,100	17,928,800	
3,988,400	479,000		Nil.	Nil	4,279,100	6,578,300	1,151,400	
79,768,000	41,479,600	103,759,500	39,958,000	348,677,600	274,601,400	131,567,000	44,388,500	34,836,100
(b) 106,980,000	(c) 61,215,000	110,000,000	42,977,000	362,301,000	277,899,000	140,973,000	46,173,000	34,925,000
293,097	167,712	301,370	117,745	992,606	761,367	386,227	126,501	95,685
332,850	259,879	435,484	140,758	1,046,875	889,400	481,017	173,986	110,193

(b) Includes gravitation supply 4,730,400 gallons
(c) Ditto 12,789,800 do.

APPENDIX

Statement of operations of various water-work

Particulars.	Agra.	Allahabad.	Benares.	Cawnpore.	Lucknow.	Meerut.
9. Consumption per head per day for trade alone. Gallons.	·88	·28	·01	3·69	·86	·53
10. Consumption per head per day for municipal purposes and buildings. Gallons.	2·68	6·19	10·53	2·82	8·22	·20
11. Consumption per head per day for domestic purposes. Gallons.	24·56	25·94	28·11	30·09	21·87	14·05
12. Total consumption per head per day. (Items 9, 10 and 11). Gallons.	28·12	32·41	38·65	36·60	30·95	14·78
13. Hours of daily supply. ..	10·00	20·50	10·88	16·70	19·00	16·00
Lift of pumps.						
14. From river to settling tanks. Feet.	47·00	120·08	85·37	60·84	101·90	15·16
15. From filtered water pumps to town distribution. Feet	143·88	83·04	93·48	86·58	65·00	123·75
16. Total lift. .. Feet	190·88	203·12	178·85	147·42	166·90	138·91
Supply connections. Assessed.						
17. Number of connections made during 1928-29.	221	279	266	562	710	90
18. Total number of connections.	4,819*	5,913	12,807*	8,556	9,033	1,785
Metered.						
19. Number of house connections made during 1928-29.	7	39	22	127	6	Nil
20. Total number of house connections.	132*	309	108	1,059	375	13
21. Number of trade connections made during 1928-29.	Nil	Nil	1	Nil	15	Nil
22. Total number of trade connections.	100	36	32	129	68	21
Annual charges and cost of water supplied.						
23. Maintenance charges. Rupees.	1,73,981	1,78,335	2,00,558	3,18,704	2,39,745	40,233
24. Interest and sinking fund charges. "	68,210	1,28,731	1,04,738	34,522	1,07,305	Nil
25. Total charges. "	2,42,191	3,07,066	3,05,296	3,53,226	3,47,050	40,233

* Revised figures supplied by Chairman, Municipal Boards.

No. I—(*continued*).

n the United Provinces for the year 1928-29.

Mussoorie.	Naini Tal.	Dehra Dun.	Jhansi.	Mirzapur.	Muttra.	Fyzabad.	Hardwar.	Unao.
Nil	·03	·04	·05	·97	·11	Nil	·05	Nil
3·57	1·98	Nil	1·56	9·89	2·04	2·43	4·30	10·63
15·60	7·67	8·80	3·10	14·99	15·71	10·44	9·66	
19·17	9·68	8·84	4·71	25·85	17·86	12·87	14·02	10·63
10·48	7·80	24·00	7·52	24·00	9·00	9·58	18·00	11·00
Murray 1,800·00 Mackinon 640·00 Bhilaru 1,385·68	H. L. 1,143·60 I. L. 451·60 L. L. 252·60	Gravity Supply.	—8·85 204·50	Gravity Supply.	14·40 1 4·42	12·70 124·20	.. 187·37	47·00 83·00
Average 1,292·55	Average 499·26	..	195·65	..	168·82	136·90	187·37	130·00
5	Nil	3	8	103	277	92	39	67
59*	5	4*	59*	2,426*	1,616*	921*	135	161
10	14	9	3	1	Nil	3	9	1
474*	305*	51*	9*	3*	2	41*	13	1
Nil	2	1	Nil	Nil	6	Nil	Nil	Nil
Nil	25	3*	2	70*	24	Nil	Nil	Nil
64,114	47,731	7,917	19,836	10,502	61,406	26,491	20,839	6,895
28,833	25,589	12,872	Nil	21,728	10,966	11,426	11,424	Nil
93,947	73,320	20,789	19,836	32,230	72,372	37,917	32,263	6,895

APPENDIX

Statement of operations of various water-work

Particulars.		Agra.	Allahabad.	Benares.	Cawnpore.	Lucknow	Meerut.
26. Cost per 1,000 gallons per 100 feet lift.	Annas.	·76	·75	·64	1·19	1·01	1·11
27. Cost per 1,000 gallons maintenance charges.	,,	1·46	1·53	1·14	1·76	1·69	1·54
28. Cost per 1,000 gallons interest and sinking fund charges.	,,	·57	1·11	·60	·19	·75	Nil
29. Total charges per 1,000 gallons (items 27 and 28).	,,	2·03	2·64	1·74	1·95	2·44	1·54
Income from water-works.							
30. Water-rate recovered (assessment).	Rupees.	1,70,256	2,93,261	§4,28,110	3,80,547	3,22,608	23,304
31. Sale of water by meter.	,,	1,17,431	75,608	8,647	1,32,484	1,37,205	5,219
32. Other receipts	,,	1,812	11,502	13,680	9,257	49,268	587
33. Total income (items 30, 31 and 32).	,,	2,89,499	3,80,371	4,50,437	5,22,288	5,09,081	29,110
Income and working charges.							
34. Receipts per 1,000 gallons supplied through meter.	Annas.	6·39	7·67	4·50	3·02	6·09	4·89
35. Receipts per 1,000 gallons supplied through assessment rating.	,,	1·70	2·86	2·55	2·85	3·11	·95
36. Receipts per 1,000 gallons supplied on total consumption.	,,	2·43	3·27	2·57	2·89	3·58	1·11
37. Loss per 1,000 gallons supplied (items 29—36).	,,	Profit ·40	Profit ·63	Profit ·83	Profit ·94	Profit 1·14	·43
38. Deficit on year's working.	Rupees.	,, 47,308	,, 73,305	,, 1,45,141	,, 1,69,062	,, 1,62,031	11,122
Meter rent included in item 31.	,,	1,425	3,156	1,466	10,512	6,352	78

§ Includes Rs. 1,86,708 income for water used for Municipal purposes.

No. I—(*concluded*).

n the United Provinces for the year 1928-29.

Mussoorie.	Naini Tal.	Dehra Dun.	Jhansi.	Mirzapur.	Muttra.	Fyzabad.	Hardwar.	Unao.
·76	2·50	..	3·77	..	2·09	2·19	3·85	2·43
9·74	12·47	1·15	7·38	·46	3·54	3·00	7·22	3·16
4·31	6·69	1·87	Nil	·96	·63	1·30	3·96	Nil
14·05	19·16	3·02	7·38	1·42	4·17	4·30	11·18	3·16
6,252	45,165	49	14,115	33,796	53,488	29,785	15,807	7,068
61,140	34,588	10,222	1,898	3,432	591	8,382	859	164
Nil	5,750	1,922	296	1,295	3,612	654	‡30,772	335
67,392	85,503	12,193	16,309	38,523	57,691	38,821	47,438	7,567
35·95	28·04	26·21	10·06	4·03	2·87	14·26	7·70	29·52
1·25	19·64	·30	5·77	1·61	3·33	3·70	16·79	3·40
10·08	22·35	1·77	6·07	1·70	3·32	4·40	16·44	3·47
3·97	Profit 3·19	1·25	1·31	Profit ·28	·85	Profit ·10	Profit 5·26	Profit ·31
26,555	„ 12,183	8,596	3,527	„ 6,293	14,681	„ 904	„ 15,175	„ 672
2,326	2,424	Nil	82	255	156	656	71	Nil

‡ Includes Rs. 30,000 income from fair fund.

APPENDIX No. I(A).

Statement showing total demand, amount recovered, remissions and arrears during the year 1928-29.

Water-works Stations.	Total demand.	Total amount recovered.	Total amount of remissions.	Arrears on March 31, 1929.		Remarks.
				Total amount.	Percentage.	
	Rs.	Rs.	Rs.	Rs.	%	
Agra	3,99,893	2,89,499	17,685	92,709	23·18	
Allahabad	4,13,868	3,80,371	Nil.	33,497	8·09	
Benares	5,65,185	4,50,437	Nil.	1,14,748	20·30	
Cawnpore	5,97,956	5,22,288	7,837	67,831	11·34	
Lucknow	5,21,675	5,09,081	834	11,760	2·25	
Meerut	34,258	29,110	Nil.	5,148	15·03	
Mussoorie	74,274	†67,392	Nil.	6,904	9·28	† Excess recovery Rs. 22.
Naini Tal	89,967	‡85,503	2	4,520	5·02	‡ Excess recovery Rs. 58.
Dehra Dun	12,724	12,193	13	518	4·06	
Jhansi	15,695	§16,309	Nil.	415	2·64	§ Includes Rs. 1,029 arrears of the last year.
Mirzapur	65,422	38,523	1,005	‖25,865	39·53	‖ Rupees 55 recovered in excess during 1927-28 deducted from total demand and Rs. 26 recovered in excess during 1928-29 added to the arrears.
Muttra	74,370	57,691	2,038	14,641	19·69	
Fyzabad	44,323	¶38,821	3,578	2,202	4·96	¶ Includes Rs. 278 on account of advance payment.
Hardwar	18,988	**17,438	41	1,509	7·95	** Excluding Rs. 30,000 received from fair fund.
Unao	8,982	††7,567	Nil.	1,443	16·06	†† Excess recovery Rs. 28.
Total ..	29,37,580	25,22,223	33,033	3,83,710	13·06	

APPENDIX No. 1(D).

Statement showing number and size of all connections; also number and size of metered connections for the year 1928-29.

Water-works, Name of stations.	Size of connections.																		
	1/8 inch.	3/16 inch.	1/4 inch.	3/8 inch.	1/2 inch.	5/8 inch.	3/4 inch.	1 inch.	1¼ inch.	1½ inch.	2 inch.	3 inch.	4 inch.	6 inch.	8 inch.	10 inch.	12 inch.	Unknown connections.	Total.
Unmetered supplies.																			
Agra	493	..	7[illegible]5	2,716	552	..	192	83	..	27	..	1	..	..	..	..	..	..	4,819
Allahabad	476	..	1,047	2,845	1,320	65	53	88	..	10	9	..	..	..	..	..	..	..	5,913
Benares	2,338	..	7,060	1,148	645	13	22	15	2	2	50	..	..	..	..	..	..	*1,512	12,807
Cawnpore	..	654	3,647	1,920	1,424	8	358	423	23	94	..	..	..	..	..	..	..	†5	8,556
Lucknow	..	..	..	7,493	1,174	108	150	96	12	..	..	..	..	..	..	..	..	..	9,033
Meerut	..	..	..	1,328	426	..	21	10	..	..	..	..	..	..	..	..	..	..	1,785
Mussoorie	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	59	59
Naini Tal	..	..	..	..	1	..	2	1	1	..	..	..	..	..	..	..	..	..	5
Dehra Dun	..	..	..	..	2	..	..	‡2	..	..	..	..	..	..	..	..	..	..	4
Jhansi	..	..	5	..	41	..	7	2	..	1	3	..	..	..	..	..	..	..	59
Mirzapur	5	..	141	1,524	481	6	165	54	50	..	..	..	..	..	..	..	..	..	2,426
Muttra	228	..	1,213	73	98	..	**4	..	..	..	..	..	..	..	..	..	..	..	1,616
Fyzabad ..	627	..	179	62	53	..	..	..	..	..	..	..	..	..	..	..	..	..	921
Hardwar	8	..	55	8	63	..	1	..	..	..	..	..	..	..	..	..	..	..	135
Unao	57	..	69	25	10	..	..	..	..	..	..	..	..	..	..	..	..	..	161
Total ..	4,232	654	14,171	19,142	6,290	200	975	774	88	134	62	1	..	..	..	..	..	1,576	48,299
Metered supplies.																			
Agra	2	..	14	46	74	..	44	25	..	12		5	..	5	2	..	1	..	232
Allahabad	9	..	..	5	104	77	66	45	..	9	11	9	8	1	..	1	..	..	345
Benares	..	..	..	..	87	..	13	19	7	8	4	2	..	..	..	..	..	..	140
Cawnpore	..	..	..	..	448	..	198	315	9	136	42	31	9	..	..	..	..	..	1,188
Lucknow	..	..	..	..	182	..	98	103	..	33	14	7	5	..	..	..	..	**1	443
Meerut	..	..	..	..	26	..	3	3	..	..	..	2	..	..	..	..	..	..	34
Mussoorie	..	..	..	..	420	..	48	6	..	..	..	..	..	..	..	..	..	..	474
Naini Tal	..	..	..	..	50	256	20	3	..	1	..	..	..	..	..	..	..	..	330
Dehra Dun	..	..	..	..	30	..	8	§13	..	3	..	..	..	..	..	..	..	..	54
Jhansi	..	..	..	..	..	..	1	2	..	3	5	..	..	..	..	..	..	..	11
Mirzapur	..	..	..	1	26	..	16	17	6	4	1	1	..	1	..	..	..	..	73
Muttra	..	..	..	..	20	2	..	2	..	2	..	..	..	..	..	..	..	..	26
Fyzabad	..	..	..	..	15	..	13	13	..	..	..	..	..	..	..	..	..	..	41
Hardwar	..	..	..	..	11	..	2	..	..	..	..	..	..	..	..	..	..	..	13
Unao	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Total ..	11	..	14	52	1,493	335	531	566	22	211	79	57	22	7	2	1	1	1	3,405

*Unknown 1,347, plugged 165.
†Tee connection.
**Free of tax.

‡1 Free.
§Permanent 12, Temporary 1.
**15 inches.

APPEND

Annual maintenance accounts

Particulars.	Agra.	Allahabad.	Benares.	Cawnpore.	Lucknow.	Meerut
I.—Establishment—	Rs.	Rs.	Rs.	Rs.	Rs.	Rs
(a) Pumping	19,696	44,829	39,137	26,808		9,80
(b) Workshops	4,761		15,720	6,471		..
(c) Settling tanks and filters ..	474	5,933	314	11,127	64,958	43
(d) Inlet chambers, well and grounds, etc.	..	Included in (a).	..			..
(e) Distribution	10,115	12,235	13,223	14,984		4,261
(f) Clerical staff	1,920	Included in (a).	4,462	3,336		1,740
(g) Menial staff	3,150		1,132	924		1,351
(h) Office contingencies	1,191	1,492	1,250	397	1,448	1,085
(i) Rent	410		31	675	710	60
II.—Fuel, lubricants and stores—						
(a) Fuel (coal, fuel oil or electric energy).	(1)68,288	(2)78,389	(3)86,345	(4)1,51,805	(5)95,406	(6)956
(b) Lubricating oil	6,342	5,997	3,300	3,953	3,239	425
(c) Waste	1,291		1,626			184
(d) Packing	266	4,648	1,100	1,073	4,215	289
(e) Petty stores	6,544		11,109	2,914		1,559
III.—Intake—						
(a) Training river	9,537	..	..	..	..	..
(b) Cleaning channels and wells ..	5,314	..	20	..	58	80
IV.—Settling tanks and filters—						
(a) Cleaning settling tanks and wells	2,315	..	1,605	5,857	Included in item IV (d).	99
(b) Cleaning and renewing filter-beds.	7,590	..	3,000	332	4,358	1,642
(c) Purchase of sand	17,138	9,998	262	..	19,676	544
(d) Purchase of alumino ferric ..	813		4,959	9,680	23,969	2,421
. —Distribution—						
(a) Pipes and fittings	2,212	3,955	1,476	1,527	4,059	1,679
(b) Meters	500		210	12,232	166	..
(c) Standposts or hydrants ..	25		..	..	..	..
VI.—Repairs—						
(a) To tanks	406	..	40	22	..	646
(b) To buildings and grounds ..	1,857	2,083	3,224	1,841	2,465	628
(c) To machinery	826	8,394	2,695	2,173	12,781	3,997
(d) To rising main	..	..	997	..	..	..
(e) To tools and plant	..	..	..	1,240	..	..
VII.—Water analysis	..	882	3,321	1,099	2,237	984
VIII.—Cost of water—						
Canal department dues	1,000	..	..	58,234	..	5,368
Total ..	1,73,981	1,78,335	2,00,558	2,18,704	2,39,745	40,232
Interest and sinking fund charges ..	68,210	1,28,731	1,04,738	34,522	1,07,305	..
GRAND TOTAL ..	2,42,191	3,07,066	3,05,296	3,53,226	3,47,050	40,232

(1) Rs. 2,477 in excess of consumption. Electrical charges for Maithan and Chilli-Int Rs. 3,563. Cost of fuel oil Rs. 14,740.
(2) Rs. 19,393 less on consumption. Electrical charges for Mayo Hall Rs. 5,222, Khusrubagh Rs. 11,036 and Karellabagh Rs. 2,588. Cost of fuel oil for Daraganj Rs. 1,905.
(3) Rs. 5,229 less on consumption. Electrical charges for Bhelupura Rs. 5,789.
(4) Rs. 5,217 less on consumption. Electrical charges Rs. 1,28,217.
(5) Rs. 38,214 less on consumption.
(6) Rs. 514 in excess of consumption.

No. II.

water-works during the year 1928-29.

Mussoorie.	Naini Tal.	Dehra Dun.	Jhansi.	Mirzapur.	Muttra.	Fyzabad.	Hardwar.	Unao.
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
6,188		..	3,010		11,908	5,612	2,450	1,533
..		..	..		990	1,640	1,593	..
..		..	..		..	..	..	..
..	8,189	..	..	6,726	..	..	.	..
1,889		..	..		4,650	1,796	3,066	543
144		1,774	..		240	735	692	..
1,302		4,346	..		426	1,460	480	264
1,434		197	287	314	361	455	330	27
..	..	..	..	..	..	..	..	23
35,623	(7)31,761	..	(8)7,362	..	(9)40,593	(10)6,520	(11)10,186	(12)1,728
	281	..	140	..	261	4,497	45	1,801
1,733		..	16	..	60	..	45	67
	..	..	172	..	..	98	25	..
	825	..	273	..	863	446	85	8
..	..	..	2,208	..	..	..	..	..
..	..	..	338	..	..	..	..	..
..	..	..	..	..	428	..	..	..
..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..
1,358	1,116	633	526	515	297	134	418	..
967	..	..	301	156	..	28	..	..
..	10	..	..	112	..	..	..	..
322	949	..	138	279	110	..	..	1
715	372	..	335	650	219	309	501	534
12,270	3,330	..	1,724	..	..	565	100	248
..	..	..	5	678	..	..	100	..
..	..	..	105	..	..	1,962	150	77
1,169	898	967	..	1,072	..	234	573	41
..	..	..	2,896	..	..	..	..	..
65,114	47,731	7,917	19,836	10,502	61,406	26,491	20,839	6,895
28,833	25,589	12,872	..	21,728	10,966	11,426	11,424	..
93,947	73,320	20,789	19,836	32,230	72,372	37,917	32,263	6,895

(7) Electrical charges.
(8) Rs. 918 in excess of consumption.
(9) Rs. 1,241 less on consumption. Electrical charges Rs. 41,395.
(10) Rs. 2,078 less on consumption.
(11) Electrical charges.
(12) Rs. 101 less on consumption.

APPENDIX No. III.

Statement showing costs of initial and subsequent extensions and improvements, chargeable to capital on the various water-works in the United Provinces for the year ended March 31, 1929.

Water-works stations.	Initial capital cost.	Cost of subsequent extension, etc.	Expenditure during the year 1928-29.	Total of each line.
	Rs.	Rs.	Rs.	Rs.
Agra	11,70,761	20,64,490	1,04,107	33,39,358
Allahabad	16,24,061	20,98,389	3,47,679	40,70,129
Benares	25,61,881	11,29,269	3,61,332	40,52,482
Cawnpore	14,44,570	17,72,100	2,54,646	34,71,316
Lucknow	15,15,736	41,83,476	2,67,303	59,66,515
Meerut	7,51,710	65,505	2,470	8,19,685
Mussoorie	4,79,754	6,60,226	88,607	12,28,587
Naini Tal	2,47,000	7,92,770	3,488	10,43,258
Dehra Dun	97,241	3,22,041	5,340	4,24,622
Jhansi	96,556	96,634	Nil.	1,93,190
Mirzapur	5,98,492	1,13,456	12,497	7,24,445
Muttra	5,17,288	83,126	1,149	6,01,563
Fyzabad	9,48,662	43,159	1,900	9,93,721
Hardwar	1,96,919	2,80,585	3,241	4,80,695
Unao	81,961	29,813	150	1,11,924
GRAND TOTAL ..	1,23,32,592	1,37,34,989	14,53,909	2,75,21,490

APPENDIX No. IV.

Statement showing filter area out of operation, rate of filtration, and results of water analysis of the water-works in the United Provinces during the year 1928-29.

Water-works.	Sand filter area out of operation per million gallons pumped sq. feet.	Filtration rate in gallons per sqr. foot per day of sand filter.			Water from supply mains.							
					Chemical analysis.			Bacteriological analysis.				
		Maximum.	Minimum.	Average.	Good.	Bad.	Total.	Number of samples tested.	Number of samples containing over 100 colonies.	Average number of microbes per c.c.	Percentage (on total) of samples over 100 per c.c.	Number of samples showing innumerable colonies not taken into account in calculating the average.
Agra ..	2,976	34·00	24·00	32·03	3	1	4	335	3	2·42	·90 %	3
Allahabad ..	12,874	31·25 * 2,186	12·50 * 1,010	22·43 *1,565·83	1	2	3	579	49	44·43	8·46 %	3
Benares ..	3,178	50·00	25·00	46·63	101	..	101	396	5	38·43	1·[illegible]0 %	3
Cawnpore ..	290	70·00	12·00	44·99	3	..	3	566	Nil	17·36	Nil	..
Lucknow ..	14,878	62·50 * 2,644	6·20 *603	34·27 *1,731·33	2	1	3	208	6	36·32	2·90 %	..
Meerut ..	5,511	31·00	25·00	30·47	4	..	4	249	6	38·68	2·40 %	3
Mussoorie ..	Water-supply from deep springs and is not filtered.				3	..	3	53	5	26·17	9·47 %	4
Naini Tal ..					2	..	2	72	62	179·94	83·30 %	14
Dehra Dun ..					4	3	7	75	43	155·50	57·30 %	10
Jhansi ..	..				Not available.							
Mirzapur ..	Gravitation supply ..				12	4	16	27	3	46·48	11·00 %	..
Muttra ..	Tube well supply. ..				4	..	4	113	Nil	24·39	Nil	..
Fyzabad ..					2	1	3	52	Nil	13·71	Nil	..
Hardwar ..					4	..	4	78	11	35·60	15·38 %	8
Unao ..					1	..	1	3	Nil	68·00	Nil	..

* Paterson filters.

APPENDIX

Details of pumps, filters, tanks, reservoirs, rising mains, etc., in the

Particulars.	Agra.	Allahabad.	Benares.	Cawnpore.	Lucknow.	Meerut.
1. Floor levels :— Unfiltered station, R.L.	505·00′	296·00′	254·00′	402·00′	367·50′	735·50′
Filtered station, R.L.	505·00′	321·25′	263·00′	410·00′	395·50′	735·50′
2. Highest water level during the year, R.L.	494·60′	274·50′	235·25′	374·00′	348·50′	805·00′
3. Lowest water level during the year, R.L.	480·60′	237·51′	192·00′	356·50′	342·50′	771·00′
4. Particulars of plant :—						
Unfiltered station.	2 Diesel sets. 2 L. D. Worthington.	1 Triple expansion rotary. 2 Beam engines. 1 Motor driven centrifugal pump (semi-permanent plant).	1 H. D. Worthington. 2 Geared sets.	1 Triple expansion rotary. 2 Vertical spindle centrifugal pumps direct driven by motors at river-side. 3 Sets of centrifugal pumps driven by electric motors at unfiltered station, Benajabhar.	2 Mather and Platt motor driven centrifugal pumps.	2 Water power turbines. 1 Semi-Portable engine.
Filtered station ..	2 Belliss and Morcom. 1 H. D. Worthington. 2 Beams. 2 Motor driven Worthington Simpson centrifugal pumps at Maithan and Chilli-Int.	3 Mather and Platt 'Lonovane' centrifugal pumps direct driven by A. C. motors. 2 Beams (standby).	4 Horizontal centrifugal pumps direct driven by A. C. motors. 2 Pairs of coupled Beams (standby).	2 L. D. Worthington. 1 H. D. Worthington. 4 Sets of centrifugal pumps driven by A. C. motors.	2 L. D. Worthington. 1 H. D. Worthington. (standby). 4 Belliss and Morcom engines direct connected to alternators. 3 Mather and Platt centrifugal pumps driven by A. C. motors.	2 Water power turbines.

No. V.

ater works of the United Provinces for 1928-29.

Mussoorie.	Naini Tal.	Dehra Dun.	Jhansi.	Mirzapur.	Muttra.	Fyzabad.	Hardwar.	Unao.
Murray spring. 5,494′	..	..	749·50′	..	..	..	..	..
Bhilaru spring. 5,700′	..	..	..	..	580·00′	328·57′	941·80′	411·34′
Mackinon spring. 6,000′	.	..	767·70′	460·00′	..	..	..	..
..	..	..	747·15′	458·00′	..	..	..	..
..	..	..	2 Compound Worthington pumps.	..	..	.	..	..
Murray spring: 2 Sets electrically driven geared three ram pumps single reduction gearing. Bhilaru spring:— 2 Sets as above. Mackinon spring:— 2 Pumps as above but with double reduction gearing. 1 Semi-diesel oil engine. Landour:— 2 Sets of Worthington Simpson three throw single plunger power pumps driven by Metropolitan Vickers reduction motors.	Lake station:— Steam pumps. Main station:— 3 L. D. Worthington (standby). 4 Mather and Platt motor driven pumps. 2 Triple ram geared pumps.	..	..	..	2 Two cylinder Mirrless Diesel engines, D. C. generators and motor driven Mather and Platt centrifugal pumps. 1 Set converted to A. C. motor taking energy from the Electric Supply Company.	2 Two cylinder Mirrless Diesel engines and motor driven Mather and Platt centrifugal pumps.	3 Mather and Platt centrifugal pumps driven by A. C. motors.	One 30 B. H. P. Tangye oil engine. Two air lift pumps in tube well and 6″ Worthington centrifugal pump.

APPENDI

Details of pumps, filters, tanks, reservoirs, rising mains, etc., in th

Particulars.	Agra.	Allahabad.	Benares.	Cawnpore.	Lucknow.	Meerut.
5. Capacity of pumps:—						
Unfiltered station. G.P.M	Diesel 3,000 each. L. D. Worthington 1,700 each.	Triple expansion engine 2,700. Beam engines 2,100 each. Centrifugal pump 3,000.	H. D. W. 8,333 Geared 4,200 each.	Triple expansion 3,625. Centrifugal pumps River-side 3,500 each. Benagjabhar 3,600 each.	Centrifugal pumps 7,500 each.	1,200 each
Filtered station. G.P.M.	Belliss 2,500 each. H. D. W. 2,300 Beams 3,000 each. Worthington pumps 500 each.	Beams 3,100 each. Electric pumps 3,750 each.	Beams 7,500 each. 4 Motor driven centrifugal pumps. 3—3,600 each. 1—5,400	H. D. W. 4,719. L. D. W. 3,125 each. Centrifugal pumps 3,500 each.	H.D.W. 3,125 L.D.W. 3,125 each. 3 Centrifugal pumps:— 1—6,000. 2—4,000. each.	1,100 each
6. Number of rising mains.	Two .. Filter pumps to service tanks.	Two .. Unfiltered pumps to settling tanks.	Two .. Unfiltered pumps to settling tanks.	Two .. Unfiltered pumps to settling tanks.	Two .. Unfiltered pumps to settling tanks.	One .. Filtere pumps t tanks.
7. Length and size of rising mains.	2·5 miles 28″ 1·75 miles 18″	1·84 miles 20″ each.	Old·89 mile .. New ·77 mile each 24.″	1·39 miles 20″ each.	Old 3·5 miles 20″. New 3 miles 27″.	7·25 mile 15″. 1·61 mile 13″.
8. Number of settling tanks.	Five ..	Three ..	Three ..	Three ..	Three ..	Three ..
9. Size of settling tanks.	266′ × 151′ × 16′ each.	346′ × 230′ × 16·75′ each.	No. 1 and 3—409·5′×225·0′ × 18′ each. No. 2—409·5′ ×258·3′×18′.	343·5′×243·5′ × 15′ each.	240′ × 290′ × 13·5′ each.	100′×60·5′ ×11′ each
10. Capacity of settling tanks. Gallons.	2,200,000 each	No. 1 and 3 4,400,620 each. No. 2—4,455,626.	No. 1 and 3—8,640,756 each. No. 2—8,722,146.	7,840,460 each	5,972,600 each	528,000 eac
11. Number of filters.	Seven—slow sand. One—Mechanical.	Six—Slow sand Five—Paterson.	Eight—S l o w sand.	Nine—Slow sand. Twelve—Peuch-chabal.	Seven—S'ow sand. Five—Paterson.	Four—Slow sand.

No. V—(*continued*).

water-works of the United Provinces for 1928-29.

Mussoorie.	Naini Tal.	Dehra Dun.	Jhansi.	Mirzapur.	Muttra.	Fyzabad.	Hardwar.	Unao.
..	..	..	209·5 each	..	..	..	..	..
Murray spring 183. Bhilaru spring 196. Mackinon spring 85. Landour 56.	Lake 239 Main—One pump 218 Two pumps 86 each. 2 H. Z. 125 each. 2 I. Z. 176 each. 2 L. Z. 310 each.	..	..	..	1,000 each	900 each	250 each	220
Three ..	Six ..	Four ..	Five ..	One ..	One ..	One ..	One ..	One.
Pumping station to elevated reservoirs.	Pumping stations to elevated reservoirs.	Gravitation supply.	Pumping station to service tanks.	Gravitation main.	Pumping station to balancing tanks.	Pumping station to balancing tank.	Pumping station to balancing tanks.	Pumping station to balancing tank.
1·09 miles 5″ ·599 mile 4″ ·274 mile 3½″	·93 mile 5″ ·66 „ 4″ ·66 „ 3½″ ·34 „ 5″ ·49 „ 5″ ·25 „ 6″	1. Baldi spring. 1·39 miles 6″. 3·30 miles 5″. 2. Kolukhet. 8 miles 3″ 4 miles 2½″ 3·5 miles 3″. 3. Nalapani. 2·5 miles 2″.	3·65 miles 9″ 1·71 „ 6″ ·86 mile 6″ 1·41 miles 4″ ·48 mile 4″	5·73 miles 12″.	·91 mile 12″	1·3 miles 14″.	·52 mile 577′×8″ 558′×10″ 936′×12″ 690′×15″	·27 mile 6″. ·021 „ 5″.
..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..
..	One chlorine plant.	..	..	..	..	..	..	..

APPENDI

Details of pumps, filters, tanks, reservoirs, rising mains, etc

Particulars.	Agra.	Allahabad.	Benares.	Cawnpore.	Lucknow.	Meerut.
12. Size of filters.	Sand—200′ × 100′ each.	Sand—200′ × 100′ each. Paterson—23′ × 19′ each.	Sand—200′ × 100′ each.	Slow Sand—200′ × 100′ each. Peuch-chabal 156′×28′ each.	Sand—200′ × 100′ × 7′ each. Paterson 23′× 18′ × 10′ each.	Sand—150′× 100′ each
13. Number of clear water reservoirs.	Three ..	Two ..	Two ..	Three ..	Two ..	One ..
14. Size of clear water reservoirs.	105′ × 103′× 10′ each.	116·8′×181·8′ × 12′ each.	178½′× 148½′× 12′ each.	Two old—135′ × 106⅔′ × 12′ each. One new—135′ × 200′×12′.	107′ × 105′ × 12′ each.	12½′ × 48′ × 7′.
15. Capacity of clea water reservoirs. Gallons..	676,000 each ..	1,168,700 each	1,854,068 each	Two old—953,300 each. One new 2,025,000.	793,500 each ..	110,600
16. Number of service reservoirs.	Four ..	Nil ..	One ..	Two ..	One ..	Two ..
17. Size of service reservoirs.	H. Z. (1) 66′ dia. ×11½′ deep. L. Z. (2) 28′× 16′×8′ each. (1) 60′×16′× 8′.	Nil ..	60′ dia. × 15′ deep.	50·5′ × 36′ at Parade. 50·5′ × 40′ at water-works.	60′×60′×12′	25′×34′ each
18. Capacity of service reservoirs. Gallons.	H. Z. 275,000 L. Z. (2) 24,400 each. (1) 48,000	Nil ..	265,000 ..	At Parade 321,306 At water-works 396,785	250,000	100,000 each

o. V—(*continued*).

the water-works of the United Provinces for 1928-29.

Mussoorie.	Naini Tal.	Dehra Dun.	Jhansi.	Mirzapur.	Muttra.	Fyzabad.	Hardwar.	Unao.
..	..	..	..	..	..	..	..	..
x ..	One ..	..	..	..	..	..	..	One
–40′×25′× 8′ each. –80′×20′× 8′. –80′×24′× 6′. --79·3′×38′ ×11′. –45′×53·5′ ×11′.	45′×40′×6′	..	..	..	..	..	..	11·5′dia× 6′ deep.
..	67,500	..	..	..	..	..	..	..
Fifteen	Eighty-eight	Fifty-nine	Nine	One	Two	One	Two	One pressed steel tank.
–10′×10′× 4′.)–8′×4′×4′ each. –4′×4′×4′ each.	Small—82 . Large—6 .. *Small.* 32–3′×8′ each. 29–2·6′×3′ each. 1–4′×3′ 3–4′×5′ each. 17–6′×8′× 4′ each. *Large.* 1–36′×15′ ×9·5′. 1–29·5′× 15′×9·5′. 1–20′×10′ 1–18′×10′ 2–22·5′× 13·3′ each.	36 masonry. 21 iron.	1–40′×15′ ×8′. 8–4′×4′×4′ each.	200′×75′× 14′.	32′×20′ each	39′–7½″ dia × 15′–6″ deep.	62′–8″× 60′×12′. each.	20′×20′× 8′.
30,000 (upper.) 250,000 (Lower.)	228,070	Masonry 1,000 to 15,000 Iron 75 to 800 Total capacity 223,550.	1—30,000 8–400 each.	1,310,000	100,000 each.	120,000	250,000 each.	20,000

Details of pumps, filters, tanks, reservoirs, rising mains, etc., in the

Particulars.	Agra.	Allahabad.	Benares.	Cawnpore.	Lucknow.	Meerut.
19. Number of public standposts.	One tap 246 Two taps 73 Four taps 68 W.N. cocks 47 Bibcocks 14 Pushcocks 70 Wall fountains. 2 Other type 7 527	One tap 169 Two taps 60 Four taps 82 W. N. cocks 40 Bibcocks 230 Other type 15 596	One tap 91 Two taps 58 Four taps 73 W. N. cocks 15 Bibcock 1 Wall fountains. 34 Other type 2 Tanks 2 276	One tap 57 Two taps 52 Four taps 83 W. N. cocks, Bibcocks, Push-cocks } 101 Wall fountains. 3 296	One tap 264 Two taps 180 444	One tap 4 W. N. cocks. 9 Bibcocks 13
20. Number of fire hydrants.	148	190	87	151	360	9
21. Number of road watering posts or standpipes.	46	127	161	16	90	Swan neck Cocks 8
22. Number of cattle troughs.	49	34	24	25	40	11

o. V--(*concluded*).

ater-works of the United Provinces for 1928-29.

Mussoorie	Naini Tal.	Dehra Dun.	Jhansi.	Mirzapur.	Muttra.	Fyzabad.	Hardwar.	Unao.
e tap 5 o taps 35 N. cocks 9 bcocks 5 shcocks 3	*One tap 72 †Bibcocks 140 Other type 3	One tap 37 Two taps 48 Three taps 6 Four taps 4 W. N. cocks 50 Bibcocks 77 Push-cocks 40 Other type 1	One tap Nil Two taps 8 Four taps 4 W. N. cocks 4	One tap 34 Two taps 27 Four taps 9 W. N. cocks 44 Bibcocks 77 Pushcocks 23	One tap 59 One tap standpipe 138 Two taps 21 Two taps standpipe 14	One tap 45 Two taps 42 W. N. cocks 15	Two taps 2 W. N. cocks 34 Bibcocks 33 Wall fountains 1	One tap 22 Two taps 15 Bibcocks 12
57	143	263	16	214	232	102	70	49
Nil	14	Nil	Nil	121	8	43	9	17
10	Nil	4	1	2	7	17	4	Nil
9	5	9	4	16	19	5	Nil	Nil
	*Cisterns 48 Stand posts 24 Total .. 72 †The 72 taps are included in 140 bibcocks.			NOTE.—There are 10 unauthorized bibcocks in addition to the above.	Flushing tank 5 Flushing pipes 16 Urinal connections 2 Water flushing latrine 1 Pail dépôts connections 2 Connections to drain hand pump 1			

APPENDIX No. VI.

Detailed estimate of expenditure incurred on health works under supervision of the Superintending Engineer, Public Health department, during the year 1928-29.

Serial number.	Name of place.	Water-works original and special repairs.	Water-works maintenance.	Drainage works.	Other works.	Total.
		Rs.	Rs.	Rs.	Rs.	Rs.
1	Agra	84,346	1,73,981	..	..	2,58,327
2	Agra Dayalbagh	3,772	..	..	..	3,772
3	Aligarh	..	..	3,370	3,418	6,788
4	Allahabad	3,47,679	1,78,335	71,076	46,779	6,43,869
5	Allahabad Magh Mela	14,945	..	..	..	14,945
6	Atrauli	..	..	..	2,750	2,750
7	Amroha	..	..	1,382	..	1,382
8	Bahraich	..	..	..	3,733	3,733
9	Ballia	..	..	290	2,419	2,709
10	Bareilly	..	..	23,071 *3,547	11,065	37,683
11	Baraut	..	..	205	352	557
12	Basti	..	..	*10,735	..	10,735
13	Bela (Partabgarh)	..	..	1,038	624	1,662
14	Benares	2,66,227	2,00,558	..	..	4,66,785
15	Bijnor	..	..	266	4,352	4,618
16	Brindaban	..	..	4,627	2,685	7,312
17	Budaun	..	..	1,468	3,825	5,293
18	Cawnpore	29,793	3,18,704	1,07,195	2,41,695	6,97,387
19	Dehra Dun	5,340	7,917	3,316	..	16,573
20	Etah	..	..	1,464	467	1,931
21	Etawah	..	..	125	7,332	7,457
22	Fatehgarh-*cum*-Farrukhabad ..	..	..	2,973	..	2,973
23	Fatehpur Sikri	..	..	..	4,172	4,172
24	Fyzabad	5,331	26,491	9,560	..	41,382
	Carried over ..	7,57,433	9,05,986	2,45,708	3,35,668	22,44,795

*Anti-malarial works.

APPENDIX No. VI—(*continued*).

Detailed estimate of expenditure incurred on health works under supervision of the Superintending Engineer, Public Health department, during the year 1928-29.

Serial number.	Name of place.	Water-works original and special repairs.	Water-works maintenance.	Drainage works.	Other works.	Total.
		Rs.	Rs.	Rs.	Rs.	Rs.
	Brought forward ..	7,57,433	9,05,986	2,45,708	3,35,668	22,44,795
25	Ajodhya	..	..	..	7,622	7,622
26	Garhmukteshwar	..	..	..	5,338	5,338
27	Ghaziabad	..	..	288	..	288
28	Ghazipur	..	..	1,012	2,087	3,099
29	Gonda	..	..	3,585	364	3,949
30	Gorakhpur	..	..	9,013	21,031	30,044
31	Hapur	..	..	315	491	806
32	Hardwar	448	20,839	..	..	21,287
33	Hathras	..	..	1,315	16,892	18,207
34	Jaunpur	..	..	..	3,887	3,887
35	Jhansi	..	19,836	241	..	20,077
36	Kairana	..	..	431	3,495	3,926
37	Kaimganj	..	..	33,092	..	33,092
38	Kanauj	..	..	461	2,993	3,454
39	Kashganj	..	..	551	1,547	2,098
40	Khurja	..	..	303	6,424	6,727
41	Kosi	41,511	..	..	..	41,511
42	Lakhimpur (Kheri)	..	..	4,621	927	5,548
43	Lalitpur	..	..	..	515	515
44	Lucknow	62,198	2,39,745	3,250 *4,77,914	..	7,83,107
45	Lucknow Government House water-supply.	1,212	..	..	..	1,212
46	Mainpuri	..	..	508	..	508
47	Mau	..	..	..	1,308	1,308
48	Meerut	2,470	40,232	..	..	42,702
49	Mirzapur	12,497	10,502	3,381	9,519	35,899
	Carried over ..	8,77,769	12,37,140	7,85,989	4,20,108	33,21,006

* Anti-malarial works.

APPENDIX No. VI—(*concluded*).

Detailed estimate of expenditure incurred on health works under supervision of the Superintending Engineer, Public Health department, during the year 1928-29.

Serial number.	Name of place.	Water-works original and special repairs.	Water-works maintenance.	Drainage.	Other works.	Total.
		Rs.	Rs.	Rs.	Rs.	Rs.
	Brought forward ..	8,77,769	12,37,140	7,85,989	4,20,108	33,21,006
50	Moradabad	..	..	3,079	3,787	6,866
51	Mussoorie	89,134	65,114	709	260	1,55,217
52	Muttra	3,032	61,406	18,510	722	83,670
53	Muttra Banjatra Route	3,753	..	..	..	3,753
54	Nagina	..	..	775	† 1,791	2,566
55	Naini Tal	3,488	47,721	7,281	3,836	62,336
56	Nawabganj	..	..	134	2,170	2,304
57	Najibabad	..	..	755	11,116	11,871
58	Orai	..	..	137	1,206	1,343
59	Patwa Danger	..	..	..	3,402	3,402
60	Piran Kaliar	..	..	..	5,973	5,973
61	Pilibhit	..	..	2,228	1,153	3,381
62	Rae Bareli	..	..	..	12,029	12,029
63	Roorkee	..	..	739	‡ 52,071	52,810
64	Saharanpur	..	..	13,504	..	13,504
65	Sashwan	..	..	983	981	1,964
66	Sandila	..	..	849	1,156	2,005
67	Shahjahanpur	..	..	1,938	13,547	15,485
68	Sikandrabad	..	..	119	438	557
69	Sikandra Rao	..	..	1,676	2,991	4,667
70	Soron	..	..	928	2,279	3,207
71	Sultanpur	..	..	416	235	651
72	Tilhar	..	..	544	..	544
73	Ujhaini	..	..	188	824	1,012
74	Unao	2,567	6,895	589	1,558	11,559
	Grand Total ..	9,79,743	14,18,286	8,42,020	5,43,633	37,83,682

† Includes Rs. 1,475 for tank filling.
‡ For electric supply.

Comparative statement of fuel consumption, working expenses and receipts of various water-works in the United Provinces during the year 1928-29.

Number.	Name of water-works.	Class of work, gravitation or pumping.	Fuel consumed.	Fuel consumption per 1,000 foot gallons.	Price of fuel per ton.	Total (average) lift.	Percentage of charges for— Establishment.	Fuel	Oil and waste.	Repairs to machinery.	Other charges.	Per 1,000 gallons. Total working cost.	Total receipt.	Per head per annum. Total working cost.	Total receipt.	Loss.	Remarks.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
			Tons.	Lbs.	Rs.	Feet.						As.	As.	As.	As.	As.	
1	Agra ..	Pumping..	(1)3,560·00	·02189	18·49	190·88	23·98	39·25	4·39	·47	31·91	2·03	2·43	20·84	24·91	4·07	Profit.
2	Allahabad ..	Ditto ..	(2)7,578·01	·04493	12·90	203·12	35·88	43·96	3·36	4·71	12·09	2·64	3·27	31·25	38·71	7·46	"
3	Benares ..	Ditto ..	(3)7,081·30	·03168	12·93	178·85	37·53	43·05	2·46	1·34	15·62	1·74	2·[illegible]7	24·61	36·31	11·70	"
4	Cawnpore ..	Ditto ..	(4)12,754·72	·06703	12·31	147·42	20·31	47·63	1·24	·68	30·14	1·95	2·89	26·11	38·61	12·50	"
5	Lucknow ..	Ditto ..	(5)12,644·65	·07461	10·57	166·90	27·99	39·80	1·35	5·33	25·53	2·44	3·58	27·58	40·46	12·88	"
6	Meerut ..	Turbines worked by water power.	(6) ..	..	..	138·91	46·57	2·38	1·51	9·93	39·61	1·54	1·11	8·28	5·99	2·29	
7	Mussoorie ..	Pumping.. and gravitation.	..	..	..	Av. 1,292·55	16·83	54·71	Included in other charges.	18·84	9·62	14·05	10·08	98·32	70·53	27·79	
8	Naini Tal ..	Ditto ..	*	..	..	Av. 499·26	17·16	66·54	·59	6·98	8·73	19·16	22·35	67·74	78·99	11·25	Profit.
9	Dehra Dun ..	Gravitation	..	..	..	..	79·79	..	..	..	20·21	3·02	1·77	9·75	5·72	4·03	
10	Jhansi ..	Pumping..	(7)428·70	·11420	15·02	195·65	16·62	37·11	·79	8·69	36·79	7·38	6·07	12·69	10·44	2·25	
11	Mirzapur ..	Gravitation	..	..	..	..	67·02	..	..	..	32·97	1·42	1·70	13·43	16·05	2·62	Profit.
12	Muttra ..	Pumping..	(8)312·58	·01492	133·84	168·82	30·25	66·11	·52	Nil	3·12	4·17	3·32	27·17	21·66	5·51	
13	Fyzabad ..	Ditto ..	(9)57·90	·00672	148·50	136·90	44·16	24·61	16·98	2·13	12·12	4·30	4·40	20·22	20·70	·48	Profit.
14	Hardwar ..	Ditto ..	..	..	..	187·37	41·32	48·88	·43	·48	8·89	11·18	16·44	57·20	84·11	26·91	"
15	Unao ..	Ditto ..	(10)11·18	·00551	163·[illegible]9	130·00	34·66	25·06	27·09	3·60	9·59	3·16	3·47	12·26	13·4[illegible]	1·19	"

(1) Coal and fuel oil combined. Oil fuel 125·85 tons. Electrical charges Rs. 3,563 for Maithan and Chilli-Int converted to coal and oil fuel (192·79 tons).

(2) Coal and fuel oil combined. Oil fuel 10·28 tons for Daraganj pumping. Electrical charges Rs. 32,342 converted to coal and fuel oil (2,507·13 tons). Coal consumption includes 23·84 tons for municipal purposes.

(3) Includes 43·55 tons of coal for municipal purposes. Electrical charges Rs. 10,420 converted to coal (805·95 tons).

(4) Includes 657·95 tons for municipal purposes. Electrical charges Rs. 1,28,217 converted to coal (10,415·67 tons).

(5) Includes 5 tons for municipal purposes and 2,286·7 tons shortage during transit, etc.

(6) No coal was consumed during the year. Wood consumption for banking the engines 7·25 tons and 12·6 tons for municipal purposes.

(7) Coal consumption includes 28·45 tons for municipal purposes.

(8) Fuel oil consumption includes 1·76 tons shortage and ·06 ton for municipal purposes.

(9) Fuel oil consumption includes ·39 ton shortage and ·08 ton for municipal purposes.

(10) Fuel oil.

* (Coal 8·10 tons and wood 73·83 tons) used for municipal purposes and distribution system.

APPENDIX No. VIII.

Statement showing initial capital cost, details of income and expenditure for water-works in the United Provinces for the year 1928-29.

Serial no.	Particulars.		Agra.	Allahabad.	Benares.	Cawnpore.	Lucknow.	Meerut.	Mussoorie.	Naini Tal.	Dehra Dun.	Jhansi.	Mirzapur.	Muttra.	Fyzabad.	Hardwar.	Unao.
1	Description of plant ..		Oil engine, steam-power, and Electricity.	Steam-power, oil and electricity.	Steam-power and electricity.	Steam-power and electricity.	Steam-power and electricity.	Water and steam-power.	Hydro-electric and oil power.	Steam-power, electricity and gravity.	Gravitation.	Steam-power.	Gravitation.	Oil engine and electricity.	Oil engine and electricity.	Electricity.	Oil engine.
2	Initial capital cost in lakhs.	Rs.	11·71	16·24	25·62	14·45	15·16	7·52	4·80	2·47	·97	·97	5·98	5·17	9·49	1·97	·82
3	Total cost of works in lakhs.	"	33·39	40·70	40·52	34·71	59·66	8·20	12·29	10·43	4·25	1·93	7·24	6·02	9·94	4·81	1·12
4	Number of inhabitants drawing their supply from mains.		185,946	157,220	198,447	216,436	201,334	77,711	15,289	17,319	34,092	25,000	38,400	42,615	30,000	9,024	9,000
5	Hours of supply daily.		10·00	20·50	10·88	16·70	19·00	16·00	10·48	7·80	24·00	7·52	24·00	9·00	9·58	18·00	11·00
6	Quantity supplied during year in million gallons.	Gallons.	1,908·38	1,860·07	2,799·58	2,891·05	2,274·65	419·17	106·98	61·21	110·00	42·98	362·30	277·90	140·97	46·17	34·92
7	Maximum daily average during any one month in thousand.	"	5,461	5,418	9,223	10,350	6,652	1,356	333	260	435	141	1,047	889	481	174	110
8	Average daily supply for the year in thousand.	"	5,228	5,096	7,670	7,921	6,232	1,148	293	168	301	118	993	761	386	126	96
9	Maximum supply per head per day.	"	29·37	34·46	46·47	47·82	33·04	17·44	21·77	15·00	12·77	5·63	27·26	20·87	16·03	19·28	12·24
10	Average supply per head per day.	"	28·12	32·41	38·65	36·60	30·95	14·78	19·17	9·68	8·84	4·71	25·85	17·86	12·87	14·02	10·63
11	Total lift (average).	Feet.	190·88	203·12	178·85	147·42	166·90	138·91	1,292·55	499·26	Gravity supply.	195·65	Gravity supply.	168·82	136·90	187·37	130·00
12	Quantity supplied during year in million foot gallons.	Foot galls.	364,272	377,814	500,706	426,199	379,640	58,227	138,277	30,562	..	8,408	..	46,917	19,299	8,651	4,540
13	Fuel consumed. ..	Tons.	(a) 3,560·00	(b) 7,578·01	(c) 7,081·30	(d) 12,754·72	12,644·65	..	..	..	..	(e) 428·70	..	(f) 312·58	(g) 57·90	..	(h) 11·18
14	Fuel consumption per million foot gallons.	Lbs.	21·89	44·93	31·68	67·03	74·61	..	..	..	..	114·20	..	14·92	6·72	..	5·51

15	Cost of fuel per ton.	Rs.	18·49	12·90	12·93	12·31	10·57	..	..	..	..	15·03	..	133·84	148·50	..	163·59
16	Cost of establishment per million foot gallons.	Annas.	1·83	2·71	2·40	2·43	2·83	5·15	1·27	4·29	..	6·27	..	6·33	9·70	15·93	8·42
17	Cost of fuel per million foot gallons.	,,	3·00	3·32	2·76	5·70	4·02	·26	4·12	16·63	..	14·01	..	13·85	5·40	18·84	6·09
18	Cost of oil and waste per million foot gallons.	,,	·33	·25	·16	·15	·13	·17	Included in other charges.	·15	..	·30	..	·11	3·73	·17	6·58
19	Cost of repairs to machinery per million foot gallons.	,,	·04	·36	·09	·08	·54	1·10	1·42	1·74	..	3·28	..	Nil	·47	·18	·88
20	Cost of other charges per million foot gallons.	,,	2·44	·91	1·00	3·60	2·58	4·38	·72	2·18	..	13·89	..	·65	2·66	3·42	2·33
21	Total charges per million foot gallons.	,,	7·64	7·55	6·41	11·96	10·10	11·06	7·53	24·99	..	37·75	..	20·94	21·96	38·54	24·30
22	Maintenance charges per thousand gallons supplied.	,,	1·46	1·53	1·14	1·76	1·69	1·54	9·74	12·47	1·15	7·38	·46	3·54	3·00	7·22	3·16
23	Interest and sinking fund charges per thousand gallons supplied.	,,	·57	1·11	·60	·19	·75	Nil	4·31	6·69	1·87	Nil	·96	·63	1·30	3·96	Nil
24	Total maintenance and interest and sinking fund per thousand gallons supplied.	,,	2·03	2·64	1·74	1·95	2·44	1·54	14·05	19·16	3·02	7·38	1·42	4·17	4·30	11·18	3·16
25	Maintenance charges in thousand.	Rs.	178·98	178·33	200·56	318·71	239·74	40·23	65·11	47·73	7·92	19·84	10·50	61·40	26·49	20·84	6·90
26	Interest and sinking fund charges in thousand.	,,	68·21	128·73	104·74	34·52	107·31	Nil	28·83	25·59	12·87	Nil	21·73	10·97	11·43	11·42	Nil
27	Total income in thousand.	,,	289·50	380·37	450·44	522·29	509·08	29·11	67·39	85·50	12·19	16·31	38·52	57·69	38·82	47·44	7·57
28	Profit or loss on maintenance in thousand	,,	+115·52	+202·04	+249·88	+203·58	+269·34	−11·12	+2·28	+37·77	+4·27	−3·53	+28·02	−3·71	+12·33	+26·60	+·67
29	Profit or loss on maintenance and interest and sinking fund in thousand.	,,	+47·31	+73·31	+145·14	+169·06	+162·03	−11·12	−26·55	+12·18	−8·60	−3·53	+6·29	−14·68	+·90	+15·18	+·67
30	Profit or deficit percentage on total cost of works.	,,	+1·42	+1·80	+3·58	+4·87	+2·72	−1·36	−2·16	+1·17	−2·02	−1·82	+·87	−2·44	+·09	+3·16	+·60

(a) Coal, fuel oil and Electrical energy converted into coal and fuel oil.
(b) Ditto ditto
(c) Coal and plectrical energy converted into coal.
(d) Ditto d.tto.
(e) Coal.
(f) Fuel oil and Electrical energy converted into fuel oil.
(g) Fuel oil.
(h) Ditto.

APPENDIX No. IX.

HYDRO-ELECTRIC SUPPLY.

1928-29.

Particulars.	Mussoorie.	Naini Tal.
1. Total units generated	3,898,261	891,204
2. Maximum units for any one day	11,700	3,505
3. Average load K. W.	415	90
4. Power Factor—		
Maximum	·95	·97
Minimum	·75	·17
5. Load factor—		
Maximum (monthly)	0·45	0·65
Average		
Minimum (monthly)		
6. Generating volts—		
Maximum	7,000	3,500
Minimum	6,600	3,500
7. Total hours of running	8,378·50	8,751·25
8. Total cubic feet of water used	181,512,480	35,001,480
9. Maximum quantity used in any month, cubic feet ..	19,442,400	3,325,120
10. Minimum quantity used in any month, cubic feet ..	7,291,620	2,539,680
11. Average rate of discharge, cubic feet per diem ..	497,294	95,894
12. Maximum rate of discharge of pipe line—		
No. 1, cubic feet per second	8·30	Both the lines worked together.
No. 2, " "	8·30	
13. Minimum rate of discharge of pipe line—		
No. 1, cubic feet per second	7·30	
No. 2, " "	7·30	
14. Average intake level		9·60
15. Maximum intake level	4,491	11·40
16. Minimum " "		7·80
17. Total rainfall for the year, inches	98·00	94·75
18. Total cubic feet overflow in lake weir (million cubic feet) (Naini Tal only).	..	144·12
19. Maximum recorded rainfall for 24 hours, inches ..	6·60	7·80

APPENDIX No. IX(A).

ELECTRIC SUPPLY.

1928-29.

Particulars.	Hardwar.
1. Total units received	303,954
2. Maximum units for any one day	1,200
3. Average load K. W.	35
4. Power factor—	
Maximum	·85
Minimum	·80
5. Load factor—	
Maximum (monthly)	..
Minimum (")	..
Average	..
6. Receiving volts—	
Maximum	410
Minimum	380

APPENDIX No. X.

Statement showing current consumed, rate charged and revenue derived.

1928-29.

Particulars.	Mussoorie.			Naini Tal.			Hardwar.		
	Units.	Rate.	Rs.	Units.	Rate.	Rs.	Units.	Rate.	Rs.
1. For municipal purposes—									
Public lighting	162,592 (a)165,441 (b)48,648	Two annas .. Contract rate	*41,004 18,243	122,703	Lump sum ..	21,000	64,515	(f)0 3 7	14,865
W. S. pumping	569,976	One anna ..	*35,624	168,909	Three annas a unit.	36,670	85,298	(f)0 2 0	10,186
Other purposes	571,779	..	..	804,50	..	..	6,280	(f)0 3 7	1,384
2. Sold by meter—									
Lighting	194,550 (a)276,894	Six annas .. Six annas ..	72,956 1,03,835	191,108	Eight annas a unit.	74,422	106,334	..	35,375
Heating	93,323 (a)372,480	One anna .. One anna ..	5,832 23,280	41,224	Two annas a unit	4,238	..	..	..
Power	..	..	..	5,388*	Four annas a unit	1,016	18,740	(f)0 1 6	2,195
3. Recoveries on rated premises	21,770 (a)87,184	Contract rate	8,164 13,944	44,150	Two rupees per mensem per lamp.	7,719	..	..	..
4. Other receipts	..	..	3,985 (a)5,674	989	..	9,012	..	..	..
5. Meter rent and miscellaneous	..	..	56,628 (a)10,233	..	..	12,686	..	..	..
6. Total units sold and receipts	(c)1,942,858	..	(d)3,99,402	(e)574,471	..	1,61,763	281,167	..	64,005

(a) For Dehra Dun.
(b) Dehra Dun Street lighting.
(c) Does not include 571,779 units for other purposes.
* Credit.

(d) Cash receipts Rs. 258,477 for 1,080,288 units sold.
(e) Does not include 80,450 units for other purposes.
(f) The amount of receipt does not correspond with the prescribed rate as the receipt of Electric energy consumed during March 1929 was received during April, 1929.

APPENDIX No. XI.

Statement showing number of connections.

1928-29.

Particulars.	Mussoorie.		Naini Tal.		Hardwar.	
	Number.	K. W.	Number.	K. W.	Number.	K. W.
1. Private connections at close of preceding year.	(a)4,100	..	1,227	..	332	..
2. Connections made during the year.	(b)238	..	80	..	87	..
3. Metered connections existing on March 31, 1929.	(c)2,157	..	674	..	196	..
4. Municipal lamps existing on March 31, 1929.	(d)1,504	..	704	..	462	..
5. Heating points connected on March 31, 1929.	*(e)352	..	208	..	Nil	..
6. Total K. W. connected on March 31, 1929.	..	4,280	..	1,385·42	..	193
7. Peak load for the year.	..	890	..	174	..	80
8. Diversity factor per cent.	..	45%	..	12·56%	..	Nil

Connections for Dehra Dun included (a) 2,264, (b) 230, (c) 1,290, (d) 760, (e) 135.

* Power points.

APPENDIX NO. XII.

HYDRO-ELCTRIC SUPPLY.

Annual maintenance account.

1928-29.

Particulars of charges.	Mussoorie.	Naini Tal.
I.—Staff charges—	Rs.	Rs.
(a) Direction	28,325	5,300
(b) Office establishment	22,332	10,209
(c) Power station staff	6,683	3,063
(d) Sub-station staff	4,464	1,367
(e) Pipe line staff	2,188	1,282
(f) Overhead line staff	6,194	4,293
(g) Auxiliary pump	..	337
(h) Contingencies	7,339	4,830
II.—Materials—		
(a) Oils	38,749	342
(b) Lubricants		
(c) Waste		
(d) Buildings		
III.—Repairs—		
(a) Machinery	2,089	2,355
(b) Pipe line	2,342	225
(c) Overhead line	6,809	6,117
(d) Buildings	801	64
IV.—Rents	2,924	1,611
V.—Printing	1,878	220
VI.—Stationery	505	280
VII.—Insurance	834	425
VIII.—Total maintenance charges	1,34,406	42,320
IX.—Interest and sinking fund charges	1,94,645	1,42,818
X.—Total annual charges	3,29,051	1,85,138
XI.—Total units generated	3,398,261	891,204
XII.—Total units sold	1,942,858	574,471
XIII.—Cost per unit generated. Annas	1·55	3·82
XIV.—Cost per unit sold. Annas	2·71	5·16

APPENDIX No. XII(A).

HARDWAR ELECTRIC SUPPLY.

Annual maintenance account.

1928-29.

Particulars of charges.	Rs.
I.—Staff charges—	
(*a*) Direction	3,400
(*b*) Office establishment	661
(*c*) Sub-station staff	1,300
(*d*) Overhead line staff	2,608
(*e*) Contingencies	300
II.—Materials—	
(*a*) Oils	..
(*b*) Lubricants	..
(*c*) Waste	..
(*d*) Buildings	..
III.—Repairs—	
(*a*) Machinery	..
(*b*) Overhead line (including cost of bulbs)	2,600
(*c*) Buildings	378
IV.—Rents	60
V.—Printing	150
VI.—Stationery	100
VII.—Insurance	..
VIII.—Total maintenance charges	11,557
IX.—Interest and sinking fund charges	14,752
X.—Total annual charges	26,309
XI.—Total units purchased	303,954
XII.—Total units sold	282,518
	Rs. a. p.
XIII.—Cost per unit purchased	0 2 0
XIV.—Cost per unit sold	0 6 0 to public for lighting purposes.
	0 5 0 to Railway.
	0 1 6 for industries.

APPENDIX No. XIII.

A.—List of projects finally sanctioned during 1928-29.

I.—Provincial Works.

	Rs.	
(a) *Fair projects.*		
Agra Dayalbagh tube well	13,329	
Allahabad Magh Mela water-supply, 1929	12,300	
Ditto maintenance, 1929-30 ..	2,423	
Ditto 1928-29	1,250	Parts of estimate.
Ditto tube well maintenance ..	293	prepared by 2nd division.
and tools and plant required for the maintenance of tube well	651	
Allahabad Magh Mela erection of pitcher spout pump ..	340	
Ditto repairs to engine house roof.. ..	214	
Ditto plant for temporary water-supply to municipal board	546	
Bareilly Wood Working Institute, repairs to tube well ..	259	
Bareilly Central Jail water-supply	78,688	
Bhowali electric supply	41,742	
Fyzabad water-supply, experimental tube well	16,637	
Garhmukteshwar police station tube well	3,734	
Ditto (revised) ..	(3,086)	
Kanauj new police station tube well	3,148	
Lucknow anti-malarial works—Ghazi-Uddin Hyder Canal ..	5,62,936	
Lucknow anti-malarial works—drain flushing tube well and pump house	(6,500)	Included in main estimate.
Lucknow anti-malarial works, Gomti inlets	1,27,378	
Meerut Central Jail drainage	1,11,854	
Muttra draining hollows behind police station	7,983	
Najibabad Government High School tube well	4,012	
Piran Kaliar water-supply	39,837	
Piran Kaliar water-supply tube well	9,513	
Ditto filling hollows and constructing drain ..	4,090	
		10,40,963
(c) *Forecast of costs finally approved.*		
Agra Central Jail tank Drainage I alternative	1,11,809	
Ditto II "	1,30,690	
Dewa Fair water-supply I instalment	56,700	
Ditto II "	26,250	
Etawah masonry well for kutchery compound	3,000	
Piran Kaliar water-supply	48,500	
		3,76,949

II—Deposit Works.

(a) *Fair projects.*		
Agra drainage (revised)	49,28,959	
Ajodhya water-supply	4,26,750	
Do. drainage	4,60,034	
Aligarh water-supply (revised)	7,49,650	
Almora water-supply	1,75,342	
Benares water-supply extension (revised)	5,12,255	
Brindaban experimental tube wells	9,445	
Do. water-supply two trial surface percolation wells ..	10,140	
Dehra Dun water-supply water softening and chlorinating plant	(52,856)	
Dehra Dun water supply water softening and chlorinating plant (revised)	64,851	
Dehra Dun infectious diseases hospital	46,621	
Fatehpur Sikri water-supply	42,567	
Hathras water-supply (revised)	5,32,741	
Ditto tube wells nos. 3, 4 and 5	34,800	

APPENDIX XIII.—(*continued*).

	Rs.	
Khurja electric supply	1,86,224	
Do. water-supply tube well (revised)	20,535	
Lucknow water-works additional mechanical filtration and sterlization plant	3,28,353	
Lucknow construction of two gravel tube wells	53,026	
Meerut electric supply	3,07,965	
Moradabad flushing improvement	11,504	
Muttra sewage disposal and sewage farm	7,098	
Muzaffarnagar electric supply..	1,04,397	
Rae Bareli water-supply	4,04,857	
Ditto trial tube well	20,000	
Roorkee electric supply (supplementary)	13,200	
Shamli (Muzaffarnagar) drainage	22,300	
		94,73,614
(*b*) *Preliminary proposals.*		
Bahraich water-supply flushing	3,19,834	
Meerut Cantonment electric supply	1,66,822	
Unao drainage	1,77,472	
		6,64,128
(*c*) *Forecast of costs.*		
Bhimtal water-supply	27,273	
Gola Gokarannath tank feeder	31,426	
Hardwar Har-ki-pairi improvement (original)	(11,70,000)	
Ditto improvement (alternative)	14,72,580	
Hardwar union Kankhal water-supply	67,000	
Jaunpur water-supply part I river supply	3,84,000	
Ditto ditto II from tube well	3,00,000	
Khatauli (district Muzaffarnagar) drainage	1,23,500	
Meerut drainage of katchcha road near Nauchandi gate ..	22,500	
Ditto Kaisarganj Mandi and grain market ..	1,66,000	
Srinagar drainage storm water	45,700	
Ditto ditto surface works	50,000	
		26,89,979
Total ..		1,42,45,633

B.—*List of projects submitted but not sanctioned during the year* 1928-29.

I—PROVINCIAL WORKS.

(*a*) *Fair projects.*		
Allahabad Magh Mela water-supply renewal of stock ..	7,024	
Ditto ditto during Kumbh 1929-30	(2,176)	Included in the main estimate.
Benares air lift pumping plant for the new tube well at agricultural farm	12,250	
Bhowali water-supply	1,78,330	
Cawnpore Agricultural College water-supply, drainage and sewege disposal by activated sludge system	1,18,516	
Etawah 5 ft. masonry well for kutchery	3,234	
Lucknow anti-malarial Ghazi-uddin Hyder canal works revised	5,45,000	
Lucknow 7" gravel tube well	12,708	
Piran Kaliar 10" tube well and air lift pumping plant with centrifugal pump and motor	26,592	
Jhansi Intermediate College, drainage	93,140	
		9,96,794
(*c*) *Forecast of costs.*		
Allahabad agricultural farm—a demonstration tube well	24,240	
Bahraich water-supply for the Durgah of Syed Salar Masud	65,000	
Mukteshwar (district Naini Tal) Imperial Institute of Veterinary Research Sanitary Improvements	3,62,000	
Piran Kaliar water-supply—tube well and air lift pumping plant	26,267	
Shikohabad 4" tube well and deep well hand pump for bonded ware house	2,800	
		4,80,307

APPENDIX XIII.—(*continued*).

II.—Deposit works.

	Rs.	
(a) Fair projects.		
Bewar bazar drainage scheme	10,690	
Budaun drainage scheme	89,369	
Gokul (Muttra) drainage scheme	59,500	
Hapur electric supply	70,716	
Lucknow sewage farm Lea's recorder	10,353	
Muttra sewage pumping station, providing iron gate ..	1,246	
		2,41,874
(b) Preliminary proposals.		
Fyzabad-Ajodhiya electric supply	4,20,000	
Gola drainage	2,02,532	
		6,22,532
(c) Forecast of costs.		
Agra drainage scheme (revision)	15,81,330	
Ditto alternative	(12,84,599)	
Ditto "	(14,00,960)	
Benares drainage extension	25,47,351	
Bhowali drainage	64,823	
Bulandshahr Official Co-operative Housing Society Limited, drainage works outside its area	7,232	
Bulandshahr Official Co-operative Housing Society, Limited, drainage works within its area	3,137	
Cawnpore activated sludge method of sewage disposal demonstration plant	3,87,000	
Devi Pattan (district Gonda) mela water-supply	62,565	
Etawah water-supply	2,84,000	
Fyzabad Manohar rice mills tube well	10,760	
Gulaothi town area (Bulandshahr) drainage	27,800	
Hardwar Union laying consolidated wearing carpet of 2½" grouted Trinidad asphalt macadam from Hardwar railway station to Har-ki-pairi	88,425	
Jaswantnagar drainage scheme	31,700	
Jhansi notified area, drainage, water and electric supply ..	5,73,508	
Kanauj water-supply	1,88,000	
Kareli village (Allahabad) tube well	3,000	
Lucknow 4" trial tube bore for Lucknow Improvement Trust ..	580	
Muttra Deeg Darwaza storm water drain..	17,600	
Nagla Khurd (Dharampur) town planning	..	
Roorkee pucca drain along Masonic lodge road	5,500	58,79,311
Total ..	..	82,20,818

C.—List of projects under preparation with the approximate estimated amount.

I.—Provincial Works.

	Rs.	
(a) Fair projects.		
Allahabad Magh Mela watter-supply	60,000	
" Kotwali drainage	14,133	
Kumaun Hill villages, water-supply	25,000	
		99,133

II.—Deposit Works.

(a) Fair projects.		
Bewar bazar drainage	20,000	Being revised to include street paving.
Bhimtal water-supply	32,000	
Gorakhpur drainage	3,00,000	
Khurja water-supply and flusing scheme	3,44,000	
Muttra 48" storm water drain at Antapura	19,294	
Muttra revised estimate for tube well near existing well no. 1 and tube well no. 5	82,295	
Rae Bareilly water-supply	4,00,000	Details being prepared.
Unao drainage	1,89,000	
		13,86,589

APPENDIX No. XIII.—(*concluded*).

(*c*) *Forecast of costs.*

	Rs.	
Aligarh Muslim University drainage	96,000	
Hardwar Union Jwalapur water-supply	1,60,000	
Rae Bareli drainage	2,00,000	
Moghul Serai drainage	40,000	4,96,000
Total		19,81,722

D.—List of projects that have been delayed for want of staff.

	Name of projects.	Amount of estimate. Rs.
1.	Brindaban drainage	3,00,000
2.	Khatauli drainage	50,000
3.	Town planning of Bhopatwala, Hardwar	14,73,582
4.	Har-ki-pairi Improvement, Hardwar	
5.	Dehra Dun drainage (Western portion) (forecast) ..	2,97,000
6.	Meerut drainage	8,00,000
7.	Saharanpur drainage	1,75,000
8.	Jhansi water-supply (revision)	20,00,000
9.	Rae Bareli water-supply detailed proposals	1,76,000
10.	Rae Bareli drainage (forecast)	1,50,000
11.	Gola drainage scheme	70,000
12.	Kanauj cadastral survey	4,000
13.	Bewar bazar drainage project	34,043
14.	Atrauli drainage	1,50,000

APPENDIX No. XIV.

Revenue derived from Sewage Farm during 1928-29.

—	Agra.	Allahabad.	Dehra Dun.	Lucknow.	Muttra.
1. Area under cultivation in acres.	141	232	Nil	*686	Sewage farm was not run during the year 1928-29, hence no income was derived.
2. Total rent realised from cultivators Rs.	21,293	26,083	Nil	†10,156	
3. Average rent per acre per annum Rs.	151	112·4	Nil	15	
4. Quantity of sewage treated in millions gallons.	1,077	1,061·4	Nil	Nil·	
5. Average quantity of sewage consumed per acre per diem in gallons.	20,927	11,942	Nil	Nil.	
6. Expenditure incurred on the maintenance of the farms Rs.	12,500	‡43,779	Nil	3,851	
7. Revenue derived .. „	21,293	§31,639	Nil	10,156	
8. Profit .. .. „	8,793	Nil	Nil	6,284	
9. Loss .. .. „	Nil	12,140	Nil	Nil.	

* Only 178 acres are treated with sullage.

† Only Rs. 7,155 are realized as rent from area supplied with sullage.

‡ Including pumping charges.

§ Including Rs. 5,556 for cost of sullage supplied to the Mission Institute.

APPENDIX No. XV.

Statement showing expenditure on construction works carried out by the Engineering Branch of the Public Health department during 1928-29.

Name of works.	Estimated cost.	Total expenditure up to end of March, 1928.	Expenditure incurred during the year.
I.—Provincial Works.	Rs.	Rs.	Rs.
Agra Dayalbagh tube well	13,329	Nil	3,772
Allahabad Magh Mela water-supply maintained for 1927.	237	233	Nil.
Allahabad Magh Mela water-supply maintained for 1928.	1,034	Nil	577
Allahabad Magh Mela water-supply pumping plant tube well.	47,716	42,236	2,430
Allahabad Magh Mela water-supply, 1927-28 ..	12,768	11,491	Nil.
Allahabad Magh Mela water-supply, 1928-29 ..	12,300	Nil	11,164
Allahabad Magh Mela tube well pumping water 1928-29.	1,250	Nil	566
Allahabad Magh Mela tube well repairs to roof of Engine House.	214	Nil	208
Allahabad Central Jail Naini water-supply providing and erecting new pumps.	14,280	13,951	Nil.
Bareilly Wood Working Institute tube well repairs	259	Nil	111
Bareilly District Jail water-supply	6,081	5,372	546
Fyzabad water-supply experimental tube well ..	16,637	Nil	5,331
Garhmukteshwar filling a pond behind police station.	2,335	Nil	2,159
Garhmukteshwar constructing a new well near police station.	3,036	Nil	1,399
Kunauj police station tube well	3,148	Nil	2,406
Lucknow Government House unfiltered water-supply extension.	14,802	13,975	1,212
Lucknow anti-malarial and drainage works Ghazi Uddin Hyder Canal.	5,62,936	..	4,75,441
Ditto tube well			2,473
Muttra draining hollows behind Police Lines ..	7,983	7,602	262
Patwa Dangar Government Bovine Lymph Depot electric supply.	3,900	Nil	3,402
Piran Kaliar (Roorkee) filling hollows and constructing drain.	4,090	Nil	2,964
Piran Kaliar tube well	9,513	Nil	2,019
Total ..	7,10,613	94,860	5,18,442
Deposit Works.			
Agra Chili-int and Maithan water supply ..	10,096	6,642	467
Agra new mechanical filtration plant ..	2,84,250	Nil	68,571
Agra extension to raw water pumping plant ..	90,557	Nil	15,308
Ajodhya tube well	37,112	1,006	7,622
Bareilly anti-malarial works revised estimate section I drain.	42,757	39,037	3,547
Basti anti-malarial work revised estimate ..	11,878	406	10,735
Benares water-supply extension reorganisation scheme revised.	5,12,255	7,688	2,66,227
Brindaban water supply percolation wells ..	10,140	Nil	60
Fatehpur Sikri tube well	12,000	3,326	4,172
Gola Gorakarnnath raised reservoir ..	7,155	6,677	Nil
Hardwar Union water supply	2,73,368	2,42,911	448
Hathras tube well no. 1	23,242	12,867	6,484

APPENDIX No. XV.—*(concluded)*.

Name of works.	Estimated cost.	Total expenditure up to end of March 1928.	Expenditure incurred during the year.
	Rs.	Rs.	Rs.
Hathras tube well no. 2	23,242	3,127	10,408
Jaunpur tube well	20,000	558	3,887
Kaimganj drainage works	60,415	9,905	33,092
Kanauj drainage works	14,623	9,695	461
Kosi water-supply	1,02,132	Nil	41,511
Lucknow water supply reorganization revision, distribution system.	9,90,140	Nil	52,013
Lucknow remodelling tank sewar sewage pumping station.	47,502	41,133	3,250
Lucknow additional mechanical filtration plant..	3,28,353	Nil	10,185
Lucknow water-works reorganization scheme ..	47,64,045	23,67,196	Nil.
Lucknow repairs to sewage pumping station ..	9,300	6,330	Nil.
Lucknow sewage farm pumping station ..	9,70,802	9,72,618	Nil.
Muttra sewage disposal	1,83,301	1,36,648	8,104
Ditto do. laying sewage farm and irrigation guls.	7,926	Nil	1,980
Muttra sewage disposal additional pumping sets ..	32,697	Nil	7,523
Muttra water-supply alteration to the existing pumping plant.	13,016	7,209	3,032
Muttra Banjatra route water supply ..	27,728	10,920	3,753
Rae Bareli tube well	20,000	Nil	12,029
Roorkee Electric Supply (original)	57,542		
Ditto do. (supplementary) ..	13,200	1,884	52,071
	70,742		
Unao water supply	1,21,877	1,06,251	2,259
Total ..	33,71,349	39,94,034	6,29,199
GRAND TOTAL ..	40,81,962	40,88,894	11,47,641

APPENDICES

to the

Report of the Director of Public Health, United Provinces.

APPENDIX A.

Report of the Board of Public Health, United Provinces, for the period from January 1, 1928 to March 31, 1929.

FOR convenience of account and with the sanction of Government this report has been changed from the calendar to the financial year. Hence the present report, which is for the financial year 1928-29, covers a period of fifteen months, January 1, 1928 to March 31, 1929. To avoid confusion, the figures of allotment and expenditure from the unexpended balances at the disposal of the Board of Public Health on December 31, 1927, and those made from sums placed by Government at the disposal of the Board during the financial year 1928-29, are shown separately.

The office of the President was held by the following officers :—

Mr. A. W. McNair, C.S.I., O.B.E., I.C.S., Member, Board of Revenue.	From January 1 to November 7, 1928.
Mr. R. Oakden, C.S.I., O.B.E., I.C.S., Member, Board of Revenue.	From November 8, 1928 to March 31, 1929.

The Board of Public Health unanimously passed a resolution recording their appreciation of the services rendered by Mr. McNair as its President and their regret at his retirement.

I worked as Secretary to the Board throughout the year in addition to the duties of Head Assistant to the Director of Public Health, except for two months and 30 days from January 2, 1929 to March 31, 1929, when I was on leave.

The following members, whose term of office had expired, were reappointed by Government for a term of two years :—

(1) Hon'ble Mr. Justice Gokaran Nath Misra, M.A., LL.B., Lucknow. (2) Rai Bahadur Dr. B. N. Vyas, M.B., Lucknow. (3) Major D. R. Ranjit Singh, O.B.E., (late) I.M.S., Allahabad.	From March 14, 1929.
(4) Babu Sampurnanand Sahib, M.L.C., Jalipa Devi, Benares.	From February 21, 1929.

A list of the outgoing and incoming members is appended :—

Outgoing members.	*Incoming members.*	
(1) Lieut.-Col. C. A. Sprawson, C.I.E., M.D., F.R.C.P., I.M.S., Principal, King George's Medical College, Lucknow.	Vacant.	
(2) Khan Bahadur Maulvi Fasih-ud-din Sahib, M.L.C., Budaun.	Saiyid Tufail Ahmad Sahib, M.L.C., P. O. Manglaur (district Saharanpur).	From April 8, 1928.

(3) Mr. Zahur Ahmad, M.L.C., Bar.-at-Law, Allahabad.	M. Muhammad Matin-ud-din Sahib, M.L.C., Advocate, Bara Banki.	From March 14, 1929.
(4) Thakur Shiva Shankar Singh Sahib, M.L.C., P. O. Rampur (district Ghazipur).	Pandit Nanak Chand Sahib, M.A., LL.B., M.L.C., Advocate, Bulandshahr.	From February 21, 1929.

Seven meetings of the Board were held—four at Lucknow, two at Naini Tal, and one at Allahabad.

The total amount at the disposal of the Board for expenditure on sanitary works amounted to Rs. 10,92,048 and was made up as under :—

	Rs.
I.—Unexpended balance on December 31, 1927 .	4,52,048
II.—Allotments sanctioned in the budget for 1928-29—	
(*a*) Recurring grant for special assistance to pilgrim centres	1,25,000
(*b*) Grant for urban sanitation	2,75,000
(*c*) Recurring grant for rural sanitation and minor sanitary works	2,40,000
Total ..	6,40,000
TOTAL OF I AND II ...	10,92,048

The allotments sanctioned by the Board of Public Health during the period under report were—

A.—Out of I, i.e., the unexpended balance amounting to Rs. 4,52,048.

(*i*) *Water-supply.*

		Rs.
Fyzabad municipality ...	Towards the construction of a fifth tube well ...	34,213
	Total ...	34,213

(*ii*) *Drainage and sewerage works.*

Nil.

(*iii*) *General.*

		Rs.
For taking cinema films for exhibition purposes at fairs, etc.		3,500
Garhmuktesar (district Meerut).	For filling of a pond behind the police station (further grant)	835
To Superintending Engineer, Public Health department, on account of fee for preparation of a drainage project for Gokul town area		500
Lucknow	To the Anti-tuberculosis League	500

	Rs.
For petty sanitary works in rural areas	1,67,264 7,134
For cinchonisation in certain villages of the Bulandshahr and Gonda districts	720
Total ...	1,80,453
Total of A—(i), (ii), and (iii) ...	2,14,666
Lapsed to Government	*2,37,382
Total ...	4,52,048

* NOTE.—As the projects for Lucknow water-works (Rs. 50,000), Jhansi water-works (Rs. 1,00,000), and Soron sanitary improvements (Rs. 87,382) were not ready, these grants were not paid.

B.—Out of the amounts provided in the budget for 1928-29, viz., Rs. 6,40,000.

(a) Special assistance to pilgrim centres.

		Rs.
For taking cinema films for exhibition purposes ...		12,000
Garhwal	Towards the Sadabarat fund	55,500
Piran Kaliar (district Saharanpur).	For sanitary arrangements at Piran Kaliar fair	3,277
Garhmuktesar (district Meerut).	For the construction of a new well near police station (amount given to the extent required in 1928-29)	1,400
Garhwal	For improvement to pilgrim route water-supply ...	30,000
Piran Kaliar (district Saharanpur).	For a tube well to improve the water-supply ...	9,513
Allahabad	For a small pitcher pump at the Magh Mela ground ...	340
Fyzabad municipality ...	For experimental tube well at Fyzabad (a fresh grant)	9,937
Hardwar Union ..	For extension of water-supply to Kankhal and Jwalapur	3,033
	Total ...	1,25,000

(*b*) (*i*) *Urban sanitation.*

(Earmarked by Government.)

		Rs.
Benares municipality ...	For water-works ...	25,000
The sum of Rs. 1,50,000 earmarked by Government for the Jhansi municipal board for their water-supply was not paid during the year, as the scheme was not ready and lapsed to Government		1,50,000
	Total ...	1,75,000

(*b*) (*ii*) *Urban sanitation (reserve).*

Improvement Trust, Lucknow	For the construction of a liquefying tank latrine at La Place (as an experimental measure) ..	2,500
Muttra	For draining the hollows and depressions behind the Police Lines ...	381
Allahabad	For covering the charges for running the Magh Mela pumping plant ...	423
Lucknow municipality ...	For improvement of the Ghaziuddin Hyder Canal	16,033
Najibabad municipality ...	For sinking tubes in eight wells to improve the water-supply ...	4,000
Agra	For the construction of a tube well at Dayal Bagh	11,329
Khurja municipality ...	For the construction of a trial tube well ...	20,536
Jhansi municipality ...	A drainage scheme ...	10,774
Transferred to sub-head "Travelling allowance" to non-official members and Secretary and his establishment ...		1,500
Lakhimpur municipality ...	Construction of a drain in the Chamrahia tank ...	3,923
Allahabad municipality ...	For the renovation of clear water reservoirs at the Allahabad water-works ...	16,454
Muttra municipality ...	Towards sewage farm ...	2,000
Hardwar Union ...	For extension of water-supply to Kankhal and Jwalapur (savings) ...	147 10,000
	Total ...	1,00,000

(c) *Rural sanitation and minor sanitary works.*

		Rs.
To District Magistrates.—Re-grants made to the extent of the amounts lapsed to Government as unspent balances left on March 31, 1928, out of the grants sanctioned for public health works for rural areas in 1927-28		1,25,952
Bahraich district ...	For hand-pumped well supplies in a number of villages which are important places for fairs and bazars in the district	10,800
Bulandshahr district ...	For experiments with cinchonisation	384
Moradabad district ...	Ditto ...	250
Gorakhpur district ...	Ditto ...	248
Gonda district ...	Ditto ...	400
For repairs to, and construction of, wells in rural areas ...		71,183
Fatehpur-Sikri (district Agra).	For water-supply scheme ...	20,000
Kosi Kalan (district Muttra).	For filling of two diggis in connexion with anti-malarial works	721
Dehra Dun district board	For laying down pipes in Jaunsar-Bawar for fresh supply of drinking water ...	344
Lucknow	Anti-tuberculosis League ...	500
Hardwar Union ...	For extension of water-supply to Kankhal and Jwalapur ...	9,218
	Total ...	2,40,000
	TOTAL OF (a), (b) AND (c) ...	6,40,000

In addition to the allotments mentioned above, the undermentioned loans were sanctioned by Government for sanitary projects during the period under report :—

		Rs.
Roorkee municipality ...	For electric supply scheme ...	10,000
Ditto ...	Ditto ...	9,000
Lucknow municipality ...	For relaying the eastern and western intercepting sewers	50,000
Allahabad municipality...	For constructing the Johnstonganj road with asphalt ...	39,510
Ditto ...	For the water-works re-organization scheme	75,000
Ditto ...	Ditto	62,300
Ditto ...	For the water-works semi-permanent scheme ...	30,000
Lucknow municipality ...	For re-organization of the water distribution system and installation of mechanical filters	3,50,000

		Rs.
Lucknow municipality ...	For bitumen bound roads ...	2,00,000
Muzaffarnagar municipality.	For drainage of the New Mandi	75,000
Muttra municipality ...	For sinking two wells and installing a pumping plant...	82,000
Khurja municipality ...	For electric supply scheme ...	50,000
Meerut municipality ...	For hydro-electric supply scheme	50,000
Jhansi municipality ...	For drainage scheme ...	11,000
Mussoorie municipality ...	For electric supply scheme ...	98,500
Allahabad municipality .	For the water-works re-organization (scheme A) ...	1,09,700
	Total ...	13 02,010

Of the schemes discussed by the Board during the period under report, projects and estimates for the works noted below, the cost of which aggregated Rs. 1,06,33,309, were sanctioned. In addition to these, forecasts for certain works were also approved.

(*a*) *Water-supply.*

		Rs.
Agra municipality ...	Project for new mechanical filters at water-works	2,84,250
Fyzabad municipality ...	Project for a fifth tube well in connexion with the Fyzabad water-works	50,096
Aligarh municipality ...	Revised project for water-supply scheme ...	7,49,643
Rae Bareli municipality...	Estimate for a trial tube well	20,000
Dehra Dun municipality	Revised project for water softening and chlorinating plant	64,851
Brindaban municipality ..	Project for two surface percolation wells ...	10,140
Almora municipality ...	Project for water-supply scheme ...	1,75,342
Dayal Bagh, Agra ..	Estimate for a new type of tube well	15,195
Fyzabad municipality ...	Estimate for constructing an experimental tube well ...	16,637
Allahabad municipality ...	Estimate of running Magh Mela pumping plant for one month	546
Fatehpur-Sikri notified area (district Agra).	(1) Project for water-supply scheme	42,567
	(2) Estimate for the extension of water-supply to village Sikri ...	6,423
Piran Kaliar (district Saharanpur).	Estimate for a tube well in connexion with the water-supply scheme at Piran Kaliar fair	9,513

		Rs.
Benares municipality ...	Project for water-works extension (revised estimate) ...	5,12,255
Rae Bareli municipality...	Project for water-supply scheme	4,04,857
Piran Kaliar (district Saharanpur).	Fair project for Piran Kaliar water-supply	39,837
Lucknow municipality ...	Project for additional mechanical water filtration and sterilisation plant ...	3,28,353
Ditto ...	Project for the construction of two gravel tube wells ...	53,026
Khurja municipality ...	Revised estimate for a trial tube well	20,535
Hathras municipality ...	Revised estimate of the water-supply scheme ...	5,32,741
Fyzabad municipality ...	Project for Ajodhya water-supply scheme... ...	4,26,750
Allahabad municipality ..	Project for the renovation of the clear water reservoirs...	32,908
Bara Banki district ...	Estimate for the construction of a well at Sidhaur (fair area)	783
Brindaban municipality...	Estimate for a second trial tube well	9,445
	Total ..	38,06,693

(*b*) *Drainage and sewerage works.*

		Rs.
Jhansi district ...	Chirgaon drainage improvement scheme	34,388
Agra municipality ...	Revised project for the drainage and sewage disposal schemes ..	49,28,959
Hardwar municipality ...	Project for drainage scheme ...	8,14,748
Lucknow municipality ..	Project for combined scheme for Gomti outfall and Civil Lines sewer ...	1,27,378
Moradabad municipality...	Project for flushing scheme ...	11,504
Muttra municipality ...	Project for maintaining a sewage farm	7,098
Lakhimpur municipality	Estimate for draining the Chamrahia tank ...	7,846
Fyzabad municipality ...	Project for Ajodhya drainage scheme	4,60,034
Nagina municipality ...	Project for constructing a storm-water drain at Chauki Afzalgarh	5,403
	Total ...	63,97,358

(c) *General.*

		Rs.
Garhmuktesar (district Meerut).	Project for filling a pond behind the Police Station ...	2,335
Bareilly municipality ...	Revised estimate of Part I of the anti-malarial scheme ..	42,757
Dehra Dun municipality	Project for infectious diseases hospital	46,621
Muttra municipality ...	Revised estimate for draining the hollows behind the Police Lines	7,983
Kosi notified area (district Muttra).	Estimate for anti-malarial works	721
Village Kirthal (district Meerut).	Project for the construction of pakka drains round a number of wells ...	6,900
Gonda municipality ...	Project for the construction of meat markets	13,976
Meerut municipality ...	Project for electric supply scheme	3,07,965
	Total ...	4,29,258
	TOTAL OF (a), (b), AND (c) ...	1,06,33,309

The Board sanctioned and recommended the preparation of the following schemes by the Superintending Engineer, Public Health department:—

(1) Budaun. Drainage project (detailed).
(2) Bulandshahr. Water-supply (fair project).
(3) Gokul Town (Muttra district). Drainage scheme.
(4) Aligarh University. Drainage project.
(5) Dewa fair (district Bara Banki). Water-supply (fair project).

A sub-committee, consisting of the Director of Public Health, the Superintending Engineer, Public Health department, and a non-official member of the Board, was appointed to consider the rules for the preparation of plans and estimates for works in notified and town areas and conditions of sanction, the execution of works in them by local authorities and the levying of establishment charges on the various classes of work carried out by the Public Health Engineering department, and the recommendations of the committee, which were unanimously approved by the Board, were forwarded to Government. The proposal of the Superintending Engineer, Public Health department, for letting out contracts by local bodies for public health works financed by grants or loans from Government was approved and recommended to Government.

Statements of chemical and bacteriological analyses of municipal water-supplies for the years 1926-27 and 1927-28, submitted by the Director of Public Health, were laid before the Board. As the results at Muttra, Mussoorie, Dehra Dun, and Fyzabad were found unsatisfactory, the Superintending Engineer, Public Health department, and the Director of Public Health were asked to take necessary action. The

number of samples taken at certain places was not in accordance with the rules prescribed by Government and the attention of the municipal boards concerned was drawn to the fact.

Several attempts made previously to remedy the shortage of water at the Radhaswami Institute at Dayal Bagh near Agra and to provide a sufficient and pure water-supply had failed. As the expert advice justified a further attempt to construct a successful tube well, a fresh grant was made for test-pumping, the institute paying the cost of the bore trial.

Statements of expenditure on rural sanitation in districts submitted by the Director of Public Health having shown large unspent balances, the attention of commissioners was invited to the matter with a view to the money being utilised early. Several local bodies were required to refund the grants made to them for special public health works, as the money had remained unutilised for a considerable time.

The municipal boards of Ghazipur, Azamgarh, and Meerut came in for severe adverse comment on the very unsatisfactory condition of the sanitation of those towns as reported by the Director of Public Health and the matter was brought to the notice of Government.

A representation from the Chairman, City Board, Mussoorie, together with other papers concerning the board's bad financial position and its effect on sanitation was forwarded to Government with the remark that the city board deserved sympathetic consideration.

The Board of Public Health considered a letter of the Assistant Director of Public Health, II Range, forwarded by the Director of Public Health, stating that Ajodhya on account of its peculiar circumstances deserved special consideration in the matter of grants. They agreed with him and decided to give sympathetic consideration when any application for funds for sanitary projects came before them.

The Board of Public Health used to make small grants for bituminising small portions of roads as an experimental measure. As the method had proved successful, further demonstrations were considered unnecessary and it was decided not to make any grants for this purpose in future.

The Board recommended for the favourable consideration of Government a scheme submitted by the Superintending Engineer, Public Health department, for treating sewage in the Cawnpore municipality by the activated sludge system as an experimental measure. They also approved of the project for maintaining a sewage farm at Mattra for three years as an experiment, which had been accepted by the municipal board, Muttra, and allotted the necessary funds.

Government had addressed certain commissioners of divisions, asking them to obtain the opinion of the municipal boards of important towns, but of medium size and moderate resources, on the desirability of having a modernized pipe water-supply scheme (tube wells serving standposts). Board of Public Health considered the replies received and recommended that schemes be undertaken where boards had agreed to the proposal.

The annual reports of the Director of Public Health, United Provinces, for the year ending December 31, 1927, and of the Superintending Engineer, Public Health department, United Provinces, for the year ending March 31, 1928, were read and recorded with an expression of satisfaction at the work done by the two branches of the Public Health department.

The report on the working of the Village Sanitation Act (II of 1892) for 1927-28, drawn up by the Secretary, was considered and sent to the Director of Public Health for necessary action. Previously this report used to be published in the *United Provinces Gazette*. As the issue of the report in isolation with no reference to any other activities of the Public Health department had a misleading effect and had led to public criticism based on the hypothesis that it covered the whole action of Government for rural sanitary improvement, Government discontinued its publication as a separate report and provided for reference in the report of the Director of Public Health to the special action taken under the Village Sanitation Act.

There is a proposal to survey the river front at Benares for the preservation and repairs of the existing ghats, and a committee has been formed. The cost of this survey is estimated at Rs. 50,000. On the recommendation of the committee, the Board earmarked Rs. 5,000 for the purpose to be given when operations are started by an approved agency.

The Allahabad municipal board having failed to report in time, as required under the rules, that a serious breakdown had occurred at the sewage pumping station, the attention of Government was drawn to the report of the Superintending Engineer, Public Health department. A considerable delay had also occurred in the completion of the diversion of the sewage outfall to a point below the intake of the East Indian Railway pumping station towards the cost of which a grant was made some time ago. As the work on the Katra-Colonelganj drainage was being carried out very unsatisfactorily through the agency employed by the municipal board, Board of Public Health withheld administrative sanction to the project for the extension of Katra-Colonelganj drainage until the portion already built was put into satisfactory order.

The reports of the Mechanical Adviser to Government on the various water-works in the United Provinces were considered by the Board. Existing defects were brought to the notice of municipal boards and divisional commissioners and where necessary were reported to Government. The system of water-supply taxation in the Mirzapur municipality is very unsatisfactory and regularly shows a large deficit in its water-works revenue. The municipal board, Benares, persistently neglects the maintenance of its water-supply and shows a large deficit each year in the running accounts, and took little or no action on the Mechanical Adviser's inspection reports.

The state of affairs in Lucknow, where the demand for water exceeds the capacity of the filtration plant, is serious, and the municipal board ignored the warning letters of the Board of Public Health. The project for the renovation of the clear water reservoirs at Khusrubagh (Allahabad) received from Government was considered.

Their present dilapidated state was reported to be due to long-continued neglect and their reinstatement has become an urgent necessity. The Board agreed with the opinion expressed by the Superintending Engineer, Public Health department, and ordered a copy of his note to be sent to Government. The reports on the water-supplies of Meerut, Jhansi, and Agra also showed considerable room for improvement.

MOHIUDDIN, KHAN SAHIB,
Secretary, Board of Public Health,
United Provinces.

LUCKNOW:
April 13, 1929.

APPENDIX B.

Statement showing grants made by the Board of Public Health, United Provinces for the improvement of rural sanitation for 1928.

Number.	Division.	District.	Grants made in 1928.	Balance in hand on December 31, 1927.	Total.	Expenditure in 1928.	Balance in hand on December 31, 1928.
			Rs.	Rs.	Rs.	Rs.	Rs.
1	Meerut.	Dehra Dun ..	..	344	344	(a)344	..
2		Saharanpur ..	..	..	..	..	..
3		Muzaffarnagar ..	..	600	600	..	600
4		Meerut ..	..	..	..	..	..
5		Bulandshahr ..	..	..	..	..	..
6	Agra.	Aligarh ..	..	5	5	..	5
7		Muttra ..	..	(b)18,133	18,133	10,751	7,382
8		Agra ..	..	..	..	..	..
9		Mainpuri ..	..	..	..	..	..
10		Etah	..	..	..	..	..
11	Rohilkhand.	Bareilly ..	..	632	632	632	..
12		Bijnor ..	..	..	..	..	..
13		Budaun ..	..	6,565	6,565	(c)5,965	600
14		Moradabad ..	..	..	..	..	..
15		Shahjahanpur ..	..	..	..	..	..
16		Pilibhit ..	..	1,952	1,952	566	1,386
17	Allahabad.	Farrukhabad ..	..	..	..	..	..
18		Etawah ..	..	..	..	..	..
19		Cawnpore ..	..	..	..	..	..
20		Fatehpur ..	..	..	..	..	..
21		Allahabad ..	..	4,190	4,190	4,190	..
22	Jhansi.	Jhansi ..	..	..	..	..	..
23		Jalaun ..	..	..	..	..	..
24		Hamirpur ..	..	..	..	..	..
25		Banda ..	..	..	..	..	..
26	Benares.	Benares ..	..	25,585	25,585	320	25,265
27		Mirzapur ..	..	..	..	..	..
28		Jaunpur ..	..	..	..	..	..
29		Ghazipur ..	..	..	..	..	..
30		Ballia ..	..	..	..	..	..
31	Gorakhpur.	Gorakhpur ..	..	22,016	22,016	6,758	15,258
32		Basti ..	..	10,000	10,000	(d)10,000	..
33		Azamgarh ..	..	..	..	..	..
34	Kumaun.	Naini Tal ..	..	103	103	103	..
35		Almora ..	..	..	..	..	..
36		Garhwal ..	..	..	..	..	..
37	Lucknow.	Lucknow ..	..	..	..	..	..
38		Unao ..	..	..	..	..	..
39		Rae Bareli ..	..	..	..	..	..
40		Sitapur ..	..	435	435	435	..
41		Hardoi ..	..	..	..	..	..
42		Kheri ..	..	423	423	..	423
43	Fyzabad.	Fyzabad ..	..	13,314	13,314	7,871	5,443
44		Gonda ..	..	7,600	7,600	(e)7,600	..
45		Bahraich ..	10,800	..	10,800	..	10,800
46		Sultanpur ..	..	..	..	..	..
47		Partabgarh ..	..	..	..	..	..
48		Bara Banki ..	..	4,398	4,398	2,520	1,878
		Total ...	10,800	(b)1,16,290	1,27,090	58,055	69,035

(a) Refunded into the Government treasury.

(b) Includes Rs. 1,423, the unspent balance of the money shown under expenditure during 1927.

(c) Refunded into the Government treasury. The board spent Rs. 176 from their own funds.

(d) Refunded into the Government treasury.

(e) Out of this Rs. 7,000 were refunded into the Government treasury.

APPENDIX C.

Statement showing protective effects of anti-plague inoculations in the United Provinces during the year 1928.

Name of village or town.	Population.	Number of inoculated persons.	Number of uninoculated persons.	Deaths among inoculated persons.	Deaths among uninoculated persons.
MUZAFFARNAGAR.					
Pindoura	2,077	702	1,375	..	37
Basehra	3,770	289	3,481	..	4
Titawi	1,460	403	1,057	..	28
Jasoi	2,622	103	2,519	..	27
Sohanjni	1,781	42	1,739	..	9
Balwa Kheri	1,161	169	992	..	1
MEERUT.					
Sardhana	9,524	945	8,579	..	4
Mawana	8,197	1,271	6,926	..	103
BULANDSHAHR.					
Muni	800	51	749	..	3
Nagarya	200	107	93	5	27
MUTTRA.					
Kamar	2,705	293	2,412	..	1
AGRA.					
Agra	163,750	38	163,712	..	1
Chulaoli	2,139	49	2,090	..	..
Nagla Bari	75	21	54	..	..
Achnera	5,121	..	5,121	..	5
ETAH.					
Etah	9,597	4	9,593	..	..
Kasganj	20,988	510	20,478	..	..
Soron	10,959	50	10,909	..	2
Aliganj	5,313	206	5,107	..	2
Bilsar Patti	434	8	426	..	..
Chandpur	312	5	307	..	..
BAREILLY.					
Bareilly	119,175	26,540	92,635	4	1,151
Aonla	13,132	218	12,914	..	106
Gulaili	699	10	689	..	36
Panwarya	234	5	229	..	..
Deokola	1,206	31	1,175	..	..
Debi	74	19	55	..	..
Manchandpur	627	48	579	..	..
Nila	1,060	268	792	..	89
Bijainagla	213	105	108	..	..
Kalsari	786	40	746	..	24
Manauna	2,653	238	2,415	..	66
Sisauna	557	90	467	..	..
Nagla	1,100	27	1,073	..	..
Nurpur	383	10	373	..	11

APPENDIX C.

Statement showing protective effects of anti-plague inoculations in the United Provinces during the year 1928—(continued).

Name of village or town.	Population.	Number of inoculated persons.	Number of uninoculated persons.	Deaths among inoculated persons.	Deaths among uninoculated persons.
BAREILLY—(*concld.*).					
Behta	420	89	331	..	2
Bhikampur	376	4	372	..	..
Saholia	4,201	34	4,167	..	..
Piparia	301	22	279	..	..
Raonla	929	4	925	..	..
Nilor	1,572	158	1,414	..	..
Atarchedi	1,892	11	1,881	..	..
Kalia	316	30	286	..	3
Reoti	785	38	747	..	1
Baheri	61,896	223	61,673	..	..
Faridpur	7,609	2,297	5,312	1	350
Richa	1,335	6	1,329	..	42
Nawabganj	3,810	511	3,299	..	94
Gaini	38,442	851	37,591	..	12
Thiria Mohanpur	2,444	697	1,747	..	..
BIJNOR.					
Seohara	9,434	1,166	8,268	..	459
BUDAUN.					
Wazeerganj	2,873	31	2,842	..	12
MORADABAD.					
Amroha	40,448	1,439	39,009	2	77
Chandausi..	25,164	3,482	21,682	1	126
SHAHJAHANPUR.					
Pawayan	5,984	759	5,225	1	137
Jalalabad	5,941	83	5,858	..	2
Shahpur	1,114	32	1,082	..	12
Tilhar	16,584	1,015	15,569	1	139
Shahjahanpur	68,782	12,194	56,588	6	3,078
PILIBHIT.					
Pilibhit	32,344	2,437	29,907	9	650
Puranpur	3,747	211	3,536	1	1
Neoria	4,990	101	4,889	..	20
Bilsanda	2,047	93	1,954	..	123
Bisalpur	8,444	1,165	7,279	1	137
FATEHGARH.					
Kaimganj	8,324	2,012	6,312	1	392
Shamsabad	6,995	90	6,905	..	30
CAWNPORE.					
Bhognipore	71,356	784	70,572	1	74
FATEHPUR.					
Khakhreru	1,761	175	1,586	..	4
ALLAHABAD.					
Ramnagar	2,279	832	1,447	..	24

APPENDIX C.

Statement showing the protective effects of anti-plague inoculations in the United Provinces during the year 1928—(continued).

Name of village or town.	Population.	Number of inoculated persons.	Number of uninoculated persons.	Deaths among inoculated persons.	Deaths among uninoculated persons.
JALAUN.					
Rampura	4,459	233	4,226	..	1
Jalaun	7,324	1	7,323	..	..
BENARES.					
Bhartai	678	66	612	..	7
Sheopur	1,575	128	1,447	1	21
Kotwa	1,453	72	1,381	..	20
Shahpore	508	42	466	..	15
JAUNPUR.					
Kerakat	2,792	472	2,320	..	10
Naupur	1,200	44	1,156	..	4
GHAZIPUR.					
Panchedeora	1,400	376	1,024	..	39
Mordah	900	340	560	..	55
Badupur	500	260	240	..	20
BALLIA.					
Cherwan	1,685	603	1,082	..	2
Rasra	7,235	1,223	6,012	..	168
Dehri	976	415	561	..	53
Asanwar	1,050	222	828	..	54
Tari Baragaon	2,552	777	1,775	..	1
GORAKHPUR.					
Gajpur	2,580	1,800	780	..	25
Banwa	253	221	32	2	3
Kamaldeha	699	669	30	..	12
Gajai Kol	846	500	346	..	6
BASTI.					
Salehpur	375	151	224	..	3
Paitaulia	250	100	150	..	12
Dhanghata	600	300	300	..	63
Shafiabad	350	95	255	..	22
Mahuli	500	135	365	..	10
Hainsar	1,900	200	1,700	..	12
Bakauli	700	500	200	..	35
Umariya	300	200	100	..	25
Atwa	450	125	325	..	4
Kuchela	400	150	250	..	12

APPENDIX C.

Statement showing the protective effects of anti-plague inoculations in the United Provinces during the year 1928—(continued).

Name of village or town.	Population.	Number of inoculated persons.	Number of uninoculated persons.	Deaths among inoculated persons.	Deaths among uninoculated persons.
AZAMGARH.					
Barbojhi	264	23	241	..	..
Kajha	759	128	631	..	..
Ranipur	577	236	341	..	..
Laudah	424	3	421	..	6
Kotah	349	81	268	..	..
Phaddopur..	440	102	338	..	4
Manikadih..	345	78	267	..	..
Shah Khajura	966	143	823	..	18
Rasulpur	166	44	122	..	1
Sondhari	319	23	296	..	11
Rudri	1,072	197	875	2	..
Bardiha	1,311	207	1,104	..	9
Mona	150	6	144	..	..
Misirpur	1,500	121	1,379	..	..
Pasipur	700	39	661	..	..
Airaon	900	60	840	..	..
Laharpur	400	91	309	..	..
Bhawanipur	250	35	215	..	..
Manduri	2,000	384	1,616	..	..
Kaudia	1,000	113	887	..	..
Atraulia	2,500	82	2,418	..	..
Koelsa	4,000	5	3,995	..	..
Semari	711	4	707	..	..
Mukhlispur	400	23	377	..	18
NAINI TAL.					
Khatima	600	111	489	..	30
Karampur..	42	20	22	..	2
Haldwani	8,536	1,279	7,257	..	206
Harsauli	50	37	13	..	2
ALMORA.					
Almora	7,051	7	7,044	..	2
GARHWAL.					
Kotdwara Bhabar	5,547	1,243	4,304	1	5
Dogadda	1,500	649	851	..	5
LUCKNOW.					
Nagram	4,493	162	4,331	..	24
Banthra	1,229	99	1,130	..	28
UNAO.					
Nawabganj	1,500	246	1,254	..	22
Kantha	2,922	117	2,805	..	82
Narsinghpore	341	90	251	..	25
Bhauli	3,462	443	3,019	..	20
Korari kalan	2,567	276	2,291	..	6
Garhi	289	121	168	...	1

APPENDIX C.

Statement showing the protective effects of anti-plague inoculations in the United Provinces during the year 1928—(concluded).

Name of village or town.	Population.	Number of inoculated persons.	Number of uninoculated persons.	Deaths among inoculated persons.	Deaths among uninoculated persons.
RAE BARELI.					
Salaon	2,705	376	2,329	1	59
Misir Khera	60	25	35	..	7
SITAPUR.					
Laharpur	11,185	1,186	9,999	..	339
HARDOI.					
Beniganj	2,096	351	1,745	..	29
Uttra	1,305	248	1,057	..	86
KHERI.					
Lakhimpur	12,396	3,698	8,698	5	280
Berwar	3,741	243	3,498	2	217
FYZABAD.					
Moinuddinpur	204	150	54	..	4
Jaisingh Mau	176	140	36	..	63
Malethu Kanak	1,226	125	1,101	..	..
Khajurahat	989	180	809	..	..
Nasirpur	749	100	649	..	2
Bandipur	1,000	180	820	..	10
Raipur	950	267	683	..	4
Alanpur	459	223	236	..	2
Sultanpur	1,100	300	800	2	44
Umari	400	160	240	..	1
Taran Darahganj	1,682	200	1,482	..	4
Billapur	401	250	151	..	9
GONDA.					
Etala Buzurg	625	150	475	..	41
Dinnagar	352	230	122	..	22
BAHRAICH.					
Nanpara	10,924	582	10,342	..	11
SULTANPUR.					
Durgapur	424	420	4	..	3
PARTABGARH.					
Raniganj	874	43	831	..	2
Sarauli	663	28	635	..	17
Kunda	1,724	180	1,544	..	4
Gayaspur	933	50	883	..	6
Kohndour	667	107	560	..	22
BARA BANKI.					
Nanmau	743	96	647	..	14
Chirra	712	37	675	2	90
Total ..	1,009,410	93,864	915,546	52	10,371

STATISTICAL STATEMENTS

(*Vital Statistics*)

Paragraphs 3, 5, 6, 7 and 8 of Section V.] ANNUAL

***Births** registered in the districts of the*

1	2	3			4		
Number.	District.	Population according to census of 1921.			Number of births registered.		
		Male.	Female.	Total.	Male.	Female.	Total.
	MEERUT DIVISION.						
1	Dehra Dun ..	128,176	84,067	**212,243**	3,283	3,000	**6,283**
2	Saharanpur ..	515,908	421,563	**937,471**	23,390	20,857	**44,247**
3	Muzaffarnagar ..	434,307	359,958	**794,265**	18,193	16,240	**34,433**
4	Meerut	809,994	689,080	**1,499,074**	34,132	29,626	**63,758**
5	Bulandshahr ..	562,529	503,990	**1,066,519**	25,871	23,112	**48,983**
	AGRA DIVISION.						
6	Aligarh	575,379	486,366	**1,061,745**	26,165	23,640	**49,805**
7	Muttra	341,150	277,988	**619,138**	12,590	11,259	**23,849**
8	Agra	508,298	415,857	**924,155**	22,983	20,147	**43,130**
9	Mainpuri	411,981	336,046	**748,027**	13,306	11,111	**24,417**
10	Etah	449,162	380,598	**829,760**	16,921	15,044	**31,965**
	ROHILKHAND DIVISION.						
11	Bareilly	544,885	468,990	**1,013,875**	24,923	22,258	**47,181**
12	Bijnor	389,643	350,539	**740,182**	19,690	17,498	**37,188**
13	Budaun	527,823	447,524	**975,347**	22,866	20,911	**43,777**
14	Moradabad ..	639,022	559,631	**1,198,653**	31,317	28,502	**59,819**
15	Shahjahanpur ..	452,837	386,278	**839,115**	20,137	18,313	**38,450**
16	Pilibhit	229,130	202,471	**431,601**	10,405	9,362	**19,767**
	ALLAHABAD DIVISION.						
17	Farrukhabad ..	469,009	387,624	**856,633**	18,596	16,615	**35,211**
18	Etawah	404,323	329,209	**733,532**	15,002	13,239	**28,241**
19	Cawnpore	637,319	511,345	**1,148,664**	19,849	17,109	**36,958**
20	Fatehpur	341,527	310,865	**652,392**	13,412	11,780	**25,192**
21	Allahabad	722,188	682,257	**1,404,445**	24,523	22,055	**46,578**
	JHANSI DIVISION.						
22	Jhansi	315,590	290,909	**606,499**	15,504	13,826	**29,330**
23	Jalaun	213,384	192,055	**405,439**	8,653	7,927	**16,580**
24	Hamirpur	237,103	228,220	**465,323**	10,554	9,406	**19,960**
25	Banda	300,930	287,106	**588,036**	11,462	10,062	**21,524**
	BENARES DIVISION.						
26	Benares	487,165	464,866	**952,031**	21,190	19,626	**40,816**
27	Mirzapur	361,635	362,548	**724,183**	15,811	14,662	**30,473**
28	Jaunpur	574,480	580,625	**1,155,105**	19,018	16,333	**35,351**
29	Ghazipur	399,163	382,407	**781,570**	14,460	13,029	**27,489**
30	Ballia	426,520	404,489	**831,009**	14,271	12,228	**26,499**
	GORAKHPUR DIVISION.						
31	Gorakhpur.. ..	1,658,592	1,608,238	**3,266,830**	59,246	54,064	**113,310**
32	Basti	984,741	940,487	**1,925,228**	32,501	29,142	**61,643**
33	Azamgarh	775,866	752,146	**1,528,012**	26,868	24,540	**51,408**
	KUMAUN DIVISION.						
34	Naini Tal	160,798	116,077	**276,875**	4,617	4,154	**8,771**
35	Almora	265,253	265,085	**530,338**	13,003	12,456	**25,459**
36	Garhwal	232,863	252,323	**485,186**	11,278	11,010	**22,288**
	LUCKNOW DIVISION.						
37	Lucknow	392,559	331,785	**724,344**	16,625	15,525	**32,150**
38	Unao	433,613	385,515	**819,128**	15,440	13,407	**28,847**
39	Rae Bareli	474,742	461,661	**936,403**	14,597	12,403	**27,000**
40	Sitapur	581,655	507,826	**1,089,481**	22,539	20,137	**42,676**
41	Hardoi	586,166	498,244	**1,084,410**	21,458	19,701	**41,159**
42	Kheri	485,177	428,298	**913,475**	18,025	15,907	**33,932**
	FYZABAD DIVISION.						
43	Fyzabad	588,888	583,687	**1,172,575**	20,542	18,145	**38,687**
44	Gonda	752,896	720,202	**1,473,098**	21,454	18,197	**39,651**
45	Bahraich	554,548	510,829	**1,065,377**	19,939	17,631	**37,570**
46	Sultanpur	494,593	509,319	**1,003,912**	17,527	15,281	**32,808**
47	Partabgarh.. ..	417,339	437,791	**855,130**	14,218	12,158	**26,376**
48	Bara Banki ..	536,896	493,058	**1,029,954**	18,406	15,764	**34,170**
	Total for the Province..	23,787,745	21,588,042	**45,375,787**	916,760	818,399	**1,735,159**

FORM No. I.

United Provinces during the year 1928.

5			6	7	8	9			10
Ratio of births per 1,000 of population.			Number of males born to every 100 females born.	Excess of births over deaths per 1,000 of population.	Excess of deaths over births per 1,000 of population.	Mean ratio of births per 1,000 during previous five years.			Number.
Male.	Female.	Total.				Male.	Female.	Total.	
15·47	14·13	**29·60**	109·43	7·06	..	14·00	12·14	**26·14**	1
24·95	22·25	**47·20**	112·14	12·88	..	22·36	19.67	**42·03**	2
22·90	20·45	**43·35**	112·02	14.97	..	20·41	17·36	**37·77**	3
22·77	19·76	**42·53**	115·21	19·07	..	21·33	18·59	**39·92**	4
24·26	21·67	**45·93**	111·93	20·94	..	22·52	19·73	**42·25**	5
24·64	22·26	**46·90**	110·68	23·83	..	22·11	20·59	**42·70**	6
20·33	18·18	**38·51**	111·82	20·08	..	16·99	14·63	**31·62**	7
24·87	21·80	**46·67**	114·07	22·23	..	22·11	20·18	**42·29**	8
17·79	14·85	**32·64**	119·75	14·87	..	15·72	13·36	**29·08**	9
20·39	18·13	**38·52**	112·47	19·84	..	16·35	14·33	**30·68**	10
24·58	21·95	**46·53**	111·97	13·90	..	23·09	21·14	**44·23**	11
26·60	23·64	**50·24**	112·50	16·84	..	25·19	22·87	**48·06**	12
23·44	21·44	**44·88**	109·34	16·18	..	20·93	19·06	**39·99**	13
26·12	23·78	**49·90**	109·87	16·16	..	24·66	22·48	**47·14**	14
24·00	21·82	**45·82**	109·96	11·65	..	23·01	20·98	**43·99**	15
24·11	21·69	**45·80**	111·14	7·03	..	23·23	21·12	**44·35**	16
21·71	19·39	**41·10**	111·92	15·10	..	20·35	18·26	**38·61**	17
20·45	18·05	**38·50**	113·31	16·87	..	18·05	15·89	**33·94**	18
17·28	14·89	**32·17**	116·01	12·91	..	16·24	13·99	**30·23**	19
20·56	18·05	**38·61**	113·85	23·57	..	15·59	13·66	**29·25**	20
17·46	15·70	**33·16**	111·19	13·99	..	16·62	14·71	**31·33**	21
25·56	22·80	**48·36**	112·13	18·06	..	23·18	21·27	**44·45**	22
21·34	19·55	**40·89**	109·15	19·04	..	18·37	16·29	**34·66**	23
22·68	20·21	**42·89**	112·20	15·46	..	21·90	19·68	**41·58**	24
19·49	17·11	**36·60**	113·61	17·21	..	16·88	14·53	**31·41**	25
22·26	20·61	**42·87**	107·96	12·76	..	19·28	17·81	**37·09**	26
21·83	20·25	**42·08**	107·83	18·82	..	19·27	17·69	**36·96**	27
16·46	14·14	**30·60**	116·43	9·11	..	14·94	12·94	**27·88**	28
18·50	16·67	**35·17**	110·98	8·43	..	15·35	13·72	**29·07**	29
17·17	14·71	**31·88**	116·70	10·19	..	16·13	14·05	**30·18**	30
18·13	16·55	**34·68**	109·58	14·68	..	16·25	14·92	**31·17**	31
16·88	15·14	**32·02**	111·53	9·46	..	17·12	15·32	**32·44**	32
17·58	16·06	**33·64**	109·48	6·80	..	16·43	14·97	**31·40**	33
16·68	15·00	**31·68**	111·14	..	3·30	15·63	14·04	**29·67**	34
24·52	23·48	**48·00**	104·39	25·26	..	20·75	20·02	**40·77**	35
23·24	22·69	**45·93**	102·43	17·99	..	20·75	20·13	**40·88**	36
22·95	21·43	**44·38**	107·08	15·19	..	20·00	18·45	**38·45**	37
18·85	16·37	**35·22**	115·16	15·92	..	15·40	13·28	**28·68**	38
15·59	13·24	**28·83**	117·68	12·76	..	12·84	11·02	**23·86**	39
20·69	18·48	**39·17**	111·93	16·29	..	19·34	17·25	**36·59**	40
19·78	18·17	**37·95**	108·91	16·97	..	18·20	16·22	**34·42**	41
19·73	17·41	**37·14**	113·31	9·51	..	18·57	16·13	**34·70**	42
17·52	15·47	**32·99**	113·21	6·68	..	16·04	14·10	**30·14**	43
14·56	12·35	**26·91**	117·90	8·45	..	14·42	12·17	**26·59**	44
18·71	16·55	**35·26**	113·09	12·19	..	17·20	15·01	**32·21**	45
17·46	15·22	**32·68**	114·69	8·41	..	17·27	14·91	**32·18**	46
16·62	14·22	**30·84**	116·94	11·97	..	15·70	13·46	**29·16**	47
17·87	15·30	**33·17**	116·75	9·28	..	17·50	15·57	**33·07**	48
20·20	18·04	**38·24**	112·01	14·09	..	18·45	16·43	**34·88**	

Paragraphs 3, 13, 14 of section V and 1 of Section VI.] ANNUAL

Births *and* **eaths** *registered in the districts*

1	2	3	4	5			6		7		
Number.	District.	Area in square miles.	Average population per square mile.	Population (according to census of 1921).			Births.		Number of deaths registered.		
				Male.	Female.	Total.	Total number.	Birth rate per 1,000 of population.	Male.	Female.	Total.
	MEERUT DIVISION.										
1	Dehra Dun ..	1,190	178	128,176	84,067	**212,243**	6,283	29·60	2,566	2,218	**4,784**
2	Saharanpur ..	2,135	439	515,908	421,563	**937,471**	44,247	47·20	16,040	16,135	**32,175**
3	Muzaffarnagar ..	1,673	475	434,307	359,958	**794,265**	34,433	43·35	11,579	10,964	**22,543**
4	Meerut ..	2,344	639	809,994	689,080	**1,499,074**	63,758	42·53	18,732	16,445	**35,177**
5	Bulandshahr ..	1,906	559	562,529	503,990	**1,066,519**	48,983	45·93	14,089	12,525	**26,614**
	AGRA DIVISION.										
6	Aligarh	1,946	546	575,379	486,366	**1,061,745**	49,805	46·90	12,791	11,710	**24,501**
7	Muttra	1,450	427	341,150	277,988	**619,138**	23,849	38·51	6,169	5,251	**11,420**
8	Agra	1,855	498	508,298	415,857	**924,155**	43,130	46·67	11,925	10,663	**22,588**
9	Mainpuri ..	1,674	447	411,981	336,046	**748,027**	24,417	32·64	7,483	5,810	**13,293**
10	Etah	1,729	480	449,162	380,598	**829,760**	31,965	38·52	8,524	6,978	**15,502**
	ROHILKHAND DIVISION.										
11	Bareilly	1,579	642	544,885	468,990	**1,013,875**	47,181	46·53	17,118	15,969	**33,087**
12	Bijnor	1,879	394	389,643	350,539	**740,182**	37,188	50·24	12,461	12,265	**24,726**
13	Budaun	2,010	485	527,823	447,524	**975,347**	43,777	44·88	14,216	13,779	**27,995**
14	Moradabad ..	2,285	524	639,022	559,631	**1,198,653**	59,819	49·90	20,305	20,135	**40,440**
15	Shahjahanpur ..	1,726	486	452,837	386,278	**839,115**	38,450	45·82	15,044	13,633	**28,677**
16	Pilibhit	1,350	320	229,130	202,471	**431,601**	19,767	45·80	8,748	7,986	**16,734**
	ALLAHABAD DIVISION.										
17	Farrukhabad ..	1,683	509	469,009	387,624	**856,633**	35,211	41·10	12,001	10,272	**22,273**
18	Etawah	1,691	434	404,323	329,209	**733,532**	28,241	38·50	8,718	7,150	**15,868**
19	Cawnpore ..	2,372	484	637,319	511,345	**1,148,664**	36,958	32·17	11,840	10,279	**22,119**
20	Fatehpur ..	1,642	397	341,527	310,865	**652,392**	25,192	38·61	5,420	4,392	**9,812**
21	Allahabad ..	2,858	491	722,188	682,257	**1,404,445**	46,578	33·16	14,601	12,324	**26,925**
	JHANSI DIVISION.										
22	Jhansi	3,634	167	315,590	290,909	**606,499**	29,330	48·36	9,773	8,603	**18,376**
23	Jalaun	1,549	262	213,384	192,055	**405,439**	16,580	40·89	4,708	4,152	**8,860**
24	Hamirpur ..	2,435	191	237,103	228,220	**465,323**	19,960	42·89	6,862	5,902	**12,764**
25	Banda	2,822	208	300,930	287,106	**588,036**	21,524	36·60	6,227	5,176	**11,403**
	BENARES DIVISION.										
26	Benares	1,097	868	487,165	464,866	**952,031**	40,816	42·87	15,018	13,649	**28,667**
27	Mirzapur ..	5,233	138	361,635	362,548	**724,183**	30,473	42·08	8,927	7,919	**16,846**
28	Jaunpur	1,550	745	574,480	580,625	**1,155,105**	35,351	30·60	13,758	11,070	**24,828**
29	Ghazipur ..	1,303	600	399,163	382,407	**781,570**	27,489	35·17	10,827	10,072	**20,899**
30	Ballia	1,244	668	426,520	404,489	**831,009**	26,499	31·88	9,592	8,441	**18,033**
	GORAKHPUR DIVISION.										
31	Gorakhpur ..	4,528	721	1,658,592	1,608,238	**3,266,830**	1,13,310	34·68	34,980	30,366	**65,346**
32	Basti	2,802	687	984,741	940,487	**1,925,228**	61,643	32·02	22,665	20,776	**43,441**
33	Azamgarh ..	2,214	690	775,866	752,146	**1,528,012**	51,408	33·63	20,884	20,127	**41,011**
	KUMAUN DIVISION.										
34	Naini Tal ..	2,721	102	160,798	116,077	**276,875**	8,771	31·68	5,073	4,611	**9,684**
35	Almora	5,372	99	265,253	265,085	**530,338**	25,459	48·00	6,20	5,860	**12,062**
36	Garhwal	5,629	88	232,863	252,323	**485,186**	22,288	45·93	6,783	6,780	**13,563**
	LUCKNOW DIVISION.										
37	Lucknow ..	967	749	392,559	331,785	**724,344**	32,150	44·38	10,976	10,171	**21,147**
38	Unao	2,787	458	433,613	385,515	**819,128**	28,847	35·22	8,630	7,182	**15,812**
39	Rae Bareli ..	1,745	537	474,742	461,661	**936,403**	27,000	28·83	8,170	6,879	**15,049**
40	Sitapur	2,250	484	581,655	507,826	**1,089,481**	42,676	39·17	13,338	11,595	**24,933**
41	Hardoi	2,232	486	586,166	498,244	**1,084,410**	41,159	37·95	12,237	10,516	**22,753**
42	Kheri	2,976	307	485,177	428,298	**913,475**	33,932	37·14	13,505	11,746	**25,251**
	FYZABAD DIVISION.										
43	Fyzabad ..	1,731	677	588,888	583,687	**1,172,575**	38,687	32·99	16,128	14,719	**30,847**
44	Gonda	2,809	524	752,895	720,202	**1,473,098**	39,651	26·91	14,753	12,453	**27,206**
45	Bahraich ..	2,645	403	554,548	510,829	**1,065,377**	37,570	35·26	13,223	11,356	**24,579**
46	Sultanpur ..	1,713	586	494,593	509,319	**1,003,912**	32,808	32·68	13,045	11,321	**24,366**
47	Partabgarh ..	1,443	593	417,339	437,791	**855,130**	26,376	30·84	8,942	7,199	**16,141**
48	Bara Banki ..	1,759	585	536,896	493,058	**1,029,954**	34,170	33·17	13,004	11,612	**24,616**
	Total for the Province	107,167	423	23,787,745	21,588,042	**45,375,787**	1,735,159	38·24	578,600	517,136	**1,095,736**

NOTE.—Those born dead are not included in

ORM No. II,

f the United Provinces during the year 1928.

8	9											10			11
Number of males to every 100 deaths of females.	Deaths per 1,000 of population from—											Mean ratio of deaths per 1,000 during previous five years			
									All causes.						
	Cholera.	Small-pox.	Plague.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	Male.	Female.	Total.	Male.	Female.	Total.	Number.
115·69	·17	·27	·30	13·74	1·12	3·35	·40	3·18	20·02	26·38	22·54	19·95	25·55	22·17	1
99 41	·11	·01	6·37	24 38	·37	·78	·37	1·92	31·09	38·27	34 32	30·43	33·44	31·78	2
105·61	·01	·08	7·32	19·45	·20	·33	·40	·58	26·65	30·46	28 38	24·46	25·90	25·21	3
113·91	·06	·07	1·64	20·20	·11	·67	·27	·45	23·13	23 86	23·46	29·95	33 85	31·74	4
112·49	·34	·06	·11	22·12	·38	·79	·33	·83	25·04	24·85	24·95	34·01	38·02	36·09	5
109·23	·10	·05	..	18·05	·57	·82	·42	3·06	22·23	24·08	23·08	28·18	30·25	29·13	6
117·48	·12	·02	..	13·82	·55	1·41	·48	2.03	18·08	18·89	18·44	22·67	24·53	23·51	7
111·83	·26	·11	·01	16·94	·43	2·60	·64	3·45	23 45	25·04	24·44	26·47	28·46	27·37	8
128·79	·46	·04	..	15·87	·01	·04	·48	·86	18 16	17·29	17·77	25·93	24·04	25 08	9
122·15	·32	·03	·14	15 55	·25	·30	·42	1·66	18·98	18·33	18.68	23·80	22·86	23·36	10
107·19	·03	..	4·92	23·48	·18	1·20	·52	2·29	31·42	34·05	32·63	28·29	28·57	28·43	11
101·60	·05	·10	5·17	20·96	·50	·62	·50	5·49	31·98	34·99	33·40	32·01	31·57	31 83	12
103·17	·05	·01	6·06	20·52	·21	·27	·51	1·06	25·93	30·79	28·70	27·71	27·66	27·69	13
100·84	·03	..	5·55	23·41	·77	2·01	·46	1·51	31·77	35·98	33·74	31·20	32·84	31 98	14
110·35	1 02	..	2·60	24·21	·22	1·16	·54	4·40	33·22	35·29	34 17	30·55	30·85	30·69	15
109·54	·26	..	3·21	29·82	·29	1·15	·94	3·09	38·18	39·44	38·77	30 99	29·68	30 42	16
116·83	·32	..	·92	18·32	·30	1·10	·47	4·54	25·59	26·50	26 00	32·28	32·25	32·45	17
121·93	·76	·02	..	14·52	·18	·63	·46	5·06	21·56	21·72	21 63	25·32	25·30	25·34	18
115·19	·42	·03	·05	11·96	·33	2·57	·46	3·43	18 58	20·10	19 26	24·33	25·04	24·63	19
125·41	·03	..	·18	9·17	·12	·29	·59	4·64	15·87	14·13	15·04	19·02	17·51	18 31	20
118 48	·55	·14	·67	11·87	·23	1·01	·50	4·20	20·22	18 06	19 17	23·10	20·07	21·63	21
113·60	·30	·03	..	22·15	·33	1·01	·75	5·73	30·97	29·57	30 30	32·04	30·72	31 41	22
113·39	2·38	·01	..	13·89	·10	1·03	·41	4·03	22·06	21·62	21·85	25·64	23 66	24·69	23
116·26	3·28	..	..	15·86	·07	6·14	·64	1·44	28·94	25·86	27 43	33·01	29·71	31·39	24
120·30	1·68	·01	..	12 72	·04	·46	·53	3·93	20·69	18·02	19 39	26·31	22·54	25 47	25
110·03	1·68	·06	·17	18·18	1·06	1·99	·63	6·33	30·83	29·36	30·11	29·34	27·65	28·51	26
112·73	·87	·21	..	16·14	·19	·24	·60	5·00	24·68	21·84	23 26	28·05	23·92	25·98	27
124·28	2·18	·19	·34	14·11	·09	·08	·54	3·97	23·95	19·06	21 49	22·74	17·72	20·22	28
107·50	1·46	·26	7·09	14·12	·09	·13	·55	3 03	27·12	26·34	26·74	25·29	24·36	24·92	29
113·63	2·61	·12	1·91	12·66	·40	·17	·46	3·36	22·49	20·87	21·70	22·78	20·74	21·84	30
115·19	1·93	·06	1·52	13·78	·08	·10	·43	2·08	21·09	18·88	20·00	19·30	17·11	18·29	31
10[illegible]·09	1 90	·01	2·00	14·56	·05	·06	·29	3·69	23·02	22·09	22 56	23·34	22·05	22 71	32
103·76	1·04	·39	5 88	15·26	·15	·24	·55	3.32	26·92	26·76	26·84	28.50	27·27	27·86	33
110·02	·66	·01	2·48	27·89	·67	1·72	·45	1·09	31·55	39·72	34·98	28·14	32·67	29 79	34
105·84	·05	·08	·01	18·67	1·41	1·12	·35	1·05	23·38	22·11	22 74	24·55	24·27	24·45	35
100·04	·13	·09	·01	23·00	3·55	·50	·25	·41	29 13	26 87	27·95	28 18	25·86	27·06	36
107·91	·69	·25	·10	14 79	1·09	4·92	·45	6·90	27·96	30 65	29 19	25·91	27 15	26·41	37
120·16	·33	·01	1·07	14·53	·09	·36	·49	2 42	19·90	18·63	19 30	21·89	19·94	21·06	38
118·77	·81	·02	1·02	12·05	·05	·20	·45	1·47	17·21	14·90	16·07	20·02	15 82	17 23	39
115·03	·27	·02	1·27	18·22	·10	·10	·49	2·40	22·93	22·83	22 88	23·09	22·59	22·85	40
116·36	·20	·01	1·61	15·94	·12	·16	·51	2·41	20 88	21·11	20·98	23·12	22 11	22 72	41
114·97	·80	·01	1·68	22·26	·08	08	·46	2·28	27·83	27·42	27·64	23·64	22·02	22·96	42
109·57	3·12	·06	2·36	16·02	·25	·45	·42	3·63	27·39	25·22	26·31	23·80	21·60	22·80	43
118·47	2·30	..	·50	13·42	·03	·20	·40	1·61	19 59	17·29	18·47	15·61	13·64	14·75	44
116 44	·30	·01	·01	17·37	·06	·11	·44	4 76	23·84	22·23	23 07	21 06	19·32	20·36	45
115·23	3·51	·01	·01	16·57	·14	·19	·52	3 31	26·37	22·23	24 27	26·80	22·65	24 89	46
124·21	1 70	·10	·29	13·46	·04	·11	·43	2 74	21 43	16 44	18 87	22·62	18 12	20·53	47
111 99	1·35	·01	2·88	16·40	·11	·18	·52	2·44	24·22	23·55	23 90	22·66	20·83	21 89	48
111·88	·99	·07	1·78	16·88	·29	·75	·47	2·91	24·32	23·95	24·15	25·24	24·27	24 83	

this or any other statements.

Paragraph 17 of Section V.] ANNUAL

Deaths registered in the districts of the United

1	2					
Number.	District.	January.	February.	March.	April.	May.
	MEERUT DIVISION.					
1	Dehra Dun	280	288	308	381	534
2	Saharanpur	2,113	2,343	3,894	4,728	4,287
3	Muzaffarnagar	1,632	1,686	3,156	3,657	2,676
4	Meerut	2,654	2,350	2,894	3,778	4,215
5	Bulandshahr	1,862	1,770	1,816	2,429	2,702
	AGRA DIVISION.					
6	Aligarh	1,709	1,691	1,673	2,259	2,573
7	Muttra	1,009	854	795	1,094	1,209
8	Agra	1,655	1,567	1,597	2,299	2,704
9	Mainpuri	1,181	1,075	840	1,307	1,092
10	Etah	1,325	1,068	1,014	1,588	1,619
	ROHILKHAND DIVISION.					
11	Bareilly	3,216	3,283	3,834	4,414	2,880
12	Bijnor	1,817	1,883	2,774	3,122	2,788
13	Budaun	2,511	2,805	3,846	4,673	2,508
14	Moradabad	3,266	3,284	5,498	6,492	4,187
15	Shahjahanpur	1,890	2,046	2,356	2,888	2,636
16	Pilibhit	1,263	1,176	1,720	1,869	1,472
	ALLAHABAD DIVISION.					
17	Farrukhabad	1,614	1,538	1,753	2,610	2,393
18	Etawah	1,019	1,055	1,194	1,441	1,664
19	Cawnpore	1,465	1,342	1,537	1,969	2,140
20	Fatehpur..	671	686	633	884	702
21	Allahabad	2,050	1,991	2,012	2,165	2,264
	JHANSI DIVISION.					
22	Jhansi	1,194	1,065	1,195	1,323	1,816
23	Jalaun	486	463	393	636	912
24	Hamirpur	504	652	641	725	1,129
25	Banda	639	604	677	763	829
	BENARES DIVISION.					
26	Benares	1,697	1,587	2,000	2,872	2,844
27	Mirzapur..	1,150	847	1,198	1,205	1,529
28	Jaunpur	1,396	1,464	1,466	3,036	2,495
29	Ghazipur..	1,298	1,755	2,626	2,797	1,461
30	Ballia	1,061	1,159	1,390	1,207	1,106
	GORAKHPUR DIVISION.					
31	Gorakhpur	4,149	4,271	5,397	7,377	5,129
32	Basti	2,759	2,943	6,634	4,759	4,638
33	Azamgarh	2,649	3,775	5,152	4,806	3,334
	KUMAUN DIVISION.					
34	Naini Tal	732	853	933	825	896
35	Almora	606	642	678	781	1,584
36	Garhwal	776	769	818	928	1,815
	LUCKNOW DIVISION.					
37	Lucknow..	1,325	1,192	1,563	1,943	2,282
38	Unao	1,465	1,077	1,348	1,547	1,231
39	Rae Bareli	1,118	1,081	1,415	1,653	1,469
40	Sitapur	1,792	1,585	1,934	2,213	2,477
41	Hardoi	1,473	1,589	1,779	2,408	2,083
42	Kheri	1,462	1,622	1,614	2,652	2,988
	FYZABAD DIVISION.					
43	Fyzabad	1,888	2,060	2,301	2,949	3,543
44	Gonda	1,115	1,675	1,425	2,895	3,573
45	Bahraich..	1,570	1,556	1,416	2,236	2,149
46	Sultanpur	1,224	1,146	1,423	1,915	2,665
47	Partabgarh	884	923	1,022	1,499	1,457
48	Bara Banki	1,695	1,824	2,591	2,331	2,235
	Total for the Province ..	**74,309**	**75,960**	**93,153**	**116,328**	**108,914**
	Ratio of deaths per 1,000 of population.	**1·64**	**1·67**	**2·05**	**2·56**	**2·40**

FORM No. III.

Provinces during **each month** *of the year* 1928.

3							4	5
June.	July.	August.	September.	October.	November.	December	Total deaths registered during the year.	Number.
571	418	442	387	399	371	405	4,784	1
3,058	2,074	1,792	1,695	1,764	2,205	2,222	32,175	2
2,250	1,667	1,326	860	1,100	1,052	1,481	22,543	3
5,156	2,998	2,349	2,160	2,030	1,585	3,008	35,177	4
4,015	2,479	2,171	1,806	1,752	1,531	2,281	26,614	5
3,139	2,211	1,995	1,697	1,801	1,817	1,936	24,501	6
1,422	1,055	811	752	807	745	867	11,420	7
2,742	1,881	1,872	1,601	1,457	1,418	1,795	22,588	8
1,808	1,561	1,189	934	721	780	805	13,293	9
1,726	1,510	1,603	1,094	1,053	957	945	15,502	10
2,652	1,897	1,936	1,851	2,237	2,412	2,475	33,087	11
2,102	1,630	1,408	1,487	1,672	1,790	2,253	24,726	12
2,120	1,891	1,645	1,550	1,587	994	1,865	27,995	13
2,896	2,472	2,659	2,234	2,432	2,149	2,871	40,440	14
2,964	1,916	1,980	1,856	2,935	2,193	3,017	28,677	15
1,420	1,025	1,045	994	1,317	1,557	1,876	16,734	16
2,271	1,893	2,070	1,434	1,468	1,474	1,755	22,273	17
2,096	1,732	1,665	1,238	902	924	938	15,868	18
2,356	2,107	2,227	1,925	1,636	1,589	1,826	22,119	19
746	996	1,131	971	911	719	762	9,812	20
2,488	2,268	2,557	2,343	2,425	2,194	2,168	26,925	21
2,351	1,650	1,624	1,628	1,642	1,373	1,515	18,376	22
1,291	1,236	1,183	776	504	558	422	8,860	23
1,978	2,032	1,436	1,124	1,036	702	805	12,764	24
1,564	1,716	1,130	914	907	819	841	11,403	25
2,712	2,407	2,759	2,473	2,408	2,708	2,200	28,667	26
1,698	1,458	1,975	1,622	1,647	1,222	1,295	16,846	27
2,761	2,121	2,176	1,683	2,118	1,969	2,143	24,828	28
1,606	1,433	1,788	1,737	1,547	1,360	1,491	20,899	29
1,485	1,851	2,324	1,937	1,787	1,230	1,496	18,033	30
5,042	4,817	5,838	6,090	6,180	5,220	5,836	65,346	31
3,608	3,323	2,862	2,293	4,786	4,169	3,667	43,441	32
3,618	3,006	3,147	2,994	2,619	2,743	3,188	41,011	33
819	506	558	562	653	948	1,399	9,684	34
1,960	1,423	992	780	757	803	1,056	12,062	35
1,877	1,653	1,339	900	823	880	985	13,563	36
2,272	2,193	2,024	1,367	1,376	1,513	2,097	21,147	37
1,875	1,256	1,436	1,135	1,263	859	1,320	15,812	38
1,938	1,096	1,025	989	894	1,015	1,356	15,049	39
2,521	2,204	1,934	1,966	2,132	1,677	2,498	24,933	40
2,796	2,147	1,937	1,533	1,631	1,831	1,546	22,753	41
2,206	2,109	1,560	1,889	2,393	2,237	2,519	25,251	42
2,897	2,685	2,457	2,237	2,463	2,346	3,021	30,847	43
3,069	2,478	2,091	2,283	2,136	2,089	2,377	27,206	44
2,691	1,806	1,999	2,073	2,006	2,238	2,839	24,579	45
2,493	2,042	1,997	2,100	2,630	3,003	1,728	24,366	46
2,494	1,430	1,323	1,109	1,169	1,306	1,525	16,141	47
3,104	2,542	2,033	1,796	1,335	1,382	1,748	24,616	48
114,724	**92,301**	**88,820**	**78,859**	**83,248**	**78,656**	**90,464**	**1,095,736**	
2·53	**2·03**	**1·96**	**1·74**	**1·83**	**1·73**	**1·99**	**24·15**	

ANNUAL

Deaths registered **according to age** *in the districts*

1	2							
Number.	District.	Not exceeding one month.						Total.
		Male.			Female.			
		Under one week.	Over one week.	Total.	Under one week.	Over one week.	Total.	
	MEERUT DIVISION.							
1	Dehra Dun	177	97	274	159	79	238	512
2	Saharanpur	954	732	1,686	986	653	1,639	3,325
3	Muzaffarnagar ..	451	450	901	373	375	748	1,649
4	Meerut	890	844	1,734	812	676	1,488	3,222
5	Bulandshahr	843	645	1,488	696	564	1,260	2,748
	AGRA DIVISION.							
6	Aligarh	1,077	579	1,656	832	424	1,256	2,912
7	Muttra	298	257	555	276	188	464	1,019
8	Agra	859	643	1,502	730	524	1,254	2,756
9	Mainpuri	538	264	802	561	228	789	1,591
10	Etah	754	385	1,139	541	280	821	1,960
	ROHILKHAND DIVISION.							
11	Bareilly	1,412	568	1,980	1,191	487	1,678	3,658
12	Bijnor	1,066	508	1,574	907	445	1,352	2,926
13	Budaun	1,101	527	1,628	914	520	1,434	3,062
14	Moradabad	1,420	900	2,320	1,216	706	1,922	4,242
15	Shahjahanpur ...	1,292	527	1,819	1,141	441	1,582	3,401
16	Pilibhit	774	301	1,075	674	262	936	2,011
	ALLAHABAD DIVISION.							
17	Farrukhabad	1,532	450	1,982	1,269	336	1,605	3,587
18	Etawah	795	394	1,189	642	334	976	2,165
19	Cawnpore	912	470	1,382	718	392	1,110	2,492
20	Fatehpur	677	298	975	589	291	880	1,855
21	Allahabad	1,522	720	2,242	1,254	586	1,840	4,082
	JHANSI DIVISION.							
22	Jhansi	978	416	1,394	850	368	1,218	2,612
23	Jalaun	362	196	558	351	159	510	1,068
24	Hamirpur	591	264	855	459	232	691	1,546
25	Banda ...	498	274	772	399	219	618	1,390
	BENARES DIVISION.							
26	Benares	1,287	856	2,143	1,023	648	1,671	3,814
27	Mirzapur	1,019	488	1,507	883	339	1,222	2,729
28	Jaunpur	1,068	627	1,695	797	492	1,289	2,984
29	Ghazipur	981	313	1,294	746	252	998	2,292
30	Ballia	1,068	330	1,398	744	275	1,019	2,417
	GORAKHPUR DIVISION.							
31	Gorakhpur	2,260	1,577	3,837	1,694	1,239	2,933	6,770
32	Basti	687	2,021	2,708	563	1,730	2,293	5,001
33	Azamgarh	1,494	798	2,292	1,165	650	1,815	4,107
	KUMAUN DIVISION.							
34	Naini Tal	246	158	404	226	128	354	758
35	Almora	246	295	541	180	214	394	935
36	Garhwal	192	171	363	165	175	340	703
	LUCKNOW DIVISION.							
37	Lucknow	960	662	1,622	768	551	1,319	2,941
38	Unao	705	422	1,127	546	339	885	2,012
39	Rae Bareli	530	301	831	395	251	646	1,477
40	Sitapur	993	500	1,493	800	415	1,215	2,708
41	Hardoi	915	549	1,464	860	448	1,308	2,772
42	Kheri	853	396	1,249	679	304	983	2,232
	FYZABAD DIVISION.							
43	Fyzabad	1,253	715	1,968	947	578	1,525	3,493
44	Gonda	772	479	1,251	597	402	999	2,250
45	Bahraich	1,456	616	2,072	1,107	450	1,557	3,629
46	Sultanpur	1,152	534	1,686	915	421	1,336	3,022
47	Partabgarh	636	364	1,000	486	236	722	1,722
48	Bara Banki	981	419	1,400	726	297	1,023	2,423
	Total for the Province ..	43,527	25,300	68,827	35,552	20,603	56,155	124,982
	Population	...	...	...	...	...	...	...
	Ratio per 1,000 living ...	...	...	...	...	...	...	...

FORM No. IV.

of the United Provinces during the year 1928.

3									4	
Under one year.									1 and under 5 years.	
Over one month and not exceeding six months.			Over six months and not exceeding twelve months			Total.				
Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
232	192	424	117	103	220	623	533	1,156	350	326
1,292	1,148	2,440	1,360	1,147	2.507	4,338	3,934	8,272	2,540	2,316
1,052	890	1,942	942	729	1,671	2,895	2,367	5,262	1,872	1,611
2,084	1,763	3.847	1,955	1,499	3,454	5,773	4,750	10,523	3,434	2,805
1,616	1,391	3,007	1,339	1,142	2 481	4,443	3,793	8,236	3,098	2,495
1,210	1,027	2,237	1,043	885	1,928	3,909	3,168	7,077	3,018	2,670
460	412	872	366	296	662	1,381	1,172	2,553	1,062	810
1,297	1,043	2,340	828	686	1,514	3,627	2,983	6,610	2,117	1,883
565	440	1,005	335	284	619	1,702	1,513	3,215	1,012	665
682	519	1,201	532	465	997	2,353	1,805	4,158	1,560	1,238
1,489	1,355	2,844	1,147	1,012	2,159	4,616	4,045	8,661	3,695	3,235
1,042	937	1,979	1,106	954	2,060	3,722	3,243	6,965	2,746	2,657
1,133	1,000	2,133	1,137	954	2,091	3.898	3,388	7,286	2,635	2,306
1,842	1,729	3,571	1,648	1,475	3,123	5,810	5,126	10,936	4,011	3,808
1,105	1,058	2,163	1,367	1,216	2,583	4 291	3,856	8,147	3,234	2,963
690	564	1,254	555	502	1,057	2,320	2,002	4,322	1,956	1,971
865	710	1,575	978	810	1,788	3,825	3,125	6,950	2,416	2,026
878	686	1,564	592	454	1,046	2,659	2,116	4,775	1,209	1,014
1,136	894	2,030	919	792	1,711	3,437	2,796	6,233	2,152	1,803
468	376	844	349	236	585	1,792	1,492	3,284	619	515
1,162	906	2,068	945	798	1,743	4,349	3,544	7,893	2,163	1,898
1,025	896	1,921	742	725	1,467	3,161	2,839	6,000	1,826	1,714
408	358	766	352	294	646	1,318	1,162	2,480	607	510
553	484	1,037	611	454	1,065	2,019	1,629	3,648	1,222	1,055
473	394	867	352	254	606	1,597	1,266	2,863	818	765
1,313	1,036	2,349	890	655	1,545	4,346	3,362	7,708	2,168	2,252
764	612	1,376	467	350	817	2,738	2,184	4,922	1,484	1,587
934	689	1,623	623	416	1,039	3,252	2,394	5,646	1,969	1,805
537	374	911	374	284	658	2,205	1,656	3,861	1,498	1,491
393	292	685	217	178	395	2,008	1,489	3,497	1,328	1,254
2,497	1,674	4,171	1,267	893	2,160	7,601	5,500	13,101	5,862	5,234
1,388	1,254	2,642	889	691	1,580	4,985	4,238	9,223	4,518	4,197
1,295	1,058	2,353	626	509	1,135	4,213	3,382	7,595	3,217	3,324
369	342	711	326	306	632	1,099	1,002	2,101	779	815
728	670	1,398	556	560	1,116	1,825	1,624	3,449	1,396	1,312
664	616	1,280	576	549	1,125	1,603	1,505	3,108	1,865	1.780
1,060	928	1,988	998	929	1,927	3,680	3,176	6,856	2,352	2,075
626	514	1,140	535	463	998	2,288	1,862	4,150	1,407	1,249
533	446	979	374	290	664	1,738	1,382	3,120	1,359	1,106
1,051	875	1,926	1,023	891	1,914	3,567	2,981	6,548	3,644	3,080
931	801	1,732	925	721	1,646	3,320	2 830	6,150	2,617	2,231
733	592	1,325	842	692	1,534	2,824	2,267	5,091	4,151	3,605
993	825	1,818	781	589	1,370	3,742	2,939	6,681	3,018	2,969
884	771	1,655	854	646	1,500	2,989	2,416	5,405	3,616	3,218
953	779	1,732	667	566	1,233	3,692	2,902	6,594	2,781	2,725
742	564	1,306	756	663	1,419	3,184	2,563	5,747	2,451	2,423
759	543	1,302	607	465	1,072	2,366	1,730	4,096	1,473	1,278
763	604	1,367	848	662	1,510	3,011	2,289	5,300	2,937	2,605
45,669	38,031	83,700	37,638	31,134	68,772	152,134	125,320	277,454	109,262	98,674
...	...	...	...	...	...	714,286	674,414	1,388,700	2,023,596	2,098,014
...	...	...	...	...	...	212·99	185·82	199·79	53·99	47·03

Paragraph 18 of Section V.] ANNUAL

Deaths registered **according to age** *in the districts*

1	2	5		6		7		8	
Number.	District.	5 and under 10 years.		10 and under 15 years.		15 and under 20 years.		20 and under 30 years.	
		Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
	MEERUT DIVISION.								
1	Dehra Dun ...	83	91	78	90	79	141	247	265
2	Saharanpur ...	825	908	853	1,023	740	927	1,349	1,784
3	Muzaffarnagar ...	658	748	674	818	525	682	957	1,231
4	Meerut	769	634	618	596	540	506	1,176	1,409
5	Bulandshahr ...	491	382	344	253	282	360	844	1,119
	AGRA DIVISION.								
6	Aligarh ...	438	323	286	272	308	436	761	1,171
7	Muttra	220	183	180	162	202	241	515	615
8	Agra	433	384	315	314	356	482	848	1,147
9	Mainpuri ...	235	172	223	148	319	321	867	794
10	Etah	348	256	259	235	257	303	662	749
	ROHILKHAND DIVISION.								
11	Bareilly	807	795	676	712	646	798	1,280	1,561
12	Bijnor	614	560	510	540	424	623	831	1,103
13	Budaun	674	712	563	737	537	680	1,085	1,489
14	Moradabad ...	1,045	1,049	859	1,020	736	965	1,540	2,212
15	Shahjahanpur ...	658	615	514	453	425	437	878	931
16	Pilibhit	473	438	297	321	285	307	630	676
	ALLAHABAD DIVISION.								
17	Farrukhabad ...	392	308	342	291	247	361	685	985
18	Etawah	268	189	246	185	247	288	760	785
19	Cawnpore ...	338	310	267	310	296	455	820	1,034
20	Fatehpur ...	158	119	141	81	126	108	369	378
21	Allahabad ...	626	483	491	470	375	404	1,062	1,034
	JHANSI DIVISION.								
22	Jhansi	452	331	271	188	256	275	544	524
23	Jalaun	199	183	199	130	186	158	407	404
24	Hamirpur ...	273	232	209	164	189	137	497	418
25	Banda	305	287	211	176	223	150	522	447
	BENARES DIVISION.								
26	Benares	804	692	578	553	505	599	1,093	1,201
27	Mirzapur ...	448	395	346	243	212	205	756	708
28	Jaunpur	797	658	555	468	492	364	1,195	1,025
29	Ghazipur ...	749	906	685	736	358	384	954	985
30	Ballia	707	666	573	471	413	358	734	810
	GORAKHPUR DIVISION.								
31	Gorakhpur ..	2,266	1,914	1,508	1,455	1,158	1,131	3,077	3,103
32	Basti	1,559	1,374	1,048	914	715	608	1,618	1,681
33	Azamgarh ...	1,573	1,744	1,320	1,305	697	740	1,823	2,080
	KUMAUN DIVISION.								
34	Naini Tal ..	270	264	268	238	305	298	570	542
35	Almora	298	235	129	179	153	202	346	456
36	Garhwal	505	452	374	331	273	300	388	470
	LUCKNOW DIVISION.								
37	Lucknow ...	385	366	203	245	234	402	569	944
38	Unao	371	330	343	249	305	263	546	579
39	Rae Bareli ...	449	391	349	300	283	294	604	627
40	Sitapur	544	535	359	353	290	321	625	822
41	Hardoi	535	475	415	400	349	366	701	843
42	Kheri	699	584	379	335	317	366	796	935
	FYZABAD DIVISION.								
43	Fyzabad	965	879	695	659	494	548	1,113	1,237
44	Gonda	855	620	404	280	296	254	842	894
45	Bahraich ...	574	414	358	242	317	260	678	834
46	Sultanpur ...	631	571	375	277	341	245	856	912
47	Partabgarh ...	408	328	294	223	178	147	639	535
48	Bara Banki ...	640	638	441	470	389	386	836	1,071
	Total for the Province	28,814	26,123	21,625	20,615	17,880	19,596	41,495	47,559
	Population ...	3,351,783	3,039,972	2,898,415	2,196,894	2,038,900	1,609,368	3,999,332	3,789,266
	Ratio per 1,000 living	8·60	8·59	7·46	9·38	8·77	12·18	10·37	12·55

FORM No. IV.

of the United Provinces during the year 1928—(concluded).*

9		10		11		12		13		14
30 and under 40 years.		40 and under 50 years.		50 and under 60 years.		60 years and upwards.		Total.		
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Number.
216	211	228	154	262	131	400	276	2,566	2,218	1
1,270	1,459	1,058	991	994	943	2,073	1,850	16,040	16,135	2
867	928	834	694	789	685	1,508	1,200	11,579	10,964	3
1,128	1,213	1,118	1,002	1,217	1,031	2,959	2,499	18,732	16,445	4
818	888	803	700	947	874	2,019	1,661	14,089	12,525	5
751	904	695	640	827	691	1,798	1,435	12,791	11,710	6
502	477	526	369	502	405	1,079	817	6,169	5,251	7
830	816	854	642	895	616	1,650	1,396	11,925	10,663	8
839	664	787	500	764	507	735	526	7,483	5,810	9
623	558	625	470	738	550	1,099	814	8,524	6,970	10
1,246	1,271	1,283	984	1,109	901	1,760	1,667	17,118	15,969	11
803	942	709	667	780	727	1,322	1,203	12,461	12,265	12
1,045	1,128	1,081	886	1,052	864	1,646	1,589	14,216	13,779	13
1,335	1,529	1,223	1,155	1,404	1,219	2,342	2,052	20,305	20,135	14
928	998	1,167	798	1,262	950	1,687	1,632	15,044	13,633	15
680	609	640	460	637	474	830	728	8,748	7,936	16
719	829	906	630	1,078	691	1,391	1,026	12,001	10,272	17
767	667	822	654	850	590	890	662	8,718	7,150	18
801	823	915	679	1,005	741	1,809	1,328	11,840	10,279	19
412	377	496	412	523	352	784	558	5,420	4,392	20
1,226	972	1,212	894	1,260	996	1,837	1,629	14,601	12,324	21
676	522	820	518	715	541	1,052	1,151	9,773	8,603	22
411	422	468	384	452	333	461	466	4,708	4,152	23
536	454	615	488	530	494	772	831	6,862	5,902	24
640	496	656	475	581	471	674	643	6,227	5,176	25
1,010	966	1,022	794	1,074	847	2,418	2,383	15,018	13,649	26
683	615	751	617	618	486	891	879	8,927	7,919	27
1,288	1,029	1,295	904	1,157	947	1,758	1,476	13,758	11,070	28
937	941	965	812	897	689	1,579	1,472	10,827	10,072	29
818	742	724	550	643	488	1,644	1,603	9,592	8,441	30
3,195	2,935	2,851	2,242	2,974	2,508	4,488	4,344	34,980	30,366	31
1,701	1,815	1,666	1,281	1,704	1,469	3,151	3,199	22,665	20,776	32
1,851	1,913	1,865	1,632	1,715	1,402	2,610	2,605	20,884	20,127	33
542	453	495	355	408	303	337	341	5,073	4,611	34
314	359	328	308	377	338	1,036	847	6,202	5,860	35
332	425	367	349	375	374	701	794	6,783	6,780	36
609	659	614	458	722	473	1,608	1,373	10,976	10,171	37
642	591	707	506	821	562	1,200	991	8,630	7,182	38
688	641	735	524	812	601	1,153	1,013	8,170	6,879	39
798	761	822	596	872	652	1,817	1,494	13,338	11,595	40
857	805	913	681	893	665	1,637	1,220	12,237	10,516	41
921	921	944	681	809	600	1,665	1,452	13,505	11,746	42
1,210	1,228	1,182	928	1,215	1,061	2,494	2,271	16,128	14,719	43
1,066	1,011	1,143	825	1,146	808	2,396	2,127	14,753	12,453	44
831	812	937	606	938	717	2,117	1,844	13,223	11,356	45
998	879	927	687	1,148	800	2,134	1,964	13,045	11,321	46
741	595	794	561	832	705	1,217	1,097	8,942	7,199	47
870	979	822	652	869	719	2,189	1,803	13,001	11,612	48
42,971	42,232	43,410	33,795	44,192	34,991	76,817	68,231	578,600	517,156	
3,416,415	3,147,346	2,552,757	2,320,241	1,592,005	1,450,417	1,200,254	1,262,103	*23,787,745	†21,588,042	
12·58	13·42	17·00	14·56	27·76	24·12	64·00	54·06	24·32	23·95	

* Includes 2 persons of unspecified ages.

† " 4 " " " "

Paragraph 25 of Section V.]

ANNUAL

Deaths registered **according to classes and sexes**

1	2						
		Population					
		Muhammadans.			Hindus.		
Number.	District.	Male.	Female.	Total.	Male.	Female.	Total.
	Meerut Division.						
1	Dehra Dun	19,174	10,757	**29,931**	103,997	69,571	**173,568**
2	Saharanpur	167,821	140,585	**308,406**	335,801	272,231	**608,032**
3	Muzaffarnagar	122,061	104,270	**226,331**	295,836	242,406	**538,242**
4	Meerut	183,384	159,274	**342,658**	584,032	495,014	**1,079,046**
5	Bulandshahr	104,228	94,813	**199,041**	437,660	390,468	**828,128**
	Agra Division.						
6	Aligarh	71,812	60,550	**132,362**	484,713	409,054	**893 767**
7	Muttra	32,532	26,651	**59,183**	302,155	246,266	**548,421**
8	Agra	60,417	49,724	**110,141**	434,327	356,244	**790,571**
9	Mainpuri	21,096	18,190	**39,286**	380,613	309,805	**690,418**
10	Etah	46,750	40,161	**86,911**	389,634	329,142	**718,776**
	Rohilkhand Division.						
11	Bareilly	138,725	124,025	**262,750**	393,311	334,068	**727,379**
12	Bijnor	137,488	127,922	**265,410**	242,444	214,484	**456,928**
13	Budaun	88,126	77,902	**166,028**	429,587	360,795	**790,382**
14	Moradabad	228,916	207,132	**436,048**	395,270	339,146	**734,416**
15	Shahjahanpur	67,711	62,068	**129,779**	382,171	321,726	**703,897**
16	Pilibhit	40,711	38,338	**79,049**	186,295	162,274	**348,569**
	Allahabad Division.						
17	Farrukhabad	52,430	47,229	**99,659**	411,672	336,112	**747,784**
18	Etawah	22,911	20,088	**42,999**	377,097	305,602	**682,699**
19	Cawnpore	62,911	48,742	**111,653**	568,932	458,813	**1,027,745**
20	Fatehpur	38,316	37,507	**75,823**	301,761	272,144	**573,905**
21	Allahabad	92,807	86,170	**178,977**	624,241	592,678	**1,216,919**
	Jhansi Division.						
22	Jhansi	18,161	14,782	**32,943**	288,606	269,529	**558,135**
23	Jalaun	13,765	12,809	**26,574**	198,652	178,483	**377,135**
24	Hamirpur	14,719	15,138	**29,857**	221,745	212,190	**433,935**
25	Banda	17,386	17,292	**34,648**	283,040	269,340	**552,380**
	Benares Division.						
26	Benares	50,920	46,851	**97,771**	434,846	416,762	**851,608**
27	Mirzapur	21,967	21,277	**43,244**	338,498	339,998	**678,496**
28	Jaunpur	49,995	51,568	**101,563**	524,105	528,726	**1,052,831**
29	Ghazipur	34,557	37,735	**72,292**	364,288	344,369	**708,657**
30	Ballia	25,625	26,667	**52,292**	400,129	377,131	**777,260**
	Gorakhpur Division.						
31	Gorakhpur	168,843	161,798	**330,641**	1,487,976	1,445,011	**2,932,987**
32	Basti	167,210	158,583	**325,793**	817,286	781,720	**1,599,006**
33	Azamgarh	91,969	91,472	**183,441**	683,423	660,224	**1,343,647**
	Kumaun Division.						
34	Naini Tal	32,983	22,779	**55,762**	124,272	90,422	**214,694**
35	Almora ...	1,840	1,183	**3,023**	262,557	262,907	**525,464**
36	Garhwal	2,695	1,134	**3,829**	229,561	250,664	**480,225**
	Lucknow Division.						
37	Lucknow	81,140	70,580	**151,720**	305,608	257,928	**563,536**
38	Unao ...	36,895	33,496	**70 391**	396,139	351,542	**747,681**
39	Rae Bareli	41,810	41,944	**83,754**	432,678	419,514	**852,192**
40	Sitapur	86,271	78,632	**164,903**	494,684	428,597	**923,281**
41	Hardoi	62,736	55,759	**118,495**	521,518	440,805	**962,323**
42	Kheri	70,989	64,092	**135,081**	413,423	363,554	**776,977**
	Fyzabad Division.						
43	Fyzabad	63,925	63,863	**127,788**	523,546	519,338	**1,042,884**
44	Gonda	126,188	121,798	**247,986**	626,311	598,121	**1,224,432**
45	Bahraich	113,000	103,892	**216,892**	440,749	406,257	**847,006**
46	Sultanpur	55,769	60,622	**116,391**	438,688	448,533	**887,221**
47	Partabgarh	45,808	47,726	**93,534**	371,353	389,911	**761,264**
48	Bara Banki	90,688	87,311	**177,999**	445,584	405,191	**850,775**
	Total for the Province ...	3,388,151	3,092,881	**6,481,032**	20,130,814	18,274,810	**38,405,624**

FORM No. V.

in the districts of the United Provinces during the year 1928.

3									4
according to census of 1921.									
Christians.			Other classes.			Total.			
Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total	Number.
2,933	2,673	5,606	2,072	1,066	3,138	128,176	84,067	212,243	1
3,293	2,186	5,479	8,993	6,561	15,554	515,908	421,563	937,471	2
3,451	2,964	6,415	12,959	10,318	23,277	434,307	359,958	794,265	3
16,995	14,125	31,120	25,583	20,667	46,250	809,994	689,080	1,499,074	4
6,203	6,208	12,411	14,438	12,501	26,939	562,529	503,990	1,066,519	5
7,665	7,455	15,120	11,189	9,307	20,496	575,379	486,366	1,061,745	6
3,320	2,767	6,087	3,143	2,304	5,447	341,150	277,988	619,138	7
4,199	2,621	6,820	9,355	7,268	16,623	508,298	415,857	924,155	8
1,552	1,383	2,935	8,720	6,668	15,388	411,981	336,046	748,027	9
6,298	5,732	12,030	6,480	5,563	12,043	449,162	380,598	829,760	10
7,186	6,522	13,708	5,668	4,375	10,038	544,885	468,990	1,013,875	11
812	840	1,652	8,899	7,293	16,192	389,643	350,539	740,182	12
6,935	6,201	13,136	3,175	2,626	5,801	527,823	447,524	975,347	13
8,714	8,002	16,716	6,122	5,351	11,473	639,022	559,631	1,198,653	14
1,768	1,687	3,455	1,187	797	1,984	452,837	386,278	839,115	15
1,426	1,271	2,697	698	588	1,286	229,130	202,471	431,601	16
1,561	1,455	3,016	3,346	2,828	6,174	469,009	387,624	856,633	17
693	549	1,242	3,622	2,970	6,592	404,323	329,209	733,532	18
3,564	2,368	5,932	1,912	1,422	3,334	637,319	511,345	1,148,664	19
227	172	399	1,223	1,042	2,265	341,527	310,865	652,392	20
4,102	2,776	6,878	1,038	633	1,671	722,188	682,257	1,404,445	21
2,770	1,382	4,152	6,053	5,216	11,269	315,590	290,909	606,499	22
138	113	251	829	650	1,479	213,384	192,055	405,439	23
188	476	664	451	416	867	237,103	228,220	465,323	24
96	71	167	438	403	841	300,930	287,106	588,036	25
933	924	1,857	466	329	795	487,165	464,866	952,031	26
369	427	796	801	846	1,647	361,635	362,548	724,183	27
71	50	121	309	281	590	574,480	580,625	1,155,105	28
193	181	374	125	122	247	399,163	382,407	781,570	29
485	462	947	281	229	510	426,520	404,489	831,009	30
468	385	853	1,305	1,044	2,349	1,658,592	1,608,238	3,266,830	31
58	56	114	187	128	315	984,741	940,487	1,925,228	32
70	47	117	404	403	807	775,866	752,146	1,528,012	33
1,343	1,101	2,444	2,200	1,775	3,975	160,798	116,077	276,875	34
671	876	1,547	185	119	304	265,253	265,085	530,338	35
491	483	974	116	42	158	232,863	252,323	485,186	36
4,818	2,712	7,530	993	565	1,558	392,559	331,785	724,344	37
100	75	175	479	402	881	433,613	385,515	819,128	38
96	74	170	158	129	287	474,742	461,661	936,403	39
301	286	587	399	311	710	581,655	507,826	1,089,481	40
448	540	988	1,464	1,140	2,604	586,166	498,244	1,084,410	41
338	258	596	427	394	821	485,177	428,298	913,475	42
1,151	275	1,426	266	211	477	588,888	583,687	1,172,575	43
284	202	486	113	81	194	752,896	720,202	1,473,098	44
149	101	250	650	579	1,229	554,548	510,829	1,065,377	45
34	96	130	102	68	170	494,593	509,319	1,003,912	46
9	10	19	169	144	313	417,339	437,791	855,130	47
55	74	129	569	482	1,051	536,896	493,058	1,029,954	48
109,024	91,694	200,718	159,756	128,657	288,413	23,787,745	21,588,042	45,375,787	

Paragraph 25 of Section V·]

ANNUAL

Deaths registered **according to classes and sexes**

1	2						
Number.	District.	Muhammadans.			Hindus.		
		Male.	Female.	Total.	Male.	Female.	Total.
	MEERUT DIVISION.						
1	Dehra Dun	372	352	**724**	2,152	1,837	**3,989**
2	Saharanpur	5,775	6,066	**11,841**	10,224	10,037	**20,261**
3	Muzaffarnagar	3,424	3,304	**6,728**	8,034	7,532	**15,566**
4	Meerut	3,994	3,806	**7,800**	14,576	12,534	**27,110**
5	Bulandshahr	2,502	2,387	**4,889**	11,516	10,066	**21,582**
	AGRA DIVISION.						
6	Aligarh	1 658	1,739	**3,397**	11,123	9,957	**21,080**
7	Muttra	525	504	**1,029**	5,632	4,739	**10,371**
8	Agra	1,477	1,442	**2,919**	10,427	9,195	**19,622**
9	Mainpuri	286	274	**560**	7,190	5,534	**12,724**
10	Etah	861	812	**1,673**	7,638	6,154	**13,792**
	ROHILKHAND DIVISION.						
11	Bareilly	4,307	4,203	**8,510**	12,749	11,685	**24,447**
12	Bijnor	4,431	4,672	**9,103**	7,936	7,451	**15,387**
13	Budaun	2,598	2,782	**5,380**	11,571	10,961	**22,532**
14	Moradabad	7,824	8,239	**16,063**	12,367	11,790	**24,157**
15	Shahjahanpur	2,300	2,357	**4,657**	12,724	11,267	**23,991**
16	Pilibhit	1,671	1,631	**3,302**	6,989	6 ,219	**13,208**
	ALLAHABAD DIVISION.						
17	Farrukhabad	1,269	1,204	**2,473**	10,699	9,048	**19,747**
18	Etawah	594	582	**1,176**	8,122	6,566	**14,688**
19	Cawnpore	1,473	1,534	**3,007**	10,358	8,737	**19,095**
20	Fatehpur	682	590	**1,222**	4,785	3,799	**8,584**
21	Allahabad	1,825	1,874	**3,699**	12,730	10,426	**23,156**
	JHANSI DIVISION.						
22	Jhansi	487	476	**963**	9,178	8,006	**17,184**
23	Jalaun	310	290	**600**	4,398	3,862	**8,260**
24	Hamirpur	438	372	**810**	6,422	5,529	**11,951**
25	Banda	371	310	**681**	5,855	4,864	**10,719**
	BENARES DIVISION.						
26	Benares	1,680	1,851	**3,531**	13,315	11,781	**25,096**
27	Mirzapur	470	441	**911**	8,454	7,475	**15,929**
28	Jaunpur	1,020	921	**1,941**	12,737	10,145	**22,882**
29	Ghazipur	1,033	1,109	**2,142**	9,785	8,961	**18,746**
30	Ballia	626	704	**1,330**	8,946	7,728	**16,674**
	GORAKHPUR DIVISION.						
31	Gorakhpur	3,269	2,942	**6,211**	31,693	27,403	**59,096**
32	Basti	3,150	2,872	**6,022**	19,513	17,903	**37,416**
33	Azamgarh	2,605	2,789	**5,394**	18,277	17,337	**35,614**
	KUMAUN DIVISION.						
34	Naini Tal	1,469	1,342	**2,811**	3,574	3,230	**6,804**
35	Almora	49	37	**86**	6,132	5,801	**11,933**
36	Garhwal	26	24	**50**	6,745	6,752	**13,497**
	LUCKNOW DIVISION.						
37	Lucknow	2,293	2,534	**4,827**	8,603	7,561	**16,164**
38	Unao	903	785	**1,688**	7,724	6,393	**14,117**
39	Rae Bareli	730	690	**1,420**	7,439	6,185	**13,624**
40	Sitapur	2 019	1,988	**4,007**	11,315	9,595	**20,910**
41	Hardoi	1,389	1,420	**2,809**	10,841	9,088	**19,929**
42	Kheri	1,825	1,722	**3,547**	11,645	10,002	**21,647**
	FYZABAD DIVISION.						
43	Fyzabad	1,462	1,432	**2,894**	14,660	13,281	**27,941**
44	Gonda	2,196	1,987	**4,183**	12,545	10,460	**23,005**
45	Bahraich	2 319	2,104	**4,423**	10,895	9,240	**20,135**
46	Sultanpur	1,267	1,208	**2,475**	11,778	10,113	**21,891**
47	Partabgarh	866	743	**1,609**	8,074	6,453	**14,527**
48	Bara Banki	2,159	2,203	**4,362**	10,830	9,397	**20,227**
	Total for the Province ...	86,229	85,650	**171,879**	490,915	430,079	**920,994**

FORM No. V.

in the districts of the United Provinces during the year 1928—(continued).

5									6
Number of deaths registered.									
Christians.			Other classes.			Total.			
Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Number.
40	28	68	2	1	3	2,566	2,218	4,784	1
11	14	25	30	18	48	16,040	16,135	32,175	2
4	1	5	117	127	244	11,579	10,964	22,543	3
17	14	31	145	91	236	18,732	16,445	35,177	4
19	11	30	52	61	113	14,089	12,525	26,614	5
5	7	12	5	7	12	12,791	11,710	24,501	6
5	6	11	7	2	9	6,169	5,251	11,420	7
13	13	26	8	13	21	11,925	10,663	22,588	8
...	1	1	7	1	8	7,483	5,810	13,293	9
7	2	9	18	10	28	8,524	6,978	15,502	10
34	48	82	28	38	61	17,118	15,969	33,087	11
5	2	7	89	140	229	12,461	12,265	24,726	12
13	12	25	34	24	58	14,216	13,779	27,995	13
58	55	113	56	51	107	20,305	20,135	40,440	14
17	9	26	3	...	3	15,044	13,633	28,677	15
8	5	13	80	131	211	8,748	7,986	16,734	16
12	3	15	21	17	38	12,001	10,272	22,273	17
1	2	3	1	...	1	8,718	7,150	15,868	18
9	8	17	...	...	...	11,840	10,279	22,119	19
...	...	...	3	3	6	5,420	4,392	9,812	20
43	24	67	3	...	3	14,601	12,324	26,925	21
17	9	26	91	112	203	9,773	8,603	18,376	22
...	...	...	...	...	...	4,708	4,152	8,860	23
2	1	3	...	...	...	6,862	5,902	12,764	24
1	2	3	...	...	...	6,227	5,176	11,403	25
17	12	29	6	5	11	15,018	13,649	28,667	26
3	3	6	...	...	...	8,927	7,919	16,846	27
...	2	2	1	2	3	13,758	11,070	24,828	28
3	1	4	6	1	7	10,827	10,072	2,0899	29
4	4	8	16	5	21	9,592	8,441	18,033	30
5	9	14	13	12	25	34,980	30,366	65,346	31
1	...	1	1	1	2	22,665	20,776	43,441	32
1	...	1	1	1	2	20,884	20,127	41,011	33
18	18	36	12	21	33	5,073	4,611	9,684	34
19	21	40	2	1	3	6,202	5,860	12,062	35
5	2	7	7	2	9	6,783	6,780	13,563	36
56	43	99	24	33	57	10,976	10,171	21,147	37
...	2	2	3	2	5	8,630	7,182	15,812	38
...	2	2	1	2	3	8,170	6,879	15,049	39
...	4	4	4	8	12	13,338	11,595	24,933	40
1	4	5	6	4	10	12,237	10,516	22,753	41
11	7	18	24	15	39	13,505	11,746	25,251	42
1	1	2	5	5	10	16,128	14,719	30,847	43
1	2	3	11	4	15	14,753	12,453	27,206	44
2	...	2	7	12	19	13,223	11,356	24,579	45
...	...	...	...	...	...	13,045	11,321	24,366	46
1	1	2	1	2	3	8,942	7,199	16,141	47
5	2	7	10	10	20	13,004	11,612	24,616	48
495	417	912	961	990	1,951	578,600	517,136	1,095,736	

Paragraph 25 of Section V.]

ANNUAL

Deaths registered **according to classes and sexes**

1	2						
Number.	District.	Muhammadans.			Hindus.		
		Male.	Female.	Total.	Male.	Female.	Total.
	MEERUT DIVISION.						
1	Dehra Dun	19·41	31·72	**24·18**	20·60	26·40	**22·98**
2	Saharanpur	34·41	43·15	**38·39**	30·44	36·83	**33·32**
3	Muzaffarnagar	28·05	31·68	**29·72**	27·15	31·07	**28·92**
4	Meerut ...	21·77	23·89	**22·76**	24·96	25·32	**25·12**
5	Bulandshahr	24·00	25·17	**24·56**	26·31	25·77	**26·06**
	AGRA DIVISION.						
6	Aligarh	23·08	28·72	**25·66**	22·95	24·34	**23·59**
7	Muttra	16·14	18·91	**17·39**	18·64	19·24	**18·91**
8	Agra	24·45	29·00	**26·50**	24·07	25·80	**24·82**
9	Mainpuri	13·56	15·06	**14·25**	18·89	17·86	**18·42**
10	Etah	18·42	20·22	**19·25**	19·60	18·70	**19·19**
	ROHILKHAND DIVISION.						
11	Bareilly	31·05	33·89	**32·39**	32·41	34·98	**33·59**
12	Bijnor	32·22	36·52	**34·29**	38·73	34·74	**33·67**
13	Budaun	29·48	35·71	**32·40**	26·93	30·38	**28·51**
14	Moradabad	34·17	39·78	**36·84**	31·29	34·76	**32·89**
15	Shahjahanpur	33·97	37·97	**35·88**	33·29	35·33	**34·08**
16	Pilibhit	41·05	42·54	**41·77**	37·51	38·32	**37·89**
	ALLAHABAD DIVISION.						
17	Farrukhabad	24·20	25·49	**24·81**	25·99	26·92	**26·41**
18	Etawah	25·93	28·97	**27·35**	21·54	21·48	**21·51**
19	Cawnpore	23·41	31·48	**26·93**	18·21	19·05	**18·57**
20	Fatehpur	16·49	15·73	**16·12**	15·83	13·96	**14·96**
21	Allahabad	19·66	21·74	**20·67**	20·39	17·59	**19·03**
	JHANSI DIVISION.						
22	Jhansi	26·82	32·20	**29·23**	31·80	22·28	**30·79**
23	Jalaun	22·52	22·64	**22·58**	22·14	21·64	**21·90**
24	Hamirpur	29·75	24·57	**27·13**	28·14	26·06	**27·54**
25	Banda	21·35	17·93	**19·65**	20·07	18·05	**19·40**
	BENARES DIVISION.						
26	Benares	32·80	39·51	**36·11**	30·62	28·27	**29·47**
27	Mirzapur	21·39	20·73	**21·06**	24·98	22·98	**22·06**
28	Jaunpur	20·40	17·86	**19·11**	24·30	19·19	**21·73**
29	Ghazipur	29·89	29·39	**29·63**	26·87	26·02	**26·45**
30	Ballia	24·43	26·40	**25·43**	22·36	20·50	**21·45**
	GORAKHPUR DIVISION.						
31	Gorakhpur	19·36	18·18	**18·78**	21·30	18·96	**20·15**
32	Basti	18·84	18·11	**18·48**	23·87	22·90	**23·40**
33	Azamgarh	28·32	29·99	**29·35**	26·74	26·25	**26·50**
	KUMAUN DIVISION.						
34	Naini Tal	44·54	58·91	**50·41**	28·76	35·72	**31·69**
35	Almora	26·63	31·28	**28·45**	23·35	22·06	**22·71**
36	Garhwal	9·65	21·16	**13·06**	29·38	26·94	**28·10**
	LUCKNOW DIVISION.						
37	Lucknow	28·26	35·90	**31·81**	28·81	29·32	**28·68**
38	Unao	24·47	23·44	**23·98**	19·50	18·18	**18·88**
39	Rae Bareli	17·46	16·45	**16·95**	17·19	14·74	**15·99**
40	Sitapur	23·40	25·28	**24·29**	22·87	22·39	**22·65**
41	Hardoi	22·14	25·47	**23·71**	20·79	20·62	**2·70**
42	Kheri	25·71	26·87	**26·26**	28·31	27·51	**27·86**
	FYZABAD DIVISION.						
43	Fyzabad	22·87	22·42	**22·65**	28·00	25·57	**26·79**
44	Gonda	17·40	16·31	**16·87**	20·02	17·49	**18·78**
45	Bahraich	20·52	20·25	**20·39**	24·72	22·74	**23·77**
46	Sultanpur	22·72	19·93	**21·26**	26·84	22·55	**24·67**
47	Partabgarh	18·90	15·56	**17·20**	21·74	16·55	**19·03**
48	Bara Banki	23·81	25·23	**24·50**	24·30	23·19	**23·78**
	Total for the Province ...	25·45	27·69	**26·52**	24·39	23·53	**23·99**

FORM No. V.

in the districts of the United Provinces during the year 1928—(concluded).

7									8
Ratio of deaths per 1,000 of population.									
Christians.			Other classes.			Total.			
Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Number.
17·05	1·47	12·13	·96	·94	·96	20·02	26·38	22·54	1
3·34	6·40	4·74	3·33	2·74	3·08	31·09	38·27	34·32	2
1·16	·83	·77	9·02	12·30	10·48	26·66	30·46	28·38	3
1·00	·99	1·00	5·66	4·40	5·10	23·13	23·86	23·46	4
3·06	1·77	2·42	3·60	4·88	4·19	25·04	24·85	24·95	5
·65	·94	·79	·45	·75	·58	22·23	24·08	23·08	6
1·51	2·17	1·81	2·23	·87	1·65	18·08	18·89	18·44	7
3·09	4·96	3·81	·85	1·78	1·26	23·46	25·64	24·44	8
...	·72	·34	·80	·15	·52	18·16	17·29	17·77	9
1·11	·35	·75	2·78	1·80	2·32	18·98	18·33	18·68	10
4·73	7·36	5·98	4·94	7·54	6·08	31·42	34·05	32·63	11
6·15	2·38	4·23	1·00	19·19	14·14	31·98	34·99	33·40	12
1·87	1·93	1·90	10·71	9·14	10·00	26·93	30·79	28·70	13
6·65	6·87	6·76	9·15	9·53	9·33	31·77	35·98	33·74	14
9·64	5·33	7·53	2·52	..	1·51	33·22	35·29	34·17	15
5·61	3·93	4·82	114·61	222·79	164·07	38·18	39·44	38·77	16
7·69	2·06	4·97	6·28	6·01	6·15	25·59	26·50	26·00	17
1·44	3·64	2·41	·27	...	·16	21·56	21·72	21·63	18
2·52	3·38	2·86	...	...	..	18·58	20·10	19·26	19
...	...	...	2·45	2·88	2·65	15·87	14·13	15·04	20
10·48	8·69	9·74	2·89	...	1·79	20·22	18·06	19·17	21
6·14	6·51	6·26	15·03	21·47	18·01	30·83	29·57	30·30	22
...	...	...	...	...	...	22·06	21·62	21·85	23
10·63	2·10	4·52	...	...	...	28·94	25·86	27·43	24
10·42	28·17	17·94	...	...	...	20·69	18·02	19·39	25
18·22	12·99	15·61	13·00	15·20	13·84	30·83	29·36	30·11	26
8·13	7·02	7·54	...	...	...	24·68	21·84	23·26	27
...	40·00	16·53	8·24	7·12	5·08	23·95	19·06	21·49	28
15·54	55·25	10·69	48·00	8·19	28·34	27·12	26·34	26·74	29
8·25	8·66	8·45	56·94	21·83	41 18	22·49	20·87	21·70	30
10·68	25·97	16·41	9·96	11·49	10·64	21·09	18·88	20·00	31
17·24	...	8·77	5·35	7·81	6·35	23·02	22·09	22·56	32
14·28	...	8·54	2·47	2·48	2·48	26·92	26·76	26·84	33
13·40	16·35	14·73	5·45	11·83	8·30	31·55	39·72	34·98	34
28·31	23·97	25·85	1·81	8·40	9·86	23·38	22·11	22·74	35
10·18	4·14	7·18	60·34	47·62	56·96	29·13	26·87	27·95	36
3·94	3·31	3·71	24·17	58·41	36·57	27·95	30·65	29·19	37
...	26·67	11·43	6·26	4·97	5·67	19·90	18·63	19·30	38
...	27·16	11·76	6·33	15·50	10·45	17·21	14·90	16·07	39
...	13·99	6·81	10·03	25·72	16·90	22·93	22·83	22·88	40
2·23	7·41	5·06	4·10	3·51	3·84	20·88	21·11	20·98	41
32·54	27·13	3·20	56·20	38·07	47·50	27·83	27·42	27·64	42
·87	3·64	1·40	18·79	23·69	2·96	27·39	25·22	26·31	43
8·52	9·90	6·17	97·34	49·38	77·31	19·59	17·29	18·47	44
13·42	...	8·00	10·77	20·72	15·46	23·84	22·23	23·07	45
..	...	...	...	..	...	26·37	22·23	24·27	46
111·11	100·00	105·26	5·92	13·89	9·58	21·43	16·44	18·87	47
90·91	27·03	54·27	17·57	20·75	19·03	24·22	23·55	23·90	48
4·54	4·55	4·54	6·01	7·69	6·76	24·32	23·95	24·15	

Paragraphs 26 of Section V and 4, 6, 11, 13, 18 and 20–22 of Section VI.]

ANNUAL

Deaths from **different causes** *and births registered in the* **towns** *such towns) of the United*

1	2	3	4				5	6	7
			Births.						
Number.	Districts and towns.	Population according to census of 1921.	Male.	Female.	Total.	Birth-rate per 1,000 of population.	Cholera.	Small-pox.	Plague.
	A.—Rural districts.								
	MEERUT DIVISION.								
1	Dehra Dun ...	**170,446**	2,520	2,276	**4,796**	28·14	26	4	1
2	Saharanpur ...	**802,435**	19,834	17,343	**37,177**	46·33	15	10	5,655
3	Muzaffarnagar ...	**743,280**	16,988	15,027	**32,015**	43·07	6	56	5,587
4	Meerut	**1,388,632**	31,708	27,430	**59,138**	42·59	95	31	2,430
5	Bulandshahr ...	**994,155**	23,889	21,159	**45,048**	45·31	335	63	117
	AGRA DIVISION.								
6	Aligarh	**943,001**	22,977	20,528	**43,505**	46·13	56	42	...
7	Muttra	**555,782**	10,811	9,492	**20,303**	36·53	5	1	1
8	Agra	**740,222**	16,684	14,334	**31,018**	41·90	156	27	5
9	Mainpuri ..	**723,301**	12,953	10,830	**23,783**	32·88	297	33	...
10	Etah	**797,813**	16,150	14,349	**30,499**	38·23	245	25	118
	ROHILKHAND DIVISION.								
11	Bareilly	**881,568**	22,166	19,984	**42,150**	47·81	9	2	3,631
12	Bijnor	**645,057**	17,261	15,205	**32,466**	50·33	20	17	3,276
13	Budaun	**909,071**	21,070	19,251	**40,321**	44·35	46	9	5,436
14	Moradabad ...	**1,008,785**	25,771	23,340	**49,111**	48·68	12	...	4,906
15	Shahjahanpur ...	**753,749**	18,097	16,450	**34,547**	45·83	824	2	1,126
16	Pilibhit ...	**399,257**	9,492	8,483	**17,975**	45·02	92	1	727
	ALLAHABAD DIVISION.								
17	Farrukhabad ...	**790,044**	16,918	15,098	**32,016**	40·52	250	4	783
18	Etawah	**691,974**	13,759	12,041	**25,800**	37·28	491	15	..
19	Cawnpore ...	**953 579**	15,722	13,539	**29,261**	30·68	410	1	59
20	Fatehpur ...	**637,444**	13,005	11,377	**24,382**	38·25	17	2	121
21	Allahabad ...	**1,258,840**	20,818	18,585	**39,403**	31·30	712	130	937
	JHANSI DIVISION.								
22	Jhansi	**531,078**	13,139	11,675	**24,814**	46·72	178	5	...
23	Jalaun	**380,899**	7,971	7,306	**15,277**	40·11	881	3	1
24	Hamirpur ...	**453,675**	10,231	9,138	**19,369**	42·69	1,506	...	1
25	Banda	**568,007**	11,141	9,820	**20,961**	36·90	943	8	...
	BENARES DIVISION.								
26	Benares	**756,658**	15,751	14,334	**30,085**	39·76	1,312	51	154
27	Mirzapur ...	**669,189**	14,297	13,258	**27,555**	41·18	573	151	..
28	Jaunpur ...	**1,122,536**	18,485	15,929	**34,414**	30·66	2,427	175	390
29	Ghazipur ...	**746,626**	13,935	12,638	**26,573**	35·59	1,119	205	5,287
30	Ballia	**812,794**	14,011	12,034	**26,045**	32·04	2,133	102	1,586
	GORAKHPUR DIVISION.								
31	Gorakhpur ..	**3,203,835**	57,575	52,529	**110,104**	34·37	6,138	202	4,944
32	Basti	**1,907,537**	32,293	28,952	**61,245**	32·11	3,650	24	3,797
33	Azamgarh ...	**1,482,726**	25,861	23,653	**49,514**	33·39	1,523	572	8,675
	KUMAUN DIVISION.								
34	Naini Tal ...	**255,907**	4,224	3,825	**8,049**	31·45	175	2	632
35	Almora	**530,338**	13,003	12,456	**25,459**	48·00	26	43	6
36	Garhwal	**485,186**	11,278	11,010	**22,288**	45·94	65	43	7
	LUCKNOW DIVISION.								
37	Lucknow ...	**507,177**	10,929	9,951	**20,880**	41·17	365	15	57
38	Unao ..	**807,981**	15,194	13,185	**28,379**	35·12	268	3	875
39	Rae Bareli ...	**920,220**	14,210	12,032	**26,242**	28·52	754	18	948
40	Sitapur	**1,048,342**	21,515	19,151	**40,666**	38·79	293	5	978
41	Hardoi	**1,037,228**	20,388	18,736	**39,124**	37·72	137	14	1,078
42	Kheri	**901,079**	17,862	15,785	**33,647**	34·34	729	5	1,248
	FYZABAD DIVISION.								
43	Fyzabad	**1,102,975**	19,355	16,891	**36,246**	32·86	3,549	63	2,756
44	Gonda	**1,443,739**	20,839	17,683	**38,522**	26·68	3,393	6	737
45	Bahraich ...	**1,027,082**	19,093	16,793	**35,886**	34·94	317	5	...
46	Sultanpur ...	**1,003,912**	17,527	15,281	**32,808**	32·68	3,520	10	15
47	Partabgarh ...	**855,130**	14,218	12,158	**26,376**	30·84	1,453	84	252
48	Bara Banki ...	**1,007,258**	17,911	15,373	**33,284**	33·04	1,355	8	2,917
	Total of Rural districts	**42,357,549**	840,829	747,697	**1,588,526**	37·50	42,901	2,297	72,257

FORM NO. VI.

(having a population of 10,000 *and upwards) and* **Districts** *(exclusive of Provinces during the year* 1928.

8	9	10	11						12	13	14
			Injuries.								
			Suicide.								
Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Male.	Female.	Wounds or accidents.	Snake-bite or killed by wild beasts.	Rabies.	Totas.	All other causes.	Total deaths from all causes.	Number.
2,614	155	196	5	1	48	11	...	**65**	288	**3,349**	1
19,392	38	174	7	21	224	23	1	**276**	336	**25,896**	2
14,426	108	136	13	29	242	12	4	**300**	278	**20,897**	3
29,008	50	301	24	56	238	28	4	**350**	373	**32,638**	4
22,409	230	263	15	21	206	50	15	**307**	525	**24,249**	5
17,069	114	144	26	53	227	30	11	**347**	2,280	**20,052**	6
7,512	125	141	7	19	139	43	8	**216**	653	**8,654**	7
12,708	30	100	18	64	216	57	19	**374**	1,668	**15,068**	8
11,626	5	19	17	49	221	71	1	**359**	625	**12,964**	9
12,248	151	187	24	44	214	49	3	**334**	1,256	**14,564**	10
22,673	47	167	6	18	254	193	9	**480**	1,396	**28,405**	11
14,187	133	182	9	13	157	113	2	**294**	3,162	**21,271**	12
18,714	67	63	19	48	241	145	1	**454**	403	**25,192**	13
24,878	240	317	6	12	200	186	8	**412**	460	**31,225**	14
19,301	28	72	23	39	169	163	11	**405**	3,010	**24,768**	15
12,078	38	51	3	5	118	205	64	**395**	1,191	**14,573**	16
15,184	33	97	20	43	235	55	2	**355**	3,157	**19,863**	17
9,893	30	63	11	29	203	59	5	**307**	2,969	**13,768**	18
10,288	20	48	12	20	297	117	22	**468**	1,953	**13,247**	19
5,705	49	135	6	15	241	99	3	**364**	2,927	**9,320**	20
15,353	68	199	10	28	403	196	26	**663**	4,304	**22,366**	21
11,536	82	192	27	75	181	93	5	**381**	2 630	**15,004**	22
5,251	11	100	9	26	64	54	3	**156**	1,560	**7,963**	23
7,124	31	2,802	19	58	146	64	1	**288**	647	**12,399**	24
7,309	15	215	7	25	143	124	2	**301**	2,211	**11,002**	25
11,868	36	87	6	14	235	89	3	**347**	3,874	**17,729**	26
10,825	53	57	13	12	262	114	1	**402**	3,318	**15,379**	27
15,892	72	35	14	37	379	173	2	**605**	4,591	**24,097**	28
10,747	47	57	4	13	297	90	2	**406**	2,295	**20,163**	29
10,440	310	139	3	11	263	99	3	**379**	2,674	**17,763**	30
43,752	223	189	7	46	915	369	28	**1,365**	6,335	**63,148**	31
27,838	92	88	6	11	397	125	6	**545**	6,979	**43,013**	32
22,951	169	146	13	50	555	184	8	**810**	4,768	**39,614**	33
7,538	105	153	4	5	59	49	2	**119**	176	**8,900**	34
9,902	747	592	5	26	122	33	...	**186**	560	**12,062**	35
11,162	1,722	241	6	11	88	14	5	**124**	199	**13,563**	36
8,600	91	225	3	5	152	26	10	**196**	1,684	**11,233**	37
11,709	66	286	10	25	309	47	7	**398**	1,896	**15,501**	38
10,948	28	62	17	21	311	59	6	**414**	1,336	**14,508**	39
19,130	42	67	27	32	336	99	4	**498**	2,249	**23,262**	40
16,454	50	85	43	65	335	85	3	**531**	2,305	**20,654**	41
20,183	58	61	22	32	255	100	9	**418**	2,058	**24,760**	42
17,854	68	91	4	14	294	106	7	**425**	3,789	**28,595**	43
19,234	37	138	8	14	328	201	9	**560**	2,197	**26,302**	44
17,729	32	48	5	6	264	144	20	**439**	4,830	**23,400**	45
16,631	146	195	10	26	375	94	17	**522**	3,327	**24,366**	46
11,513	33	94	12	34	266	53	1	**366**	2,346	**16,141**	47
16,615	80	87	17	16	383	103	6	**525**	2,377	**23,964**	48
718,001	6,205	9,587	602	1,337	12,207	4,696	389	**19,231**	106,335	**976,814**	

Paragraphs 26 of Section V and 4, 6, 11, 13, 18 and 20—22 of Section VI.]

ANNUAL FORM NO. VI.

Deaths (from ***different causes*** *and births registered in the* ***towns*** *having a population of 10,000 and upwards) and* ***Districts*** *(exclusive of such towns) of the United Provinces during the year 1928*—(contd.).

1	2	3	14									
			Ratio of deaths per 1,000 of population.									
Number.	Districts and towns.	Population according to census of 1921.	Cholera.	Small-pox.	Plague.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	From all causes. For the year.	From all causes. Mean ratio of previous five years.
	A.—Rural Districts—(concld.).											
	MEERUT DIVISION.											
1	Dehra Dun ...	170,446	·15	·02	...	15·34	·91	1·15	·38	1·69	19·65	21·83
2	Saharanpur ...	802,435	·02	·01	7·05	24·16	·05	22	·34	·42	32·27	29·84
3	Muzaffarnagar ...	743,280	·01	·07	7·52	19·41	·14	·18	·40	·37	28·11	24·62
4	Meerut	1,388,632	·07	·02	1·75	20·89	·03	·22	25	·27	23·50	31·79
5	Bulandshahr ...	994,155	·34	·06	·12	22·54	·23	26	·31	·53	24·39	35·28
	AGRA DIVISION.											
6	Aligarh	943,001	·06	·04	...	18·10	·12	·15	·37	2·42	21·26	27·02
7	Muttra	555,782	·01	..	...	13·52	22	25	·39	1·17	15·57	20·96
8	Agra	740,222	·21	·04	·01	17·17	·04	·13	·50	2·25	20·36	23·70
9	Mainpuri ...	723,301	·41	·04	...	16·07	·01	03	·50	·85	17·92	25·39
10	Etah	797,813	31	·03	·15	15·35	·19	·23	·42	1·57	18·25	23·05
	ROHILKHAND DIVISION.											
11	Bareilly	881,568	·01	...	4·12	25·72	05	19	·54	1·58	32·22	29·14
12	Bijnor	645,057	·03	·03	5·08	21·99	·21	·18	45	4·90	32·97	31·49
13	Budaun	909,071	·05	·01	5·98	20·58	·07	07	·50	·44	27·71	26.84
14	Moradabad ...	1,008,785	·01	..	4·86	24·66	·24	·31	·41	·45	30·95	30·33
15	Shahjahanpur ...	753,749	1·09	...	1·49	25·61	·04	09	·54	3·99	32·86	30·14
16	Pilibhit	399,257	·23	..	1·82	30·25	·09	·13	·99	2·98	36·50	29·51
	ALLAHABAD DIVISION.											
17	Farrukhabad ...	790,044	·32	..	·99	19·22	·04	12	45	3·99	25·14	31·78
18	Etawah	691,974	·71	·02	...	14·30	·04	·09	·44	4·29	19·90	23·74
19	Cawnpore ...	953,579	43	...	·06	10·79	·02	·05	·49	2·05	13·89	20·00
20	Fatehpur ...	637,444	·03	...	·19	8·95	·08	·21	·57	4·59	14·62	18·05
21	Allahabad ...	1,258,840	·56	·10	·74	12·20	·05	·16	·53	3·42	17·77	20·48
	JHANSI DIVISION.											
22	Jhansi	531,078	·33	·01	...	21·72	·15	·36	·72	4·95	28·25	30·67
23	Jalaun	380,899	2·31	·01	...	13·78	·03	·26	·41	4·09	20·90	23·94
24	Hamirpur ...	453,675	3·32	...	...	15·70	·07	6·17	·63	1·43	27·33	31·48
25	Banda	568,007	1·66	·01	..	12·87	·03	·38	·53	3·89	19·37	24·34
	BENARES DIVISION.											
26	Benares	756,658	1·73	·07	·20	15·68	·05	·11	·46	5·12	23·43	22·35
27	Mirzapur ...	669,189	·86	·22	...	16·18	.08	08	·60	4·96	22·98	25·91
28	Jaunpur	1,122,536	2·16	·15	·35	14·16	·06	·03	·54	4·01	21·47	20·13
29	Ghazipur ...	746,626	1·50	·27	7·08	14·39	·06	·08	54	3·07	27·00	25·17
30	Ballia	812,794	2·62	·12	1·95	12·84	·38	·17	47	3·29	21·85	21·84
	GORAKHPUR DIVISION.											
31	Gorakhpur ...	3,203,835	1·91	06	1·54	13·66	·07	06	·43	1·98	19·71	18·02
32	Basti	1,907,537	1·91	·01	1·99	14·59	·05	·05	·28	3·66	22·55	22·78
33	Azamgarh ...	1,482,726	1·03	·38	5·85	15·48	·11	·10	·55	3·21	26·72	27·93
	KUMAUN DIVISION.											
34	Naini Tal ...	255,907	·68	·01	2·47	29·46	·41	·60	·46	·09	34·78	29·87
35	Almora	530,338	·05	·08	·01	18·67	1·41	1·12	·35	1·05	22·74	24·45
36	Garhwal ...	485,186	·13	·09	·01	23·00	3·55	·50	·25	·41	27·95	27·06
	LUCKNOW DIVISION.											
37	Lucknow ...	507,177	·72	·03	·11	16·96	·18	44	·39	3·32	22·15	20·69
38	Unao	807,981	·33	...	1·08	14·49	·08	·35	·49	2·35	19·18	20·91
39	Rae Bareli ...	920,226	·82	02	1·03	11·89	·03	07	·45	1·45	15·76	16·88
40	Sitapur	1,048,342	·28	..	·93	18·25	·04	06	·47	2·14	22·19	22·39
41	Hardoi	1,037,228	·13	·01	1·04	15·86	·05	·08	·51	2·22	19·91	22·30
42	Kheri	901,079	·81	..	1·38	22·40	·06	·07	46	2·28	27·48	23·03
	FYZABAD DIVISION.											
43	Fyzabad	1,102,975	3·22	06	2·50	16·19	·06	·08	38	3·43	25·92	22·36
44	Gonda	1,443,739	2·35	..	·51	13·32	·02	·09	·39	1·52	18·22	14·51
45	Bahraich ...	1,027,082	·31	..	..	17·26	·03	·05	·43	4·70	22·78	20·20
46	Sultanpur ...	1,003,912	3·51	·01	·01	16·57	·14	·19	·52	3·31	24·27	24·89
47	Partabgarh ...	855,130	1·70	·10	·29	13·46	·04	·11	·43	2·74	18·87	20·53
48	Bara Banki ...	1,007,258	1·34	·01	2·89	16·49	·08	·09	52	2·36	23·79	21·79
	Total of Rural districts	42,35,7549	1·01	·05	1·70	16·95	·15	·23	·45	2·51	23·06	23·95

Paragraphs 26 of Section V and 3–6, 10–13 and 17–22 of Section VI.]

ANNUAL FORM No. VI.

Deaths from **different causes** *and Births registered in the* **Towns** *(having a population of* 10,000 *and upwards) and* **districts** *(exclusive of such towns) of the United Provinces during the year* 1928—(contd.).

1	2	3	4	5				6	7	8
				Births.						
Number.	Districts.	Towns.	Population according to census of 1921.	Male.	Female.	Total.	Birth-rate per of 1,000 population.	Cholera.	Small-pox.	Plague.
		B.—Towns.								
1	Dehra Dun	Dehra ...	33,500	663	630	1,293	38·60	10	54	63
2		Mussooree ...	(a) 8,297	100	94	194	14·99	...	...	...
3	Saharanpur	Hardwar Union ...	30,795	633	617	1,250	40·59	85	1	1
4		Saharanpur ...	62,261	1,760	1,783	3,543	56·90	3	..	176
5		Deoband ...	17,891	560	570	1,130	63·16	...	1	18
6		Gangoh ...	11,843	323	279	602	50·83	...	1	112
7		Roorkee ...	12,246	280	265	545	44·50	...	...	9
8	Muzaffarnagar.	Kairana ...	16,683	464	408	872	52 27	1	...	2
9		Kandhla ...	10,365	214	218	432	41·68	...	7	103
10		Muzaffarnagar ...	23,937	527	587	1,114	46·54	3	2	119
11	Meerut ...	Meerut ...	77,711	1,563	1,324	2 887	37·15	1	70	24
12		Hapur ...	20,388	574	575	1,149	56·36	...	...	...
13		Ghaziabad ...	12,343	287	297	584	47·31	...	...	...
14	Bulandshahr.	Khurja ...	25,719	737	692	1,429	55·56	2	...	...
15		Sikandrabad ...	16,857	481	518	999	59·26	20	...	1
16		Bulandshahr ...	19,509	465	466	931	47·72	1	1	...
17		Jahangirabad ...	10,279	299	277	576	56·04	2	...	...
18	Aligarh ...	Aligarh or Koil ..	66,963	1,719	1,659	3,378	50·44	51	10	2
19		Hathras ...	38,763	1,096	1,059	2,155	55·59	2	...	...
20		Atrauli ...	13,018	373	394	767	58·92	...	...	...
21	Muttra ...	Muttra ...	48,724	1,434	1,469	2,903	59·58	36	8	2
22		Brindaban ...	14,632	345	298	643	43·94	36	3	...
23	Agra ...	Agra ...	163,750	5,799	5,376	11,175	68·24	4	73	1
24		Firozabad ...	20,183	500	437	937	46·42	82	...	...
25	Mainpuri ...	Mainpuri ...	14,352	180	135	315	21·95	8	...	...
26		Shikohabad ...	10,374	173	146	319	30·75	37	...	...
27	Etah ...	Kasganj ...	20,988	469	423	892	42·50	24	...	...
28		Soron ...	10,959	302	272	574	52·38	1	..	2
29	Bareilly ...	Bareilly ...	119,175	2,392	1,921	4,313	36·19	22	...	1,151
30		Aonla ..	13,132	365	353	718	54·67	2	2	209
31	Bijnor ...	Nagina ..	18,736	509	490	999	53·32	1	...	10
32		Najibabad ..	18,504	514	477	991	53·55	3	...	464
33		Bijnor ...	18,095	542	516	1,058	58·47	1	51	4
34		Sherkot ...	13,889	215	185	400	28·80	...	..	31
35		Chandpur ...	11,032	344	359	703	63·72	5	1	25
36		Kiratpur ...	14,869	305	266	571	38·40	8	9	19
37	Budaun ..	Ujhani ...	11,186	246	208	454	40·59	2	1	139
38		Budaun ...	39,118	1,064	999	2,063	52·74	1	..	286
39		Sahaswan ...	15,972	486	453	939	58·79	...	...	53
40	Moradabad	Moradabad ..	82,671	2,551	2,350	4,901	59·28	25	2	557
41		Sambhal ..	41,585	1,204	1,083	2,287	54·99	1	...	980
42		Amroha ...	40,448	1,115	1,088	2,203	54·46	...	...	79
43		Chandausi ...	25,164	676	641	1,317	52·34	1	1	127
44	Shahjahanpur.	Tilhar ..	16,584	516	469	985	59·39	2	1	143
45		Shahjahanpur ...	68,782	1,524	1,394	2,918	42·42	31	2	912

(a) Rates calculated on average population 12,943.

Paragraphs 26 of Section V and 3—6, 10—13, and 17—22 of Section VI.]

ANNUAL

Deaths from **different causes** *and Births registered in the* **Towns**

such towns) of the United Provinces

1	2	3	4	9	10	11	12			
							Injuries			
							Suicide.			
Number.	Districts.	Towns.	Population according to census of 1921.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases	Male.	Female.	Wounds or accidents.	Snake-bite or killed by wild beasts.
		B.—Towns— (contd.).								
1	Dehra Dun	Dehra ..	33,500	267	80	467	...	1	18	...
2		Mussooree ..	(a)8,297	35	2	49	...	...	1	...
3	Saharanpur	Hardwar Union ..	30,795	707	112	139	1	...	17	1
4		Saharanpur ...	62,261	1,830	110	338	...	...	28	1
5		Deoband ...	17,891	371	33	13	...	..	11	...
6		Gangoh ..	11,843	274	27	35	...	...	5	1
7		Roorkee ...	12,246	248	31	32	...	...	5	...
8	Muzaffarnagar.	Kairana ..	16,683	363	19	4	...	..	1	2
9		Kandhla ...	10,365	188	1	1	...	...	3	...
10		Muzaffarnagar .	23,937	474	35	120	...	...	14	...
11	Meerut ...	Meerut ...	77,711	730	77	553	...	...	26	2
12		Hapur ...	20,388	301	42	145	...	...	20	...
13		Ghaziabad ...	12,343	239	1	7	...	2	2	...
14	Bulandshahr.	Khurja ...	25,719	444	107	177	...	...	26	3
15		Sikandrabad ...	16,857	333	49	61	...	...	2	..
16		Bulandshahr ...	19,509	232	21	303	...	...	6	...
17		Jahangirabad ...	10,279	173	2	35	1	..	7	...
18	Aligarh ...	Aligarh or Koil ...	66,963	1,537	194	432	...	...	48	...
19		Hathras ...	38,763	365	158	292	...	...	41	2
20		Atrauli ...	13,018	190	140	4	...	...	4	1
21	Muttra .	Muttra ...	48,724	655	168	640	1	...	56	4
22		Brindaban ...	14,632	393	47	93	...	...	11	2
23	Agra ...	Agra	163,750	2,692	294	2,251	3	2	192	3
24		Firozabad ..	20,183	260	75	54	...	...	6	...
25	Mainpuri ...	Mainpuri ...	14,352	144	.	1	...	...	...	...
26		Shikohabad ...	10,374	101	5	12	...	..	3	1
27	Etah ...	Kasganj ...	20,988	376	33	40	...	...	11	...
28		Soron ...	10,959	276	26	26	1	...	...	...
29	Bareilly ...	Bareilly ...	119,175	948	81	968	2	...	36	5
30		Aonla ...	13,132	181	55	81	...	...	5	...
31	Bijnor ...	Nagina ...	18,736	261	85	114	1	...	22	3
32		Najibabad ...	18,504	370	23	32	...	1	14	2
33		Bijnor ...	18,095	266	51	13	1	...	14	...
34		Sherkot ...	13,839	155	7	5	...	2	...	1
35		Chandpur ...	11,022	167	44	24	...	...	6	...
36		Kiratpur ..	14,869	106	30	93	...	...	8	2
37	Budaun ...	Ujhani ..	11,186	189	5	12	...	...	1	1
38		Budaun ...	39,118	818	70	162	1	1	28	...
39		Sahaswan ...	15,972	297	59	30	1	...	10	3
40	Moradabad	Moradabad ..	82,671	1,871	289	864	1	...	70	1
41		Sambhal ..	41,585	564	154	568	...	...	29	1
42		Amroha ..	40,448	380	111	431	1	1	26	1
43		Chandausi ..	25,164	366	127	228	...	...	6	1
44	Shahjahanpur.	Tilhar ...	16,584	317	26	117	...	...	11	1
45		Shahjahanpur ...	68,782	702	132	787	...	...	39	...

(a) Rates calculated on average population 12,943.

FORM No. VI.

(having a population of 10,000 *and upwards) and* **districts** *(exclusive of during the year* 1928—(continued).

	13		14	15										16
				Ratio of deaths per 1,000 of population.										
Rabies.	Total.	All other causes.	Total deaths from all causes.	Cholera.	Smallpox.	Plague.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	From all causes. For the year.	From all causes. Mean ratio of previous five years.	Number.
...	19	332	1,292	·30	1·61	1·88	7·97	2·39	13·94	·57	9·91	38·57	25·96	1
...	1	56	143	..	..	...	2·70	·15	3·78	·08	4·33	11·05	9·51	2
...	19	296	1,360	2·76	·03	·03	22·96	3·64	4·51	·62	9·61	44·16	41·29	3
1	30	821	3,338	·05	...	2·83	29·87	1·77	5·43	·48	13·18	53·61	49·33	4
2	13	200	649	...	·05	1·00	20·74	1·84	·73	·73	11·18	36·27	34·91	5
..	6	74	529	...	·08	9·46	23·14	2·28	2·95	·51	6·25	44·67	35·60	6
1	6	77	403	...	...	·73	20·25	2·53	2·61	·49	6·29	32·91	37·63	7
...	3	63	455	·06	...	·12	21·76	1·14	·24	·18	3·77	27·27	37·17	8
...	3	13	316	...	·67	9·94	18·14	·10	·10	·29	1·25	30·49	36·26	9
...	14	108	875	·12	·08	4·97	19·80	1·46	5·01	·58	4·51	36·55	26·92	10
..	28	173	1,656	·01	·90	·31	9·39	·99	7·12	·36	2·23	21·31	25·74	11
...	20	117	625	...	...	...	14·76	2·06	7·11	·98	5·74	30·65	47·02	12
..	4	7	258	...	...	...	19·36	·08	·57	·32	·57	20·90	38·47	13
...	29	216	975	·08	...	...	17·26	4·16	6·88	1·13	8·40	37·91	54·95	14
...	2	122	588	1·18	...	·06	19·75	2·91	3·62	·12	7·24	34·88	51·69	15
...	6	10	574	·05	·05	...	11·89	1·08	15·53	31	·51	29·42	41·64	16
...	8	8	228	·19	...	...	15·83	·19	3·40	·78	·78	22·18	31·66	17
...	48	240	2,514	·76	·15	·03	22·95	2·90	6·45	·72	3·58	37·54	42·97	18
4	47	647	1,511	·05	...	...	9·42	4·08	7·53	1·21	16·69	38·98	51·81	19
...	5	85	424	...	..	..	14·59	10·75	·31	·38	6·53	32·57	43·12	20
5	66	513	2,088	·74	·16	·04	13·44	3·45	13·13	1·35	10·53	42·85	42·22	21
...	13	93	678	2·46	·20	...	26·86	3·21	6·35	·89	6·35	46·34	58·09	22
7	207	1,248	6,770	·02	·44	·01	16·44	1·79	13·75	1·26	7·62	41·34	43·19	23
1	7	272	750	4·06	...	...	12·88	3·71	2·67	·35	13·48	37·16	33·51	24
...	...	12	165	·56	...	...	10·03	...	·07	...	·84	11·50	15·55	25
...	4	5	164	3·57	...	...	9·73	·48	1·16	·38	·48	15·81	16·81	26
...	11	29	513	1·14	...	...	17·91	1·57	1·90	·52	1·38	24·44	27·01	27
1	2	92	425	·09	...	·18	25·18	2·37	2·37	·18	8·39	38·78	39·78	28
1	44	812	4,026	·18	...	9·66	7·95	·68	8·12	·37	6·81	33·78	21·26	29
2	7	119	656	·15	·15	15·91	13·78	4·19	6·17	·53	9·06	49·95	45·07	30
1	27	195	693	·05	...	·53	13·93	4·54	6·08	1·44	10·41	36·99	35·87	31
...	17	258	1,167	·16	...	25·07	19·99	1·24	1·73	·92	13·94	63·07	39·89	32
...	15	215	616	·05	2·82	·22	14·70	2·82	·72	·83	11·88	34·04	37·71	33
..	3	11	212	..	.	2·23	11·16	·50	·36	·22	·79	15·26	23·52	34
..	6	131	403	·45	·09	2·27	15·14	3·99	2·17	·54	11·87	36·53	45·94	35
..	10	89	364	·54	·60	1·28	7·13	2·02	6·25	·67	5·98	24·48	21·51	36
...	2	33	383	·18	·09	12·43	16·89	·45	1·07	·18	2·95	34·24	29·39	37
1	31	439	1,807	·02	...	7·31	20·91	1·79	4·14	·79	11·22	46·19	41·01	38
...	14	160	613	...	..	3·32	18·59	3·69	1·88	·88	10·02	38·38	42·21	39
1	73	723	4,404	·30	02	6·74	22·63	3·49	10·45	·88	8·74	53·27	40·80	40
...	30	137	2,434	·02	...	23·57	13·56	3·70	13·66	·72	3·29	58·53	42·53	41
1	30	267	1,298	...	...	1·95	9·39	2·74	10·65	·74	6·60	32·09	37·18	42
1	8	221	1,079	·04	·04	5·05	14·54	5·05	9·06	·32	8·78	42·88	42·42	43
...	12	207	825	·12	·06	8·62	19·11	1·57	7·05	·72	12·48	49·75	45·97	44
...	39	479	3,084	·45	·03	13·26	10·21	1·92	11·44	·57	6·96	44·84	33·02	45

Paragraphs 26 of Section V and 3—6, 10—13 and 17—22 and Section VI.]

ANNUAL

Deaths from **different causes** *and Births registered in the* **Towns** *such towns) of the United Provinces during*

1	2	3	4	5				6	7	8
Number.	Districts.	Towns.	Population according to census of 1921.	Births. Male.	Births. Female.	Births. Total.	Birth-rate per 1,000 of population.	Cholera.	Small-pox.	Plague.
		B.—Towns—(contd.).								
46	Pilibhit ...	Pilibhit ...	**32,344**	913	879	**1,792**	55·40	21	...	659
47	Farrukhabad	Farrukhabad-cum-Fatehgarh.	**48,331**	1,267	1,142	**2,409**	49·84	21	...	9
48		Kanauj ...	**18,258**	411	375	**786**	43·05	5	1	...
49	Etawah ...	Etawah ...	**41,558**	1,243	1,198	**2,441**	58·74	64	2	...
50	Cawnpore ...	Cawnpore ...	**195,085**	4,127	3,570	**7,697**	39·45	70	29	...
51	Fatehpur ...	Fatehpur ...	**14,948**	407	403	**810**	54·19	3	...	...
52	Allahabad ...	Allahabad ...	**145,605**	3,705	3,470	**7,175**	49·28	55	73	7
53	Jhansi ..	Jhansi ...	**51,363**	1,693	1,507	**3,200**	62·30	2	14	...
54		Mau ...	**12,554**	366	334	**700**	55·76	...	...	...
55		Lalitpur ...	**11,504**	306	310	**616**	53·55	...	1	...
56	Jalaun ...	Kalpi ...	**10,037**	256	260	**516**	51·41	22	...	...
57		Konch ...	**14,503**	426	361	**787**	54·26	62	...	...
58	Hamirpur ...	Mahoba ...	**11,648**	323	268	**591**	50·74	22	...	...
59	Banda	Banda ...	**20,029**	321	242	**563**	28·11	48	...	...
60	Benares ...	Benares ...	**195,373**	5,439	5,292	**10,731**	54·92	288	10	7
61	Mirzapur ...	Mirzapur Bindhachal.	**54,994**	1,514	1,404	**2,918**	53·06	55	4	1
62	Jaunpur ...	Jaunpur ...	**32,569**	533	404	**937**	28·77	93	41	...
63	Ghazipur ...	Ghazipur ...	**24,708**	405	298	**703**	28·45	22	1	209
64		Sherpur ..	**10,236**	120	93	**213**	20·81	1	...	45
65	Ballia ...	Ballia ...	**18,215**	260	194	**454**	24·92	35	...	2
66	Gorakhpur...	Gaura Barhaj	**12,497**	251	210	**461**	36·89	118	3	2
67		Gorakhpur ..	**50,498**	1,420	1,325	**2,745**	54·36	64	2	39
68	Basti ...	Basti ..	**17,691**	208	190	**398**	22·50	12	...	50
69	Azamgarh ...	Mubarakpur	**12,500**	300	239	**539**	43·12	...	25	284
70		Azamgarh ...	**14,768**	273	251	**524**	35·43	2	2	25
71		Mau ...	**17,998**	434	397	**831**	46·17	63	1	7
72	Naini Tal ..	Naini Tal ...	(b) **10,392**	161	150	**311**	23·11	1	2	30
73		Kashipur ...	**10,576**	232	179	**411**	38·86	7	...	26
74	Lucknow ..	Lucknow ...	**217,167**	5,696	5,574	**11,270**	51·89	132	169	19
75	Unao	Unao ...	**11,147**	246	222	**468**	41·98	5	5	...
76	Rae Bareli	Rae Bareli ..	**16,163**	387	371	**758**	46·84	6	...	5
77		Khairabad ...	**11,522**	311	303	**614**	53·29	...	...	41
78	Sitapur ...	Laharpur ...	**11,185**	217	227	**444**	39·70	1	15	339
79		Sitapur ...	**18,432**	496	456	**952**	51·65	...	...	31
80	Hardoi ...	Shahabad ...	**18,696**	389	372	**761**	40·70	7	...	576
81		Sandila ...	**14,074**	404	380	**784**	55·70	4	1	26
82		Hardoi ...	**14,412**	277	213	**490**	34·00	66	2	68
83	Kheri ...	Lakhimpur...	**12,396**	163	122	**285**	22·99	1	2	286
84	Fyzabad ...	Fyzabad-Ajodhya.	**51,342**	748	773	**1,521**	29·62	42	3	12
85		Tanda ...	**18,258**	439	481	**920**	50·39	64	1	...
86	Gonda ...	Gonda ...	**13,228**	234	193	**427**	32·28	1	1	...
87		Balrampur ...	**16,131**	381	321	**702**	43·52	...	...	...
88	Bahraich	Bahraich ..	**27,371**	569	615	**1,184**	43·26	1	1	...
89		Nanpara ...	**10,924**	277	223	**500**	45·77	1	2	11
90	Bara Banki ..	Nawabganj...	**12,369**	217	173	**390**	31·53	2	1	...
91		Rudauli ...	**10,327**	278	218	**496**	48·03	37	...	43
		Total of Towns	**3,018,238**	75,931	70,702	**146,633**	48·53	2,040	715	8,686
		Total of Rural districts.	**42,357,549**	840,829	747,697	**1,588,526**	37·50	42,901	2,297	72,257
		Total for the Province.	**45,375,787**	916,760	818,399	**1,735,159**	38·24	44,941	3,012	80,943

(b) Rates calculated on average population 13,454.

FORM NO. VI.

(*having a population of* 10,000 *and upwards*) *and* **districts** (*exclusive of the year* 1928—(continued).

9	10	11	12						13	14	15			
			Injuries.								Ratio of deaths per 1,000 of population.			
			Suicide.											
Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Male.	Female.	Wounds or accidents.	Snake bite or killed by wild beasts.	Rabies.	Total.	All other causes.	Total deaths from all causes.	Cholera.	Small-pox.	Plague.	Number.
793	86	446	...	...	9	3	...	**12**	144	**2,161**	·65	...	20·37	46
359	176	786	...	3	37	3	...	**43**	605	**1,999**	·43	...	·19	47
154	52	62	...	..	5	...	...	**5**	132	**411**	·27	·05	...	48
755	105	402	2	1	23	2	...	**28**	744	**2,100**	1·54	·05	...	49
3,454	362	2,908	2	1	56	1	1	**61**	1,988	**8,872**	·36	·15	...	50
279	33	53	1	...	21	1	1	**24**	100	**492**	20	..	...	51
1,314	254	1,214	3	2	32	3	1	**41**	1,601	**4,559**	·38	·50	·05	52
1,382	58	221	...	...	38	3	...	**41**	639	**2,357**	·04	·27	...	53
238	13	128	...	...	16	...	...	**16**	98	**493**	...	...	...	54
276	49	72	...	...	17	1	...	**18**	106	**522**	...	·09	...	55
141	15	124	...	...	6	1	...	**7**	58	**367**	2·19	...	...	56
238	14	196	...	...	4	..	...	**4**	16	**530**	4·27	...	...	57
256	3	54	...	...	7	1	.	**8**	22	**365**	1·89	...	...	58
172	8	58	1	2	9	.	...	**12**	103	**401**	2·40	...	...	59
5,441	976	1,804	2	2	245	5	2	**256**	2,156	**10,938**	1·47	·05	·03	60
865	83	119	1	...	31	4	...	**36**	304	**1,467**	1·00	·07	·02	61
402	30	59	1	...	18	5	...	**24**	82	**731**	2·85	1·26	..	62
192	24	48	...	...	18	...	...	**18**	55	**569**	·89	·04	8·46	63
98	...	...	...	..	1	2	...	**3**	20	**167**	·10	...	4·40	64
80	24	...	...	...	4	3	...	**7**	122	**270**	1·92	...	·11	65
158	5	19	...	...	3	...	...	**3**	36	**344**	9·44	·24	·16	66
1,109	41	119	1	...	40	4	...	**45**	435	**1,854**	1·27	·04	·77	67
187	10	33	...	...	14	3	1	**18**	118	**428**	·68	...	2·83	68
4	11	119	...	...	11	1	1	**13**	72	**528**	...	2·00	22·72	69
213	18	17	1	...	9	...	...	**10**	86	**373**	·13	·13	1·69	70
158	36	86	...	...	2	1	...	**3**	142	**496**	3·50	·05	·39	71
54	21	183	...	1	3	...	...	**4**	62	**357**	·07	·15	2·23	72
131	59	140	1	...	...	.	...	**1**	63	**427**	·66	...	2·46	73
2,112	700	3,336	3	2	121	4	1	**131**	3,315	**9,914**	·61	·78	·09	74
190	7	7	...	...	6	...	...	**6**	91	**311**	·45	·45	...	75
333	23	127	...	...	2	...	2	**4**	43	**541**	·37	...	·31	76
180	20	13	...	..	2	8	...	**10**	130	**394**	...	...	3·56	77
126	7	12	...	...	5	2	...	**7**	11	**518**	·09	1·34	30·31	78
411	42	23	...	...	21	...	...	**21**	231	**759**	...	...	1·68	79
296	17	29	...	...	4	4	...	**8**	113	**1,046**	·37	...	30·81	80
320	44	30	...	...	13	1	1	**15**	142	**582**	·28	·07	1·85	81
221	21	29	...	...	12	1	...	**13**	51	**471**	4·58	14	4·72	82
149	13	15	...	...	3	...	...	**3**	22	**491**	·08	·16	23·07	83
590	168	388	1	...	34	3	2	**40**	315	**1,558**	·82	06	·23	84
339	59	55	...	...	23	...	...	**23**	153	**694**	3·50	·05	...	85
239	1	2	...	...	3	1	...	**4**	63	**311**	·07	·07	...	86
302	9	152	...	...	20	2	...	**22**	108	**593**	...	...	...	87
553	18	47	...	1	16	1	...	**18**	142	**780**	·03	·03	...	88
228	20	25	...	...	7	1	...	**8**	104	**399**	·09	·18	1·01	89
107	13	55	...	..	8	...	...	**8**	70	**256**	·16	·08	.	90
168	21	45	1	...	5	1	...	**7**	72	**396**	3·58	...	4·45	91
47,953	7,007	24,713	36	25	1,873	121	43	**2,098**	25,710	**118,922**	·67	·24	2·87	
718,001	6,205	9,587	602	1,337	12,207	4,696	389	**19,231**	106,335	**976,814**	1·01	·05	1·71	
765,954	13,212	34,300	638	1,362	14,080	4,817	432	**21,329**	132,045	**1,095,736**	·99	·07	1·78	

Paragraphs 26 of Section V and 3—6, 10—13 and 17—22 of Section VI.]

ANNUAL FORM NO. VI.

Deaths from **different causes** *and Births registered in the* **Towns** *having a population of* 10,000 *and upwards) and* **districts** *(exclusive such towns) of the United Provinces during the year* 1928—(concluded).

1	2	3	4	15						
				Ratio of deaths per 1,000 of population.						
									From all causes.	
Number.	Districts.	Towns.	Population according to census of 1921.	Fevers.	Dysentery and diarrhœa.	Respiratory diseases.	Injuries.	All other causes.	For the year.	Mean ratio of previous five years
		B.—Towns— (concld.).								
46	Pilibhit	Pilibhit ...	32,344	24·52	2·66	13·79	·37	4·45	66·81	41·62
47	Farrukhabad	Farrukhabad-cum-Fatehgarh.	48,331	7·43	3·64	16·26	·89	12·52	41·36	45·41
48		Kanauj ...	18,258	8·43	2·85	3·39	·27	7·23	22·51	26·93
49	Etawah ...	Etawah ...	41,558	18·17	2·53	9·67	·67	17·90	50·53	48·59
50	Cawnpore ...	Cawnpore ...	195,085	17·70	1·85	14·91	·31	10·19	45·48	47·22
51	Fatehpur ..	Fatehpur ...	14,948	18·66	2·21	3·54	1·60	6·69	32·91	28·79
52	Allahabad ...	Allahabad ...	145,605	9·02	1·74	8·34	·28	10·99	31·31	31·54
53	Jhansi ...	Jhansi ...	51,363	26·91	1·13	4·30	·80	12·44	45·89	35·30
54		Mau ...	12,554	18·96	1·03	10·19	1·27	7·81	39·27	40·80
55		Lalitpur ...	11,504	23·99	4·26	6·26	1·56	9·21	45·37	36·52
56	Jalaun .	Kalpi ...	10,037	14·05	1·49	12·35	·70	5·78	36·56	38·80
57		Konch ...	14,503	16·41	·96	13·51	·27	1·10	36·54	34·72
58	Hamirpur ...	Mahoba ...	11,648	21·98	·26	4·63	·68	1·89	31·33	27·97
59	Banda ...	Banda ...	20,029	8·59	·40	2·89	·60	5·14	20·02	28·40
60	Benares ...	Benares ..	195,373	27·85	4·99	9·23	1·31	11·03	55·98	51·46
61	Mirzapur ...	Mirzapur-Bindhachal.	54,994	15·73	1·51	2·16	·65	5·53	26·67	26·89
62	Jaunpur ...	Jaunpur ...	32,569	12·34	·92	1·81	·74	2·52	22·44	22·99
63	Ghazipur ...	Ghazipur ...	24,708	7·77	·97	1·94	·73	2·22	23·03	17·10
64		Sherpur ..	10,236	9·57	...	...	·29	1·95	16·31	17·00
65	Ballia ...	Ballia ...	18,215	4·39	1·32	...	·38	6·70	14·82	21·92
66	Gorakhpur ...	Gaura Barhaj	12,497	12·64	·40	1·52	·24	2·88	27·53	20·87
67		Gorakhpur ..	50,498	21·96	·81	2·36	·89	8·61	36·71	35·02
68	Basti ...	Basti ...	17,691	10·57	·56	1·86	1·02	6·67	24·19	16·17
69	Azamgarh ...	Mubarakpur	12,500	·32	·88	9·52	1·04	5·76	42·24	29·06
70		Azamgarh ...	14,788	14.40	1·22	1·15	·68	5·81	25·22	25·88
71		Mau ...	17,998	8·78	2·00	4·78	·17	7·89	27·56	23·21
72	Naini Tal .	Naini Tal ...	(b) 10,392	4·01	1·56	13·60	·30	4·61	26·53	18·97
73		Kashipur ...	10,576	12·38	5·58	13·24	·09	5·96	40·37	33·02
74	Lucknow ...	Lucknow ...	217,167	9·72	3·22	15·36	·60	15·26	45·65	39·76
75	Unao ...	Unao ...	11,147	17·04	·63	·63	·54	8·16	27·90	32·53
76	Rae Bareli ...	Rae Bareli ...	16,183	20·58	1·42	7·85	·25	2·65	33·43	36·63
77	Sitapur ...	Khairabad ...	11,522	15·62	1·73	1·13	·87	11·28	34·19	36·86
78		Laharpur ...	11,185	11·26	·62	1·07	·62	·98	46·31	22·03
79		Sitapur ..	18,432	22·30	2·28	1·25	1·14	12·53	41·18	41·07
80	Hardoi ...	Shahabad ...	18,696	15·83	·91	1·55	·43	6·04	55·95	33·49
81		Sandila ...	14,074	22·74	3·13	2·13	1·06	10·09	41·35	39·92
82		Hardoi ...	14,412	15·33	1·46	2·01	·90	3·54	32·68	22·47
83	Kheri ...	Lakhimpur	12,396	12·02	1·05	1·21	·24	1·77	39·61	18·13
84	Fyzabad ...	Fyzabad-Ajodhya.	51,342	11·49	3·27	7·56	·78	6·13	30.34	26·79
85		Tanda ...	18,258	18·57	3·23	3·01	1·26	8·38	38·01	38·17
86	Gonda ...	Gonda ...	13,228	18·07	.07	·15	·30	4·76	23·51	18·58
87		Balrampur ...	16,131	18·72	·56	9·42	1·36	6·69	36·76	33·13
88	Bahraich ...	Bahraich ...	27,371	20·20	·66	1·72	·66	5·19	28·50	21·50
89		Nanpara ...	10,924	20·87	1·83	2·29	·73	9·52	36·52	34·54
90	Bara Banki...	Nawabganj	12,369	8·65	1·05	4·45	·65	5·66	20·70	19·42
91		Rudauli ..	10,327	16·27	2·03	4·36	·68	6·97	38·35	34·26
		Total of Towns	3,018,238	15·87	2·32	8·18	·69	8·51	39·36	37·13
		Total of rural districts.	42,357,549	16·95	·15	·23	·45	2·51	23·06	23·95
		Total for the Province.	45,375,787	16·88	·29	·75	·47	2·91	24·15	24·83

(b) Rates calculated on average population 13,454.

Paragraphs 23 of section V and 14 and 23 of section VI.]

SUPPLEMENTARY ANNUAL FORM NO. VI(*a*).

Deaths registered from **Certain Causes** *in the* **Towns** *(having a population of* 10,000 *and upwards) and* **Districts** *(exclusive of such towns) of the United Provinces, during the year* 1928.

1	2	3	4		5		6	
Number.	Districts and Towns.	Population according to census of 1921.	Malaria.		Enteric fever.		Measles.	
			Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.
	A.—Rural Districts.							
	MEERUT DIVISION.							
1	Dehra Dun	170,446	2,042	11·98	25	·15	9	·05
2	Saharanpur	802,435	18,862	23·50	46	·06	33	·04
3	Muzaffarnagar	743,280	14,038	18·89	104	·14	47	·06
4	Meerut	1,388,632	28,367	20·43	38	·03	41	·03
5	Bulandshahr	994,155	21,295	21·42	27	·03	118	·12
	AGRA DIVISION.							
6	Aligarh	943,001	16,801	17·82	75	·08	113	·12
7	Muttra	555,782	7,003	12·60	253	·45	45	·08
8	Agra	740,222	12,030	16·25	112	·15	54	.07
9	Mainpuri	723,301	11,593	16·03	..	..	9	·01
10	Etah	797,813	11,786	14·77	107	.13	24	·03
	ROHILKHAND DIVISION.							
11	Bareilly	881,568	22,544	25·57	50	·06	19	·02
12	Bijnor	645,057	13,744	21·31	101	·16	48	·07
13	Budaun	909,071	18,648	20·51	44	·05	5	..
14	Moradabad	1,008,735	23,757	23·55	73	·07	36	·03
15	Shahjahanpur	753,749	19,119	25·36	90	·12	24	·03
16	Pilibhit	399,257	12,020	30·10	22	·05	8	·02
	ALLAHABAD DIVISION.							
17	Farrukhabad	790,044	14,904	18·86	109	·14	28	·03
18	Etawah	691,974	9,707	14·03	66	·09	26	·04
19	Cawnpore	953,579	9,838	10·32	72	·07	27	·03
20	Fatehpur	637,444	5,564	8·73	53	·08	26	·04
21	Allahabad	1,258,840	11,838	9·40	2,009	1·59	323	·26
	JHANSI DIVISION.							
22	Jhansi	531,078	10,152	19·11	588	1·11	11	·02
23	Jalaun	380,899	2,685	7·05	6	·01	15	·04
24	Hamirpur	453,675	5,362	11·82	111	·24	23	·05
25	Banda	568,007	6,744	11·87	3	..	92	·16
	BENARES DIVISION.							
26	Benares	756,658	11,684	15·44	33	·04	80	·10
27	Mirzapur	669,189	10,542	15·75	..	..	59	·09
28	Jaunpur	1,122,536	13,440	11·97	44	·04	107	·09
29	Ghazipur	746,626	10,566	14·15	63	·08	72	·10
30	Ballia	812,794	7,424	9·13	589	·72	30	·04
	GORAKHPUR DIVISION.							
31	Gorakhpur	3,203,835	38,832	12·12	417	·13	230	·07
32	Basti	1,907,537	27,631	14·48	35	·02	141	·07
33	Azamgarh	1,482,726	22,510	15·18	224	·15	153	·10
	KUMAUN DIVISION.							
34	Naini Tal	255,907	7,141	27·90	78	.30	2	·01
35	Almora	530,338	7,524	14·19	35	·06	79	·15
36	Garhwal	485,186	10,260	21·15	..	..	93	·19
	LUCKNOW DIVISION.							
37	Lucknow	507,177	8,213	16·20	41	·08	105	·21
38	Unao	807,981	10,922	13·52	83	·10	78	·10
39	Rae Bareli	920,220	10,361	11·26	89	·10	84	·09
40	Sitapur	1,048,342	18,693	17·83	126	·12	298	·28
41	Hardoi	1,037,228	16,219	15·64	85	·08	54	·05
42	Kheri	901,079	19,766	21·93	170	·19	227	·25
	FYZABAD DIVISION.							
43	Fyzabad	1,102,975	9,158	8·30	72	·06	60	·05
44	Gonda	1,443,739	18,155	12·57	732	·51	277	·19
45	Bahraich	1,027,082	17,381	16·92	98	·09	241	·23
46	Sultanpur	1,003,912	16,567	16·50	20	·02	40	·04
47	Partabgarh	855,130	11,442	13·38	33	·04	33	·04
48	Bara Banki	1,007,258	15,589	15·48	48	·05	209	·21
	TOTAL OF RURAL DISTRICTS ...	42,357,549	670,463	15·83	7,299	·17	3,956	·09

Paragraphs 23 of section V and 14 and 23 of section VI.]

SUPPLEMENTARY

Deaths registered from **Certain Causes** *in the* **Towns** *(having a*
of the United Provinces

1	2	3	7		8		9		10	
Number.	Districts and towns.	Population according to census of 1921.	Relapsing fever.		Kala Azar.		Other fevers.		Dysentery.	
			Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.
	A.—Rural Districts— (concluded).									
	MEERUT DIVISION.									
1	Dehra Dun ...	170,446	1	...	...	...	537	3·15	50	·29
2	Saharanpur ...	802,435	4	...	3	...	444	·55	9	·01
3	Muzaffarnagar ...	743,280	2	...	...	...	235	·32	23	·03
4	Meerut	1,388,632	5	...	2	.	555	·40	14	·01
5	Bulandshahr ...	994,155	...	...	10	·01	959	·96	103	·10
	AGRA DIVISION.									
6	Aligarh	943,001	...	...	...	...	80	·08	37	·04
7	Muttra	555,782	1	...	40	·07	170	·30	11	·02
8	Agra	740,222	4	...	...	...	508	·69	12	·02
9	Mainpuri ...	723,301	...	...	...	..	24	·03	1	...
10	Etah	797,813	34	·04	14	·02	283	·35	23	·03
	ROHILKHAND DIVISION.									
11	Bareilly	881,568	...	...	3	...	57	·06	18	·02
12	Bijnor	645,057	8	·01	..	...	286	·44	50	·08
13	Budaun	909,071	1	...	7	·01	9	·01	10	·01
14	Moradabad ...	1,008,785	...	...	..	..	1,012	1·00	86	·08
15	Shahjahanpur ...	753,749	..	...	11	.01	57	·07	3	...
16	Pilibhit	399,257	2	...	...	...	26	·06	15	·04
	ALLAHABAD DIVISION.									
17	Farrukhabad ...	790,044	...	...	...	...	143	·18	3	...
18	Etawah	691,974	...	...	..	...	94	·13	3	..
19	Cawnpore ...	953,579	3	...	...	.	348	·36	14	·01
20	Fatehpur ...	637,444	10	·01	9	·01	43	·07	35	·05
21	Allahabad ..	1,258,840	...	...	7	...	1,176	·93	16	·01
	JHANSI DIVISION.									
22	Jhansi	531,078	1	...	...	...	784	1·48	28	·05
23	Jalaun	380,899	...	...	20	·05	2,525	6·63	7	·02
24	Hamirpur ...	453,675	...	...	...	...	1,628	3·57	4	·01
25	Banda	568,007	5	·01	...	...	465	·82	7	·01
	BENARES DIVISION.									
26	Benares	756,658	1	...	3	...	67	·09	10	·01
27	Mirzapur	669,189	1	...	...	...	223	·33	15	·02
28	Jaunpur ...	1,122,536	2	...	1	...	2,298	2·05	29	·02
29	Ghazipur ...	746,626	...	..	1	...	45	·06	22	·03
30	Ballia	812,794	56	·07	1	...	2,340	2·88	250	·31
	GORAKHPUR DIVISION.									
31	Gorakhpur ...	3,203,835	54	·02	34	·01	4,185	1·31	208	·06
32	Basti	1,907,537	13	·01	7	...	11	...	57	·03
33	Azamgarh ...	1,482,726	6	...	3	...	55	·04	152	·10
	KUMAUN DIVISION.									
34	Naini Tal ...	255,907	74	·29	3	·01	240	·94	83	·32
35	Almora	530,338	...	...	...	...	2,264	4·27	389	·73
36	Garhwal	485,186	...	...	...	...	809	1·67	1,645	3·39
	LUCKNOW DIVISION.									
37	Lucknow ...	507,177	3	...	3	...	235	·46	56	·11
38	Unao	807,981	11	·01	18	·02	597	·74	49	·06
39	Rae Bareli ...	920 220	4	...	197	·21	213	·23	23	·02
40	Sitapur	1,048,342	2	...	...	...	11	·01	18	·02
41	Hardoi	1,037,228	27	·03	15	·01	54	·05	18	·02
42	Kheri	901,079	1	...	...	..	19	·02	24	·03
	FYZABAD DIVISION.									
43	Fyzabad	1,102,975	60	·05	28	·02	8,476	7·68	62	·06
44	Gonda	1,443,739	6	.	3	...	61	·04	24	·02
45	Bahraich ...	1,027,082	...	...	...	...	9	·01	18	·02
46	Sultanpur ...	1,003,912	...	...	...	..	4	...	133	·13
47	Partabgarh ...	855,130	...	...	...	...	5	...	29	·03
48	Bara Banki ...	1,007,258	1	...	4	...	764	·76	58	·06
	TOTAL OF RURAL DISTRICTS.	42,357,549	403	·01	447	·01	35,433	·84	3,954	·09

ANNUAL FORM No. VI (*a*).

population of 10,000 *and upwards*) *and* **Districts** (*exclusive of such towns*) *during the year* 1928—(continued).

11		12		13		14		15	16			17	18
Diarrhoea.		Pneumonia.		Phthisis.		Other respiratory diseases.		Deaths from child birth. *	Deaths under one year.			Infant mortality rate.	Number.
Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.		Male.	Female.	Total.		
105	·62	43	·25	3	·02	150	·88	19	447	376	823	171·60	1
29	·04	9	·01	15	·02	150	·19	39	3,330	3,025	6,355	170·94	2
85	·11	1	...	12	·02	123	·16	27	2,646	2,129	4,775	149·15	3
36	02	...	...	20	·01	281	·20	39	5,318	4,360	9,678	163·65	4
127	·13	3	...	8	·01	252	·25	36	3,943	3,320	7,263	161·23	5
77	·08	25	·03	28	·03	91	·10	12	3,027	2,393	5,420	124·58	6
114	·20	6	·01	9	·02	126	·23	14	963	788	1,751	86·24	7
18	·02	7	·01	14	·02	79	·10	8	2,178	1,781	3,959	127·63	8
4	..	...	..	1	...	18	·02	7	1,665	1,470	3,135	131·82	9
128	·16	8	·01	23	·03	156	·19	34	2,132	1,632	3,764	123·41	10
29	·03	19	·02	36	·04	112	·13	9	4,100	3,577	7,677	182·13	11
83	·13	9	01	2	...	171	·26	17	3,188	2,756	5,944	183·08	12
57	·06	...	...	2	.	61	·07	6	3,407	2,995	6,402	158·77	13
154	·15	2	...	21	·02	294	·29	31	4,503	3,970	8,473	172·53	14
25	·03	...	...	1	...	71	·09	6	3,729	3,334	7,063	204·45	15
23	·06	...	...	12	·03	39	·10	13	2,028	1,778	3,806	211·74	16
30	04	10	·01	12	·01	75	·09	13	3,335	2,697	6,032	188·40	17
27	·04	...	...	4	...	59	·08	7	2,160	1,689	3,849	149·19	18
6	·01	6	·01	7	·01	35	·04	10	1,872	1,406	3,278	112·03	19
14	·02	1	..	6	·01	128	·20	12	1,698	1,404	3,102	127·22	20
52	·04	22	·02	33	·03	144	·11	12	3,386	2,827	6,213	157·68	21
54	·10	32	·06	14	·03	146	·27	17	2,397	2,105	4,502	181·43	22
4	·01	2	...	2	...	96	·25	5	1,150	1,016	2,166	141·78	23
27	·06	153	·33	2	...	2,647	5·83	9	1,952	1,588	3,540	182·77	24
8	·01	.	...	.	...	215	·38	2	1,546	1,217	2,763	92·22	25
26	·03	6	·01	7	·01	74	·10	8	2,822	2,070	4,892	162·60	26
38	·06	...	...	...	...	57	·08	16	2,367	1,935	4,302	156·12	27
43	·04	4	...	1	...	30	·03	3	3,155	2,313	5,468	158·89	28
25	·03	...	...	23	·03	34	·04	8	2,120	1,598	3,718	139·92	29
60	·07	1	...	11	·01	127	·16	24	1,987	1,456	3,443	132·19	30
15	...	1	..	22	·01	166	·05	32	7,253	5,214	12,467	113·23	31
35	·02	...	...	3	...	85	·04	9	4,944	4,188	9,132	149·11	32
17	·01	...	...	12	·01	134	·09	44	4,019	3,236	7,255	146·52	33
22	·08	26	·10	11	·04	116	·45	22	992	935	1,927	239·41	34
358	·67	60	·11	56	·10	476	·90	40	1,825	1,624	3,449	135·47	35
77	·16	28	·06	24	·05	189	·39	21	1,603	1,505	3,108	139·45	36
35	·07	55	·11	23	·04	147	·29	12	1,927	1,532	3,459	165·66	37
17	·02	20	·02	20	·02	246	·30	10	2,209	1,815	4,024	141·79	38
5	...	2	...	5	...	55	·06	1	1,631	1,294	2,925	111·46	39
24	·02	6	...	12	·01	49	·05	8	3,330	2,781	6,111	150·27	40
32	·03	...	...	2	..	83	·08	3	3,061	2,592	5,653	144·49	41
34	·04	13	·01	7	·01	41	·04	8	2,800	2,245	5,045	149·94	42
6	...	3	...	13	·01	75	·07	7	3,354	2,632	5,986	165·15	43
13	·01	...	...	4	..	134	·09	9	2,835	2,324	5,159	133·92	44
14	·01	...	...	2	...	43	·04	...	3,472	2,729	6,201	172·80	45
13	·01	17	·02	19	·02	159	·16	16	3,184	2,563	5,747	175·17	46
4	...	1	...	7	·01	86	·10	3	2,366	1,730	4,096	155·29	47
22	·02	7	·01	18	·02	62	·06	4	2,899	2,205	5,104	153·35	48
2,251	·05	608	·01	589	·01	8,390	·20	712	132,255	108,149	240,404	151·34	

* NOTE.—By the term "Deaths from child-birth" is meant "deaths during or within 14 days of labour."

Paragraphs 23 of section V and 14 and 23 of section VI.]

SUPPLEMENTARY

Deaths registered from **Certain Causes** *in the* **Towns** *(having a*
of the United Provinces

1	2	3	4	5		6		7	
Number.	Districts.	Towns.	Population according to census of 1921.	Malaria.		Enteric fever.		Measles.	
				Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.
		B.—Towns.							
1	Dehra Dun	Dehra ...	33,500	34	1·01	60	1·79	4	·12
2		Mussooree ...	(a) 8,297	1	·08	1	·08	1	·08
3	Saharanpur	Hardwar Union	30,795	...	...	...	...	4	·13
4		Saharanpur ...	62,261	...	...	...	...	6	·10
5		Deoband ...	17,891	...	...	...	...	...	...
6		Gangoh ...	11,843	115	9·71	1	·08	4	·34
7		Roorkee ...	12,246	...	...	1	·08	1	·08
8	Muzaffarnagar.	Kairana ...	16,683	...	...	...	...	6	·36
9		Kandhla ...	10,365	186	17·94	...	...	2	·19
10		Muzaffarnagar ...	23,937	412	17·21	35	1·46	8	·33
11	Meerut ...	Meerut ...	77,711	3	·04	4	·05	16	·20
12		Hapur ...	20,388	269	13·19	21	1·03	11	·54
13		Ghaziabad ...	12,343	219	17·74	17	1·38	...	...
14	Bulandshahr.	Khurja ..	25,719	433	16·83	9	·35	..	..
15		Sikandrabad ...	16,857	240	14·24	3	·18	21	1·24
16		Bulandshahr ...	19,509	6	·31	5	·25	19	·97
17		Jahangirabad ...	10,279	116	11·28	1	·10	1	·10
18	Aligarh ...	Aligarh or Koil...	66,963	...	...	62	·93	72	1·07
19		Hathras ...	38,763	1	·02	102	2·63	3	·08
20		Atrauli ...	13,018	179	13·75	11	·84	...	...
21	Muttra ...	Muttra ...	48,724	66	1·35	122	2·50	15	·31
22		Brindaban ...	14,632	350	23·92	...	...	25	1·71
23	Agra ..	Agra ...	163,750	2,072	12·65	480	2·93	121	·74
24		Firozabad ...	20,183	...	...	22	1·09	11	·54
25	Mainpuri ...	Mainpuri ...	14,352	143	9·96	...	...	...	...
26		Shikohabad ...	10,374	98	9·45	...	...	3	·29
27	Etah ...	Kasganj ...	20,988	345	16·44	17	·80	5	·24
28		Soron ...	10,959	154	14·05	...	...	...	...
29	Bareilly ...	Bareilly ...	119,175	193	1·62	...	...	1	·01
30		Aonla ...	13,132	110	8·38	3	·23	4	·30
31	Bijnor ...	Nagina ...	18,736	243	12·97	...	...	18	·96
32		Najibabad ...	18,504	23	1·24	...	...	18	·97
33		Bijnor ...	18,095	186	10·28	...	...	22	1·21
34		Sherkot ...	13,889	128	9·21	22	1·58	1	·07
35		Chandpur ...	11,032	165	14·96	...	...	2	·18
36		Kiratpur ...	14,869	7	·47	1	·07	8	·54
37	Budaun ...	Ujhani ...	11,186	174	15·55	..	...	1	·09
38		Budaun ...	39,118	666	17·02	101	2·58	18	·46
39		Sahaswan ...	15,972	290	18·16	2	·12	1	·06
40	Moradabad	Moradabad ...	82,671	1,278	15·46	23	·28	26	·31
41		Sambhal ...	41,585	539	12·96	1	·02	24	·58
42		Amroha ...	40,448	325	8·03	1	·02	1	·02
43		Chandausi ...	25,164	293	11·64	68	2·70	2	·07
44	Shahjahanpur.	Tilhar ...	16,584	...	...	...	...	...	...
45		Shahjahanpur ...	68,782	39	·57	67	·97	26	·38

(a) Rates calculated on average population 12,943.

ANNUAL FORM No. VI (*a*).
population of 10,000 *and upwards*) *and* **Districts** (*exclusive of such towns*) *during the year* 1928—(contd.).

8		9		10		11		12		13		14		
Relapsing fever.		Kala Azar.		Other fevers.		Dysentery.		Diarrhoea.		Pneumonia.		Phthisis.		
Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Number.
...	...	...	...	169	5·04	48	1·43	32	·95	233	6·95	126	3·76	1
...	...	...	...	32	2·47	...	...	2	·15	31	2·39	5	·39	2
...	...	...	...	703	22·83	27	·88	85	2·76	42	1·36	44	1·43	3
...	...	...	...	1,854	29·78	18	·29	92	1·48	78	1·25	...	...	4
...	...	...	...	371	20·74	6	·33	27	1·51	...	..	1	·05	5
2	·17	1	·08	151	12·75	6	·51	21	1·77	10	84	9	·76	6
...	...	...	...	246	20·09	4	·33	27	2·20	...	...	...	...	7
...	...	...	...	357	21·40	5	·30	14	·84	...	...	1	·06	8
...	...	...	..	...	...	...	...	1	·10	...	...	...	...	9
1	·04	...	...	18	·75	5	·21	30	1·25	...	...	11	·46	10
...	...	...	...	707	9·10	14	·18	63	·81	31	·40	235	3·02	11
...	...	...	...	...	...	9	·44	33	1·62	...	...	...	...	12
...	...	...	...	3	·24	...	...	1	·08	...	...	...	...	13
...	...	...	...	2	·08	29	1·13	78	3·03	23	·89	43	1·67	14
..	...	...	...	69	4·09	11	·65	38	2·25	6	·35	25	1·48	15
37	1·90	1	·05	164	8·41	9	·46	12	·61	...	...	4	·20	16
...	...	..	...	55	5·35	1	·10	1	·10	...	..	...	...	17
...	...	...	...	1,403	20·95	58	·87	136	2·03	166	2·47	172	2·57	18
...	...	...	...	259	6·68	16	·41	142	3·66	120	3·09	35	·90	19
...	...	...	...	...	...	37	2·84	103	7·91	...	...	...	...	20
...	...	...	...	452	9·28	60	1·23	108	2·22	201	4·12	159	3·26	21
...	..	...	...	18	1·23	7	·48	40	2·73	35	2·39	...	...	22
...	...	...	...	19	·12	69	·42	225	1·37	1,320	8·06	491	3·00	23
...	...	...	...	227	11·25	1	·05	74	3·67	...	...	...	...	24
...	...	...	...	1	·07	...	...	...	...	...	..	...	...	25
...	...	...	...	...	...	...	...	5	·48	1	·10	5	·48	26
...	...	...	...	9	·43	9	·43	24	1·14	...	...	1	·05	27
...	...	...	...	122	11·13	...	...	26	2·37	...	...	...	...	28
...	...	...	...	754	6·33	43	·36	38	·32	134	1·12	335	2·81	29
...	...	...	...	64	4·87	5	·38	50	3·80	...	...	...	...	30
...	...	...	...	...	...	23	1·23	62	3·31	...	...	56	2·99	31
...	...	...	...	329	17·78	6	·32	17	·92	...	...	1	·05	32
...	...	...	...	58	3·20	16	·88	35	1·93	...	...	1	·05	33
...	...	...	...	4	·29	1	·07	6	·43	...	...	1	·07	34
...	...	...	..	...	...	8	·72	36	3·26	...	...	1	·09	35
...	...	...	...	90	6·05	18	1·21	12	·81	24	1·61	2	·13	36
...	...	...	...	14	1·25	4	·36	1	·09	...	...	...	...	37
...	...	...	...	33	·84	21	·54	49	1·25	39	1·00	46	1·17	38
...	...	...	...	4	·25	17	1·06	42	2·63	...	...	1	·06	39
...	...	...	...	544	6·58	77	·93	212	2·56	...	..	18	·22	40
...	...	...	...	...	...	32	·77	122	2·93	146	3·51	115	2·76	41
...	...	...	...	53	1·31	39	·96	72	1·78	100	2·47	127	3·14	42
...	...	...	...	3	·12	14	·56	113	4·49	46	1·83	75	2·98	43
...	..	...	...	317	19·17	10	·60	16	·96	2	·12	40	2·41	44
...	...	...	...	570	8·29	33	·48	99	1·44	158	2·30	142	2·06	45

Paragraphs 23 of section V and 14 and 23 of section VI.]

SUPPLEMENTARY ANNUAL FORM No. VI (a).

Deaths registered from **Certain Causes** *in the* **Towns** *(having a population of* 10,000 *and upwards) and* **Districts** *(exclusive of such towns of the United Provinces during the year* 1928—(contd.).

1	2	3	4	15		16	17			18
Number.	Districts.	Towns.	Population according to census of 1921.	Other respiratory diseases. Deaths.	Other respiratory diseases. Ratio.	Deaths from child birth*	Deaths under one year. Male.	Deaths under one year. Female.	Deaths under one year. Total.	Infant mortality rate.
		B.—Towns. (contd.).								
1	Dehra Dun	Dehra ...	**33,500**	108	3·22	16	144	131	275	212·68
2		Mussooree .	**(a)8,297**	13	1·00	...	32	26	58	298·97
3	Saharanpur	Hardwar Union.	**30,795**	53	1·72	6	196	170	366	292·80
4		Saharanpur	**62,261**	260	4·17	53	508	491	999	281·96
5		Deoband ...	**17,891**	12	·67	5	157	117	274	242·48
6		Gangoh ...	**11,843**	16	1·35	9	77	74	151	250·83
7		Roorkee ..	**12,246**	32	2·61	9	70	57	127	233·03
8	Muzaffarnagar.	Kairana ...	**16,683**	3	·18	5	96	84	180	206·42
9		Kandhla ..	**10,365**	1	·10	...	38	35	73	168·98
10		Muzaffarnagar	**23,937**	109	4·55	9	115	119	234	210·05
11	Meerut ...	Meerut ...	**77,711**	287	3·69	18	255	237	492	170·42
12		Hapur ...	**20,388**	145	7·11	..	155	119	274	238·47
13		Ghaziabad ...	**12,343**	7	·57	...	45	34	79	135·27
14	Bulandshahr.	Khurja ..	**25,719**	111	4·31	10	183	182	365	255·42
15		Sikandrabad	**16,857**	30	1·78	3	152	136	288	288·29
16		Bulandshahr	**19,509**	299	15·33	6	119	115	234	251·34
17		Jahangirabad	**10,279**	35	3·40	1	46	40	86	149·30
18	Aligarh ...	Aligarh or Koil.	**66,963**	94	1·40	15	494	433	927	274·42
19		Hathras ...	**38,763**	137	3·53	23	295	266	561	260·32
20		Atrauli ...	**13,018**	4	·31	2	93	76	169	220·34
21	Muttra ...	Muttra ...	**48,724**	280	5·75	29	350	322	672	231·48
22		Brindaban...	**14,632**	58	3·96	4	68	62	130	202·18
23	Agra ..	Agra ...	**163,750**	440	2·69	80	1,303	1,102	2,405	215·21
24		Firozabad ...	**20,183**	54	2·67	7	146	100	246	262·54
25	Mainpuri ..	Mainpuri ...	**14,352**	1	·07	8	30	32	62	196·82
26		Shikohabad	**10,374**	6	·58	2	7	11	18	56·43
27	Etah ...	Kasganj ...	**20,988**	39	1·86	5	116	84	200	224·21
28		Soron ...	**10,959**	26	2·37	6	105	89	194	337·98
29	Bareilly ...	Bareilly ...	**119,175**	499	4·19	31	414	370	784	181·78
30		Aonla ..	**13,132**	81	6·17	5	102	98	200	278·55
31	Bijnor ...	Nagina ...	**18,736**	58	3·09	3	130	129	259	259·26
32		Najibabad ...	**18,504**	31	1·67	9	116	119	235	237·13
33		Bijnor ...	**18,095**	12	·66	4	122	107	229	216·45
34		Sherkot ...	**13 889**	4	·29	2	27	20	47	117·50
35		Chandpur ...	**11,032**	23	2·08	2	67	62	129	183·50
36		Kiratpur ...	**14,869**	67	4·51	6	72	50	122	213·66
37	Budaun ...	Ujhani ...	**11,186**	12	1·07	..	32	44	76	167·40
38		Budaun ...	**39,118**	77	1·97	15	308	256	564	273·39
39		Sahaswan ...	**15,972**	29	1·81	8	151	93	244	259·85
40	Moradabad	Moradabad ..	**82,671**	846	10·23	60	646	555	1,201	245·05
41		Sambhal ...	**41,585**	307	7·38	16	257	236	493	215·57
42		Amroha ...	**40,448**	204	5·04	28	225	195	420	190·65
43		Chandausi ...	**25,164**	107	4·25	14	179	170	349	265·00
44	Shahjahanpur.	Tilhar ...	**16,584**	75	4·52	9	165	148	313	317·77
45		Shahjahanpur	**68,782**	487	7·08	37	397	374	771	264·22

(a) Rates calculated on average population 12,943.

* NOTE—By the term "Deaths from child-birth" is meant "deaths during or within 14 days of labour."

SUPPLEMENTARY ANNUAL FORM No. VI (*a*)—(*contd.*).

Deaths registered from **Certain Causes** *in the* **Towns** (*having a population of* 10,000 *and upwards*) *and* **Districts** (*exclusive of such towns*) *of the United Provinces during the year* 1928—(contd.).

1	2	3	4	5		6		7	
Number.	Districts.	Towns.	Population according to census of 1921.	Malaria.		Enteric fever.		Measles.	
				Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.
		B.—Towns—(concld.).							
46	Pilibhit ..	Pilibhit ...	32,344	331	10·23	...	...	9	·28
47	Farrukhabad.	Farrukhabad-cum-Fatehgarh.	48,331	156	3·23	155	3·21	33	·68
48		Kanauj ...	18,258	140	7·66	7	·38	2	·11
49	Etawah ...	Etawah ...	41,558	100	2·41	1	·02	1	·02
50	Cawnpore...	Cawnpore ..	195,085	2	·01	129	·66	248	1·27
51	Fatehpur ...	Fatehpur ...	14,948	...	..	..	..	1	·07
52	Allahabad...	Allahabad ...	145,605	5	·03	48	·33	69	·47
53	Jhansi ...	Jhansi ...	51,363	1	·02	..	..	101	1·97
54		Mau ...	12,554	236	18·80	2	·16	...	...
55		Lalitpur ...	11,504	274	2·38	..	..	1	·09
56	Jalaun ...	Kalpi ...	10,037	136	13·55	...	...	5	·50
57		Konch ..	14,503	...	...	...	...	3	·21
58	Hamirpur...	Mahoba ...	11,648	251	21·55	...	...	5	·43
59	Banda ...	Banda ...	20,029	35	1·75	...	...	1	·05
60	Benares ...	Benares ...	195,373	466	2·38	16	·08	95	·49
61	Mirzapur ...	Mirzapur Bindhachal.	54,994	849	15·44	...	...	15	·27
62	Jaunpur ...	Jaunpur ..	32,569	...	...	...	...	5	·15
63	Ghazipur ...	Ghazipur ...	24,708	188	7·61	2	·08	2	·08
64		Sherpur ...	10,236	98	9·57	...	..	...	..
65	Ballia ...	Ballia ...	18,215	74	4·06	4	·22	2	·11
66	Gorakhpur	Gaura Barhaj	12,497	150	12·00	2	·16	2	·16
67		Gorakhpur ...	50,498	...	...	...	...	10	·20
68	Basti ...	Basti ...	17,691	40	2·26	13	·73	4	·23
69	Azamgarh...	Mubarakpur ...	12,500	...	...	...	...	4	·32
70		Azamgarh ...	14,788	178	12·04	20	1·35	3	·20
71		Mau	17,998	141	7·83	9	·50	5	·28
72	Naini Tal...	Naini Tal ...	(*b*)10,392	4	·30	...	...	1	·07
73		Kashipur ...	10,576	63	5·96	50	4·73	1	·09
74	Lucknow ...	Lucknow ...	217,167	100	·46	33	·15	44	·20
75	Unao ...	Unao ...	11,147	...	...	...	...	...	...
76	Rae Bareli	Rae Bareli ...	16,183	92	5·68	...	...	...	...
77	Sitapur ..	Khairabad ...	11,522	158	13·71	13	1·13	9	·78
78		Laharpur ...	11,185	21	1·88	..	...	...	...
79		Sitapur ...	18,432	...	...	...	...	58	3·15
80	Hardoi ...	Shahabad ..	18,696	292	15·62	...	...	4	·21
81		Sandila ...	14,074	319	22·66	...	...	...	...
82		Hardoi ...	14,412	209	14·50	10	·69	..	..
83	Kheri ...	Lakhimpur ...	12,396	63	5·08	48	3·87	3	·24
84	Fyzabad ...	Fyzabad-Ajodhya.	51,342	..	..	1	·02	14	·27
85		Tanda ...	18,258	333	18·24	...	...	6	·33
86	Gonda ...	Gonda ...	13,228	227	17·16	..	...	12	·91
87		Balrampur ..	16,131	205	12·71	34	2·11	63	3·90
88	Bahraich ...	Bahraich ..	27,371	126	4·60	29	1·06	8	·29
89		Nanpara ...	10,924	222	20·32	...	...	2	·18
90	Bara Banki	Nawabganj ...	12,369	1	·08	6	·48	5	·40
91		Rudauli ..	10,327	151	14·62	...	...	4	·39
		Total of towns	3,018,238	16,538	5·48	1,895	·63	1,392	·46
		Total of Rural districts.	42,357,549	670,463	15·83	7,299	·17	3,956	·09
		Total for the Province.	45,375,787	687,001	15·14	9,194	·20	5,348	·12

(*b*) Rates calculated on average population 13,454.

Paragraphs 23 of Section V and 14 aud 23 of Section VI.]

SUPPLEMENTARY

Deaths registered from **Certain Causes** *in the* **Towns** *(having a*
of the United Provinces

1	2	3	4	8		9		10		11	
Number.	Districts.	Towns.	Population according to census of 1921.	Relapsing fever.		Kala Azar.		Other fevers.		Dysentery.	
				Deaths.	Ratio	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.
		B.—Towns—(concld.)									
46	Pilibhit ...	Pilibhit ...	32,344	...	...	...	..	453	14·00	25	·77
47	Farrukhabad.	Farrukhabad-cum-Fatehgarh.	48,331	...	..	...	...	15	·31	72	1·49
48		Kanauj ...	18,258	...	...	..	...	5	·27	3	·16
49	Etawah ...	Etawah ...	41,558	...	...	..	.	653	15·71	5	·12
50	Cawnpore ...	Cawnpore ...	195,085	...	...	...	...	3,075	15·76	91	·47
51	Fatehpur ..	Fatehpur ...	14,948	...	..	...	...	278	18·60	14	·94
52	Allahabad ...	Allahabad ...	145,605	...	...	2	·01	1,190	8·17	75	·51
53	Jhansi ...	Jhansi ...	51,363	...	.	..	...	1,280	24·92	5	·10
54		Mau ...	12,554	...	...	...	...	...	...	...	...
55		Lalitpur ...	11,504	..	...	...	...	1	·09	5	·43
56	Jalaun ...	Kalpi ...	10,037	..	...	...	..	...	...	...	...
57		Konch ...	14,503	...	...	.	...	235	16·20	..	...
58	Hamirpur...	Mahoba ...	11,648	...	...	...	...	...	...	3	·26
59	Banda ...	Banda ...	20,029	..	...	...	...	136	6·79	4	·20
60	Benares ...	Benares ...	195,373	..	..	18	·09	4,846	24·80	309	1·58
61	Mirzapur ...	Mirzapur Bindhachal.	54,994	...	...	1	·02	...	...	21	·38
62	Jaunpur ...	Jaunpur ...	32,569	45	1·38	...	...	352	10·81	11	·34
63	Ghazipur ...	Ghazipur ...	24,708	...	...	...	...	...	...	5	·20
64		Sherpur ..	10,236	...	..	..	..	..	..	..	..
65	Ballia ...	Ballia ...	18,215	..	.	...	...	...	...	12	·66
66	Gorakhpur	Gaura Barhaj	12,497	2	·16	...	...	2	·16	2	·16
67		Gorakhpur ..	50,498	...	..	.	..	1,099	21·76	19	·38
68	Basti ...	Basti ...	17,691	...	...	1	·06	129	7·29	7	·39
69	Azamgarh..	Mubarakpur	12,500	...	...	...	...	...	...	5	·40
70		Azamgarh ...	14,788	3	·20	...	...	9	·61	7	·47
71		Mau ...	17,998	...	...	1	·05	2	·11	17	·94
72	Naini Tal...	Naini Tal	(b)10,392	...	...	...	...	49	3·64	13	·97
73		Kashipur ...	10,576	17	1·61	...	...	...	...	13	1·28
74	Lucknow ...	Lucknow ...	217,167	...	...	2	·01	1,933	8·90	279	1·28
75	Unao ...	Unao ...	11,147	...	...	...	...	190	17·04	7	·63
76	Rae Bareli	Rae Bareli ...	16,183	3	·18	...	...	238	14·71	9	·56
77	Sitapur ...	Khairabad ...	11,522	...	...	...	...	...	...	19	1·65
78		Laharpur ...	11,185	...	...	...	...	105	9·39	4	·36
79		Sitapur ...	18,432	...	...	...	...	·353	19·15	12	·65
80	Hardoi ...	Shahabad ...	18,696	...	...	...	...	...	...	3	·16
81		Sandila ...	14,074	...	...	...	...	1	·07	12	·85
82		Hardoi ...	14,412	...	...	..	...	2	·14	8	·55
83	Kheri ...	Lakhimpur...	12,396	...	.	...	...	35	2·82	3	·24
84	Fyzabad ...	Fyzabad Ajodhya.	51,342	...	...	...	...	575	11·20	106	2·06
85		Tanda ...	18,258	...	..	...	...	...	...	35	1·92
86	Gonda ...	Gonda ...	13,228	...	...	...	...	...	...	1	·07
87		Balrampur...	16,131	...	...	.	..	...	...	8	·49
88	Bahraich ...	Bahraich ..	27,371	...	...	...	.	390	14·25	3	·11
89		Nanpara ...	10,924	...	...	..	...	4	·37	4	·37
90	Bara Banki	Nawabganj...	12,369	..	...	...	...	95	7·68	7	·56
91		Rudauli ...	10,327	...	...	...	...	13	1·26	11	1·06
		Total of towns	3,018,238	110	·04	27	·01	27,991	9·27	2,090	·69
		Total of Rural districts.	42,357,549	403	·01	447	·01	35,433	·83	3,954	·09
		Total for the Province.	45,375,787	513	·01	474	·01	63,424	1·40	6,044	·13

(b) Rates calculated on average population 13,454.

ANNUAL FORM No. VI (*a*).
opulation of 10,000 *and upwards*) *and* **Districts** (*exclusive of such towns*) *urin g the year* 1928—(concld.).

12		13		14		15		16	17			18	19
Diarrhœa.		Pneumonia.		Phthisis.		Other respiratory diseases.		Deaths from child birth.*	Deaths under one year.			Infant mortality rate.	Numbers.
Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.		Male.	Female.	Total.		
61	1·88	1	·03	...	...	445	13·76	12	292	224	516	287·95	46
104	2·15	403	8·34	232	4·80	151	3·12	19	397	329	726	301·37	47
49	2·68	...	..	21	1·15	41	2·24	3	93	99	192	244·27	48
100	2·41	89	2·14	133	3·20	180	4·33	13	499	427	926	379·35	49
271	1·39	1,090	5·59	898	4·60	920	4·71	48	1,565	1,390	2,955	383·91	50
19	1·27	..	..	..	...	53	3·54	8	94	88	182	224·69	51
179	1·23	96	·66	422	2·90	696	4·78	56	963	717	1,680	234·15	52
53	1·03	48	·93	53	1·03	120	2·34	31	581	528	1,109	346·56	53
13	1·03	...	..	1	·08	127	10·12	5	97	117	214	305·71	54
44	3·82		...	...	.	72	6·26	4	86	89	175	284·09	55
15	1·49		...	20	1·99	104	10·36	...	74	71	145	281·01	56
14	·96	121	8·34	..	..	75	5·17	.	94	75	169	214·74	57
.	...	...	..	..	...	54	4·63		67	41	108	182·74	58
4	·20	...		..	.	58	2·89	4	51	49	100	177·62	59
667	3·41	126	·64	430	2·20	1,248	6·39	89	1,524	1,292	2,816	262·42	60
62	1·12	...	..	..	...	119	2·16	8	371	249	620	212·47	61
19	·58	10	·31	11	·34	38	1·17	2	97	81	178	189·97	62
19	·77	.	...	30	1·21	18	·73	4	73	45	118	167·85	63
..	.	...	..	...	...	...	...	.	12	13	25	117·37	64
12	·66	...	...	..		...	..	1	21	33	54	118·94	65
3	·24	...	..	4	·32	15	1·20		30	10	40	86·77	66
22	·43	...	...	95	1·88	24	·47	7	318	276	594	216·39	67
3	·17	1	·06	12	·68	20	1·13	1	41	51	91	228·64	68
6	·48	78	6·24	28	2·24	13	1·04	1	59	36	95	176·25	69
11	·74	...	...	1	·07	16	1·08	1	50	42	92	175·57	70
19	1·05	.		40	2·22	46	2·55	5	85	68	153	184·11	71
8	.59	108	8·03	31	2·30	44	3·27	7	44	26	70	225·08	72
46	4·35	...		48	4·54	92	8·70	7	63	41	104	253·04	73
421	1·94	1,802	8·30	1,095	5·04	439	2·02	84	1,753	1,644	3,397	301·42	74
...	..	...	...	...	...	7	·63	.	79	47	126	269·23	75
14	·86	23	1·42	21	1·30	83	5·13	1	107	88	195	257·25	76
1	·09	...	.	1	·09	12	1·04	.	70	60	130	211·73	77
3	·27	...	...	1	·09	11	·98	...	24	22	46	103·60	78
30	1·63	...	...	...	..	23	1·25	7	143	118	261	274·16	79
14	·75	...	.	...	...	29	1·55	9	82	84	166	218·13	80
32	2·27	...	...	...	...	30	2·13	...	119	105	224	285·71	81
13	·90	...	...	...	...	29	2·01	3	58	49	107	218·37	82
10	·81	..	...	...	...	15	1·21	6	24	22	46	161·40	83
62	1·21	11	·21	50	·97	327	6·37	15	269	205	474	311·64	84
24	1·31	2	11	34	1·86	19	1·04	8	119	102	221	240·22	85
...	...	...	...	...	.	2	·15	...	48	33	81	189·69	86
1	·06	...	...	...		152	9·42	3	106	59	165	235·04	87
15	·55	...	...	2	·07	45	1·64	5	143	113	256	216·22	88
16	1·46	..	..	..	...	25	2·29	2	77	60	137	274·00	89
6	·48	20	1·62	21	1·70	14	1·13	...	50	34	84	215·38	90
10	·97	...	...	...	...	45	4·36	3	62	50	112	225·81	91
4,917	1·63	6,975	2·31	6,063	2·01	11,675	3·87	1,062	19,879	17,171	37,050	252·67	
2,251	·05	608	·01	589	·01	8,390	·20	712	132,255	108,149	240,404	151·34	
7,168	·16	7,583	·17	6,652	·15	20,065	·44	1,774	152,134	125,320	277,454	159·90	

* NOTE.—By the term "Deaths from child-birth" is meant "deaths during or within 14 days of labour."

Paragraphs 2 and 3 of Section VI.] ANNUAL

Deaths registered from **cholera** *in the districts of the*

1	2	3		4						
		Circles of registration.		Villages.						
Number.	District.	Number in each district.	Number from which deaths from cholera were reported.	Number in each district.	Number from which deaths from cholera were reported.	January.	February.	March.	April.	May.
	MEERUT DIVISION.									
1	Dehra Dun ...	14	2	494	2	...	..	...	...	4
2	Saharanpur ...	30	13	1,618	13		...	1	1	16
3	Muzaffarnagar ...	27	7	928	7	1	.	...	2	2
4	Meerut	45	8	1,534	17	...	...	2	4	20
5	Bulandshahr ...	34	18	1,417	50	..	.	2	11	47
	AGRA DIVISION.									
6	Aligarh	37	12	1,748	20	...	..	...	2	15
7	Muttra	32	6	891	6	...	...	5	..	1
8	Agra ...	37	14	1,233	36	...	..	...	1	59
9	Mainpuri	23	15	1,368	37	..	2	..	23	20
10	Etah ...	31	15	1,551	70		...	...	6	30
	ROHILKHAND DIVISION.									
11	Bareilly	31	8	2,196	8	..	...	...	2	...
12	Bijnor	31	17	2,154	18	2	1	3	7	7
13	Budaun	28	9	1,659	13		...	1	2	1
14	Moradabad	34	5	2,657	5	...	2	1	...	...
15	Shahjahanpur ...	23	18	2,388	60	..	...	..	1	11
16	Pilibhit ...	15	5	1,094	13	3	2	...	3	3
	ALLAHABAD DIVISION									
17	Farrukhabad ..	24	14	1,717	43	...	...	...	2	13
18	Etawah	25	22	1,487	55	...	...	1	3	14
19	Cawnpore	28	16	1,972	36	..	..	1	...	33
20	Fatehpur	16	5	1,436	8	..	...	...	...	...
21	Allahabad	36	29	3,864	132	...	2	11	44	126
	JHANSI DIVISION.									
22	Jhansi	39	12	1,323	27	.	...	..	1	2
23	Jalaun	15	15	848	84	..	...	...	35	131
24	Hamirpur	24	23	798	90	..	...	...	15	140
25	Banda	24	20	1,231	95	..	...	..	3	67
	BENARES DIVISION.									
26	Benares	17	16	2,117	146	3	...	63	326	228
27	Mirzapur	23	16	3,142	155	...	...	35	29	22
28	Jaunpur	22	18	3,169	157	...	...	2	548	462
29	Ghazipur	22	20	2,390	177	6	...	10	98	120
30	Ballia	19	18	1,740	526	...	...	1	8	36
	GORAKHPUR DIVISION.									
31	Gorakhpur	47	46	7,208	739	8	16	335	1,771	703
32	Basti	25	24	6,921	413	14	...	91	833	619
33	Azamgarh	34	31	4,809	258	...	1	20	136	252
	KUMAUN DIVISION.									
34	Naini Tal	19	13	1,650	68	1	2	...	1	1
35	Almora	6	3	5,082	6	...	...	...	...	...
36	Garhwal	15	9	3,605	17	..	...	...	...	1
	LUCKNOW DIVISION.									
37	Lucknow	15	11	937	42	..	...	4	30	98
38	Unao	19	7	1,715	15	...	...	...	..	24
39	Rae Bareli	14	12	1,748	75	..	..	...	18	188
40	Sitapur	24	8	2,311	37	..	.	..	1	7
41	Hardoi	25	19	1,897	33	..	2	1	5	10
42	Kheri	16	11	1,731	43	...	...	1	36	359
	FYZABAD DIVISION.									
43	Fyzabad	23	20	2,951	402	...	...	7	387	1,264
44	Gonda	25	20	2,910	623	.	6	3	583	1,594
45	Bahraich	19	12	1,894	47	...	...	..	35	164
46	Sultanpur	14	14	2,490	536	...	...	5	91	586
47	Partabgarh ...	16	14	2,188	340	...	.	2	29	179
48	Bara Banki ...	23	20	2,070	202	..	...	3	20	171
	Total for the Province	1,185	710	106,281	6,002	38	36	611	5,153	7,850

FORM No. VII.

United Provinces during each month of the year 1928.

5							6			7			8	9
							Total.			Ratio of deaths per 1,000 of population.				
June.	July.	August.	September.	October.	November.	December.	Male.	Female.	Total.	Male.	Female.	Total.	Mean ratio per 1,000 of previous five years.	Number.
18	6	6	...	...	2	...	28	8	**36**	·22	·09	**·17**	**·10**	1
34	...	23	1	...	25	2	59	44	**103**	·11	·10	**·11**	**·05**	2
1	3	...	...	...	1	...	8	2	**10**	·02	..	**·01**	**·01**	3
24	21	17	8	...	...	...	65	31	**96**	·08	·04	**·06**	**·15**	4
139	65	93	1	...	2	...	194	166	**360**	·35	·33	**34**	**·36**	5
11	13	64	4	...	...	...	71	38	**109**	·12	·08	**·10**	**·40**	6
...	...	2	11	2	56	...	43	34	**77**	·13	·12	**·12**	**·10**	7
62	32	53	23	7	5	..	119	123	**242**	·23	·29	**·26**	·10	8
67	142	77	11	...	.	...	196	146	**342**	·47	·43	**·46**	**·30**	9
72	46	103	13	...	...	...	137	133	**270**	·30	·34	**·32**	**·27**	10
...	4	18	6	2	1	...	19	14	**33**	·03	·03	**·03**	**·16**	11
3	2	5	3	3	...	2	21	17	**38**	·05	·05	**·05**	**·05**	12
29	2	1	1	...	...	12	31	18	**49**	·06	·04	**·05**	**·07**	13
2	19	1	1	12	1	...	18	21	**39**	·03	·04	**·03**	**·06**	14
5	...	41	214	538	33	14	435	422	**857**	·96	1·09	**1·02**	**·09**	15
2	...	...	47	35	18	...	58	55	**113**	·25	·27	**·26**	**·17**	16
51	45	149	14	...	2	...	150	126	**276**	·32	·32	**·32**	**·31**	17
108	127	260	42	...	...	...	290	265	**555**	·72	·81	**·76**	**·15**	18
150	61	181	46	6	2	..	266	214	**480**	·42	·42	**·42**	**·14**	19
16	...	...	4	...	...	...	15	5	**20**	·04	·02	**·03**	**·09**	20
290	182	64	29	6	40	23	421	346	**767**	·58	·51	**·55**	**·21**	21
58	82	24	12	1	...	...	85	95	**180**	·27	·33	**·30**	**·37**	22
297	313	136	38	14	1	...	490	475	**965**	2·30	2·47	**2·38**	**·21**	23
365	681	248	68	2	9	...	807	721	**1,528**	3·40	3·15	**3·28**	**·24**	24
421	451	48	...	...	1	...	542	449	**991**	1·80	1·56	**1·68**	**1·10**	25
325	126	134	66	14	207	108	858	742	**1,600**	1·76	1·60	**1·68**	**·69**	26
152	126	187	10	10	46	11	321	307	**628**	·89	·85	**·87**	**1·27**	27
668	311	248	44	19	115	103	1,362	1,158	**2,520**	2·37	1·99	**2·18**	**1·24**	28
294	123	131	158	112	62	28	631	511	**1,142**	1·58	1·34	**1·46**	**·74**	29
260	465	554	382	356	86	20	1,063	1,105	**2,168**	2·49	2·73	**2·61**	**·89**	30
559	516	458	669	922	315	48	3,190	3,130	**6,320**	1·92	1·95	**1·93**	**1·12**	31
440	159	203	141	480	496	186	1,831	1,831	**3,662**	1·86	1·95	**1·90**	**·89**	32
483	222	77	91	126	154	26	837	751	**1,588**	1·08	1·00	**1·04**	**1·26**	33
2	...	4	4	...	39	129	106	77	**183**	·66	·66	**·66**	**·25**	34
...	...	...	...	...	10	16	15	11	**26**	·06	·04	**·05**	**·68**	35
3	5	...	..	...	37	19	38	27	**65**	·12	·11	**·13**	**·86**	36
171	56	68	...	2	2	66	268	229	**497**	·68	·69	**·69**	**·26**	37
73	25	139	5	1	1	5	136	137	**273**	·31	·35	**·33**	**·54**	38
401	48	27	15	27	16	20	398	362	**760**	·84	·78	**·81**	**·51**	39
1	21	28	123	106	5	2	157	137	**294**	·27	·27	**·27**	**·04**	40
49	32	70	7	31	5	2	110	104	**214**	·19	·21	**·20**	**·57**	41
53	..	36	61	142	33	9	353	377	**730**	·73	·88	**·80**	**·14**	42
595	270	70	38	201	408	415	1,880	1,775	**3,655**	3·19	3·04	**3·12**	**1·23**	43
763	245	43	67	36	31	23	1,784	1,610	**3,394**	2·37	2·23	**2·30**	**·21**	44
23	...	26	62	6	3	...	174	145	**319**	·31	·28	**·30**	**·16**	45
323	93	87	241	681	1,213	200	1,751	1,769	**3,520**	3·54	3·47	**3·51**	**1·19**	46
943	101	52	1	...	68	78	760	693	**1,453**	1·82	1·58	**1·70**	**·62**	47
528	373	126	41	45	70	17	676	718	**1,394**	1·26	1·46	**1·35**	**·10**	48
9,334	5,564	4,382	2,823	3,945	3,621	1,584	23,267	21,674	**44,941**	·98	1·00	**·99**	**·49**	

Paragraph 5 of section VI.] ANNUAL

Deaths registered from **small-pox** *in the districts*

1	2	3		4		5						
		Circles of registration.		Villages.								
Number.	District.	Number in each district.	Number from which deaths from small-pox were reported.	Number in each district.	Number from which deaths from small-pox were reported.	January.	February.	March.	April.	May.	June.	July.
	MEERUT DIVISION.											
1	Dehra Dun ...	14	4	494	5	...	1	1	1	12	35	5
2	Saharanpur ...	30	10	1,618	13	2	1	3	2	2	2	...
3	Muzaffarnagar ...	27	8	928	11	1	8	3	2	6	2	...
4	Meerut	45	6	1,534	6	...	...	7	9	14	17	7
5	Bulandshahr ...	34	14	1,417	20	1	11	4	10	10	2	1
	AGRA DIVISION.											
6	Aligarh ...	37	6	1,748	10	5	...	7	10	11	4	1
7	Muttra	32	2	891	3	3	...	1	1	2	2	...
8	Agra	37	9	1,233	14		1	.	20	35	14	10
9	Mainpuri ...	23	3	1,368	8	8	.	3		5	16	1
10	Etah	31	5	1,551	9	7	...	...	1	1	...	2
	ROHILKHAND DIVISION.											
11	Bareilly	31	2	2,196	2	1	..	2	...	...	1	...
12	Bijnor	31	11	2,154	12	1	3	1	16	26	21	5
13	Budaun	28	5	1,659	6	...	1	2	...	2	4	...
14	Moradabad	31	2	2,657	2	...	..	...	..	1	2	...
15	Shahjahanpur ...	23	4	2,388	4	...	...	2	..	..	...	...
16	Pilibhit	15	1	1,094	1	..	..	.	...	...	...	...
	ALLAHABAD DIVISION.											
17	Farrukhabad ...	24	4	1,717	5	...	1	1	...	2	...	...
18	Etawah	25	5	1,487	5	2	1	4	1	2	.	2
19	Cawnpore ...	28	2	1,972	2	2	...	1	9	12	...	...
20	Fatehpur ...	16	1	1,436	1	...	...	2	...	...	...	...
21	Allahabad ...	36	16	3,864	63	9	10	17	21	31	51	32
	JHANSI DIVISION.											
22	Jhansi	39	5	1,323	5	..	...	...	5	7	6	2
23	Jalaun	15	2	848	2	.	...	...	...	..	2	...
24	Hamirpur ...	24	...	798	...	...	.	...	...	..	...	...
25	Banda	24	2	1,231	3	...		...	...	..	4	4
	BENARES DIVISION.											
26	Benares	17	13	2,117	25	5	6	9	24	7	2	3
27	Mirzapur ...	23	13	3,142	68	16	6	16	12	18	12	39
28	Jaunpur ...	22	12	3,169	22	18	13	22	20	59	35	13
29	Ghazipur ...	22	14	2,390	88	23	18	26	41	28	24	31
30	Ballia	19	13	1,740	71	...	3	10	17	21	24	14
	GORAKHPUR DIVISION.											
31	Gorakhpur ...	47	24	7,208	55	19	25	41	34	31	39	16
32	Basti	25	5	6,921	15	2	2	1	6	..	5	8
33	Azamgarh ...	34	25	4,809	70	37	60	64	109	134	111	49
	KUMAUN DIVISION.											
34	Naini Tal ...	19	1	1,650	2		..	...	2	2	...	...
35	Almora	6	4	5,082	16	2	2	1	6	5	24	2
36	Garhwal ...	15	6	3,605	8	...	..	3	2	11	9	17
	LUCKNOW DIVISION.											
37	Lucknow ..	15	5	937	6	1	2	3	22	57	44	25
38	Unao	19	1	1,715	1	...	2	...	...	1	3	1
39	Rae Bareli ...	14	1	1,748	5	5	4	4	4	1	..	...
40	Sitapur	24	4	2,311	4	1	2	8	4	2	...	3
41	Hardoi	25	8	1,897	13	4	...	1	..	2	1	...
42	Kheri	16	3	1,731	4	...	1	...	4	1	..	...
	FYZABAD DIVISION.											
43	Fyzabad ...	23	12	2,951	28	2	5	5	17	12	10	7
44	Gonda	25	5	2,910	5	...	..	...	...	1	4	...
45	Bahraich ...	19	5	1,894	5	...	..	4	1	2	...	...
46	Sultanpur ...	14	5	2,490	7	...	5	...	...	1	...	2
47	Partabgarh ...	16	6	2,188	15	...	3	...	16	27	17	6
48	Bara Banki ...	23	3	2,070	3	...	..	...	...	2	4	3
	Total for the Province	1,185	317	106,281	748	177	197	279	449	606	553	311

FORM No. VIII.

of the United Provinces during each month of the year 1928.

					6			7		8			9	10
					Total.			Number of deaths among children.		Ratio of deaths per 1,000 of population.				
August.	September.	October.	November.	December.	Male.	Female.	Total.	Under one year.	One to 10 years.	Male.	Female.	Total.	Mean ratio per 1,000 of previous five years.	Number.
1	2	...	...	...	29	29	**58**	15	17	·23	·34	·27	·12	1
...	...	...	1	...	7	6	**13**	7	6	·01	·01	·01	·10	2
...	...	...	35	8	35	30	**65**	21	24	·08	·08	·08	·12	3
1	...	1	5	40	45	56	**101**	23	48	·05	·08	·07	·11	4
..	...	1	4	20	30	34	**64**	27	37	·05	·07	·06	·24	5
1	...	..	...	13	30	22	**52**	26	21	·05	·04	·05	·29	6
1	...	1	...	1	6	6	**12**	2	7	·02	·02	·02	·17	7
2	...	...	...	18	57	43	**100**	46	31	·11	·10	·11	·17	8
..	...	...	...	...	16	17	**33**	15	8	·04	·05	·04	·13	9
1	...	.	1	12	17	8	**25**	11	14	·04	·02	·03	·11	10
...	...	...	..	...	2	2	**4**	1	1	..	...	...	·12	11
2	...	...	3	...	40	38	**78**	21	43	·10	·11	·10	·35	12
...	...	..	...	1	4	6	**10**	5	3	·01	·01	·01	·24	13
...	...	...	...	...	2	1	**3**	...	3	...	...	...	·27	14
1	...	...	...	2	4	1	**5**	2	3	·01	...	..	·10	15
1	.	...	...	..	...	1	**1**	1	...		...	...	·07	16
1	.		...	...	3	2	**5**	...	5	·01	...	...	·15	17
1	1	2	.	1	9	8	**17**	5	10	·02	·02	·02	·08	18
...	...	...	...	6	15	15	**30**	8	22	·02	·03	·03	·08	19
..	..	...	...	...	2	...	**2**	...	1	...	...		·03	20
11	2	..	...	19	103	100	**203**	42	26	·14	·15	·14	·20	21
...	...		...	.	11	9	**20**	8	10	·03	·03	·03	·14	22
...	1	...	..	.	2	1	**3**	2	1	·01	...	·01	·03	23
...	.	...	...	...	...	...	...	...	..	..	...	...	·05	24
...	...	...	...	...	5	3	**8**	2	6	·02	·01	·01	·07	25
3	...	1	..	1	30	31	**61**	39	22	·06	·07	·06	·26	26
2	21	...	10	3	82	73	**155**	38	29	·23	·20	·21	·19	27
14	3	4	2	13	114	102	**216**	22	156	·20	·17	·19	·12	28
11	2	2	...	...	110	96	**206**	26	55	·27	·25	·26	·22	29
7	2	1	1	2	50	52	**102**	32	39	·12	·13	·12	·17	30
1	...	1	...	...	113	94	**207**	60	145	·07	·06	·06	·17	31
..	...	...	...	...	11	13	**24**	9	11	·01	·01	·01	·06	32
12	4	1	8	16	277	323	**600**	91	255	·36	·43	·39	·22	33
...	...	...	...	...	1	3	**4**	...	4	·01	·02	·01	·20	34
...	...	1	...	...	28	15	**43**	3	18	·10	·06	·08	·14	35
...	1	...	...	...	26	17	**43**	9	10	·11	·07	·09	·05	36
7	2	2	3	16	98	86	**184**	46	118	·25	·26	·25	·36	37
1	..	..	...	...	5	3	**8**	...	1	·01	·01	·01	·08	38
...	...	...	...	...	9	9	**18**	3	4	·02	·02	·02	·16	39
..	.	...	...	...	12	8	**20**	9	11	·02	·01	·02	·05	40
4	2	2	..	1	8	9	**17**	5	12	·01	·02	·01	·11	41
...	...	.	1	...	2	5	**7**	3	4	...	·01	·01	·07	42
7	...	..	1	1	34	33	**67**	7	23	·06	·06	·06	·19	43
...	...	...	1	1	6	1	**7**	6	1	·01	...	..	·07	44
1	...	...	...	.	6	2	**8**	1	5	·01	...	·01	·08	45
...	1	..	...	1	8	2	**10**	5	5	·02	...	·01	·07	46
2	..	5	5	3	44	40	**84**	11	73	·10	·09	·10	·11	47
...	...	...	...	...	5	4	**9**	3	6	·01	·01	·01	·03	48
96	44	25	76	199	1,553	1,459	**3,012**	718	1,354	·06	·07	·07	·14	

Paragraph 12 of section VI.] ANNUA

Deaths registered from **fevers** *in the* **districts** *of the Unit*

1	2	3		4						
Number.	District.	Circles of registration.		Villages.		January.	February.	March.	April.	May
		Number in each district.	Number from which deaths from fevers were reported.	Number in each district.	Number from which deaths from fevers were reported.					
	MEERUT DIVISION.									
1	Dehra Dun ..	14	14	494	119	177	186	191	245	31
2	Saharanpur ...	30	30	1,618	1,618	1,692	1,648	2,004	2,184	2,69
3	Muzaffarnagar ...	27	27	928	928	1,259	1,077	1,248	1,570	1,65
4	Meerut ...	45	45	1,534	1,497	2,467	2,056	2,042	2,459	3,45
5	Bulandshahr ...	34	34	1,417	1,348	1,692	1,581	1,561	2,098	2,30
	AGRA DIVISION.									
6	Aligarh	37	37	1,748	1,748	1,308	1,277	1,235	1,783	2,07
7	Muttra	32	32	891	891	735	697	613	867	97
8	Agra	37	37	1,233	1,233	1,063	1,063	1,115	1,708	2,02
9	Mainpuri ...	23	23	1,368	923	1,105	991	782	1,231	95
10	Etah	31	31	1,551	1,547	1,191	944	855	1,356	1,40
	ROHILKHAND DIVISION.									
11	Bareilly	31	31	2,196	2,196	2,291	2,144	1,783	2,400	2,10
12	Bijnor	31	31	2,154	1,613	1,186	998	1,114	1,293	1,67
13	Budaun	28	28	1,659	1,659	2,045	1,933	1,871	2,028	1,74
14	Moradabad .	34	34	2,657	1,993	2,534	2,106	2,798	3,159	2,77
15	Shahjahanpur ...	23	23	2,388	229	1,270	1,246	1,202	1,721	2,00
16	Pilibhit	15	15	1,094	1,094	1,027	808	947	1,148	1,15
	ALLAHABAD DIVISION.									
17	Farrukhabad ...	24	24	1,717	1,442	1,128	1,060	1,024	1,778	1,87
18	Etawah	25	25	1,487	1,160	694	767	848	971	1,17
19	Cawnpore ...	28	28	1,972	1,125	837	744	898	1,230	1,33
20	Fatehpur ...	16	16	1,436	926	384	439	389	566	47
21	Allahabad .	36	36	3,864	1,901	1,286	1,226	1,039	1,290	1,37
	JHANSI DIVISION.									
22	Jhansi	39	38	1,323	1,323	836	727	836	1,012	1,40
23	Jalaun	15	15	848	620	366	347	303	440	58
24	Hamirpur ...	24	24	798	692	343	428	417	464	60
25	Banda	24	24	1,231	1,134	484	434	487	545	5[illegible]
	BENARES DIVISION.									
26	Benares... ...	17	17	2,117	1,043	1,033	977	1,135	1,613	1,6[illegible]
27	Mirzapur ...	23	23	3,142	2,047	811	610	892	843	1,1[illegible]
28	Jaunpur	22	22	3,169	2,807	1,002	1,058	1,020	1,773	1,3[illegible]
29	Ghazipur ...	22	22	2,390	2,311	760	666	630	877	7[illegible]
30	Ballia	19	18	1,740	1,647	655	588	562	674	8[illegible]
	GORAKHPUR DIVISION.									
31	Gorakhpur ...	47	47	7,208	6,247	3,009	2,629	2,772	3,860	3,7[illegible]
32	Basti	25	25	6,921	5,087	1,888	1,634	2,044	2,509	2,8[illegible]
33	Azamgarh ...	34	34	4,809	4,128	1,460	1,384	1,340	1,938	2,2[illegible]
	KUMAUN DIVISION.									
34	Naini Tal ...	19	19	1,650	1,649	569	544	590	652	7[illegible]
35	Almora	6	5	5,082	2,155	577	508	552	616	1,2[illegible]
36	Garhwal... ...	15	15	3,605	2,108	646	680	716	817	1,3[illegible]
	LUCKNOW DIVISION.									
37	Lucknow ...	15	15	937	550	660	554	729	985	1,1[illegible]
38	Unao	19	19	1,715	1,207	1,107	701	832	1,040	9[illegible]
39	Rae Bareli ...	14	14	1,748	1,748	904	781	911	1,207	1,C[illegible]
40	Sitapur	24	24	2,311	2,311	1,375	1,049	1,218	1,679	2,C[illegible]
41	Hardoi	25	25	1,897	1,897	1,058	958	1,021	1,548	1,6[illegible]
42	Kheri	16	16	1,731	949	1,115	1,041	969	2,010	2,3[illegible]
	FYZABAD DIVISION.									
43	Fyzabad... ...	23	23	2,951	2,242	1,219	1,061	929	1,499	1,6[illegible]
44	Gonda	25	25	2,910	1,932	858	1 306	945	1,910	1,7[illegible]
45	Bahraich ...	19	15	1,894	89	1,212	1,174	1,068	1,721	1,5[illegible]
46	Sultanpur ...	14	14	2,490	1,773	928	902	1,124	1,507	1,6[illegible]
47	Partabgarh ...	16	16	2,188	873	709	758	768	1,093	1,C[illegible]
48	Bara Banki ...	23	23	2,070	1,935	1,170	929	1,283	1,370	1,5[illegible]
	Total for the Province	1,185	1,178	106,281	79,694	54,125	49,419	51,652	69,287	75,[illegible]

FORM No. IX.

Provinces during each month of the year 1928.

5							6			7			8	9
							Total.			Ratio of deaths per 1,000 of population.				
June.	July.	August.	September.	October.	November.	December.	Male.	Female.	Total.	Male.	Female.	Total.	Mean ratio per 1,000 of previous five years.	Number.
346	269	274	231	242	231	206	1,546	1,370	**2,916**	12·06	16·30	13·74	14·84	1
2,674	1,804	1,500	1,425	1,507	1,801	1,918	11,680	11,172	**22,852**	22·64	26·50	24·38	27·90	2
2,004	1,561	1,243	792	1,009	853	1,184	8,229	7,222	**15,451**	18·94	20·06	19·45	22·72	3
4,862	2,780	2,125	1,975	1,873	1,402	2,781	16,338	13,940	**30,278**	20·17	20·23	20·20	25·24	4
3,676	2,182	1,846	1,632	1,586	1,350	2,081	12,489	11,102	**23,591**	22·20	22·03	22·12	28·87	5
2,665	1,810	1,463	1,261	1,406	1,393	1,489	10,043	9,118	**19,161**	17·45	18·75	18·05	22·05	6
1,166	862	549	457	575	458	608	4,673	3,887	**8,560**	13·70	13·99	13·82	16·70	7
2,045	1,316	1,186	1,015	967	933	1,226	8,292	7,368	**15,660**	16·31	17·72	16·94	18·87	8
1,623	1,292	974	828	658	695	734	6,762	5,109	**11,871**	16·41	15·20	15·87	22·85	9
1,456	1,244	1,284	848	842	748	724	7,141	5,759	**12,900**	15·90	15·13	15·55	19·33	10
2,281	1,585	1,587	1,491	1,947	2,101	2,092	12,704	11,098	**23,802**	23·31	23·66	23·48	24·14	11
1,572	1,194	985	988	1,237	1,397	1,875	7,988	7,524	**15,512**	20·50	21·46	20·96	25·16	12
1,855	1,698	1,489	1,373	1,460	849	1,677	10,615	9,403	**20,018**	20·11	21·01	20·52	25·04	13
2,488	2,044	2,083	1,817	2,027	1,765	2,466	14,567	13,492	**28,059**	22·79	24·11	23·41	27·10	14
2,485	1,486	1,518	1,176	1,880	1,724	2,611	10,881	9,439	**20,320**	24·03	24·43	24·21	23·96	15
1,237	825	830	752	1,085	1,355	1,703	6,815	6,056	**12,871**	29·74	29·91	29·82	25·28	16
1,778	1,437	1,376	1,006	1,050	959	1,229	8,547	7,150	**15,697**	18·22	18·44	18·32	25·28	17
1,521	1,199	891	769	614	596	605	5,892	4,756	**10,648**	14·57	14·45	14·52	18·55	18
1,472	1,414	1,312	1,273	1,008	988	1,233	7,552	6,190	**13,742**	11·85	12·10	11·96	15·66	19
488	641	679	556	518	391	458	3,335	2,649	**5,984**	9·76	8·52	9·17	12·13	20
1,487	1,424	1,604	1,469	1,574	1,419	1,471	9,224	7,443	**16,667**	12·77	10·91	11·87	14·66	21
1,825	1,161	1,103	1,170	1,205	1,011	1,143	7,210	6,222	**13,432**	22·85	21·39	22·15	23·67	22
758	693	720	502	302	354	263	3,039	2,591	**5,630**	14·24	13·49	13·89	18·97	23
1,154	917	739	646	645	424	539	3,964	3,416	**7,380**	16·72	14·97	15·86	21·78	24
857	927	775	605	610	575	625	4,122	3,359	**7,481**	13·70	11·70	12·72	17·63	25
1,654	1,448	1,688	1,480	1,631	1,669	1,318	8,882	8,427	**17,309**	18·23	18·13	18·18	17·26	26
1,174	949	1,259	1,149	1,118	797	952	6,123	5,567	**11,690**	16·93	15·35	16·14	18·61	27
1,577	1,387	1,453	1,224	1,516	1,347	1,541	9,097	7,197	**16,294**	15·83	12·39	14·11	13·79	28
1,050	961	1,182	1,185	1,080	952	906	5,880	5,157	**11,037**	14·73	13·48	14·12	14·96	29
924	1,002	1,319	1,128	1,037	837	987	5,662	4,858	**10,520**	13·27	12·01	12·66	13·56	30
3,805	3,479	4,293	4,327	4,295	4,126	4,669	24,623	20,396	**45,019**	14·84	12·68	13·78	13·66	31
2,405	2,381	1,946	1,584	3,245	2,861	2,653	14,902	13,123	**28,025**	15·13	13·95	14·56	15·43	32
2,484	2,098	2,290	2,172	1,934	1,987	1,987	12,295	11,031	**23,326**	15·85	14·67	15·26	16·40	33
739	427	472	458	541	820	1,158	4,019	3,704	**7,723**	24·99	31·91	27·89	26·33	34
1,589	1,146	812	661	645	653	849	5,083	4,819	**9,902**	19·16	18·18	18·67	19·99	35
1,382	1,243	1,179	820	770	765	794	5,602	5,560	**11,162**	24·06	22·03	23·00	20·64	36
1,246	1,206	1,043	691	673	735	1,023	5,711	5,001	**10,712**	14·55	15·07	14·79	14·38	37
1,548	1,015	1,041	885	1,017	677	1,060	6,517	5,382	**11,899**	15·03	13·96	14·53	16·58	38
1,346	870	785	757	693	829	1,149	6,235	5,046	**11,281**	13·11	10·93	12·05	13·86	39
2,236	1,900	1,582	1,531	1,695	1,405	2,130	10,707	9,140	**19,847**	18·41	18·00	18·22	18·73	40
2,456	1,797	1,517	1,186	1,294	1,539	1,247	9,523	7,768	**17,291**	16·25	15·59	15·94	13·61	41
1,938	1,894	1,318	1,559	1,928	1,983	2,277	11,069	9,263	**20,332**	22·81	21·63	22·26	19·96	42
1,842	1,883	1,811	1,640	1,743	1,452	2,025	10,018	8,765	**18,783**	17·01	15·02	16·02	15·62	43
2,026	1,914	1,675	1,833	1,797	1,785	2,023	10,838	8,937	**19,775**	14·39	12·41	13·42	12·27	44
2,075	1,318	1,448	1,431	1,424	1,718	2,329	9,823	8,687	**18,510**	17·71	17·00	17·37	15·34	45
1,801	1,555	1,488	1,460	1,497	1,431	1,266	8,989	7,642	**16,631**	18·17	15·00	16·57	19·06	46
1,242	1,061	980	854	867	974	1,159	6,422	5,091	**11,513**	15·39	11·63	13·46	16·35	47
2,216	1,854	1,533	1,415	1,016	1,072	1,441	9,122	7,768	**16,890**	16·99	15·75	16·40	17·84	48
86,530	68,553	64,249	57,487	61,283	58,186	69,884	410,790	355,164	**765,954**	14·93	19·03	16·88	18·77	

Paragraph 17 of section VI.] ANNUAL

Deaths registered from **dysentery and diarrhoea** *in the districts*

1	2	3		4						
		Circles of registration		Villages.						
Number.	District.	Number in each district.	Number from which deaths from dysentery and diarrhoea were reported.	Number in each district.	Number from which deaths from dysentery and diarrhoea were reported.	January.	February.	March.	April.	May.
	MEERUT DIVISION.									
1	Dehra Dun ...	14	9	494	14	10	6	15	17	28
2	Saharanpur ..	30	19	1,618	27	22	12	10	25	46
3	Muzaffarnagar ...	27	13	928	22	6	12	7	16	25
4	Meerut ...	45	17	1,534	20	6	6	8	16	22
5	Bulandshahr ...	34	25	1,417	144	18	12	22	32	107
	AGRA DIVISION.									
6	Aligarh	37	13	1,748	15	29	20	24	43	89
7	Muttra	32	25	891	52	16	6	16	22	31
8	Agra	37	14	1,233	14	12	12	20	38	39
9	Mainpuri	23	5	1,368	5	...	...	1	...	2
10	Etah	31	19	1,551	24	9	13	17	18	19
	ROHILKHAND DIVISION.									
11	Bareilly	31	16	2,196	16	12	8	7	14	20
12	Bijnor	31	21	2,154	27	13	13	17	18	43
13	Budaun	28	15	1,659	19	11	11	15	20	34
14	Moradabad ...	34	29	2,657	66	48	35	80	115	92
15	Shahjahanpur ...	23	8	2,388	8	4	7	13	30	29
16	Pilibhit	15	6	1,094	6	4	6	6	21	16
	ALLAHABAD DIVISION.									
17	Farrukhabad ...	24	7	1,717	7	24	8	18	27	21
18	Etawah	25	9	1,487	9	13	7	12	21	22
19	Cawnpore	28	3	1,972	3	10	7	20	40	53
20	Fatehpur	16	13	1,436	17	4	7	5	6	5
21	Allahabad	36	21	3,864	21	14	23	12	33	27
	JHANSI DIVISION.									
22	Jhansi	39	19	1,323	21	6	7	14	14	16
23	Jalaun	15	7	848	8	2	1	2	4	5
24	Hamirpur	24	6	798	6	...	..	2	1	2
25	Banda	24	8	1,231	10	...	1	..	1	2
	BENARES DIVISION.									
26	Benares	17	13	2,117	21	53	43	82	92	106
27	Mirzapur	23	9	3,142	11	6	7	11	14	12
28	Jaunpur	22	13	3,169	20	7	2	..	5	9
29	Ghazipur	22	8	2,390	12	3	6	4	5	9
30	Ballia	19	17	1,740	143	24	20	10	32	20
	GORAKHPUR DIVISION.									
31	Gorakhpur	47	36	7,208	83	6	16	16	32	20
32	Basti	25	14	6,921	30	9	7	11	17	12
33	Azamgarh	34	26	4,809	72	8	9	11	33	16
	KUMAUN DIVISION.									
34	Naini Tal	19	16	1,650	120	5	6	16	18	23
35	Almora	6	6	5,082	265	1	19	24	54	115
36	Garhwal	15	14	3,605	351	77	57	71	84	356
	LUCKNOW DIVISION.									
37	Lucknow	15	11	937	17	23	22	41	81	109
38	Unao	19	8	1,715	23	15	6	11	7	7
39	Rae Bareli	14	10	1,748	21	2	1	1	8	6
40	Sitapur	24	16	2,311	21	3	6	9	13	16
41	Hardoi	25	15	1,897	23	8	2	8	29	15
42	Kheri	16	7	1,731	21	1	1	7	8	14
	FYZABAD DIVISION.									
43	Fyzabad	23	15	2,951	34	20	15	16	38	29
44	Gonda	25	7	2,910	7	..	...	5	8	5
45	Bahraich	19	5	1,894	5	..	4	2	8	7
46	Sultanpur	14	12	2,490	101	..	1	1	4	25
47	Partabgarh ...	16	10	2,188	12	..	1	...	8	1
48	Bara Banki ...	23	16	2,070	37	7	11	10	13	13
	Total for the Province...	1,185	651	106,281	2,031	571	502	730	1,203	1,740

FORM No. X.

of the United Provinces during each month of the year 1928.

5							6			7			8	9
							Total.			Ratio of deaths per 1,000 of population.				
June.	July.	August.	September.	October.	November.	December.	Male.	Female.	Total.	Male.	Female.	Total.	Mean ratio per 1,000 of previous five years.	Number.
35	24	31	15	22	16	18	132	105	**237**	1·03	1·25	**1·12**	**1·05**	1
37	33	35	43	31	32	25	212	139	**351**	·41	·33	**.37**	**·34**	2
19	12	19	13	12	11	11	87	76	**163**	·20	·21	**·20**	**·13**	3
25	10	18	14	13	19	13	98	72	**170**	·12	·10	**·11**	**·24**	4
29	48	37	31	19	34	20	211	198	**409**	·37	·39	**·38**	**·29**	5
60	53	109	64	38	39	38	287	319	**606**	·50	·65	**·57**	**·70**	6
36	21	44	54	27	27	40	193	147	**340**	·56	·53	**·55**	**·44**	7
33	30	64	48	42	36	25	216	183	**399**	·42	·44	**·43**	**·49**	8
...	2	1	2	...	1	1	6	4	**10**	·01	·01	**·01**	**·01**	9
18	18	29	24	10	17	18	112	98	**210**	·25	·26	**·25**	**·30**	10
23	14	19	15	11	17	23	98	85	**183**	·18	·18	**·18**	**·17**	11
30	39	37	51	52	34	26	198	175	**373**	·51	·50	**·50**	**·37**	12
22	11	23	18	8	16	12	114	87	**201**	·21	·19	**·21**	**·17**	13
75	92	148	78	62	49	47	500	421	**921**	·78	·75	**·77**	**·62**	14
12	12	9	18	23	21	8	104	82	**186**	·23	·21	**·22**	**·28**	15
12	7	7	8	16	11	10	64	60	**124**	·28	·30	**·29**	**·18**	16
14	21	27	18	19	32	32	142	119	**261**	·30	·31	**·30**	**·28**	17
7	8	9	6	4	18	8	77	58	**135**	·19	·18	**·18**	**·18**	28
48	41	46	27	29	40	21	205	177	**382**	·32	·35	**·33**	**·32**	19
8	7	12	7	9	7	5	44	38	**82**	·13	·12	**·12**	**·04**	20
14	30	57	24	43	29	16	183	139	**322**	·25	·20	**·23**	**·21**	21
14	14	28	25	32	16	16	101	101	**202**	·32	·35	**·33**	**·35**	22
8	5	10	3	2	2	1	26	14	**40**	·12	·07	**·10**	**·17**	23
2	8	7	2	5	1	4	15	19	**34**	·06	·08	**·07**	**·09**	24
1	5	7	1	4	1	...	11	12	**23**	·04	·04	**·04**	**·06**	25
94	68	87	65	66	135	121	592	420	**1,012**	1·21	·90	**1·06**	**·89**	26
7	10	28	8	5	17	11	78	58	**136**	·21	·16	**·19**	**·16**	27
12	15	4	13	11	19	5	56	46	**102**	·10	·08	**·09**	**·06**	28
8	10	5	5	8	2	6	38	33	**71**	·09	·09	**·09**	**·04**	29
28	34	50	33	44	15	24	190	144	**334**	·44	·36	**·40**	**·34**	30
15	23	19	20	16	35	51	163	106	**269**	·10	·06	**·08**	**·05**	31
8	8	6	4	11	6	3	58	44	**102**	·06	·05	**·05**	**·05**	32
20	21	24	25	24	22	21	131	103	**234**	·17	·14	**·15**	**·09**	33
15	14	15	15	12	20	26	103	82	**185**	·64	·71	**·67**	**·42**	34
182	119	71	25	38	46	53	370	377	**747**	1·39	1·42	**1·41**	**1·18**	35
385	280	124	70	49	59	110	811	911	**1,722**	3·48	3·61	**3·55**	**3·89**	36
86	92	85	37	37	87	91	426	365	**791**	1·08	1·10	**1·09**	**·70**	37
3	3	5	2	3	...	8	50	23	**73**	·11	·06	**·09**	**·04**	38
1	7	8	6	2	3	6	30	21	**51**	·06	·04	**·05**	**·05**	39
11	7	12	7	10	9	8	60	51	**111**	·10	·10	**·10**	**·10**	40
7	10	13	15	11	3	11	67	65	**132**	·11	·13	**·12**	**·09**	41
4	2	3	7	8	9	7	32	39	**71**	·06	·09	**·08**	**·03**	42
20	19	25	27	29	37	20	170	125	**295**	·29	·21	**·25**	**·17**	43
4	6	6	2	4	2	5	30	17	**47**	·04	·02	**·03**	**·02**	44
7	4	7	4	5	11	11	43	27	**70**	·08	·05	**·06**	**·04**	45
11	12	11	12	29	30	10	76	70	**146**	·15	·14	**·14**	**·02**	46
2	4	4	1	2	4	6	19	14	**33**	·04	·03	**·04**	**·01**	47
9	10	9	10	7	9	6	55	59	**114**	·10	·12	**·11**	**·05**	48
1,519	1,343	1,454	1,022	964	1,106	1,058	7,084	6,128	**13,212**	·30	·28	**·29**	**·26**	

Paragraph 19 of Section VI.] ANNUAL

Deaths registered from **respiratory diseases** *in the districts*

1	2	3		4		5					
		Circles of registration.		Villages.							
Number.	District.	Number in each district.	Number from which deaths from respiratory diseases were reported.	Number in each district.	Number from which deaths from respiratory diseases were reported.	January.	February.	March.	April.	May.	June.
	MEERUT DIVISION.										
1	Dehra Dun ...	14	11	494	20	34	46	52	58	83	64
2	Saharanpur ...	30	18	1,618	78	54	64	106	79	73	49
3	Muzaffarnagar ...	27	12	928	19	49	31	57	25	20	16
4	Meerut ...	45	25	1,534	29	84	91	89	142	122	68
5	Bulandshahr ...	34	29	1,417	135	81	66	89	94	96	57
	AGRA DIVISION.										
6	Aligarh ...	37	16	1,748	16	130	102	104	90	88	53
7	Muttra ...	32	24	891	37	120	59	85	90	69	82
8	Agra	37	14	1,233	18	328	254	203	236	245	127
9	Mainpuri ...	23	8	1,368	8	1	3	2	3	5	2
10	Etah	31	24	1,551	31	29	28	28	23	11	20
	ROHILKHAND DIVISION.										
11	Bareilly ...	31	24	2,196	24	113	147	200	137	94	82
12	Bijnor	31	22	2,154	26	43	34	75	67	49	24
13	Budaun ...	28	16	1,659	22	20	29	40	28	17	8
14	Moradabad ...	34	31	2,657	71	318	318	336	258	184	123
15	Shahjahanpur ...	23	15	2,388	23	95	91	92	101	127	92
16	Pilibhit ...	15	9	1,094	9	42	44	50	49	42	30
	ALLAHABAD DIVISION.										
17	Farrukhabad ...	24	13	1,717	23	109	83	79	110	103	73
18	Etawah ...	25	13	1,487	19	47	36	56	74	69	34
19	Cawnpore ...	28	14	1,972	17	157	259	337	278	208	196
20	Fatehpur ...	16	13	1,436	26	16	18	19	29	12	14
21	Allahabad ...	36	26	3,864	33	106	107	164	139	132	111
	JHANSI DIVISION.										
22	Jhansi ...	39	22	1,323	30	36	29	72	53	87	57
23	Jalaun ...	15	11	848	49	23	28	16	30	45	31
24	Hamirpur ...	24	22	798	534	121	154	151	180	260	359
25	Banda ...	24	8	1,231	87	23	12	27	31	31	50
	BENARES DIVISION.										
26	Benares ...	17	10	2,117	20	140	154	182	171	173	141
27	Mirzapur ...	23	6	2,142	6	14	16	16	26	15	20
28	Jaunpur ...	22	8	3,169	11	11	4	3	5	11	5
29	Ghazipur ...	22	6	2,390	6	8	5	6	8	11	11
30	Ballia ...	19	16	1,740	67	11	10	10	15	13	15
	GORAKHPUR DIVISION.										
31	Gorakhpur ...	47	39	7,203	72	14	20	41	21	16	22
32	Basti	25	19	6,921	39	9	12	11	9	16	7
33	Azamgarh ...	34	19	4,809	62	29	24	28	26	31	33
	KUMAUN DIVISION.										
34	Naini Tal ...	19	16	1,650	69	60	57	46	35	48	38
35	Almora ...	6	6	5,082	203	12	62	51	55	77	67
36	Garhwal ...	15	13	3,605	50	21	12	18	8	44	36
	LUCKNOW DIVISION.										
37	Lucknow ...	15	11	937	25	268	299	421	369	414	283
38	Unao ...	19	8	1,715	48	43	21	32	37	17	37
39	Rae Bareli ...	14	12	1,748	50	13	11	6	13	17	7
40	Sitapur ...	24	17	2,311	26	13	10	11	14	15	10
41	Hardoi ...	25	16	1,897	44	18	24	27	21	12	8
42	Kheri ...	16	2	1,731	5	4	5	10	1	6	4
	FYZABAD DIVISION.										
43	Fyzabad ...	23	16	2,951	30	42	30	53	45	51	44
44	Gonda ...	25	7	2,[illegible]10	8	32	28	21	29	24	16
45	Bahraich ...	19	3	1,894	3	7	10	11	5	5	9
46	Sultanpur ...	14	10	2,490	84	9	3	7	9	68	30
47	Partabgarh ...	16	10	2,183	19	4	2	6	5	7	18
48	Bara Banki ...	23	11	2,070	21	16	16	20	18	20	18
	Total for the Province	1,185	720	106,281	2,352	2,977	2,968	3,566	3,349	3,383	2,712

FORM No. XI.

of the United Provinces during each month of the year 1928.

						6			7			8	9
						Total.			Ratio of deaths per 1,000 of population.			Mean ratio per 1,000 of previous five years.	
July.	August.	September.	October.	November.	December.	Male.	Female.	Total.	Male.	Female.	Total.		Number.
44	59	54	61	55	102	396	316	**712**	3·09	3·76	**3·35**	**2·59**	1
44	25	33	63	94	47	402	329	**731**	·78	·78	**·78**	**·58**	2
8	15	4	7	14	15	145	116	**261**	·33	·32	**·33**	**·14**	3
59	57	71	67	64	92	474	532	**1,006**	·58	·77	**·67**	**·74**	4
48	79	42	56	55	76	434	405	**839**	·77	·80	**·79**	**·46**	5
67	45	31	33	46	83	383	489	**872**	·66	1·00	**·82**	**·75**	6
42	47	52	51	77	100	443	431	**874**	1·30	1·55	**1·41**	**1·18**	7
143	169	132	131	140	247	1,212	1,193	**2,405**	2·38	2·87	**2·60**	**2·40**	8
..	7	2	...	4	3	19	13	**32**	·04	·04	**·04**	**·04**	9
22	13	11	24	18	26	138	115	**253**	·31	·30	**30**	**·26**	10
58	71	73	45	67	129	591	625	**1 216**	1·85	1·33	**1·20**	**·79**	11
20	25	17	30	34	45	220	243	**463**	·56	·69	**·62**	**·36**	12
19	20	18	14	21	33	150	117	**267**	·28	·28	**·27**	**·23**	13
113	161	100	124	172	201	1,255	1,153	**2,408**	1·96	2·06	**2·01**	**1·17**	14
56	49	57	79	70	67	482	494	**976**	1·07	1·28	**1·16**	**·98**	15
36	46	38	30	33	57	283	214	**497**	1·23	1·57	**1·15**	**1·05**	16
59	61	43	58	68	99	481	464	**945**	1·02	1·20	**1·10**	**·89**	17
28	23	31	19	19	29	240	225	**465**	·59	·68	**·63**	**·55**	18
233	285	250	246	248	259	1,390	1,566	**2,956**	2·18	3·62	**2·57**	**2·06**	19
19	12	10	18	9	12	113	75	**188**	·33	·24	**·29**	**·08**	20
111	130	97	110	103	103	728	685	**1,413**	1·01	1·00	**1·01**	**·88**	21
61	57	28	39	38	56	340	273	**613**	1·08	·94	**1·01**	**·72**	22
45	61	33	32	39	37	234	186	**420**	1·10	·97	**1·03**	**·87**	23
309	326	268	299	217	221	1,630	1,226	**2,856**	6·87	5·37	**6·14**	**7·46**	24
13	25	29	27	17	18	137	136	**273**	·45	·47	**·46**	**·27**	25
152	168	155	94	162	199	1,024	867	**1,891**	2·10	1·86	**1·99**	**1·94**	26
11	13	8	16	12	9	105	71	**176**	·29	·19	**·24**	**·19**	27
18	4	7	8	8	10	49	45	**94**	·08	·08	**·08**	**·07**	28
15	10	15	7	4	5	59	46	**105**	·15	·12	**·13**	**·08**	29
13	11	15	13	6	7	78	61	**139**	·18	·15	**·17**	**·10**	30
12	22	22	43	47	47	161	166	**327**	·10	·10	**·10**	**·09**	31
13	6	9	2	12	15	75	46	**121**	·08	·05	**·06**	**·04**	32
42	34	30	25	31	35	195	173	**368**	·25	·23	**·24**	**·16**	33
24	24	38	30	33	43	270	206	**476**	1·68	1·77	**1·72**	**1·25**	34
57	40	45	28	34	64	330	262	**592**	1·24	·99	**1·12**	**1·04**	35
42	12	4	3	7	34	149	92	**241**	·64	·36	**·50**	**·71**	36
261	244	201	212	253	336	1,644	1 917	**3,561**	4·19	5·78	**4·92**	**3·80**	37
39	21	17	8	13	8	189	104	**293**	·43	·27	**·36**	**·09**	38
29	17	24	20	16	16	104	85	**189**	·22	·18	**·20**	**·05**	39
6	9	5	5	7	10	76	39	**115**	·13	·08	**·10**	**·10**	40
15	13	5	13	12	5	110	63	**173**	·19	·13	**·16**	**·10**	41
1	1	3	5	27	9	54	22	**76**	·11	·05	**·08**	**·03**	42
47	56	41	36	43	46	294	240	**534**	·50	·41	**·45**	**·28**	43
21	16	21	19	21	44	148	144	**292**	·20	20	**·20**	**·07**	44
11	7	4	17	14	20	62	58	**120**	·11	·11	**·11**	**·06**	45
21	13	8	14	6	7	101	94	**195**	·20	·18	**·19**	**·09**	46
9	8	10	9	9	7	55	39	**94**	·13	·09	**·11**	**·07**	47
13	17	10	14	13	12	89	98	**187**	·16	·20	**·18**	**·08**	48
2,529	2,634	2,221	2,304	2,512	3,145	17,741	16,559	**34,300**	·74	·77	**·75**	**·61**	

ANNUAL

Deaths registered from **plague** *in the districts*

1	2	3		4						
Number.	District.	Circles of registration.		Villages.						
		Number in each district.	Number from which deaths from plague were reported.	Number in each district.	Number from which deaths from plague were reported.	January.	February.	March.	April.	May.
	MEERUT DIVISION.									
1	Dehra Dun ...	14	2	494	2	...	1	1	2	3
2	Saharanpur ...	30	25	1,618	138	221	507	1,572	2,243	1,213
3	Muzaffarnagar ...	27	26	928	155	240	506	1,769	1,993	910
4	Meerut	45	17	1,534	126	33	128	678	1,068	457
5	Bulandshahr ...	34	4	1,417	8	...	...	21	82	15
	AGRA DIVISION.									
6	Aligarh	37	1	1,748	1	...	1	1	...	...
7	Muttra	32	2	891	2	...	...	...	3	...
8	Agra	37	2	1,233	2	...	...	1	5	...
9	Mainpuri	23	...	1,368	...	...	...	...	...	...
10	Etah	31	8	1,551	40	...	...	27	55	3
	ROHILKHAND DIVISION.									
11	Bareilly	31	29	2,196	50	519	741	1,613	1,597	447
12	Bijnor	31	28	2,154	152	227	498	1,197	1,333	511
13	Budaun	28	23	1,659	342	323	690	1,758	2,418	585
14	Moradabad ...	34	28	2,657	262	201	687	2,092	2,713	892
15	Shahjahanpur ...	23	18	2,388	99	199	383	778	655	132
16	Pilibhit	15	15	1,094	57	43	187	553	482	107
	ALLAHABAD DIVISION.									
17	Farrukhabad ...	24	10	1,717	31	10	70	363	307	15
18	Etawah	25	...	1,487	...	...	...	...	...	...
19	Cawnpore	28	3	1,972	5	12	11	5	24	3
20	Fatehpur	16	1	1,436	16	21	30	32	33	...
21	Allahabad	36	15	3,864	184	93	179	412	175	49
	JHANSI DIVISION.									
22	Jhansi	39	...	1,323	...	...	...	...	...	...
23	Jalaun	15	1	848	1	...	...	1	...	...
24	Hamirpur	24	1	798	1	...	...	1	...	...
25	Banda	24	...	1,231	...	...	...	...	...	...
	BENARES DIVISION.									
26	Benares	17	9	2,117	42	...	2	31	65	21
27	Mirzapur	23	1	3,142	1	...	...	...	1	...
28	Jaunpur	22	8	3,169	23	25	80	115	130	7
29	Ghazipur	22	18	2,390	775	365	855	1,724	1,615	395
30	Ballia	19	10	1,740	334	153	334	563	273	44
	GORAKHPUR DIVISION.									
31	Gorakhpur ...	47	30	7,208	277	544	1,124	1,675	1,043	128
32	Basti	25	16	6,921	360	320	770	958	742	482
33	Azamgarh	34	30	4,809	682	660	1,917	3,220	2,026	207
	KUMAUN DIVISION.									
34	Naini Tal ...	19	14	1,650	44	79	220	247	85	21
35	Almora	6	4	5,082	4	...	...	2	1	3
36	Garhwal	15	2	3,605	2	...	...	...	7	...
	LUCKNOW DIVISION.									
37	Lucknow	15	4	937	6	...	5	33	28	9
38	Unao	19	9	1,715	72	65	182	296	247	56
39	Rae Bareli ...	14	9	1,748	70	45	144	365	273	94
40	Sitapur	24	14	2,311	132	151	346	486	251	59
41	Hardoi	25	15	1,897	49	157	365	532	523	117
42	Kheri	16	10	1,731	50	197	414	487	311	73
	FYZABAD DIVISION.									
43	Fyzabad	23	18	2,951	228	213	665	1,032	607	86
44	Gonda	25	6	2,910	81	34	154	315	127	9
45	Bahraich	19	1	1,894	1	...	...	...	...	...
46	Sultanpur	14	1	2,490	1	...	...	4	10	1
47	Partabgarh ...	16	5	2,188	65	4	28	83	100	7
48	Bara Banki ...	23	11	2,070	254	289	671	1,021	662	207
	Total for the Province...	1,185	404	103,281	5,227	5,413	12,895	26,064	24,315	7,368

FORM No. XII.

of the United Provinces during each month of the year 1928.

5							6			7			8	9
							Total.			Ratio of deaths per 1,000 of population.				
June.	July.	August.	September.	October.	November.	December.	Male.	Female.	Total.	Male.	Female.	Total.	Mean ratio per 1,000 of previous five years.	Number.
...	2	1	7	12	16	19	43	21	**64**	·33	·25	**·30**	...	1
23	3	...	7	13	76	93	2,590	3,381	**5,971**	5·02	8·02	**6·37**	·60	2
50	3	1	...	17	94	228	2,685	3,126	**5,811**	6·18	8·68	**7·32**	1·30	3
62	7	9	...	...	4	8	1,143	1,311	**2,454**	1·41	1·90	**1·64**	4·20	4
...	...	...	...	...	...	...	53	65	**118**	·09	·13	**·11**	4·82	5
...	...	...	...	...	...	...	1	1	**2**	...	..	...	·89	6
...	...	...	...	...	...	...	2	1	**3**	..	.	...	2·75	7
...	...	...	...	...	...	...	3	3	**6**	...	·01	**·01**	·49	8
...	...	...	...	..	...	...	..	...	...	..	...		...	9
2	8	1	...	..	4	20	49	71	**120**	·11	·19	**·14**	·05	10
29	4	...	...	..	8	33	2,171	2,820	**4,991**	3·98	6·01	**4·92**	·24	11
32	3	...	1	4	2	21	1,614	2,215	**3,829**	4·14	6·32	**5·17**	·31	12
90	8	6	...	...	19	17	2,508	3,406	**5,914**	4·75	7·61	**6·06**	·36	13
38	...	...	...	4	7	15	2,769	3,880	**6,649**	4·33	6·93	**5·55**	·87	14
19	5	6	...	4	...	...	959	1,222	**2,181**	2·12	3·16	**2·60**	·17	15
7	1	1	...	1	1	3	598	788	**1,386**	2·61	3·89	**3·21**	·07	16
2	1	...	...	...	5	19	327	465	**792**	·70	1·20	**·92**	·18	17
...	...	...	...	..	...	...	...	...	...	...	...	...	.09	18
...	3	...	1	..	...	...	33	26	**59**	·05	·05	**·05**	1·18	19
...	...	...	..	...	...	5	54	67	**121**	·16	·21	**·18**	1·00	20
7	...	3	...	2	1	23	421	523	**944**	·68	·77	**·67**	·63	21
...	...	...	...	...	..	...	...	...	...	...	...	...	·06	22
...	..	...	...	...	...	...	1	...	**1**	...	...	...	·12	23
...	...	...	...	...	...	...	1	...	**1**	...	...	...	·24	24
...	...	...	...	...	...	...	...	..	...	...	...	...	·42	25
...	...	4	2	...	8	28	74	87	**161**	·15	·19	**·17**	·84	26
...	...	...	...	...	...	...	...	1	**1**	...		...	·09	27
...	...	...	...	...	1	32	180	210	**390**	·31	·36	**·34**	·67	28
52	40	89	23	10	107	326	2,550	2,991	**5,541**	6·39	7·82	**7·09**	5·78	29
1	2	1	1	3	44	169	748	840	**1,588**	1·75	2·08	**1·91**	3·03	30
9	27	19	3	25	69	319	2,108	2,877	**4,985**	1·27	1·79	**1·52**	·89	31
93	48	35	8	3	108	280	1,654	2,193	**3,847**	1·68	2·33	**2·00**	1·72	32
44	31	95	14	1	110	666	3,956	5,035	**8,991**	5·10	6·69	**5·88**	5·39	33
...	...	...	4	26	6	...	366	322	**688**	2·28	2·77	**2·48**	·12	34
...	...	...	...	...	...	...	4	2	**6**	·01	·01	**·01**	...	35
...	...	...	...	...	...	...	7	...	**7**	·03	...	**·01**	...	36
...	...	...	...	1	...	...	26	50	**76**	·07	·15	**·10**	·09	37
7	...	..	...	...	2	20	389	486	**875**	·90	1·26	**1·07**	1·16	38
13	...	...	...	...	2	17	418	535	**953**	·88	1·16	**1·02**	·45	39
16	3	3	2	3	13	56	625	764	**1,389**	1·74	1·50	**1·27**	·67	40
3	...	...	...	...	2	49	695	1,053	**1,748**	1·19	2·11	**1·61**	·20	41
22	4	...	...	...	1	25	617	917	**1,534**	1·27	2·14	**1·68**	·21	42
5	21	19	19	7	20	74	1,135	1,633	**2,768**	1·93	2·80	**2·36**	1·47	43
1	3	6	4	...	16	38	314	423	**737**	·42	·59	**·50**	·07	44
...	3	7	1	...	...	...	3	8	**11**	...	·01	**·01**	·08	45
...	...	...	..	..	...	..	5	10	**15**	·01	·02	**·01**	·34	46
3	...	...	...	...	4	23	97	155	**252**	·23	·45	**·29**	·02	47
38	4	...	...	1	10	60	1,301	1,662	**2,963**	2·42	3·37	**2·88**	·52	48
668	234	306	97	137	760	2,686	35,297	45,646	**80,943**	1·48	2·11	**1·78**	1·11	

STATISTICAL STATEMENTS

AND

APPENDICES

(Vaccination)

Paragraphs 6–8 of Section VII.]

VACCINATION STATEMENT NO. I.—*Showing the particulars of vaccinatio*

Number.	Ranges and districts.		Population according to census of 1921.	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 vaccin		
										Total.	Successfu	
											Under one year.	One and under six years.
1	2		3	4	5.	6			7	8	9	10
						Male.	Female.	Total.				
1	First Range.	Dehra Dun ..	212,243	178	9	6,088	3,672	9,760	1,084·44	5,392	3,365	1,48
2		Saharanpur ..	937,471	439	18	21,242	17,637	38,879	2,159·94	35,813	30,789	2,75
3		Muzaffarnagar ..	794,265	475	16	16,239	13,778	30,017	1,876 06	29,902	23,765	2,46
4		Meerut ..	1,499,074	639	30	33,505	24,853	58,358	1,945·27	48,858	38,364	6,58
5		Bulandshahr ..	1,066,519	559	20	22,516	17 845	40,361	2,018·05	38,006	31,825	2,76
6		Aligarh ..	1,061,745	546	26	25,801	19,310	45,111	1,735·04	37,147	29,877	3 90
7		Muttra ..	619,138	427	14	14,198	10,696	24,894	1,778·14	22,725	1,632	2,84
8		Agra ..	924,155	498	22	28,574	18,194	46,768	2,125·82	35,781	24,111	5,94
9		Mainpuri ..	748,027	447	14	9,542	8,481	18,023	1,287·36	17,0,82	13,539	1,98
10		Etah ..	829,760	480	19	15,944	12,671	28,615	1,506·05	25,925	20,221	3,92
11		Bareilly ..	1,013,875	642	15	16,344	15,146	31,490	2,099·33	32,088	18,595	8,59
12		Bijnor ..	740,182	394	16	12,062	11,238	23,300	1,456·25	24,012	18,385	2,81
13		Budaun ..	975,347	485	18	18,176	14,728	32,904	1,828·00	30,748	23,867	4,70
14		Moradabad ..	1,198,653	524	23	22,862	20,190	43,052	1,871·83	43,626	34,783	3,79
15		Shahjahanpur ..	839,115	486	16	14,006	11,094	25,100	1,568·75	21,748	16,110	3,30
16		Pilibhit ..	431,601	320	9	8,374	7,623	15,997	1,777·44	17,300	10,569	3,07
17		Garhwal ..	485,186	88	13	18,259	13,038	31,297	2,407·46	17,036	5,364	11,07
		Total ..	14,376,356	418	298	303,732	240,194	543,926	1,825·25	483,189	345,161	71,99
18	Second Range.	Naini Tal ..	276,875	102	12	8,071	4,942	13,013	1,084·42	8,209	5,144	2,17
19		Almora ..	530,338	99	19	22,201	14,747	36,948	1,944·63	23,057	11,655	8,67
20		Lucknow ..	724,344	749	13	14,088	12,076	26,164	2,012·61	23,236	15,250	5,2
21		Unao ..	819,123	458	14	13,383	11,324	24,707	1,764·78	25,688	14,210	6,9
22		Rae Bareli ..	936,403	537	16	17,491	13,385	30,876	1,929·75	30,955	11,370	13,8
23		Sitapur ..	1,089,431	484	18	16,587	14,876	31,463	1,747·94	31,135	23,437	5,65
24		Hardoi ..	1,084,410	486	21	14,886	14,808	29,694	1,414·00	20,378	21,289	7,1
25		Kheri ..	913,475	307	22	12,977	11,860	24,837	1,128·95	24,523	16,498	5,4
26		Fyzabad ..	1,172,575	677	21	18,430	14,747	33,177	1,579·86	32,181	12,048	13,6
27		Gonda ..	1,473,098	524	25	21,058	18,106	39,164	1,565·56	38,853	16,913	17,7
28		Bahraich ..	1,065,377	403	19	20,178	17,950	38,128	2,006·74	36,990	24,144	10,1
29		Sultanpur ..	1,003,912	586	17	19,074	15,310	34,384	2,022·50	34,182	10,406	16,3
30		Partabgarh ..	855,130	593	14	14,520	10,486	25,006	1,786·14	24,705	8,223	11,5
31		Bara Banki ..	1,029,954	585	16	15,411	13,189	28,600	1,787·50	29,036	18,122	7,4
		Total ..	12,974,500	403	247	228,355	187,806	416,161	1,684·86	393,128	203,709	132,0
32	Third Range.	Farrukhabad ..	856,633	509	16	12,081	11,408	23,489	1,468·06	23,272	19,276	2,8
33		Etawah ..	733,532	434	13	12,206	10,078	22,284	1,857·00	21,663	16,492	2,8
34		Cawnpore ..	1,148,664	484	25	28,041	20,933	48,974	1,958·96	37,969	23,901	9,1
35		Fatehpur ..	652,392	397	12	10,385	8,581	18,966	1,580·50	19,190	13,826	3,5
36		Allahabad ..	1,404,445	491	27	20,017	17,762	37,779	1,399·22	36,700	21,036	11,9
37		Jhansi ..	606,499	167	25	12,312	11,166	23,478	939·12	23,350	19,429	2,2
38		Jalaun ..	405,439	362	13	9,039	7,108	16,147	1,242·08	15,108	12,764	1,0
39		Hamirpur ..	465,323	191	14	10,138	8,880	19,018	1,358·42	17,986	14,550	2,4
40		Banda ..	588,036	208	16	9,326	7,969	17,295	1,080·94	17,252	12,666	3,6

in the United Provinces during the year 1928-29.

tion.		Re-vaccination.			Percentage of successful cases in which the results were known.		Persons successfully vaccinated per 1,000 of population.	Percentage of unknown cases to total cases.		Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
Total of all ages.	Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.		Primary.	Re-vaccination.	Number.	Ratio per 1,000.	Number.	Ratio per 1,000.
11	12	13	14	15	16	17	18	19	20	21	22	23	24
5,018	70	4,455	1,713	581	94·29	44·21	31·71	1·30	13·04	6,210·60	29·26	25·00	·12
33,835	240	3,339	1,842	104	95·11	56·94	38·06	·67	3·11	33,939·80	36·20	98·40	·10
26,724	247	1,042	250	71	90·12	25·75	33·96	·83	6·81	26,216·80	33·01	97·60	·12
45,329	424	10,577	3,342	465	93·59	33·05	32·47	·87	4·40	43,284·60	28·88	160·00	·11
35,239	200	3,554	862	162	93·21	25·41	33·85	·53	4·56	34,486·20	32·32	258·40	·24
34,311	672	9,046	2,860	650	94·07	34·06	35·01	1·81	7·18	33,050·20	31·13	326·80	·29
19,449	636	3,616	938	287	88·05	28·18	32·93	2·80	7·94	15,8[illegible]8·00	25·61	110·20	·17
30,464	1,003	12,527	1,377	619	87·59	11·56	34·45	2·80	4·94	28,004·00	30·30	158·00	·17
15,753	353	1,172	497	127	94·17	47·56	21·72	2·07	10·84	1[illegible],548·40	28·78	101·20	·13
24,779	118	2,978	1,209	54	96·02	41·35	31·32	·45	1·81	25,469·60	30·69	93·60	·11
27,369	1,210	856	364	105	88·63	48·47	27·35	3·77	12·27	26,295·20	25·93	125·00	·12
21,392	392	403	132	32	90·57	35·58	29·08	1·63	7·94	21,576·40	29·15	2[illegible]8·00	·35
28,908	104	2,860	584	86	94·33	21·05	30·24	·34	3·01	25,833·80	26·49	236·40	·24
38,893	463	1,368	408	62	90·11	31·24	32·79	1·06	4·53	37,702·20	31·45	321·20	·27
19,853	197	3,847	1,797	193	92·12	49·18	25·80	·90	5·02	22,852·60	27·23	85·20	·10
13,925	876	318	115	34	84·78	40·49	32·53	5·06	10·69	14,767·20	34·21	28·00	·07
16,679	92	14,261	11,388	929	98·44	85·42	57·85	·54	6·51	23,915·20	49·29	23·40	·05
437,920	7,297	76,219	29,678	4,[illegible]61	92·02	41·42	32·52	1·51	5·98	435,010·80	30·26	2,496·40	·17
7,374	314	5,161	1,959	1,099	93·40	48·23	33·71	3·82	21·29	9,865·00	35·63	55·60	·20
20,852	899	14,298	5,604	3,330	94·10	51·09	49·88	3·90	23·28	28,320·60	53·40	74·00	·14
21,217	214	3,512	772	17	92·16	22·09	30·36	·92	·48	19,695·80	27·05	261·80	·36
22,796	808	313	88	29	89·81	30·98	27·93	1·02	9·26	19,708·00	24·06	67·00	·08
29,105	524	123	63	13	95·67	57·27	31·14	1·69	10·57	16,505·00	17·63	146·00	·16
30,249	103	498	254	25	97·48	53·71	27·99	·33	5·02	29,528·40	27·11	52·00	·05
28,740	223	43	15	3	95·31	37·50	26·52	·74	6·98	26,459·20	24·40	121·60	·11
22,852	264	700	328	94	94·19	54·48	25·37	1·07	13·50	23,056·20	25·24	61·20	·07
28,754	206	1,820	1,193	35	89·92	66·83	25·53	·64	1·92	26,725·60	22·79	225·80	·19
37,794	98	537	342	12	97·21	65·14	25·89	·25	2·23	32,489·20	22·31	101·80	·07
36,628	102	1,148	1,108	16	99·02	97·87	35·41	·28	1·39	34,489·00	32·37	84·60	·08
32,690	425	202	126	16	96·84	7·74	32·68	1·24	7·92	30,667·60	30·54	69·20	·07
22,338	521	875	494	117	92·36	65·17	26·70	2·11	13·37	18,984·20	2[illegible]·20	99·40	·11
26,611	322	309	100	47	92·68	37·21	25·93	1·11	15·53	20,412·80	19·82	28·80	·03
368,000	4,523	29,539	12,446	4,853	92·32	50·43	29·40	1·15	16·43	336,906·60	25·97	1,448·80	·11
22,226	36	608	453	..	95·65	74·50	26·47	·15	..	20,109·80	23·47	127·40	·15
19,282	200	1,549	759	117	89·83	53·00	27·32	·92	7·55	18,574·20	25·32	60·80	·08
34,371	339	11,520	3,782	456	91·33	34·18	33·21	·89	3·95	34,447·60	29·99	94·80	·08
17,541	251	479	244	41	96·84	55·71	27·26	1·31	8·56	17,091·80	26·20	19·00	·03
34,024	802	1,505	644	100	94·78	45·84	24·68	2·18	6·64	31,109·60	22·15	288·20	·20
21,899	174	733	200	62	94·49	29·81	36·44	·74	8·46	21,284·80	35·09	83·00	·14
14,224	115	1,327	794	73	94·87	63·32	37·04	·76	5·50	14,210·20	35·05	12·20	·03
17,302	154	1,301	1,094	59	97·03	88·08	39·32	·86	4·53	16,342·20	35·12	25·60	·05
16,681	170	264	192	15	97·65	77·11	28·89	·98	5·68	16,399·80	27·89	42·00	·07

Paragraphs 6—8 of Section VII.]

VACCINATION STATEMENT NO. I.—*Showing the particulars of vaccination*

Number.	Ranges and districts.	Population according to census of 1921.	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 vaccinators.	Total.	Primary vaccin	
										Successful	
										Under one year.	One and under six years.
1	2	3	4	5	6			7	8	9	10
					Male.	Female.	Total.				
	Third Range—(*concluded*).										
41	Benares ..	952,031	894	18	18,271	16,391	34,662	1,925·66	33,397	14,250	16,53
42	Mirzapur ..	724,183	138	22	16,462	14,208	30,670	1,394·09	28,715	19,202	7,80
43	Jaunpur ..	1,155,105	745	19	18,057	15,792	33,849	1,781·53	23,092	15,748	13,92
44	Ghazipur ..	781,570	600	12	13,367	8,717	22,084	1,840·33	18,655	4,936	11,45
45	Ballia ..	831,009	668	14	14,354	12,221	26,575	1,898·21	25,821	13,354	10,20
46	Gorakhpur ..	3,266,830	721	69	65,258	58,720	123,978	1,796·78	123,691	63,365	43,96
47	Basti ..	1,925,228	687	29	27,410	25,058	52,468	1,809·24	52,080	31,493	17,18
48	Azamgarh ..	1,528,012	690	25	22,636	17,981	40,617	1,624·68	39,550	12,647	21,06
	Total ..	18,024,931	443	369	319,360	272,973	592,333	1,605·24	567,491	328,435	180,90
	TOTAL OF ALL RANGES	45,375,787	423	914	851,447	700,973	1,552,420	1,698·49	1,443,808	882,305	384,97
	TOTAL OF DISPENSARY STAFF.	..	..	..	1,005	206	1,211	63·74	185	78	7
	TOTAL OF OTHER AGENCIES (PRIVATE MEDICAL PRACTITIONERS).	..	..	..	..	..	..	..	..	..	..
	GRAND TOTAL ..	45,375,787	423	914	852,452	701,179	1,553,631	1,698·49	* 1,443,993	882,383	385,04

NOTE.—(1) Column 13—" Re-vaccination " includes the vaccination of all persons who bear marks of previous vaccination or of small-pox.

* In addition 11,275 operations 993 primary and 10,282 re-vaccinations were performed by military medical officers in cantonments out of these 8,157—820 primary and 7,337 re-vaccination were successful. These figures referred to the year 1928, i.e. from January to December, 1928.

SUM

—	Total number of persons vaccinated.		Total number of operations performed.	
	Primary.	Re-vaccination.	Primary.	Re-vaccination.
By special staff	1,415,050	137,370	1,443,808	138,00
By dispensary staff	185	1,026	185	1,02
By other agencies	..	..	..	..
(Private Medical Practitioners)..	..	..	..	..
Total ..	1,415,235	138,396	1,443,993	139,08

in the United Provinces during the year 1928-29—(concluded).

tion.		Re-vaccination.			Percentage of successful cases in which the results were known.		Persons successfully vaccinated per 1,000 of population.	Percentage of unknown cases to total cases.		Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
Total of all ages.	Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.		Primary.	Re-vaccination.	Number.	Ratio per 1,000.	Number.	Ratio per 1,000.
11	12	13	14	15	16	17	18	19	20	21	22	23	24
31,534	280	1,724	948	102	95·21	58·44	34·11	·83	5·91	26,054·80	27·37	246·20	·26
27,822	29	2 253	1,989	5	96·99	88·47	41·38	·10	·22	25,552·40	35·28	139·40	·19
31,937	188	1,220	850	85	97·06	74·89	28·38	·57	6·97	30,975·60	26·82	140·20	·12
18,098	150	3,494	2,451	276	97·80	76·16	26·29	·80	7·90	17,942·60	22·96	175·60	·22
25,027	98	1,045	727	65	97·29	74·19	30·99	·38	62·19	23,100·60	27·79	140·60	·17
115,298	3,169	1,602	862	210	95·66	61·92	35·55	2·56	13·10	87,550·40	26·80	558·00	·17
50,848	596	557	411	43	90·28	79·96	26·62	1·14	7·72	51,798·60	26·90	121·80	·06
38,515	418	1,067	607	99	98·42	62·70	25·60	1·06	9·28	34,452·40	22·55	331·60	·22
536,629	7,169	32,248	17,007	1,808	95·77	55·87	30·71	1·26	5·61	486,996·00	27·02	2,606·40	·14
1,342,549	18,989	138,006	59,131	11,222	94·22	46·64	30·89	1·31	8·13	1,258,914·80	27·74	6,551·60	·14
167	6	1,026	219	703	93·30	67·80	..	3·24	68·52	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..
1,342,716	18,995	139,032*	59,350	11,925	94·22	46·69	30·90	1·31	8·58	1,258,914·80	27·74	6,551·60	·14

(2) Difference of 29,394 between the number of primary vaccinations and re-vaccinations performed (total of columns 8 and 13, and the total number of persons vaccinated (total in column 6) represents secondary operations.

MARY.

Percentage of successfull cases in which the results were known.		Average number of persons vaccinated by each vaccinator.		Number of children successfully vaccinated.		Ratio of successful vaccination per 1,000 of population.	Total cost of department.	Average cost of each successful case.
Primary.	Re-vaccination.	Vaccinators employed.	Persons vaccinated by each vaccinator.	Under one year.	One and under six years.			
							Rs.	Rs. a. p.
94·22	46·64	914	1,698·49	882,305	384,972	30·89	4,12,021	0 4 2
93·30	67·80	..	..	78	71	..	..	..
..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..
94·22	46·69	914	1,698·49	882,383	385,043	30·90	4,12,021	0 4 2

VACCINATION STATEMENT NO. II.—*Showing the cost of the department*

Number.		Ranges and districts.	Assistant Directors of Public Health.		Assistant Superintendents of Vaccination.		Vaccinators.		Clerks.	
			Number.	Pay.	Number.	Pay.	Number.	Pay.	Number.	Pay.
				Rs.		Rs.		Rs.		Rs.
1	First Range.	Dehra Dun	..	..	1	540	9	2,246	..	..
2		Saharanpur	..	..	1	567	18	5,593	1	395
3		Muzaffarnagar	..	..	1	626	16	5,134	..	..
4		Meerut	..	..	1	720	30	9,326	..	..
5		Bulandshahr	..	..	1	734	20	5,583	..	..
6		Aligarh	..	..	1	720	26	5,793	..	..
7		Muttra	..	..	1	550	14	4,345	1	80
8		Agra	..	..	1	2,280	22	7,775	..	..
9		Mainpuri	..	..	1	565	14	3,869	..	..
10		Etah	..	..	1	540	19	5,769	..	..
11		Bareilly	..	..	1	701	15	4,369	..	..
12		Bijnor	..	..	1	647	16	4,933	..	..
13		Budaun	..	..	1	702	18	5,812	..	..
14		Moradabad	..	..	1	615	23	7,822	..	..
15		Shahjahanpur	..	..	1	544	16	4,572	..	..
16		Pilibhit	..	..	1	514	9	2,940	..	..
17		Garhwal	..	..	1	540	13	3,751	..	..
18	Second Range.	Naini Tal	..	..	1	780	12	3,613	..	..
18A		Government Bovine Lymph Dépôt, Patwa Dangar, district Naini Tal.	..	..	..	..	(a)4	2,880	(b)4	9,798
19		Almora	..	..	1	720	19	6,520	..	..
20		Lucknow	..	..	1	918	13	4,158	..	..
21		Unao	..	..	1	720	14	4,262	..	..
22		Rai Bareli	..	..	1	552	16	4,085	..	..
23		Sitapur	..	..	1	540	18	6,799	..	..
24		Hardoi	..	..	1	720	21	6,327	..	..
25		Kheri	..	..	1	540	22	5 948	..	..
26		Fyzabad	..	..	1	720	21	6,501	..	..
27		Gonda	..	..	1	569	25	8,041	..	..
28		Bahraich	..	..	1	720	19	6,414	..	..
29		Sultanpur	..	..	1	573	17	4,923	..	..
30		Partabgarh	..	..	1	540	14	3,795	..	..
31		Bara Banki	..	..	1	609	16	5,170	..	..
32	Third Range.	Farrukhabad	..	..	1	656	16	5,077	1	10[illegible]
33		Etawah	..	..	1	540	13	3,825	..	..
34		Cawnpore	..	..	1	1,260	25	8,084	..	..
35		Fatehpur	..	..	1	415	12	3,433	..	..
36		Allahabad	..	..	1	795	27	7,617	1	21[illegible]
37		Jhansi	..	..	1	540	25	8,391	..	..
38		Jalaun	..	..	1	540	13	4,174	..	..
39		Hamirpur	..	..	1	540	14	4,206	..	..
40		Banda	..	..	1	679	16	4,586	..	..

(a) Laboratory Assistants.
(b) Includes one Superintendent and one electrician.

in the United Provinces during the year 1928-29.

diture.						Paid from—								
Peons.		Total pay of establishment.	Travelling allowance.	Contingencies.	Total cost.	Imperial funds.	Provincial funds.*	Local funds.†	Municipalities.	Native States.‡	Total.	Number of all successful vaccinations and re-vaccinations performed by the vaccination staff only.	Average cost of each successful case performed by the vaccination staff only.	Number.
Number.	Pay.													
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		A. p.	
..	..	2,786	360	911	4,057	..	..	2,731	1,326	..	4,057	6,731	9 8	1
1	24	6,579	175	1,057	7,811	..	..	5,301	1,910	..	7,811	35,677	3 6	2
..	..	5,760	208	859	6,827	..	..	5,760	1,037	..	6,827	26,974	4 0	3
..	..	10,046	149	1,266	11,461	..	..	9,533	1,928	..	11,461	4[illegible],671	3 9	4
..	..	6,317	120	1,177	7,614	..	..	6,205	1,409	..	7,614	36,101	3 4	5
3	89	6,602	..	1,746	8,348	..	..	6,274	2,074	..	8,348	37,171	3 7	6
2	120	5,095	130	650	5,875	..	..	4,561	1,314	..	5,875	20,387	4 7	7
2	300	10,355	120	609	11,084	..	..	7,975	3,109	..	11,084	31,841	5 9	8
..	..	4,434	201	608	5,243	..	..	5,029	214	..	5,243	16,250	5 2	9
..	..	6,309	120	993	7,422	..	..	5,395	1,764	263	7,422	25,988	4 7	10
4	513	5,583	140	1,891	7,614	..	..	6,165	1,449	..	7,614	27,733	4 5	11
1	60	5,640	140	759	6,539	..	..	5,024	1,515	..	6,539	21,524	4 10	12
2	215	6,729	120	1,032	7,831	..	..	6,360	1,521	..	7,881	29,492	4 3	13
5	460	8,897	348	619	9,864	..	..	7,382	2,482	..	9,864	39,301	4 0	14
2	153	5,269	135	429	5,833	..	..	4,732	1,101	..	5,833	21,650	4 4	15
2	176	3,630	177	601	4,408	..	..	3,704	704	..	4,408	14,040	5 0	16
14	900	5,191	180	118	5,489	..	..	5,489	..	..	5,489	28,067	3 1	17
2	222	4,615	240	1,181	6,036	..	..	4,853	1,183	..	6,036	9,333	10 4	18
(c)4	636	13,314	928	30,652	44,894	..	44,894	..	..	..	44,894	..	..	18A
..	..	7,240	1,060	235	8,535	..	..	8,053	482	..	8,535	26,453	5 2	19
8	576	5,652	161	1,124	6,937	..	..	3,807	3,130	..	6,937	21,989	5 1	20
1	58	5,040	140	874	6,054	..	..	5,100	954	..	6,054	22,884	4 3	21
..	..	4,637	120	528	5,285	..	..	4,728	202	345	5,285	29,168	2 11	22
1	42	7,381	120	184	7,685	..	..	6,134	593	958	7,685	30,503	4 0	23
..	..	7,047	114	1,244	8,405	..	..	7,337	1,068	..	8,405	28,755	4 9	24
2	247	6,735	363	300	7,398	..	..	4,928	526	1,944	7,398	23,180	5 1	25
1	60	7,281	83	644	8,008	..	..	6,453	1,555	..	8,008	29,947	4 3	26
1	126	8,736	168	1,357	10,261	..	..	9,570	691	..	10,261	38,136	4 4	27
2	75	7,209	120	1,228	8,557	..	..	7,900	657	..	8,557	37,736	3 7	28
..	..	5,496	246	770	6,512	..	..	6,196	316	..	6,512	32,816	3 2	29
..	..	4,335	153	358	4,846	..	..	4,486	335	25	4,846	22,832	3 5	30
3	102	5,881	122	619	6,622	..	..	6,359	263	..	6,622	26,711	3 11	31
..	..	5,743	139	743	6,625	..	..	5,658	967	..	6,625	22,679	4 8	32
..	..	4,365	120	256	4,741	..	..	4,168	573	..	4,741	20,041	3 9	33
7	1,094	10,438	135	1,713	12,286	..	..	7,911	4,375	..	12,286	38,153	5 2	34
..	..	3,848	80	661	4,589	..	..	4,329	260	..	4,589	17,785	4 2	35
4	414	9,036	131	1,469	10,636	..	..	8,237	2,399	..	10,636	34,668	4 11	36
2	131	9,062	188	640	9,890	..	..	8,296	1,594	..	9,890	22,099	7 2	37
..	..	4,714	120	542	5,376	..	..	3,668	1,024	684	5,376	15,018	5 9	38
..	..	4,746	120	222	5,088	..	..	4,991	97	..	5,088	18,396	4 5	39
2	97	5,362	126	535	6,023	..	..	5,510	513	..	6,023	16,873	5 8	40

(c) Includes two malis, the post of one was abolished on September 1, 1928.
* Goverment.
† District Boards, Cantonments and Town and Notified Areas.
‡ Includes contributions from Courts of Wards and private persons.

VACCINATION STATEMENT NO. II.—*Showing the cost of the departme*

Number.	Ranges and districts.	Exp							
		Assistant Directors of Public Health.		Assistant Superintendents of Vaccination.		Vaccinators.		Clerks.	
		Number.	Pay.	Number.	Pay.	Number.	Pay.	Number.	Pay.
			Rs.		Rs.		Rs.		Rs.
41	Third Range—(*concluded.*) Benares	..	..	1	810	18	5,455	2	684
42	Mirzapur	..	..	1	764	22	6,671	..	..
43	Jaunpur	..	..	1	720	19	4,764	..	..
44	Ghazipur	..	..	1	550	12	4,208	1	168
45	Ballia	..	..	1	540	14	3,896	..	..
46	Gorakhpur	..	..	3	1,747	69	17,915	..	..
47	Basti	..	..	1	720	29	9,366	1	140
48	Azamgarh	..	..	1	720	25	7,705	..	..
	Total of districts ..	..	..	50	33,862	(*a*)918	2,78,441	(*b*)12	11,48
	Office establishment of Assistant Director of Public Health, 1st Range.	1	12,654	..	..	..	..	1	83
	Office establishment of Assistant Director of Public Health, 2nd Range.	1	19,283	..	..	..	..	1	84
	Office establishment of Assistant Director of Public Health, 3rd Range.	1	14,907	..	..	..	..	1	72
	GRAND TOTAL ..	3	46,844	50	33,862	(*a*)918	2,78,441	(*b*)15	13,88

(*a*) Includes four laboratory assistants.
(*b*) „ one Superintendent and one electrician.

in the United Provinces during the year 1928-29 —(concluded).

diture.						Paid from—								
Peons.		Total pay of establishment.	Travelling allowance.	Contingencies.	Total cost	Imperial funds.	Provincial funds.	Local funds †	Municipalities.	Native States.‡	Total.	Number of all successful vaccinations and re-vaccinations performed by the vaccination staff only.	Average cost of each successful case performed by the vaccination staff only.	Number.
Number.	Pay.													
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		A. P.	
4	240	7,189	504	1,181	8,874	..	..	5,805	3,069	..	8,874	32,482	4 4	41
..	..	7,435	120	617	8,172	..	..	7,296	876	..	8,172	29,811	4 4	42
1	42	5,526	121	989	6,636	..	..	6,108	528	..	6,636	32,787	3 3	43
1	63	4,989	129	763	5,881	..	..	5,333	548	..	5,881	20,549	4 6	44
1	60	4,496	60	588	5,144	..	..	4,695	449	..	5,144	25,754	3 2	45
..	..	19,662	253	2,490	22,405	..	..	21,606	655	144	22,405	116,160	3 1	46
..	..	10,226	120	466	10,812	..	..	10,716	..	96	10,812	51,259	3 4	47
..	..	8,425	178	835	9,438	..	..	8,962	476	..	9,438	39,122	4 1	48
(c) 85	7,295	3,31,083	9,605	71,333	4,12,021	..	44,894	3,07,423	55,245	4,459	4,12,021	1,401,680	(d) 4 2	
3	378	13,867	3,424	1,164	18,455	..	18,455	..	..	..	18,455	..	..	
3	378	20,501	2,541	957	23,999	..	23,999	..	..	..	23,999	..	..	
3	378	16,005	4,029	1,228	21,262	..	21,262	..	..	..	21,262	..	..	
(c) 94	8,429	3,81,456	19,599	74,682	4,75,737	..	1,08,610	3,07,423	55,245	4,459	4,75,737	1,401,680	(d) 4 2	

(c) Includes two malis—the post of one was abolished on September 1, 1928.

(d) Calculated on the total number of successful vaccinations and re-vaccinations performed by the special department only and the total cost of districts excluding that of the Government Bovine Lymph Dépôt

* Government.

† District Boards, Cantonments and Town and Notified Areas.

‡ Includes contributions from Court of Wards and private persons.

VACCINATION STATEMENT NO. III

Omitted.

COMPARATIVE VACCINATION STATEMENT NO. IV.—*Showing the number of persons primarily vaccinated and the number successfully vaccinated in the United Provinces in each of the undermentioned official years.*

Number.	Range.	Establishment.	Persons primarily vaccinated.					
			1919-20.		1920-21.		1921-22.	
			Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.
		MEERUT DIVISION.						
1	First Range.	Government	41,373	40,379	39,200	38,222	30,083	29,188
2		Municipal	20,814	20,150	19,453	18,887	17,951	17,486
3		Local Funds	79 519	77,260	83,874	81,526	92,196	88,963
4		Native States ..	..	..	..	..	..	..
		AGRA DIVISION.						
5		Government.. ..	33,494	31,193	30,531	29,226	28,666	27,461
6		Municipal	20,499	18,500	19,632	18,419	15,364	14,150
7		Local Funds.. ..	58,284	54,668	61,597	58,509	68,797	65,179
8		Native States ..	1,007	980	1,645	1,606	2,289	2,248
		ROHILKHAND DIVISION.						
9		Government.. ..	54,509	50,735	51,549	47,763	45,960	43,072
10		Municipal	28,019	26,509	23,961	32,261	20,007	19,012
11		Local Funds.. ..	66,692	63,172	70,556	58,609	70,885	67,881
12		Native States ..	15	13	..	..	..	..
		GARHWAL DISTRICT.						
13		Government	5,641	5,514	4,282	4,141	2,117	2,050
14		Local Funds	10,283	9,964	9,134	8,958	9,404	9,150
		Total of First Range ..	420,149	399,037	415,414	398,127	403,719	385,840
		NAINI TAL AND ALMORA DISTRICTS.						
15	Second Range.	Government	8,070	7,854	7,461	7,135	5,707	5,449
16		Muncipal	883	866	845	834	1,131	1,112
17		Local Funds.. ..	14,690	14,253	15,066	14,659	14,692	13,828
18		Native States ..	..	..	..	..	..	..
		LUCKNOW DIVISION.						
19		Government.. ..	54,540	52,141	47,816	45,730	36,493	35,300
20		Municipal	16,463	15,388	15,999	15,302	14,713	14,064
21		Local Funds.. ..	54,907	52,340	56,819	55,539	54,740	53,851
22		Native States ..	24,354	23,764	25,657	24,972	20,769	20,338
		FYZABAD DIVISION.						
23		Government	70,344	68,442	61,728	60,343	51,236	50,198
24		Municipal	9,173	8,806	8,950	8,721	7,845	7,663
25		Local Funds.. ..	86,871	84,755	84,363	82,992	82,263	81,005
26		Native States ..	..	..	2,328	2,299	2,749	2,691
		Total of Second Range ..	340,295	328,609	327,032	318,526	292,338	285,499

COMPARATIVE VACCINATION STATEMENT NO. IV.—*Showing the number of per Provinces in each of the undermentioned*

Persons

Number.	Range.	Establishment.	1922-23. Total number.	1922-23. Number successfully vaccinated.	1923-24. Total number.	1923-24. Number successfully vaccinated.	1924-25. Total number.	1924-25. Number successfully vaccinated.
		MEERUT DIVISION.						
1	First Range.	Government	31,407	30,449	25,965	24,857	*	*
2		Municipal	17,960	17,462	17,393	15,914	14,690	13,786
3		Local Funds	92,130	88,698	102,053	94,618	133,321	127,698
4		Native States ..	..	..	..	..	..	..
		AGRA DIVISION.						
5		Government	20,149	24,703	25,408	23,328	*	*
6		Municipal .. .	16,907	15,755	16,568	14,723	18,063	16,321
7		Local Funds	70,384	66,775	75,869	68,467	102,730	96,315
8		Native States ..	2,235	2,148	1,691	1,617	1,917	1,874
		ROHILKHAND DIVISION.						
9		Government	40,055	37,248	40,697	36,355	*	*
10		Municipal	19,972	19,025	22,914	(a)20,641	26,443	24,583
11		Local Funds	78,874	75,515	89,952	81,640	128,894	120,007
12		Native States ..	..	..	..	..	..	..
		GARHWAL DISTRICT.						
13		Government	1,529	1,439	1,743	1,710	*	*
14		Local Funds	9,194	8,969	9,433	9,018	14,767	14,439
		Total of First Range ..	406,796	3,88,186	428,840	392,888	440,825	415,023
		NAINI TAL AND ALMORA DISTRICTS.						
15	Second Range.	Government	5,463	5,210	5,097	4,758	*	*
16		Municipal	1,043	1,021	1,005	979	1,398	1,335
17		Local Funds	15,000	14,067	19,974	18,378	26,873	25,525
18		Native States ..	..	..	..	..	..	..
		LUCKNOW DIVISION.						
19		Government	32,745	31,695	31,054	29,298	*	*
20		Municipal	14,593	13,903	14,548	13,775	13,717	13,037
21		Local Funds.. ..	61,513	60,102	64,758	61,806	96,237	94,070
22		Native States ..	23,418	22,952	23,432	22,755	19,804	19,525
		FYZABAD DIVISION.						
23		Government	52,555	51,346	48,712	46,340	*	*
24		Municipal	7,960	7,673	8,758	8,333	8,429	7,965
25		Local Funds	84,821	83,408	96,042	92,243	144,825	140,858
26		Native States ..	3,737	3,662	4,128	4,088	3,911	3,812
		Total of Second Range ..	302,848	295,039	317,508	302,753	315,194	306,127

(*a*) The total of these figures should be taken as 152,717 and not 153,563 as the Civil Surgeon, Bijnor, omitted to exclude 846 secondary operations in the district return

NOTE.—*Vaccinations performed by vaccinators appointed before November 27, 1906, which have hitherto been shown against Government, have been included in the work done by Local Fund vaccinators, as Government does not pay any portion of the pay of assistant superintendents of vaccination and vaccinators

sons primarily vaccinated and the number successfully vaccinated in the United official years—(continued).

primarily vaccinated.

1925-26.		1926-27.		1927-28.		1928-29.	
Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.
*	*	*	*	*	*	*	*
13,053	11,725	15,500	14,342	16,167	15,068	19,994	18,416
134,785	127,681	124,418	118,259	131,635	122,958	134,414	127,729
..	..	..	..	..	..	..	..
*	*	*	*	*	*	*	*
18,841	16,628	17,747	16,180	18,480	16,767	20,667	18,848
105,148	95,871	103,500	97,172	109,883	99,409	112,286	104,294
1,451	1,390	1,308	1,299	1,420	1,404	1,627	1,614
*	*	*	*	*	*	*	*
26,404	24,195	25,470	23,835	21,193	19,813	21,656	19,908
139,757	127,558	137,910	125,556	136,980	127,647	141,239	130,432
..	..	..	..	..	..	..	..
*	*	*	*	*	*	*	*
17,483	16,872	15,835	15,592	15,164	14,802	17,036	16,679
456,922	421,920	441,688	412,235	450,922	417,868	468,919	437,920
*	*	*	*	*	*	*	*
1,392	1,346	1,432	1,355	941	901	1,100	989
27,101	25,185	24,847	23,121	26,862	24,745	29,467	27,237
..	..	..	..	..	..	..	..
*	*	*	*	*	*	*	*
13,517	11,864	12,249	11,248	13,341	12,203	12,899	11,729
106,690	102,737	110,278	107,145	123,639	117,353	137,885	131,819
17,899	17,516	13,949	13,591	12,931	12,397	11,774	11,411
*	*	*	*	*	*	*	*
7,969	7,257	8,067	7,192	8,714	7,978	7,697	7,110
154,523	148,470	164,140	155,637	173,170	165,310	185,874	177,705
2,843	2,792	6,246	5,664	..	..	..	..
331,934	317,167	341,208	324,953	359,598	340,887	386,696	368,000

NOTE —*Vaccinations performed by vaccinators appointed before November 27, 1906, which have hitherto been shown against Government, have been included in the work done by Local Fund vaccinators as Government does not pay any portion of the pay of assistant superintendents of vaccination and vaccinators.

COMPARATIVE VACCINATION STATEMENT NO. IV.—*Showing the number of persons Provinces in each of the undermentioned*

Persons

Number.	Range.	Establishment.	1919-20. Total number.	1919-20. Number successfully vaccinated.	1920-21. Total number.	1920-21. Number successfully vaccinated.	1921-22. Total number.	1921-22. Number successfully vaccinated.
		ALLAHABAD DIVISION.						
27	Third Range.	Government	37,738	35,171	34,362	33,277	30,283	29,254
28		Municipal	14,213	12,920	14,613	13,732	14,317	13,588
29		Local Funds	76,905	72,459	73,139	70,430	65,604	63,574
30		Native States ..	..	..	1,894	1,817	1,524	1,464
		JHANSI DIVISION.						
31		Government	23,157	22,152	21,527	20,854	22,182	21,610
32		Municipal	6,120	5,348	5,946	5,821	6,015	5,844
33		Local Funds	29,306	28,192	31,204	30,092	34,[illegible]24	33,000
		Native States ..	1,530	1,512	1,774	1,722	2,229	2,165
34		BENARES DIVISION.						
35		Government	69,155	58,648	56,530	56,367	42,327	41,873
36		Municipal	12,738	12,454	12,091	11,902	10,915	10,677
37		Local Funds	61,342	6,854	59,918	59,509	62,409	61,944
38		Native States ..	3,537	3,531	6,201	6,173	2,621	2,605
		GORAKHPUR DIVISION.						
39		Government	85,177	82,544	81,219	78,110	62,779	59,874
40		Municipal	4,462	4,163	4,061	3,877	2,760	2,609
41		Local Funds.. ..	96,468	93,778	96,588	93,525	84,339	81,325
42		Native States ..	4,826	3,669	4,175	3,457	3,512	3,191
		Total of Third Range ..	516,674	497,895	505,242	490,665	448,341	434,597
		Total of all Ranges ..	1,277,118	1,225,541	1,247,688	1,207,318	1,144,398	1,105,936
		Total of Dispensaries ..	120	112	121	114	161	142
		GRAND TOTAL ..	(b) 1,277,282	(c) 1,225,694	(d) 1,247,834	(e) 1,207,457	1,144,559	1,106,079

(b) Includes 44 persons vaccinated by other agencies.
(c) ,, 41 ,, successfully vaccinated by other agencies.
(d) ,, 25 ,, vaccinated by other agencies.
(e) ,, 25 ,, successfully vaccinated by other agencies.

primarily vaccinated and the number successfuly vaccinated in the United official years—(continued).

primarily vaccinated.

1922-23.		1923-24.		1924-25.		1925-26.	
Total number.	Number successfully vaccinated	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.
24,389	23,657	22,265	21,137	*	*	*	*
14,329	13,547	14,107	13,289	15,799	14,539	17,212	15,060
72,428	69,897	78,834	71,527	103,821	99,945	107,413	101,209
..	..	..	..	..	..	..	..
19,277	18,837	20,566	19,918	*	*	*	*
5,749	5,555	5,817	5,622	6,327	6,142	6,658	6,231
38,581	37,659	36,644	35,040	57,778	56,486	56,786	54,265
2,196	2,143	2,422	2,273	2,583	2,520	2,657	2,567
28,861	38,357	30,826	29,628	*	*	*	*
11,215	11,031	11,344	10,865	11,101	10,773	12,030	10,561
61,769	61,064	68,856	66,745	96,280	95,037	110,049	108,754
2,606	2,551	2,637	2,569	2,005	1,974	1,485	1,454
59,729	57,077	57,106	52,399	*	*	*	*
2,185	2,095	2,589	2,471	2,565	2,432	2,174	1,887
93,453	89,673	103,667	95,017	163,488	155,217	171,899	163,278
4,538	3,210	4,536	2,282	4,031	3,439	4,096	3,625
451,305	436,358	462,216	431,782	465,778	448,504	492,459	468,891
1,160,949	1,119,578	1,208,564	1,127,423	1,221,797	1,169,654	1,281,315	1,207,978
300	271	215	179	216	212	304	295
1,161,249	1,119,849	1,208,779	(f) 1,127,602	1,222,013	(g) 1,16,9866	1,281,619	(h) 1,208,278

(*f*) In addition, 336 successful primary operations were performed by military medical officers in cantonments.

(*g*) In addition, 236 successful primary operations were performed by military medical officers in cantonments.

(*h*) In addition, 326 successful primary operations were performed by military medical officers in cantonments.

Note.—* Vaccinations performed by vaccinators appointed before November 27, 1906, which have hitherto been shown against Government, have been included in the work done by Local Fund vaccinators, as Government does not pay any portion of the pay of assistant superintendents of vaccination and vaccinators.

COMPARATIVE VACCINATION STATEMENT NO. IV.—*Showing the number of persons primarily vaccinated and the number successfully vaccinated in the United Provinces in each of the undermentioned official years*—(concluded).

Number.	Range.	Establishment.	Persons primarily vaccinated. 1926-27. Total number.	1926-27. Number successfully vaccinated.	1927-28. Total number.	1927-28. Number successfully vaccinated.	1928-29. Total number.	1928-29. Number successfully vaccinated.
		ALLAHABAD DIVISION.						
27	Third Range.	Government	*	*	*	*	*	*
28		Municipal	17,470	15,199	17,859	15,992	19,912	16,877
29		Local Funds	110,692	105,876	112,935	106,987	115,946	110,567
30		Native States	..	..	..	..	..	..
		JHANSI DIVISION.						
31		Government	*	*	*	*	*	*
32		Municipal	7,083	6,640	6,728	6,504	7,183	6,923
33		Local Funds	58,781	56,749	62,705	61,008	62,322	60,506
34		Native States	2,658	2,611	2,706	2,592	2,815	2,677
		BENARES DIVISION.						
35		Government	*	*	*	*	*	*
36		Municipal	12,144	11,280	11,303	10,551	11,854	11,406
37		Local Funds	116,771	114,191	121,766	117,159	126,257	122,012
38		Native States	..	..	..	..	..	..
		GORAKHPUR DIVISION.						
39		Government	*	*	*	*	*	*
40		Municipal	2,391	2,216	2,669	2,538	2,607	2,350
41		Local Funds	172,777	164,277	208,004	197,423	207,990	199,189
42		Native States	3,818	3,700	3,206	2,816	3,240	3,122
		Total of Third Range ..	504,585	482,339	549,881	523,570	560,126	536,629
		Total of all Ranges ..	1,287,481	1,219,527	1,360,401	1,282,325	1,415,741	1,342,549
		Total of Dispensaries ..	552	452	193	180	185	167
		GRAND TOTAL ..	1,288,033	(i) 1,219,979	1,360,594	(j) 1,282,505	1,415,926	(k) 13,42,716

(*i*) In addition, 426† successful primary operations were performed by military medical officers in cantonments.

(*j*) In addition, 1,055† successful primary operations were performed by military medical officers in cantonments.

(*k*) In addition, 820† successful primary operations were performed by military medical officers in cantonments.

NOTE.—*Vaccinations peformed by vaccinators appointed before November 27, 1906, which have hitherto been shown against Government, have been included in the work done by Local Fund vaccinators, as Government does not pay any portion of the pay of assistant superintendents of vaccination and vaccinators.

†These figures refer to the calendar years.

VACCINATION STATEMENT NO. V.—*Showing the particulars of vaccination verified by Inspecting officers in the United Provinces during the year* 1928-29.

Number.	Ranges and districts.		Total number of persons vaccinated.		Total number inspected. By Assistant Directors of Public Health or District Superintendents of Vaccination.	
			Primary.	Re-vaccinations.	Primary.	Re-vaccinations.
1	First Range	Dehra Dun	5,305	4,455	..	..
2		Saharanpur ..	35,540	3,339	1,130	..
3		Muzaffarnagar ..	28,975	1,042	3,439	177
4		Meerut	47,781	10,577	3,770	35
5		Bulandshahr ..	36,807	3,554	7,163	552
6		Aligarh	36,509	8,602	166	..
7		Muttra	21,303	3,591	2,570	106
8		Agra	34,280	12,488	1,126	..
9		Mainpuri	16,851	1,172	713	..
10		Etah	25,637	2,978	1,345	..
11		Bareilly	30,634	856	3,362	..
12		Bijnor	22,897	403	..	..
13		Budaun	30,057	2,847	770	..
14		Moradabad	41,684	1,368	5,816	16
15		Shahjahanpur ..	21,253	3,847	..	..
16		Pilibhit	15,679	318	1,356	6
17		Garhwal	17,036	14,261	37	8
18	Second Range.	Naini Tal	7,854	5159	859	134
19		Almora	22,713	14,235	1,160	125
20		Lucknow	22,652	3,512	4,729	44
21		Unao	24,394	313	7,042	..
22		Rae Bareli	30,755	121	7,505	5
23		Sitapur	30,965	498	5,734	..
24		Hardoi	29,651	43	9,921	2
25		Kheri	24,141	696	8,130	..
26		Fyzabad	31,357	1,820	9,102	62
27		Gonda	38,627	537	5,372	4
28		Bahraich	36,980	1,148	7,276	33
29		Sultanpur	34,182	202	7,069	..
30		Partabgarh ..	24,134	872	7,226	30
31		Bara Banki ..	28,291	309	7,343	2
32	Third Range.	Farrukhabad ..	22,881	608	941	4
33		Etawah	20,735	1,549	2,035	..
34		Cawnpore	37,481	11,493	735	..
35		Fatehpur	18,487	479	4,621	196
36		Allahabad	36,274	1,505	3,484	..
37		Jhansi	22,745	733	1,337	4
38		Jalaun	14,821	1,326	3,966	25
39		Hamirpur	17,723	1,295	1,568	6
40		Banda	17,081	264	467	..
41		Benares	32,939	1,723	7,417	32
42		Mirzapur	28,417	2,253	4,100	83
43		Jaunpur	32,635	1,214	11,640	67
44		Ghazipur	18,590	3,494	8,754	263
45		Ballia	25,530	1,045	4,715	..
46		Gorakhpur	122,376	1,602	9,444	45
47		Basti	51,911	557	7,318	..
48		Azamgarh	39,550	1,067	6,869	6
	Total for the province	..	1,415,050	137,370	200,642	2,072

VACCINATION STATEMENT NO. V.—*Showing the particulars of vaccination verified*

Number.	Ranges and districts.		Total number inspected— By Assistant Superintendents of Vaccination or other Inspecting Officers. Primary.	Re-vaccinations.	Percentage of number By Assistant Directors of Public Health or District Superintendents of Vaccination. Primary.	Re-vaccinations.
1	First Range	Dehra Dun	3,046	447	..	..
2		Saharanpur ..	11,183	233	3·18	..
3		Muzaffarnagar ..	9,386	201	11·87	16·99
4		Meerut	9,983	608	7·89	·33
5		Bulandshahr ..	12,922	981	19·46	15·53
6		Aligarh	3,770	134	·45	..
7		Muttra	8,862	385	12·06	2·95
8		Agra	17,489	6,371	3·28	..
9		Mainpuri	6,319	356	4·23	..
10		Etah	13,016	1,314	5·25	..
11		Bareilly	13,984	731	10·97	..
12		Bijnor	10,383	11	..	..
13		Budaun	16,468	559	2·56	..
14		Moradabad	9,092	141	13·95	1·17
15		Shahjahanpur ..	10,244	208	..	..
16		Pilibhit	7,992	33	8·65	1·89
17		Garhwal	10,130	9,033	·22	·06
18	Second Range.	Naini Tal	6,106	1,347	10·94	2·60
19		Almora	11,409	9,752	5·11	·87
20		Lucknow	11,496	761	20·88	1·25
21		Unao	8,845	14	28·87	..
22		Rae Bareli	11,948	8	24·40	4·13
23		Sitapur	9,283	..	18·52	..
24		Hardoi	8,655	6	33·46	4·65
25		Kheri	6,729	211	33·68	..
26		Fyzabad	13,470	169	29·03	3·41
27		Gonda	14,546	7	13·91	·74
28		Bahraich	14,842	25	19·67	2·87
29		Sultanpur	15,107	..	20·68	..
30		Partabgarh ..	17,765	286	29·94	3·44
31		Bara Banki ..	7,287	35	25·95	·65
32	Third Range.	Farrukhabad ..	12,170	111	4·11	·66
33		Etawah	15,204	493	9·81	..
34		Cawnpore	15,094	215	1·96	..
35		Fatehpur	6,457	20	24·99	40·92
36		Allahabad	10,332	8	9·60	..
37		Jhansi	13,713	229	5·88	·54
38		Jalaun	8,494	345	26·76	1·88
39		Hamirpur	12,365	517	8·85	·46
40		Banda	14,435	38	2·74	..
41		Benares	12,106	288	22·52	1·86
42		Mirzapur	11,478	156	14·43	3·68
43		Jaunpur	14,954	85	35·67	5·52
44		Ghazipur	9,781	1,054	47·09	7·53
45		Ballia	18,166	146	18·47	..
46		Gorakhpur	52,042	402	7·72	2·81
47		Basti	19,303	11	14·10	..
48		Azamgarh	10,695	204	17·37	·56
	Total for the province	..	593,546	38,689	14·18	1·51

by Inspecting officers in the United Provinces during the year 1928-29—(concld.).

INSPECTIONS TO TOTAL VACCINATED—		PERCENTAGE OF CASES FOUND SUCCESSFUL OF TOTAL NUMBER INSPECTED—				Percentage of success reported by vaccinators.	
By Assistant Superintendents of Vaccination or other inspecting Officers.		By Assistant Directors of Public Health or District Superintendents of Vaccination.		By Assistant Superintendents of Vaccination or other Inspecting Officers.			
Primary.	Re-vaccinations.	Primary.	Re-vaccinations.	Primary.	Re-vaccinations.	Primary.	Re-vaccinations.
57·42	10·03	..	..	93·84	43·14	94·29	44·21
31·46	6·98	93·12	..	94·53	37·23	95·11	56·94
32·39	19·29	89·97	34·09	88·23	31·01	90·12	25·75
20·89	5·75	95·40	5·71	91·53	15·80	93·59	33·05
35·11	27·60	84·76	18·78	90·45	15·28	93·21	25·41
10·33	1·56	83·33	..	89·84	21·43	94·07	34·06
41·60	10·72	92·46	46·48	86·79	26·69	88·05	28·18
51·02	51·02	97·92	..	88·00	9·09	87·59	11·56
37·50	30·37	97·52	..	93·49	34·28	94·17	47·56
50·77	44·12	93·09	..	92·41	28·11	96·02	41·35
61·97	85·40	98·79	..	92·99	36·17	88·63	48·47
45·35	2·73	..	..	90·82	14·28	90·57	35·58
54·79	19·63	94·84	..	93·97	15·98	94·33	21·05
21·81	10·31	93·09	..	91·11	13·11	90·11	31·24
48·20	5·41	..	..	90·57	32·93	92·12	49·18
50·97	10·38	91·17	100·00	79·32	25·00	84·78	40·49
59·46	63·34	100·00	..	94·57	81·77	98·44	85·42
79·10	26·10	97·92	45·45	93·97	36·21	93·40	48·23
54·51	69·08	94·06	14·14	94·94	37·60	94·10	51·09
50·71	21·67	90·75	26·47	91·81	45·08	92·16	22·09
36·25	·05	89·17	..	78·65	·24	89·81	30·98
38·85	6·61	90·39	40·00	89·98	50·00	95·67	57·27
29·97	..	95·39	..	95·44	..	97·48	53·71
29·19	13·95	92·74	..	92·47	..	95·31	37·50
27·87	30·31	93·72	..	68·99	32·20	94·19	54·48
42·96	9·28	90·01	82·93	87·91	83·48	89·92	66·83
37·66	1·30	92·36	..	89·22	..	97·21	65·14
40·12	2·17	89·00	100·00	98·87	100·00	99·02	97·87
43·93	..	95·23	..	94·56	..	96·84	67·74
73·61	32·80	90·71	90·00	83·46	24·20	92·36	65·17
25·76	11·33	89·01	..	82·86	10·34	92·68	37·21
53·19	18·26	94·47	..	93·20	41·05	95·65	74·50
73·32	31·83	95·33	..	94·20	43·93	89·83	53·00
40·27	1·87	99·32	..	97·65	65·77	91·33	34·18
34·93	4·17	88·89	29·58	90·99	5·26	96·84	55·71
28·48	·53	89·00	..	90·10	25·00	94·78	45·84
60·03	31·24	98·90	33·33	96·38	13·53	94·49	29·81
57·31	26·02	96·65	100·00	94·04	32·49	94·87	63·32
69·77	39·92	99·05	..	94·84	79·04	97·03	88·08
84·76	14·39	97·85	..	95·01	96·67	97·65	77·11
36·75	16·71	95·19	69·56	95·63	76·40	95·21	58·44
40·39	6·92	94·61	15·62	94·71	29·69	96·99	88·47
45·82	7·00	94·84	65·00	97·21	57·33	97·06	74·89
52·61	30·17	98·56	73·86	95·56	73.78	97·80	76·16
71·15	13·97	97·70	..	97·58	86·26	97·29	74·19
42·53	25·09	96·70	48·48	96·00	44·78	95·66	61·92
37·18	1·97	99·28	..	98·69	62·50	90·28	79·96
27·04	19·12	95·20	33·33	93·45	22·38	98·42	62·70
41·94	28·16	93·60	40·00	92·99	44·27	94·22	46·64

VACCINATION APPENDIX A.—*Showing the number and ratio of successful*
United Provinces for a

Number.	Division.	District.	1919-20. Successful primary vaccinations.	1919-20. Persons successfully vaccinated per 1,000 of population.	1919-20. Deaths from small-pox in 1920.	1919-20. Ratio of deaths from small-pox per 1,000 of population in 1920.	1920-21. Successful primary vaccinations.	1920-21. Persons successfully vaccinated per 1,000 of population.	1920-21. Deaths from small-pox in 1921.	1920-21. Ratio of deaths from small pox per 1,000 of population in 1921.
1	MEERUT.	Dehra Dun ..	3,864	30·55	15	·07	4,096	24·09	5	·02
2		Saharanpur ..	29,498	33·91	107	·11	28,051	31·25	7	·01
3		Muzaffarnagar ..	24,401	30·22	3	..	25,218	31·22	1	..
4		Meerut ..	44,199	30·42	10	·01	46,019	31·13	5	..
5		Bulandshahr ..	35,827	33·05	6	..	35,251	32·54	..	..
6	AGRA.	Aligarh ..	30,129	26·61	8	·01	29,025	25·28	6	·01
7		Muttra ..	14,044	21·60	11	·02	15,024	23·35	2	..
8		Agra ..	21,584	21·94	5	..	22,385	22·14	16	·02
9		Mainpuri ..	18,852	23·68	6	·01	19,641	24·65	5	·01
10		Etah ..	20,732	24·04	15	·02	21,685	25·34	4	..
11	ROHILKHAND.	Bareilly ..	27,158	26·03	78	·07	25,[illegible]06	23·67	12	·01
12		Bijnor ..	22,287	27·89	86	·11	21,887	27·55	9	·01
13		Budaun ..	24,526	23·45	38	·04	23,777	24·29	17	·02
14		Moradabad ..	31,536	25·02	354	·28	32,622	26·12	9	·01
15		Shahjahanpur ..	20,486	22·27	162	·17	21,178	22·68	33	·04
16		Pilibhit ..	14,436	34·76	157	·32	14,163	32·35	3	·01
17	ALLAHABAD.	Farrukhabad ..	25,920	29·71	9	·01	24,867	29·11	2	..
18		Etawah ..	16,937	22·80	4	..	17,490	23·45	..	..
19		Cawnpore ..	30,268	29·87	18	·01	34,074	33·04	24	·02
20		Fatehpur ..	16,207	24·60	1	..	13,794	20·99	..	..
21		Allahabad ..	31,218	21·72	202	·14	29,031	20·03	224	·16
22	JHANSI.	Jhansi ..	19,257	33·77	20	·03	19,778	31·90	5	·01
23		Jalaun ..	11,591	33·17	10	·02	11,967	32·00	10	·02
24		Hamirpur ..	12,414	32·20	2	..	12,247	31·14	..	..
25		Banda ..	14,442	24·05	80	·12	14,497	23·73	10	·02
26	BENARES.	Benares ..	27,743	33·06	227	·26	27,800	33·46	54	·06
27		Mirzapur ..	25,986	36·17	93	·13	23,958	33·39	92	·13
28		Jaunpur ..	35,894	31·70	272	·23	35,584	31·49	55	·05
29		Ghazipur ..	21,641	28·50	1,120	1·33	22,199	27·15	95	·11
30		Ballia ..	24,223	29·65	38	·04	24,410	29·53	23	·03
31	GORAKHPUR.	Gorakhpur ..	87,821	27·66	1,049	·33	83,929	26·33	96	·03
32		Basti ..	53,083	20·06	239	·13	52,544	29·51	54	·03
33		Azamgarh ..	43,250	29·48	1,091	·73	42,496	28·88	179	·12
34	KUMAUN.	Naini Tal ..	6,798	36·30	19	·06	6,524	26·41	4	·01
35		Almora ..	16,175	53·37	20	·04	16,104	53·43	2	..
36		Garhwal ..	15,478	58·84	3	·01	13,099	57·52	1	..
37	LUCKNOW.	Lucknow ..	17,386	24·18	11	·01	15,834	20·86	6	·01
38		Unao ..	21,165	23·64	3	..	22,469	24·90	3	..
39		Rae Bareli ..	23,010	22·80	8	·01	19,193	18·95	13	·01
40		Sitapur ..	30,182	26·85	38	·04	30,298	26·75	6	..
41		Hardoi ..	28,639	25·81	97	·09	29,879	26·71	29	·03
42		Kheri ..	23,251	24·80	59	·06	23,870	25·04	9	·01
43	FYZABAD.	Fyzabad ..	27,887	26·60	60	·05	21,913	20·79	58	·05
44		Gonda ..	32,307	23·25	57	·04	29,813	21·70	8	..
45		Bahraich ..	27,701	27·00	182	·17	27,467	27·00	47	·04
46		Sultanpur ..	31,502	30·15	55	·05	31,864	30·42	7	·01
47		Partabgarh ..	18,242	20·52	182	·20	18,634	21·32	181	·21
48		Bara Banki ..	24,364	22·59	24	·02	24,664	22·80	8	·01
		Total ..	1,225,541	27·84	6,354	·13	1,207,318	27·18	1,439	·03
		Total of Dispensary staff.	112	..	..	..	114	..	..	..
		GRAND TOTAL ..	*1,225,694	27·84	6,354	·13	†1,207,457	27·18	1,439	·03

* Includes 41 vaccinations performed by other agencies.
† " 25 " " " " "

vaccinations and number and ratio of deaths from small-pox in each dist rict of the series of 10 years.

1921-22.				1922-23.				1923-24.			
Successful primary vaccinations.	Persons successfully vaccinated per 1,000 of population.	Deaths from small-pox in 1922.	Ratio of deaths from small-pox per 1,000 of population in 1922.	Successful primary vaccinations.	Persons successfully vaccinated per 1,000 of population.	Deaths from small-pox in 1923.	Ratio of deaths from small-pox per 1,000 of population in 1923.	Successful primary vaccinations.	Persons successfully vaccinated per 1,000 of population.	Deaths from small-pox in 1924.	Ratio of deaths from small-pox per 1,000 of population in 1924.
4,438	24·14	..	..	3,765	20·22	3	·01	4,005	26·43	17	·08
27,873	31·24	4	..	29,938	32·73	15	·02	30,497	33·98	60	·06
25,052	31·59	..	..	25,519	32·14	8	·01	26,597	33·56	54	·07
42,434	29·10	1	..	41,771	28·06	18	·01	40,509	27·16	14	·01
35,840	34·23	..	..	35,616	33·85	69	·06	33,781	31·95	11	·01
29,139	28·12	2	..	30,017	28·88	59	·05	30,131	28·90	227	·21
15,678	25·39	1	..	15,685	25·40	16	·02	15,837	25·65	64	·10
23,191	25·32	1	..	24,008	26·23	52	·06	24,581	26·75	246	·27
18,096	24·22	..	..	15,774	22·07	..	..	15,017	20·19	21	·03
22,934	28·27	4	..	23,902	29·47	10	·01	22,569	27·89	19	·02
23,357	23·39	2	..	23,620	23·58	10	·01	24,510	24·44	198	·19
18,753	25·63	4	..	19,232	26·18	2	..	20,834	28·24	40	·05
23,310	27·09	8	·01	25,739	26·47	4	..	23,060	23·85	36	·04
27,279	22·85	3	..	29,049	24·29	19	·01	34,940	29·25	93	·08
20,073	24·15	1	..	19,753	23·96	..	..	20,984	25·12	31	·04
14,193	35·39	2	..	14,395	34·45	..	..	14,308	33·63	19	·04
19,164	23·36	..	..	16,206	20·09	3	..	15,017	18·95	29	·03
16,513	23·89	1	..	16,933	23·81	1	..	17,228	24·33	13	·02
29,303	27·14	1	..	30,294	28·34	4	..	30,724	28·43	158	·14
13,748	21·47	1	..	13,762	21·73	..	..	15,226	23·87	1	..
29,152	21·06	50	·04	29,906	21·86	228	·16	27,758	20·44	221	·16
20,530	34·95	..	..	20,671	34·95	2	..	19,770	33·04	24	·04
13,047	34·03	..	..	12,547	33·25	..	..	13,136	34·09	4	·01
13,839	33·38	1	..	13,690	34·11	1	..	14,686	35·11	..	..
15,203	25·63	1	..	17,286	29·54	9	·01	15,261	26·31	10	·02
25,380	29·40	6	·01	21,128	24·22	7	·01	21,075	23·87	63	·07
21,370	29·80	20	·03	21,344	29·66	31	·04	22,271	30·87	25	·03
35,545	31·49	10	·01	35,962	31·87	17	·01	31,589	27·69	79	·07
13,657	16·60	9	·01	13,485	16·59	2	..	14,361	17·35	5	·01
21,147	25·85	1	..	21,084	25·75	6	·01	20,511	25·37	6	·01
70,990	21·77	34	·01	73,462	22·64	14	..	74,590	22·97	296	·09
45,486	24·21	26	·01	50,252	26·69	1	..	51,221	27·11	62	·03
30,523	20·19	5	..	28,341	18·64	12	·01	27,858	18·17	91	·06
6,126	27·18	12	·04	6,450	27·78	1	..	6,706	26·00	4	·01
14,263	37·77	1	..	13,848	39·47	18	·03	17,409	41·53	18	·03
11,200	46·03	2	..	10,408	40·90	..	..	10,728	37·91	16	·03
14,970	21·55	9	·01	15,634	22·48	15	·02	15,510	23·08	235	·32
20,049	24·59	..	..	18,223	22·45	1	..	17,611	21·96	8	·01
18,264	19·70	2	..	18,803	20·18	45	·05	13,799	14·74	29	·03
24,995	23·08	..	..	28,691	26·38	2	..	30,686	28·19	46	·04
24,968	23·04	..	..	25,243	23·31	7	·01	26,107	24·08	53	·05
20,307	22·38	..	..	22,058	23·08	..	..	23,921	26·42	..	..
17,568	15·74	1	..	20,499	18·49	3	..	22,708	19·56	17	·01
27,038	18·85	3	..	27,292	18·77	3	..	28,025	19·45	9	·01
24,368	23·14	4	..	28,090	27·23	3	..	32,889	31·31	21	·02
32,310	30·11	2	..	32,704	32·60	4	..	33,086	32·97	3	..
17,858	21·41	8	·01	16,261	19·64	19	·02	16,835	19·89	5	..
22,415	21·77	1	..	21,243	20·64	3	..	17,461	16·97	23	·02
1,105,936	25·28	242	·01	1,119,578	25·56	747	·02	1,127,423	25·57	2,724	·06
143	..	..	..	271	..	..	..	179	..	..	..
1,106,079	25·28	242	·01	1,119,849	25·56	747	·02	*1,127,602	25·57	2,724	·06

* In addition 336 successful primary operations were performed by military medical officers in cantonments.

VACCINATION APPENDIX A.—*Showing the number and ratio of successful*
United Provinces for a

Number.	Division.	District.	1924-25. Successful primary vaccinations.	1924-25. Persons successfully vaccinated per 1,000 of population.	1924-25. Deaths from small-pox in 1925.	1924-25. Ratio of deaths from small-pox per 1,000 of population in 1925.	1925-26. Successful primary vaccinations.	1925-26. Persons successfully vaccinated per 1,000 of population.	1925-26. Deaths from small-pox in 1926.	1925-26. Ratio of deaths from small-pox per 1,000 of population in 1926.
1	MEERUT.	Dehra Dun ..	4,066	24·24	44	·21	4,091	33·20	28	·13
2		Saharanpur ..	31,494	35·01	100	·11	31,595	26·02	174	·18
3		Muzaffarnagar ..	27,125	34·18	273	·34	26,285	34·31	124	·16
4		Meerut ..	44,300	29·94	413	·27	43,008	32·23	339	·23
5		Bulandshahr ..	34,499	32·70	370	·35	34,427	32·78	780	·73
6	AGRA.	Aligarh ..	31,160	30·32	991	·93	31,592	32·10	281	·26
7		Muttra ..	15,818	25·96	292	·47	14,171	25·04	114	·18
8		Agra	27,250	29·79	428	·46	28,016	31·97	36	·04
9		Mainpuri ..	15,348	20·82	362	·48	15,197	21·20	112	·15
10		Etah	24,934	31·02	276	·33	24,913	31·51	103	·12
11	ROHILKHAND.	Bareilly ..	24,564	24·80	121	·12	25,594	26·55	165	·16
12		Bijnor ..	21,064	28·56	678	·91	21,871	30·17	432	·58
13		Budaun ..	24,067	24·74	282	·29	27,835	29·56	789	·81
14		Moradabad ..	37,655	31·51	816	·68	38,412	32·41	615	·51
15		Shahjahanpur ..	22,400	27·00	163	·19	23,406	29·54	113	·13
16	ALLAHABAD.	Pilibhit ..	14,830	34·81	98	·23	14,635	36·17	16	·04
17		Farrukhabad ..	18,870	22·56	84	·10	20,941	25·71	506	·59
18		Etawah ..	17,415	24·58	63	·08	17,526	25·48	221	·30
19		Cawnpore ..	31,267	29·78	147	·13	30,898	30·27	127	·11
20		Fatehpur ..	16,437	25·97	2	..	16,834	26·97	67	·10
21		Allahabad ..	30,497	22·29	92	·06	30,070	21·71	327	·23
22	JHANSI.	Jhansi ..	21,156	35·17	106	·17	20,667	34·69	259	·43
23		Jalaun ..	13,578	34·42	5	·01	13,321	35·32	49	·12
24		Hamirpur ..	14,820	35·46	23	·05	13,925	36·00	102	·22
25		Banda ..	15,594	26·62	33	·05	15,150	25·47	85	·14
26	BENARES.	Benares ..	22,002	24·87	67	·07	24,755	(a)28·69	677	·71
27		Mirzapur ..	22,677	31·43	39	·05	23,993	34·38	116	·16
28		Jaunpur ..	28,978	25·48	87	·07	29,525	25·91	257	·22
29		Ghazipur ..	14,161	17·07	46	·05	20,674	(b)25·47	290	·37
30		Ballia ..	19,966	25·19	49	·06	21,822	28·69	421	·51
31	GORAKHPUR.	Gorakhpur ..	79,515	24·53	661	·20	82,155	25·66	615	·19
32		Basti ..	50,271	26·75	89	·05	51,224	26·97	115	·06
33		Azamgarh ..	31,302	20·65	132	·09	35,411	23·80	396	·26
34	KUMAUN.	Naini Tal ..	7,672	35·21	207	·75	7,512	48·83	52	·19
35		Almora ..	19,188	52·35	152	·28	19,019	74·27	135	·25
36		Garhwal ..	14,439	44·43	33	·07	16,872	54·37	29	·06
37	LUCKNOW.	Lucknow ..	15,372	24·51	513	·71	17,961	27·91	341	·47
38		Unao ..	18,734	22·99	116	·14	19,501	24·00	126	·15
39		Rae Bareli ..	14,783	15·83	294	·31	15,781	17·04	334	·36
40		Sitapur ..	28,422	26·10	58	·05	29,361	27·37	71	·06
41		Hardoi ..	26,603	24·55	174	·16	26,499	25·18	327	30
42		Kheri ..	22,718	25·10	35	·04	23,014	26·20	221	·24
43	FYZABAD.	Fyzabad ..	24,015	20·83	105	·09	24,632	21·97	501	·43
44		Gonda ..	29,660	20·45	97	·06	33,466	23·24	320	·22
45		Bahraich ..	32,287	31·00	47	·04	33,340	32·47	145	·14
46		Sultanpur ..	29,835	29·72	57	·06	28,461	28·74	160	·16
47		Partabgarh ..	16,571	19·53	44	·05	17,685	21·29	323	·38
48		Bara Banki ..	20,267	19·70	9	·01	20,985	20·47	84	·08
		Total ..	1,169,656	26·68	9,373	·21	1,207,978	28·59	12,020	·26
		Total of Dispensary staff.	212	..	..	..	295	..	..	..
		GRAND TOTAL ..	*1,169,868	26·68	9,373	·21	†1,208,273	28·60	12,020	·26

*In addition 236 successful primary operations were performed by military medical officers in cantonments.

†In addition 326 successful primary operations were peformed by military medical officers in cantonments.

(a) Rates calculated on average population 913,992
(b) Ditto ditto 819,609

vaccinations and number and ratio of deaths from small-pox in each district of the series of 10 *years*—(concluded).

1926-27.				1927-28.				1928-29.	
Successful primary vaccinations.	Persons successfully vaccinated per 1,000 of population.	Deaths from small-pox in 1927.	Ratio of deaths from small-pox per 1,000 of population in 1927.	Successful primary vaccinations.	Persons successfully vaccinated per 1,000 of population.	Deaths from small-pox in 1928.	Ratio of deaths from small-pox per 1,000 of population in 1928.	Successful primary vaccinations.	Persons successfully vaccinated per 1,000 of population.
4,261	28·16	33	·15	4,378	34·28	58	·27	5,018	31·71
32,224	37·30	143	·15	33,630	38·70	13	·01	33,835	38·06
23,500	30·27	29	·04	25,893	32·72	65	·08	26,724	33·96
39,697	27·46	16	·01	39,854	27·57	101	·07	45,329	32·47
32,919	31·68	62	·06	34,271	32·56	64	·06	35,239	33·85
32,888	32·47	26	·02	32,485	31·84	52	·05	34,311	35·01
14,269	23·82	65	·10	16,711	27·58	12	·02	19,449	32·93
28,482	31·20	28	·03	28,911	31·79	100	·11	30,464	34·45
14,889	20·71	11	·01	15,099	21·01	33	·04	15,753	21·72
24,123	31·86	60	·07	24,374	31·20	25	·03	24,779	31·32
27,186	27·24	131	·13	26,654	26·63	4	..	27,369	27·35
22,497	30·78	138	·19	20,653	27·98	78	·10	21,392	29·08
24,800	26·13	71	·07	26,898	28·14	10	·01	28,908	30·24
37,900	32·24	63	·05	37,904	31·85	3	..	38,893	32·79
22,686	28·51	119	·14	21,640	26·00	5	..	19,853	25·80
14,322	33·95	7	·02	13,711	32·50	1	..	13,925	32·53
20,168	24·19	15	·02	21,754	25·95	5	..	22,226	26·47
18,459	26·12	6	·01	18,422	26·10	17	·02	19,282	27·32
32,275	31·07	38	·03	33,873	30·30	30	·03	34,371	33·21
17,682	27·58	25	·04	17,076	26·60	2	..	17,541	27·26
31,991	23·21	573	·41	31,854	23·07	203	·14	34,024	24·68
20,912	36·09	24	·04	21,712	36·48	20	·03	21,899	36·44
13,636	35·60	3	·01	14,022	35·82	3	·01	14,224	37·04
15,435	36·49	2	..	17,111	44·59	..	..	17,302	39·32
16,017	27·94	73	·12	17,259	29·76	8	·01	16,681	28·89
26,284	30·55	417	·44	30,028	32·60	61	·06	31,534	34·11
25,862	39·75	486	·67	25,759	39·98	155	·21	27,822	41·38
30,177	27·46	261	·22	29,647	27·46	216	·19	31,937	28·38
18,785	25·22	535	·68	18,295	26·10	203	·26	18,098	26·29
24,363	30·12	221	·26	23,981	29·61	102	·12	25,027	30·99
83,052	25·77	1,204	·37	113,487	35·06	207	·06	115,298	35·55
51,266	27·06	342	·18	50,840	26·62	24	·01	50,848	26·62
35,975	24·46	1,027	·67	38,450	25·61	600	·39	38,515	25·60
7,477	40·41	14	·05	7,182	27·69	4	·01	7,374	33·71
16,999	51·62	47	·09	18,464	47·22	43	·08	20,852	49·88
15,592	53·61	39	·08	14,802	56·13	43	·09	16,679	57·85
20,808	31·10	205	·28	20,209	29·35	184	·25	21,217	30·36
20,155	24·80	84	·10	21,584	26·54	8	·01	22,796	27·93
17,558	18·80	28	·03	20,309	21·70	18	·02	29,105	31·14
28,554	26·55	83	·08	29,581	27·31	20	·02	30,249	27·99
24,977	23·12	47	·04	27,109	25·06	17	·01	28,740	26·52
19,932	22·65	50	·05	23,161	25·83	7	·01	22,852	25·37
29,621	25·98	503	·43	28,956	25·73	67	·06	28,754	25·53
33,836	23·70	80	·05	34,062	23·42	7	..	37,794	25·89
33,502	32·88	207	·19	35,869	34·28	8	·01	36,628	35·41
29,945	30·06	122	·12	31,179	31·24	10	·01	32,690	32·68
20,076	24·31	106	·12	21,672	25·98	84	·10	22,338	26·70
21,513	20·98	25	·02	21,550	20·98	9	·01	26,611	25·93
1,219,527	28·42	7,894	·17	1,282,325	29·45	3,012	·07	1,342,549	30·89
452	..	..	..	180	..	..	..	167	..
*1,219,979	28·44	7,894	·17	†1,282,505	29·46	3,012	·07	‡1,342,716	30·90

* In addition 426 successful primary operations were performed by military medical officers in cantonments.
† " 1,055 " " " " " " " " " " "
‡ " 820 " " " " " " " " " " "

VACCINATION APPENDIX B.—*Showing the number of vaccinations performed in the municipal towns of the United Provinces on children under one year of age during the year* 1928-29.

Serial number.	District.	Municipality.	Number of births during 1928.	Number of deaths amongst children under one year during 1928.	Number of successful vaccinations on children under one year during the year ending March 31, 1929.	Date of extension of vaccination Act to the municipality.
1	2	3	4	5	6	7
1	Dehra Dun ..	Dehra Dun ..	1,293	275	545	May 14, 1891.
2		Mussoorie ..	194	58	165	Ditto.
3	Saharanpur ..	Saharanpur ..	3,543	999	1,349	April 28, 1892.
4		Hardwar Union ..	1,250	366	969	April 5, 1892.
5		Deoband ..	1,130	274	652	June 7, 1894.
6		Roorkee ..	545	127	314	August 7, 1891.
7	Muzaffarnagar ..	Muzaffarnagar ..	1,114	234	642	December 21, 1892.
8		Kairana ..	872	180	533	June 7, 1894.
9	Meerut ..	Meerut ..	2,887	492	2,125	March 12, 1891.
10		Ghaziabad ..	584	79	331	June 7, 1893.
11		Hapur ..	1,149	274	627	October 16, 1894.
12		Baraut ..	359	62	268	March 5, 1924.
13	Bulandshahr ..	Bulandshahr ..	931	234	490	July 16, 1891.
14		Khurja ..	1,429	365	865	June 28, 1894.
15		Sikandrabad ..	999	228	659	April 16, 1894.
16	Aligarh ..	Koil ..	3,378	927	2,508	November 24, 1891.
17		Hathras ..	2,155	561	1,498	May 4, 1894.
18		Atrauli ..	767	169	582	December 21, 1892.
19		Sikandra Rao ..	550	137	332	Ditto.
20	Muttra ..	Muttra ..	2,903	672	1,884	October 5, 1891.
21		Brindaban ..	643	130	868	August 6, 1891.
22	Agra ..	Agra ..	11,175	2,405	3,817	June 5, 1891.
23		Firozabad ..	937	246	622	Ditto.
24	Mainpuri ..	Mainpuri ..	315	62	220	June 15, 1891.
25	Etah ..	Etah ..	472	133	244	May 6, 1891.
26		Soron ..	574	194	376	Ditto.
27		Kasganj ..	892	200	701	Ditto.
28		Jalesar ..	697	150	405	Ditto.
29	Bareilly ..	Bareilly ..	4,313	784	2,940	August 17, 1891.
30	Bijnor ..	Bijnor ..	1,058	229	547	July 3, 1891.
31		Chandpur ..	703	129	504	July 6, 1891.
32		Dhampur ..	462	116	300	April 16, 1894.
33		Nagina ..	999	259	576	July 6, 1891.
34		Najibabad ..	991	235	663	Ditto.
35	Budaun ..	Budaun ..	2,063	564	1,251	July 29, 1892.
36		Ujhani ..	454	76	323	July 1, 1891.
37		Sahaswan ..	939	244	532	July 3, 1891.
38	Moradabad ..	Moradabad ..	4,901	1,201	3,011	December 19, 1892.
39		Chandausi ..	1,317	349	678	March 9, 1893.
40		Amroha ..	2,203	420	969	Ditto.
41		Sambhal ..	2,287	493	1,292	April 1, 1893.
42	Shahjahanpur ..	Shahjahanpur ..	2,918	771	1,267	September 14, 1891.
43		Tilhar ..	985	313	497	January 2, 1892.
44	Pilibhit ..	Pilibhit ..	1,792	516	821	July 9, 1891.
45		Bisalpur ..	498	167	185	April 25, 1892.
46	Farrukhabad ..	Farrukhabad cum-Fatehgarh.	2,409	726	1,126	June 5, 1891.
47		Kanauj ..	786	192	403	September 16, 1921.
48	Etawah ..	Etawah ..	2,441	926	1,502	November 15, 1889.
49	Cawnpore ..	Cawnpore ..	7,697	2,955	5,514	August 1, 1888, December 11, 1888 and August 7, 1891.
50	Fatehpur ..	Fatehpur ..	810	182	535	June 4, 1891.
51	Allahabad ..	Allahabad ..	7,175	1,680	3,410	May 2, 1891.

VACCINATION APPENDIX B.—*Showing the number of vaccinations performed in the municipal towns of the United Provinces on children under one year of age during the year* 1928-29—(concluded).

Serial number.	District.	Municipality.	Number of births during 1928.	Number of deaths amongst children under one year during 1928.	Number of successful vaccinations on children under one year during the year ending March 31, 1929.	Date of extension of Vaccination Act to the municipality.
1	2	3	4	5	6	7
52	Jhansi ..	Jhansi ..	3,200	1,109	1,559	July 1, 1891.
53		Mau ..	700	214	502	May 5, 1892.
54		Lalitpur ..	616	175	444	May 24, 1894.
55	Jalaun ..	Orai ..	554	107	380	July 22, 1891.
56		Kalpi ..	516	145	356	December 5, 1892.
57		Konch ..	787	169	601	May 14, 1891.
58	Banda ..	Banda ..	563	100	515	March 24, 1893.
59	Benares ..	Benares ..	10,731	2,816	3,502	April 10, 1891.
60	Mirzapur ..	Mirzapur-Bindhachal	2,918	620	1,966	October 9, 1891.
61	Jaunpur ..	Jaunpur ..	937	178	906	February 26, 1892.
62	Ghazipur ..	Ghazipur ..	703	118	551	May 4, 1893.
63	Ballia ..	Ballia ..	454	54	367	May 6, 1891.
64	Gorakhpur ..	Gorakhpur ..	2,745	594	1,330	January 18, 1893.
65	Azamgarh ..	Azamgarh ..	524	92	255	February 8, 1893.
66	Naini Tal ..	Naini Tal ..	311	70	114	June 1, 1891.
67		Kashipur ..	411	104	248	May 5, 1894.
68	Almora ..	Almora ..	292	50	159	March 9, 1893.
69	Lucknow ..	Lucknow ..	11,270	3,397	5,089	February 4, 1893.
70	Unao ..	Unao ..	468	126	228	March 13, 1890.
71	Rae Bareli ..	Rae Bareli ..	758	195	395	June 1, 1891.
72	Sitapur ..	Sitapur ..	952	261	486	July 27, 1891.
73		Khairabad ..	614	130	345	April 12, 1892.
74	Hardoi ..	Hardoi ..	490	107	246	March 26, 1891.
75		Sahabad ..	761	166	427	March 17, 1892.
76		Sandila ..	784	224	528	January 2, 1892.
77	Kheri ..	Lakhimpur ..	285	46	331	June 1, 1891.
78	Fyzabad ..	Fyzabad-Ajodhya ..	1,521	474	1,062	June 11, 1891.
79		Tanda ..	920	221	355	July 18, 1891.
80	Gonda ..	Gonda ..	427	81	373	June 25, 1891.
81		Balrampur ..	702	165	535	Ditto.
82	Bahraich ..	Bahraich ..	1,184	256	634	December 5, 1892.
83	Sultanpur ..	Sultanpur ..	333	72	222	November 11, 1884.
84	Partabgarh ..	Bela ..	261	46	235	June 1, 1891.
85	Bara Banki ..	Nawabganj ..	390	84	261	December 2, 1889.
		Total ..	143,020	36,586	78,444	